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Chevron Environmental Management Company

# GROUNDWATER MONITORING REPORT - FIRST HALF 2020

## Purity Oil Sales Superfund Site

3281 South Maple Avenue, Malaga, California

April 30, 2020

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April 30, 2020

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# CONTENTS

Acronyms and Abbreviations ..... iv
1 Introduction ..... 1
1.1 Report Organization ..... 4
2 Site Background ..... 5
2.1 Site Description ..... 5
2.2 Site Hydrogeology ..... 5
2.3 Low-Flow Purge Pump Installation ..... 5
3 Data collection and quality ..... 7
3.1 Data Quality Review ..... 7
3.1.1 Field Quality Assurance / Quality Control ..... 7
3.1.2 Trip and Equipment Blanks ..... 7
3.1.3 Field Duplicates ..... 8
3.1.4 Laboratory QA/QC ..... 8
4 Groundwater Monitoring and Sampling Activities ..... 9
4.1 Analytical Program ..... 9
5 Groundwater monitoring results ..... 10
5.1 Groundwater Elevation and Flow ..... 10
5.1.1 Shallow Interval ..... 10
5.1.2 Shallow and Intermediate Intervals ..... 10
5.1.3 Deep Interval ..... 10
6 Groundwater analytical results ..... 11
6.1 Volatile Organic Compounds ..... 11
6.1.1 VOC Trends ..... 12
6.2 Metals ..... 12
6.3 pH ..... 13
7 Conclusions ..... 14

# TABLES

Table 1. Well Screen Interval Information

Table 2. Summary of Groundwater Analysis

Table 3. Field QC Analytical Results

Table 4. Field Duplicate Analytical Results

Table 5. Summary of Groundwater Monitoring Activities

Table 6. Groundwater Field Parameters

Table 7. Depth to Water and Groundwater Elevation Data

Table 8. Historical Depth to Water and Groundwater Elevations

Table 9. Targeted VOC and Metal Analytical Data

Table 10. Historical Concentrations of Targeted VOCs and Metals

Table 11. Historical pH Field Measurements

Table 12. Monitored Natural Attenuation Parameters

# FIGURES

Figure 1. Site Location Map

Figure 2. Well Location Map

Figure 3. Groundwater Elevation Contour Map - Shallow and Intermediate Interval - January 28, 2020

Figure 4. Groundwater Elevation Contour Map - Deep Interval - January 28, 2020

Figure 5. Benzene in Groundwater - January 30, 2020

Figure 6. Trichloroethene in Groundwater - January 30, 2020

Figure 7. 1,1-Dichloroethane in Groundwater - January 30, 2020

Figure 8. 1,2-Dichloroethane in Groundwater - January 30, 2020

Figure 9. 1,1-Dechloroethene in Groundwater - January 30, 2020

Figure 10. Cis-1,2-Dichloroethene in Groundwater - January 30, 2020

Figure 11. Trans-1,2-Dichloroethene in Groundwater - January 30, 2020

Figure 12. Vinyl Chloride in Groundwater - January 30, 2020

Figure 13. Dissolved Iron in Groundwater - January 30, 2020

Figure 14. Dissolved Manganese in Groundwater - January 30, 2020

Figure 15. Dissolved Arsenic in Groundwater - January 30, 2020

# APPENDICES

Appendix A - Agency Correspondence

Appendix B - Sampling and Analysis Plan

Appendix C - Field Data Sheets

Appendix D - Laboratory Analytical Reports

Appendix E - Arcadis Data Review Report

Appendix F - Hydrographs and VOC Trend Charts

# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| µg/L | micrograms per liter |
| 1,1-DCA | 1,1-dichloroethane |
| 1,2-DCA | 1,2-dichloroethane |
| 1,1-DCE | 1,1-dichloroethene |
| amsl | above mean seal level |
| Arcadis | Arcadis U.S. Inc. |
| bgs | below ground surface |
| BTOC | below top of casing |
| CEMC | Chevron Environmental Management Company |
| Cis-1,2-DCE | Cis-1,2-dichloroethene |
| $CO_2$ | carbon dioxide |
| CUG | Cleanup Goal |
| DI | de-ionized |
| DO | dissolved oxygen |
| DQO | Data Quality Objective |
| EC | electrical conductivity |
| Eurofins | Eurofins Lancaster Laboratories |
| FSP | Field Sampling Plan |
| ft/ft | feet per foot |
| MCLs | Maximum Contamination Levels |
| MDL | Method Detection Limit |
| Ml | milliliter |
| MNA | Monitored Natural Attenuation |
| MS/MSD | Matrix Spike and Matric Spike Duplicate |
| ORP | oxygen reduction potential |
| OUs | Operable Units |
| QAAP | Quality Assurance Project Plan |
| QA | Quality Assurance |
| QC | Quality Control |

| | |
|---|---|
| RGs | Remedial Goals |
| ROD | Record of Decision |
| RPD | Relative Percent Difference |
| SECOR | SECOR International Incorporated |
| TOC | top of casing |
| Trans-1,2-DCE | Trans-1,2-dichloroethene |
| USEPA | United States Environmental Protection Agency |
| VC | Vinyl Chloride |
| VOA | Volatile Organic Analysis |
| VOCs | Volatile Organic Compounds |

# 1 INTRODUCTION

On behalf of Chevron Environmental Management Company (CEMC), Arcadis U.S. Inc. (Arcadis), has prepared this Groundwater Monitoring Report – First Half 2020 for the Purity Oil Sales Superfund Site (Site) located at 3281 South Maple Avenue in Malaga, California (**Figure 1**). On July 1, 2019, environmental management of the Site was transferred from Stantec to Arcadis.

The United States Environmental Protection Agency (USEPA) is currently addressing remediation of the Site with the designation of two Operable Units (OUs): OU-1 Groundwater and Tanks, and OU-2 Soil Remediation.

Groundwater monitoring is performed at the Site as part of the Operable Unit 1 (OU-1) Record of Decision (ROD) Amendment dated September 27, 2012. The groundwater monitoring program consists of depth to water level measurements and water quality data collection. The first half 2020 groundwater monitoring activities were conducted on January 28 through 30, 2020.

Groundwater contaminants of concern requiring remediation under the Record of Decision (ROD) Amendment include selected volatile organic compounds (VOCs), arsenic, iron, and manganese. The selected VOCs and arsenic are known carcinogens and their cleanup standards correspond to the primary maximum contamination levels (MCLs).

The targeted VOCs include:

- benzene;
- 1,1-dichloroethane (1,1-DCA);
- 1,2-dichloroethane (1,2-DCA);
- 1,1-dichloroethene (1,1-DCE);
- cis-1,2-dichloroethene (cis-1,2-DCE);
- trans-1,2-dichloroethene (trans-1,2-DCE);
- carbon tetrachloride;
- trichloroethene (TCE); and
- vinyl chloride (VC).

The ROD Amendment contains remedial goals (RGs) or cleanup standards that correspond to the primary MCLs for the VOCs and arsenic.

The RGs for iron and manganese, naturally occurring metals, were derived from secondary MCLs on Table 2 of the OU-1 ROD Amendment. Secondary MCLs are generally considered to be taste and odor threshold values associated with nuisance conditions and are not generally enforced by the USEPA.

The groundwater monitoring network was modified based on the *Purity Oil Sales Superfund Site, Proposed Modifications to the Current Groundwater Monitoring Program* letter by CEMC, dated August 10, 2012 and was modified and approved by the USEPA letter, *Proposed Changes to Current OU-1 Groundwater Monitoring Program, OU-1 Remedial Design and Remedial Action Work Plan*, dated June 12, 2015. A copy of the CEMC letter and USEPA approval letter is provided as **Appendix A**.

The groundwater monitoring program was developed to meet the monitored natural attenuation (MNA) performance monitoring objectives program for OU-1 groundwater; specifically:

- Verify that concentrations of each contaminant of concern and other constituents currently exceeding the respective cleanup goal (CUG) identified in the ROD decline with time at a rate such that CUGs will be achieved for groundwater beneath the Site within reasonable timeframes.
- Verify that lateral and vertical migration of contaminants of concern and other constituents at concentrations greater than groundwater CUGs does not extend beyond the current area of impact.

The revised groundwater monitoring program removed numerous wells from the network that were no longer needed or had gone dry due to the declining water table. The revised groundwater sampling program was implemented during the second half 2015 semi-annual groundwater monitoring event and is summarized below in Table A.

Table A: Groundwater Sampling Program

| Well | Well Gauging | VOCs | Arsenic | Iron | Manganese | MNA |
|---|---|---|---|---|---|---|
| Shallow Wells | | | | | | |
| MW-43 | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q |
| MW-44S | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q |
| MW-45 | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q |
| MW-46 | 1Q/3Q | 1Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q |
| MW-47 | 1Q/3Q | 1Q | NS | NS | NS | NS |
| MW-48S | 1Q/3Q | 1Q | NS | NS | NS | 1Q |
| MW-49 | 1Q/3Q | 1Q | NS | NS | NS | 1Q |
| MW-54 | 1Q/3Q | NS | 1Q | 1Q | 1Q | 1Q |
| PT-3A | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q |
| Shallow to Intermediate Wells | | | | | | |
| MW-9 | 1Q/3Q | 1Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q |
| MW-11SP | 1Q/3Q | 1Q/3Q | NS | NS | NS | 1Q |
| MW-11IP | 1Q/3Q | 1Q/3Q | NS | NS | NS | 1Q |
| MW-13 | 1Q/3Q | 1Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q |
| MW-21 | Well Permanently Damaged | | | | | |
| MW-50 | 1Q/3Q | 1Q | NS | NS | NS | NS |
| MW-51 | 1Q/3Q | 1Q | NS | NS | NS | NS |
| MW-52 | 1Q/3Q | 1Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q |
| MW-53 | 1Q/3Q | 1Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q |
| Intermediate Wells | | | | | | |
| MW-23 | 1Q/3Q | 1Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q |
| MW-24I | 1Q/3Q | 1Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q |
| MW-25I | 1Q/3Q | 1Q | NS | NS | NS | 1Q |
| MW-34I | 1Q/3Q | 1Q | NS | NS | NS | NS |
| MW-44I | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q |
| MW-48I | 1Q/3Q | 1Q | NS | NS | NS | 1Q |
| Deep Wells | | | | | | |
| MW-2D | 1Q/3Q | NS | 1Q | 1Q | 1Q | 1Q |
| MW-44D | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q |
| MW-48D | 1Q/3Q | 1Q | 1Q/3Q | 1Q/3Q | 1Q/3Q | 1Q |

1Q = Performed during first quarter NS = Not Sampled

3Q – Performed during third quarter

MNA = Monitored Natural Attenuation Parameters

## 1.1 Report Organization

The first half 2020 semi-annual/annual groundwater monitoring activities and results are presented in the following sections:

- Section 2 – Site Background
- Section 3 – Data Collection and Quality
- Section 4 – Groundwater Monitoring and Sampling Activities
- Section 5 – Groundwater Monitoring Results
- Section 6 – Groundwater Analytical Results
- Section 7 – Conclusions

# 2 SITE BACKGROUND

## 2.1 Site Description

The Site is a former used oil-recycling facility located at 3281 South Maple Avenue in Malaga, California within an unincorporated portion of Fresno County (**Figure 1**). The Site is located approximately 1 mile south of Fresno, California, and covers approximately 7 acres in an area zoned for heavy industrial use.

The industrial activity in the area includes agricultural support industries, heavy equipment rentals, repair shops, a former cotton oil facility, scrap yards, several trucking yards, and various light industries. Directly adjacent to the Purity Oil Sales Site are two junk yards, the Burlington Northern Santa Fe Railroad (formerly the Atchison, Topeka, and Santa Fe Railroad Company) right-of-way, the former Golden State Market site, and a trucking company.

The North Central Canal flows westward along the southern edge of the Purity Oil Sales property and traverses the southwestern corner. The North Central Canal has been placed within a concrete culvert near the Site and is operated and maintained by the Fresno Irrigation District.

## 2.2 Site Hydrogeology

The Site is located in the San Joaquin River basin and consists of unconsolidated floodplain and alluvial deposits formed by the San Joaquin and Kings Rivers. The soils at the Site are described as poorly graded sands and silty sands. A partially lithified silt layer is encountered at a depth of 10 to 20 feet below ground surface (bgs) over most of the Site.

Three water-bearing intervals have been described:

- Shallow interval, groundwater approximately 70 to 80 feet bgs (220 to 210 feet above mean seal level [amsl]).
- Intermediate interval, groundwater approximately 80 to 115 feet bgs (210 to 175 feet amsl); and
- Deep interval, groundwater at depths greater than 115 feet bgs (deeper than 175 feet amsl).

Previous aquifer testing indicated that even though the aquifer contains identifiable intervals, these intervals appear to act as one hydrostratigraphic unit with varying degrees of permeability (Stantec, 2019).

## 2.3 Low-Flow Purge Pump Installation

Stantec installed low-flow purge pumps in select monitoring wells in 2002 and 2010. A summary of their low-flow pump installation activities is provided below.

Between September 3 and 11, 2002, nineteen (19) on- and off-site monitoring wells were equipped with dedicated QED Environmental Systems (QED) Well Wizard™ bladder pumps to conduct MicroPurge® (minimal-drawdown) groundwater sampling. The bladder pumps were installed in the saturated screened interval. After the installation of the replacement wells, QED Well Wizard™ bladder pumps were installed in wells MW-24I, MW-25I, MW-42, MW-43, MW-44S, MW-44I, MW-44D, MW-45, MW-46, MW-47, MW-48S, MW-48I, MW-48D, and MW-49 between April 22 and 25, 2008. Additionally, after the

installation of the replacement wells MW-50 through MW 54 in December 2009, QED Well Wizard™ bladder pumps were installed in the wells in January 2010. For the wells installed in 2008 and 2009, the bladder pumps were positioned with the inlet located within the saturated screened interval and placed within the bottom 1-foot of the well screen.

In addition to the five replacement monitoring wells (MW-50 through MW-54) being equipped with dedicated QED bladder pumps, an additional bladder pump was installed in well MW-11. Measurements taken with a downhole camera in April 2003 determined the total depth of the well to the silt filled level was 88.21 feet below the top of casing (BTOC). The existing screened interval is from 60 to 88 feet BTOC. The original bladder pump, installed in 2003, was set at 73.0 feet BTOC (217.6 feet amsl) to monitor the shallow aquifer. A new bladder pump was installed at 87.2 feet BTOC (203.4 feet amsl) to monitor the intermediate aquifer. The new bladder pump was positioned with its inlet located within the saturated screened interval and placed approximately 1 foot from the bottom of the well screen. The individual sample points within well MW-11 are identified as MW-11SP and MW-11IP. Based on the turbid water sample obtained from MW-11IP during the first quarter 2010 sampling event on February 18, 2010, well MW-11 was re-developed on March 22, 2010. A review of the previous monitoring well installation log indicated the well screen slot size is 0.40 inches with a coarse sand pack around the screen. As a result of the well construction, silting conditions will continue in this well. The lower bladder pump was raised an additional foot off the bottom of the well to 86.2 feet BTOC (204.4 feet amsl) to minimize the silting effects on the water samples, provide more representative samples of groundwater quality in this zone, and prolong the operational life of the bladder pump.

Due to declining water levels, the bladder pumps in wells MW-11SP and MW-13 were modified in January 2014. A section of Teflon-lined polyethylene tubing was added to the bladder pump tubing to lower the pumps into the shallow aquifer. Water levels continued to decline; and therefore, prior to the second half 2014 sampling event, Stantec modified the bladder pump depths in wells MW-9, MW-11SP, MW-13, and MW-21. The bladder pumps in wells MW-9, MW-13, and MW 21 were all extended to approximately the bottom of the well screens. The bladder pump in well MW-11SP was extended an additional 30 inches prior to the second half 2014 sampling event.

The bladder pump rates were pre-tested to allow a stabilized drawdown. Pump placement and screen intervals are summarized in **Table 1** and the locations of groundwater monitoring wells is shown on **Figure 2**. The dedicated down-hole equipment (bladder pumps, Teflon-lined polyethylene tubing, and well seals) are designed to achieve optimum sampling conditions with minimal drawdown of the water level.

# 3 DATA COLLECTION AND QUALITY

A revised Sampling and Analysis Plan (SAP) for OU-1 was prepared by SECOR International Incorporated (SECOR) and submitted to the USEPA in May 2005. The SAP is comprised of a Field Sampling Plan (FSP) and a Quality Assurance Project Plan (QAPP). The SAP delineates the criteria and methods to define and control chemical quality to assure accurate, precise, representative, complete, legally defensible, and comparable data. A copy of the SAP is provided as **Appendix B**.

Arcadis performed data collection and evaluation for the first half 2020 monitoring event pursuant to the applicable sections of the SAP with the following exceptions.

- All samples collected for metal analysis were filtered in the field rather than at the laboratory. Field filtering was performed as described in Section 5.5.6 of the SAP.
- The sample identification number system did not include a number corresponding to the current consecutive monitoring event.

## 3.1 Data Quality Review

Quality assurance (QA) and Quality Control (QC) measures were followed in all aspects of field procedures, field-related QC sample results, and QC data accumulated at the laboratory. Additionally, the analytical results were reviewed with the Data Quality Objective (DQO) Level II requirements described in the QAPP (**Appendix B**). These protocols were used to ensure the acceptability of the analytical data to assess groundwater quality at and around the Site.

The first half 2020 groundwater sampling event included four QC samples. The QC samples included one equipment blank, one trip blank, one field duplicate sample, and one set of matrix spike and matrix spike duplicate (MS/MSD) samples (**Table 2**). Field data sheets are provided as **Appendix C**. The proper frequency of QC samples collected was met during the first half 2020 sampling event.

The conclusion of the data review indicates that the reported groundwater analytical data are acceptable and can be used to evaluate groundwater quality. The certified analytical reports and Type I Data Package are included in **Appendix D** and a copy of the Data Review Report is provided as **Appendix E**.

### 3.1.1 Field Quality Assurance / Quality Control

All accumulated field data (**Appendix C**) was evaluated for completeness and accuracy. No omissions or anomalies were identified. All holding times were met.

Field QC data consisted of one trip blank, one equipment blank, and one field duplicate samples. The trip blank and equipment blank samples were analyzed for VOCs only. The field duplicate sample was analyzed for all constituents as the primary sample. Results of the QC data suggest that field conditions and procedures did not adversely affect analytical data quality.

### 3.1.2 Trip and Equipment Blanks

One trip blank was collected (TB01302020) (**Table 2**). A sealed 40-milliliter (ml) volatile organic analysis (VOA) vial trip blank was filled and prepared with de-ionized (DI) water at the laboratory and shipped unopened with the field samples. The trip blank was analyzed for VOCs upon return to the laboratory.

The trip blank reported no detections at or above the Method Detection Limit (MDL) for ROD targeted VOCs.

One equipment blank was collected (EB01302020) (**Table 2**). The DI water provided by the laboratory was supplied in a sealed, one-gallon container intended specifically for equipment blank collection. The DI water was rinsed over any equipment used where potential contaminants could be transferred from one well to another. During the first half 2019, the water level indicator was the only equipment that was used down-well. The equipment blank showed no detections at or above the MDL for ROD targeted VOCs.

The Trip Blank and Equipment Blank analytical results are summarized on **Table 3**. A copy of the analytical report is provided as **Appendix D**.

### 3.1.3 Field Duplicates

One duplicate sample (DUP1) was collected from monitoring well MW-44I for VOC and metal analyses (dissolved iron, manganese, and arsenic) during the first half 2020 sampling event. The duplicate sample had no detections of target VOCs above the ROD/MCL/RG.

Manganese and arsenic were detected in DUP1 sample above their respective MDL, but were below their respective ROD/MCL/RG concentration (**Table 3**). No iron was detected at or above the MDL in DUP1. Only manganese and arsenic were detected in both the primary and duplicate samples. For manganese and arsenic, the relative percent difference (RPD) between the primary and duplicate samples were 0.0 and 21.1 percent, respectively (**Table 4**). RPD is considered significant at 20 percent or higher.

### 3.1.4 Laboratory QA/QC

Analytical QA/QC limits were evaluated regarding instrument performance, surrogate recovery, laboratory control samples, and MS/MSDs. Failure to meet specifications resulted in sample results being flagged with data qualifiers. Where analytes were detected in the method blanks, sample results have been flagged with data qualifiers or negated using USEPA guidelines.

The analytical data presented in the first half 2020 sampling event is usable and valid with the data qualifiers discussed in this report. The Type I Data Package and Arcadis Data Review Report are provided in **Appendix D** and **E**, respectively.

# 4 GROUNDWATER MONITORING AND SAMPLING ACTIVITIES

Arcadis performed groundwater monitoring and sampling activities on January 28 through 30 (**Table 5**). Field activities included measurements of depth-to-groundwater in the monitoring wells, low flow purging, measurement and recording of water quality field parameters, equipment decontamination and sample collection.

Prior to purging a well, the static depth-to-groundwater was measured and documented. The wells to be purged/sampled are equipped with dedicated QED well Wizard™ bladder pumps manufactured by QED Environmental Systems, Inc. The bladder pumps are connected with twin bonded Teflon-lined polyethylene tubing to the well cap. During purging/sampling activities, compressed nitrogen was fed down one line of the Teflon-lined polyethylene tubing which drives the bladder pump to force discharge water out through the discharge line. Flexible discharge adapter tubing made of Tygon 2275 High Purity tubing is connected to the well cap and allows the discharged water to flow to the in-line flow cell during the purging of the well. Once the well is purged, the in-line flow cell is disconnected, and the tubing is used to discharge directly into the laboratory sample containers.

The nitrogen pressure is regulated by a QED MicroPurge® sample pump controller and was adjusted according to the sample intake depth of the pump. Nitrogen refill and discharge times for each individual pump were optimized and programmed to achieve minimal groundwater drawdown. Once the optimum pump flow rate was established and groundwater drawdown stabilized, field measurements including pH, temperature, electrical conductivity (EC), oxygen reduction potential (ORP), and dissolved oxygen (DO) were collected using a YSI 556 in-line flow cell. Turbidity measurements were collected using a HACH 2100P turbidity meter. Measurements were taken every three to five minutes and recorded on field data sheets until consecutive pH, EC, and turbidity or DO measurements were relatively stable. Once the field measurements stabilized, sample collection was initiated. Field parameters are summarized on **Table 6**. Field data sheets from the first half 2020 monitoring event are provided as **Appendix C**.

Once the samples were collected, their respective containers were securely sealed. Labels denoting the company, project name, sampling location, time, date, and analyses required were affixed to each container. The samples were then appropriately packaged using bubble wrap and sealable plastic bags. Samples were placed on ice in chilled coolers and shipped to Eurofins Lancaster Laboratories Environmental (Eurofins), a California state-certified laboratory, under chain-of-custody record and procedures. A copy of the chain-of-custody documentation is provided in **Appendix D**.

## 4.1 Analytical Program

**Table 2** summarizes the analyses performed for the first half 2020 monitoring event. The analyses performed by Eurofins for select groundwater samples are as follows:

- VOCs using USEPA SW-846, Method 8260B
- Dissolved iron and manganese using Inductively Coupled Plasma; USEPA SW-846, Method 6010B
- Dissolved arsenic using Inductively Coupled Plasma Mass Spectrometry; USEPA SW-846, Method 6020

- Nitrate, sulfate, and chloride using USEPA Method 300.0
- Alkalinity using SM 2320B-1997
- Total organic carbon using SM 5310 C-2000
- Carbon dioxide ($CO_2$), methane, ethane, and ethene using USEPA SW-846 8015B modified

# 5 GROUNDWATER MONITORING RESULTS

## 5.1 Groundwater Elevation and Flow

On January 28, 2020, Arcadis attempted to measure depth-to-groundwater in the 26 program monitoring wells (**Table 5**). Groundwater levels measured in eight of these wells were determined to be residual water in the well plug based on a comparison of the measured depth to water and the well construction details. Well MW-21 was backfilled to approximately 4 feet bgs and has been permanently damaged (Stantec 2019) and cannot be monitored or sampled. Groundwater elevations were calculated by subtracting the depth-to-water measurements from the surveyed top of casing (TOC) elevations. A summary of the depth-to-groundwater measurements and calculated groundwater elevations are summarized on **Table 7**.

Production wells MW-26P, MW-28P, MW-29P, MW-31P through MW-33P, and monitoring wells MW-34D, MW-39 through MW-42, were removed from the groundwater monitoring program in 2015. All historical depth-to-groundwater and calculated groundwater elevation data is summarized on **Table 8**.

### 5.1.1 Shallow Interval

Due to declining water levels, water levels measured in all shallow wells MW-43, MW-44S, MW-45, MW-46, MW-47, MW-48S, MW-49, MW-54, PT-3A were either dry or determined to be residual water in the well plug, and therefore considered dry.

### 5.1.2 Shallow and Intermediate Intervals

Depth-to-water was measured in wells MW-11IP, MW-13, MW-23, MW-24I, MW-25I, MW-34I, MW-44I, and MW-48I. Groundwater elevations calculated at these wells ranged from 206.77 (MW-34I) to 210.42 (MW-44I) feet above mean seal level (ft amsl). Due to declining water levels, water levels, in monitoring wells MW-9, MW-13, and MW-50 through MW-53 were either dry or determined to be residual water in the well plug, and therefore considered dry. A groundwater contour map for the shallow/ intermediate interval is shown on **Figure 3**. The groundwater flow direction was calculated to the northwest at a gradient of 0.013 feet per foot (ft/ft). The flow direction and gradient are consistent with previous monitoring events.

### 5.1.3 Deep Interval

Depth-to-water was measured in MW-2D, MW-44D, and MW-48D. Groundwater elevations ranged from 209.49 (MW-48D) to 211.21 (MW-2D) ft amsl. A groundwater contour map for the deep interval is shown on **Figure 4**. The groundwater flow direction was calculated to the northwest at a gradient of 0.0016 ft/ft. The flow direction and gradient are consistent with previous monitoring events.

# 6 GROUNDWATER ANALYTICAL RESULTS

Groundwater samples were collected from shallow to intermediate interval well MW-11IP; intermediate wells MW-23, MW-24I, MW-25I, MW-34I, MW-44I and MW-48I; and deep interval wells MW-2D, MW-44D and MW-48D. Select groundwater samples were analyzed for VOCs, dissolved iron, manganese, arsenic, and MNA parameters; consisting of nitrate, sulfate, chloride, alkalinity, total organic carbon, $CO_2$, methane, ethane, and ethene (**Table 2**). The targeted VOCs and metal analytical data for the first half 2020 is presented on **Table 9** (excluding carbon tetrachloride). MNA parameter analytical data is presented on **Table 12**. QC samples, such as duplicates, were discussed in Section 3. All available historical analytical data for the target ROD compounds (excluding carbon tetrachloride) is presented on **Table 10.** Laboratory analytical reports are included as **Appendix D**.

## 6.1 Volatile Organic Compounds

Wells MW-11IP, MW-44I, MW-23, MW-24I, MW-25I, MW-34I, MW-44I, MW-48I, MW-44D and MW-48D were sampled and analyzed for VOCs. No targeted VOCs were detected above their respective MDL in any of the sampled wells during the first half 2020 groundwater monitoring event. A summary of the analytical results is presented below as Table B and graphically on **Figures 5** through **12**.

Table B: VOC Groundwater Analytical Data – First Half 2020

| Well ID | Benzene (µg/L) | 1,1-DCA (µg/L) | 1,2-DCA (µg/L) | 1,1-DCE (µg/L) | Cis-1,2-DCE (µg/L) | Trans-1,2DCE (µg/L) | TCE (µg/L) | VC (µg/L) |
|---|---|---|---|---|---|---|---|---|
| MW-11IP | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 |
| MW-44I | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 |
| MW-23 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 |
| MW-24I | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 |
| MW-25I | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 |
| MW-34I | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 |
| MW-44I | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 |
| MW-48I | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 |
| MW-44D | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 |
| MW-48D | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 |

µg/L = micrograms per liter
DCA – Dichloroethane
DCE = Dichloroethene
TCE = Trichloroethene
VC = Vinyl Chloride
<n = constituent was not detected at or above the MDL

Carbon tetrachloride was not detected above the MDL in any of the groundwater samples during the first half 2020 sampling event.

### 6.1.1 VOC Trends

A review of historical analytical data (**Table 10**) indicates that the wells with the majority of consistent VOC detections above their respective ROD/MCL/RGs have been observed in the following wells:

Shallow Interval Wells: MW-43, MW-44S, MW-45, and PT-3A

Shallow to Intermediate Interval Well: MW-9

Intermediate Interval Wells: MW-23, MW-34I, and MW-44I

All of the above wells were scheduled for sampling during the first half 2020. Of these wells, only MW-23, MW-34I and MW-44I had enough water in the well to sample. No VOCs were detected above their respective MDLs in these monitoring wells. The remaining wells were dry during the first half 2020 monitoring event and have been dry since at least 2014. Regardless, these wells had declining concentrations or concentrations below ROD/MCL/RGs prior to going dry.

**Table 10** contains historic concentrations of selected VOCs for all of the wells in the Site monitoring well network. **Appendix F** contains groundwater elevation hydrographs for Site monitoring wells and VOC trend charts for the current monitoring program wells that historically had VOC detections above ROD/MCL/RGs.

## 6.2 Dissolved Metals

Wells MW-11IP, MW-23, MW-24I, MW-25I, MW-44I, MW-48I, MW-2D, MW-44D and MW-48D were sampled and analyzed for iron, manganese, and arsenic. Groundwater samples analyzed for metals were filtered in the field during sampling. Field filtering procedures are described in the SAP. A summary of the analytical results is presented below as Table C and graphically on **Figures 13** through **15**.

Table C: Metals Groundwater Analytical Data – First Half 2020

| Well ID | Dissolved Iron (µg/L) | Dissolved Manganese (µg/L) | Dissolved Arsenic (µg/L) |
|---|---|---|---|
| MW-11IP | <41.2 | <3.1 | 2.0 J |
| MW-23 | <41.2 | <3.1 | 2.3 |
| MW-24I | <41.2 | 39.9 | 1.4 J |
| MW-25I | <41.2 | <3.1 | 2.6 |
| MW-44I | <41.2 | 10.6 | 2.5 |
| MW-48I | <41.2 | <3.1 | 2.3 |
| MW-2D | <41.2 | 5.3 J | 3.5 |
| MW-44D | <41.2 | <3.1 | 9.6 |
| MW-48D | 58.4 J | 539 | 7.9 |

µg/L = micrograms per liter

<n = constituent was not detected at or above the MDL

J = estimated values between the MDL and Limit of Quantification (LOQ)

All detected concentrations of iron and arsenic were below their respective RG's, 300 and 10 micrograms per liter (µg/L). Dissolved manganese was only detected above its RG (50 µg/L) in MW-48D at a concentration of 539 µg/L. The RG for dissolved manganese is the non-risk based secondary drinking water MCL for taste and odor.

## 6.3 pH

Before collecting groundwater samples, the YSI 556 flow through cell was used to conduct field measurements. The water chemistry field measurements were documented on the well sampling field sheets (**Appendix C**). The field measurements were used quantitatively to determine stability of the groundwater. Measurements were taken every 3 to 5 minutes until stabilization was achieved. The final pH readings were as follows:

- pH values in the shallow to intermediate zone wells ranged from 7.07 at well MW-23 to 7.99 at well MW-48I.
- pH values in the deep zone wells ranged from 7.85 at well MW-48D to 8.19 at well MW-44D.

Stabilized pH measurements gathered from sampled wells are presented in **Table 11**.

## 6.4 Monitored Natural Attenuation Parameters

Additional MNA parameters, including field parameters (DO and ORP) and analytical parameters (nitrate, sulfate, chloride, alkalinity, total organic carbon, $CO_2$, methane, ethane, and ethene) are monitored to provide data on geochemical conditions in site groundwater. Per the USEPA guidance, these data may be used to demonstrate, indirectly, the type(s) of natural attenuation processes active at the Site (USEPA 1998). The field parameter results from the first half 2020 sampling event are included in **Table 6**. The laboratory-analyzed MNA constituent results from the first half 2020 sampling event are provided in **Table 12**.

A detailed discussion of geochemical lines of evidence for natural attenuation of organic contaminants of concern in groundwater was provided in the 2011 report entitled Analysis of Natural Attenuation of Contaminants of Concern in Groundwater (Arcadis 2011). This report concluded that Site geochemical data were indicative of mildly to moderately reducing conditions in the plume core, with aerobic conditions predominating outside of the main source area, and that both aerobic and anaerobic biodegradation processes were occurring at the Site (Arcadis 2011). Data collected during the first half 2020 sampling event are generally consistent, with DO concentrations typically greater than 1 milligram per liter and positive ORP values. Geochemical data were not available for shallow wells located within the source area; however, more recent data from MW-44I suggest a shift in the groundwater geochemistry to more aerobic conditions in this area, as indicated by the increased DO and nitrate concentrations. Reduced nitrate (non-detect in January 2020), relatively elevated methane levels (1,000 µg/L in January 2020) and dissolved manganese indicative of anaerobic conditions continue to be observed in deep well MW-48D, although this well is not located within the plume core and VOCs have historically not been detected in this well.

# 7 CONCLUSIONS

The following conclusions summarize the findings of the First Half 2020 groundwater monitoring event:

- Due to the overall declining groundwater elevation, groundwater monitoring wells screened within the shallow zone continued to be dry.
- Groundwater elevations in the shallow to intermediate zone ranged from 206.77 ft amsl (MW-34I) to 210.42 ft amsl (MW-44I).
- Groundwater elevations in the deep zone ranged from 209.49 ft amsl (MW-48D) to 211.21 ft amsl (MW-2D).
- The groundwater flow direction is to the northwest with a hydraulic gradient of 0.013ft/ft in the shallow/intermediate interval.
- The groundwater flow direction is to the northwest with a hydraulic gradient of 0.0016ft/ft in the deep interval.
- No VOCs were detected at or above the laboratory reporting limit in any of the sampled shallow to intermediate or deep monitoring wells.
- No dissolved iron or arsenic was detected above its ROD/MCL/RG. Dissolved manganese was detected above its ROD/MCL/RG (50 µg/L) in only MW-48D at a concentration of 539 µg/L. However, the manganese RG is the non-risk based secondary drinking water MCL for taste and odor.
- Measured pH levels in groundwater samples ranged from 7.07 (MW-23) to 8.19 (MW-44D).

# 8 REFERENCES

Arcadis. 2011. Analysis of Natural Attenuation of Contaminants of Concern in Groundwater, Purity Oil Sales Superfund Site, Malaga, Fresno County, California. December 22.

Stantec. 2019. Semi-Annual/Annual (First Half 2019) Groundwater Monitoring Report, Purity Oil Sales Superfund Site, 3281 South Maple Avenue, Malaga, California. April 30.

USEPA. 1998. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater. EPA/600/R-98/128. September.

# TABLES

**Table 1**
**Well Screen Interval Information**
**Purity Oil Sales Superfund Site**
**First Half 2020**

| Well ID | Casing Diameter (inches) | Surveyed TOC Elevation (ft msl) Aug-08 | Total Depth of Well (ft BTOC) | Approximate Screen Interval[1] (ft BTOC) | Effective Screen Length[1] (feet) | Approximate Screen Interval Elevation (ft msl) | Approximate Sample Collection Point (ft BTOC) | Sample Collection Point (ft msl) |
|---|---|---|---|---|---|---|---|---|
| MW-2D[1] | 6 | 289.73 | 163.41 | 142 - 164 | 22 | 148 - 126 | 155.0 | 134.7 |
| MW-9[1] | 4 | 290.94 | 80.98 | 51 - 81 | 30 | 240 - 210 | 81.0 [7] | 209.9 |
| MW-11SP[5] | 4 | 290.64 | 88.95 | 60 - 88 | 28 | 231 - 203 | 79.1 [6 & 7] | 211.5 |
| MW-11IP[5] | 4 | 290.64 | 88.95 | 60 - 88 | 28 | 231 - 203 | 86.2 | 204.4 |
| MW-13[1] | 4 | 289.53 | 84.60 | 55 - 84 | 29 | 235 - 206 | 84.0[6&7] | 205.5 |
| MW-21[1] | 4 | 289.53 | 82.08 | 54.5 - 81.5 | 27 | 235.5 - 208.5 | 81.0 [7] | 208.5 |
| MW-23[1] | 4 | 289.99 | 112.98 | 101 - 113 | 12 | 189 - 177 | 105.0 | 185.0 |
| MW-24I | 4 | 288.51 | 98.2 | 87.9 - 97.9 | 10 | 200.6 - 190.6 | 97.7 | 190.8 |
| MW-25I | 4 | 292.90 | 103.2 | 92.8 - 102.8 | 10 | 200.1 - 190.1 | 102.5 | 190.4 |
| MW-34I[1] | 6 | 288.59 | 121.96 | 102 - 121 | 19 | 187 - 168 | 110.0 | 178.6 |
| MW-43 | 4 | 293.29 | 75.2 | 59.8 - 74.8 | 15 | 233.5 - 218.5 | 74.7 | 218.6 |
| MW-44S | 4 | 289.97 | 75.9 | 60.5 - 75.5 | 15 | 229.5 - 214.5 | 75.2 | 214.8 |
| MW-44I | 4 | 290.16 | 110.1 | 99.7 - 109.7 | 10 | 190.5 - 180.5 | 109.6 | 180.6 |
| MW-44D | 4 | 290.16 | 134.8 | 124.4 - 134.4 | 10 | 165.8 - 155.8 | 134.3 | 155.9 |
| MW-45 | 4 | 291.55 | 76.0 | 60.7 - 75.7 | 15 | 230.8 - 215.8 | 75.1 | 216.4 |
| MW-46 | 4 | 305.64 | 91.4 | 76.1 - 91.1 | 15 | 229.5 - 214.5 | 90.9 | 214.7 |
| MW-47 | 4 | 289.54 | 73.8 | 58.5 - 73.5 | 15 | 231.0 - 216.0 | 73.3 | 216.2 |
| MW-48S | 4 | 305.91 | 90.7 | 75.4 - 90.4 | 15 | 230.5 - 215.5 | 90.2 | 215.7 |
| MW-48I | 4 | 305.66 | 117.3 | 107.0 - 117.0 | 10 | 198.7 - 188.7 | 116.8 | 188.9 |
| MW-48D | 4 | 305.70 | 137.6 | 127.2 - 137.2 | 10 | 178.5 - 168.5 | 137.1 | 168.6 |
| MW-49 | 4 | 291.73 | 75.2 | 59.8 - 74.8 | 15 | 231.9 - 216.9 | 74.7 | 217.0 |
| MW-50[4] | 4 | 291.35 | 82.92 | 67.6 - 82.6 | 15 | 223.8 - 208.8 | 81.6 | 209.8 |
| MW-51[4] | 4 | 291.43 | 81.96 | 66.7 - 81.7 | 15 | 224.7 - 209.7 | 80.7 | 210.7 |
| MW-52[4] | 4 | 290.83 | 83.20 | 67.9 - 82.9 | 15 | 222.9 - 207.9 | 81.9 | 208.9 |
| MW-53[4] | 4 | 291.41 | 85.18 | 69.9 - 84.9 | 15 | 221.5 - 206.5 | 83.9 | 207.5 |
| MW-54[4] | 4 | 290.06 | 77.28 | 62.0 - 77.0 | 15 | 228.1 - 213.1 | 76.0 | 214.1 |
| PT-3A[3] | 2 | 289.88 | 75.00 | 64.8 -74.8 | 10 | 225.1 - 215.1 | 73.8 | 216.1 |

**Table 1**
**Well Screen Interval Information**
**Purity Oil Sales Superfund Site**
**First Half 2020**

| Well ID | Casing Diameter (inches) | Surveyed TOC Elevation (ft msl) Aug-08 | Total Depth of Well (ft BTOC) | Approximate Screen Interval[1] (ft BTOC) | Effective Screen Length[1] (feet) | Approximate Screen Interval Elevation (ft msl) | Approximate Sample Collection Point (ft BTOC) | Sample Collection Point (ft msl) |
|---|---|---|---|---|---|---|---|---|
| **Removed from Monitoring Well Network** | | | | | | | | |
| MW-2S[1] | 5 | 289.04 | 64.85 | 33 - 64 | 31 | 256 - 225 | 63.8 | 225.2 |
| MW-10[1] | 2 | 290.69 | 67.19 | 33 - 65 | 32 | 258 - 226 | 64.0 | 226.7 |
| MW-15[3] | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-16[2] | 5 | 296.04 | 77.83 | 44 - 76 | 32 | 252 - 220 | 76.1 | 219.9 |
| MW-17[3] | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-19[1] | 5 | 290.59 | 64.42 | 33 - 65 | 32 | 258 - 226 | 63.4 | 227.2 |
| MW-20[1] | 4 | 288.52 | 78.08 | 43 - 79 | 36 | 246 - 210 | 76.7 | 212.1 |
| MW-22P[3] | 8 | 289.67 | 130.0 | NA | NA | NA | NA | NA |
| MW-24[3] | 5 | 289.85 | 66.0 | 34 - 66 | 32 | 256 - 224 | NA | NA |
| MW-25[1] | 5 | 290.61 | 67.48 | 35 - 67 | 32 | 256 - 224 | 66.4 | 224.2 |
| MW-26P | 8 | 290.73 | 184.00 | 172 - 184 | 12 | 119 - 107 | NA | NA |
| MW-27P[3] | 6 | 288.19 | 184.0 | 175 - 184 | 9 | 113 - 104 | NA | NA |
| MW-28P | 8 | 290.74 | 195.0 | 175 - 194 | 19 | 116 - 97 | NA | NA |
| MW-29P | 6 | 288.84 | 154.0 | 97 - 154 | 57 | 192 - 135 | NA | NA |
| MW-30P[3] | 8 | NA | 99.0 | 78 - 99 | 21 | NA | NA | NA |
| MW-31P | 6 | 290.42 | 82.5 | NA | NA | NA | NA | NA |
| MW-32P | 8 | 287.81 | NA | NA | NA | NA | NA | NA |
| MW-33P | 8 | 287.83 | 130.0 | NA | NA | NA | NA | NA |
| MW-34S[1] | 6 | 288.50 | 71.69 | 42 - 71 | 29 | 247 - 218 | 70.7 | 217.8 |
| MW-34D[1] | 6 | 288.62 | 170.22 | 151 - 170 | 19 | 138 - 119 | 160.0 | 128.6 |
| MW-35P[3] | 6 | 289.64 | 120.0 | 93 - 126 | 33 | 197 - 164 | NA | NA |
| MW-38[1] | 4 | 288.91 | 82.37 | 52 - 82 | 30 | 237 - 207 | 81.3 | 207.6 |
| MW-39[1] | 4 | 291.09 | 82.45 | 53 - 82 | 29 | 238 - 209 | 81.4 | 209.7 |
| MW-40[1] | 4 | 288.73 | 82.41 | 52 - 82 | 30 | 237 - 207 | 81.4 | 207.3 |
| MW-41[1] | 4 | 290.30 | 83.25 | 53 - 82 | 29 | 237 - 208 | 82.2 | 208.1 |
| MW-42 | 4 | 292.06 | 74.1 | 58.7 - 73.7 | 15 | 233.4 - 218.4 | 73.6 | 218.5 |

**Table 1**
**Well Screen Interval Information**
**Purity Oil Sales Superfund Site**
**First Half 2020**

| Well ID | Casing Diameter (inches) | Surveyed TOC Elevation (ft msl) Aug-08 | Total Depth of Well (ft BTOC) | Approximate Screen Interval[1] (ft BTOC) | Effective Screen Length[1] (feet) | Approximate Screen Interval Elevation (ft msl) | Approximate Sample Collection Point (ft BTOC) | Sample Collection Point (ft msl) |
|---|---|---|---|---|---|---|---|---|
| **Decommissioned Wells** | | | | | | | | |
| EW-1 | 8 | 299.77 | NA | NA | NA | NA | NA | NA |
| EW-2 | 8 | 301.70 | NA | NA | NA | NA | NA | NA |
| MW-3 | 4 | 291.50 | 60.0 | 45 - 60 | 15 | 247 - 232 | NA | NA |
| MW-4 | 2 | 290.74 | 60.0 | 45 - 60 | 15 | 246 - 231 | NA | NA |
| MW-5S | NA | 301.81 | NA | NA | NA | NA | NA | NA |
| MW-5D | 4 | 307.76 | 95.55 | 85 - 94 | 9 | 223 - 214 | 90.0 | 217.8 |
| MW-6S | 5 | 304.68 | 78.33 | 46 - 78 | 32 | 259 - 227 | 75.0 | 229.7 |
| MW-6D | 6 | 306.72 | 176.47 | 154 - 175 | 21 | 153 - 132 | 165.0 | 141.7 |
| MW-7S | 4 | 302.08 | 79.23 | 71 - 79 | 8 | 231 - 223 | 75.0 | 227.1 |
| MW-7I | 4 | 301.17 | 100.17 | 90 - 100 | 10 | 211 - 201 | 95.0 | 206.2 |
| MW-8 | 5 | 307.86 | 79.32 | 49 - 82 | 33 | 259 - 226 | 79.1 | 228.8 |
| MW-12 | 4 | 291.06 | 52.0 | 37 - 52 | 15 | 254 - 239 | NA | NA |
| MW-14S | 4 | 296.67 | 63.0 | 53 - 63 | 10 | 244 - 234 | NA | NA |
| MW-14D | 4 | 296.67 | 83.8 | 73 - 83 | 10 | 224 - 214 | NA | NA |
| MW-18 | 5 | 289.80 | 84.0 | 54 - 84 | 30 | 236 - 206 | NA | NA |
| MW-36 | 4 | 286.83 | 90.0 | 70 - 90 | 20 | 217 - 197 | NA | NA |

**Notes:**

ft BTOC = feet below top of casing
ft msl = feet above mean sea level
TOC = top of casing
NA = Not Available
[1] Measurements taken with optical televiewer April 2003. Interval measured to silted fill level.
[2] Well MW-16 well casing was knocked over during construction activities in July 2007, new TOC was surveyed August 2008.
Only new, updated information is shown in "Surveyed TOC Elevation" column.
[3] Current Well TOCs not surveyed August 2008.
[4] TOCs for 2009 installed wells surveyed December 2009.
[5] Intermediate pump added to well MW-11 in December 2009.
[6] Pump depth was modified in January 2014
[7] Pump depth was modified in July 2014

**Table 2**
**Summary of Groundwater Analysis**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Sample No. | Sample Date | Sample Type | Comments | VOCs (8260B) | Metals (Fe, Mn) (6010B) and As (6020) | Nitrate, Sulfate, Chloride (EPA 300.0) | Alkalinity (SM 2320B-1997) | TOC (SM 5310C-2000) | $CO_2$ (8015B Mod.) | Methane, Ethane, Ethene (8015B Mod.) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Monitoring Wells** | | | | | | | | | | | |
| MW-2D | MW-2D | 1/30/2020 | FS | Primary Field Sample | | x | x | x | x | x | x |
| MW-9 | | | NS | Not Sampled | | | | | | | |
| MW-11SP | | | NS | Not Sampled | | | | | | | |
| MW-11IP | MW-11IP | 1/30/2020 | FS | Primary Field Sample | x | x | x | x | x | x | x |
| MW-13 | | | NS | Not Sampled | | | | | | | |
| MW-21 | | | NS | Not Sampled | | | | | | | |
| MW-23 | MW-23 | 1/30/2020 | FS | Primary Field Sample | x | x | x | x | x | x | x |
| MW-24I | MW-24I | 1/30/2020 | FS | Primary Field Sample | x | x | x | x | x | x | x |
| MW-25I | MW-25I | 1/30/2020 | FS | Primary Field Sample | x | x | x | x | x | x | x |
| MW-34I | MW-34I | 1/30/2020 | FS | Primary Field Sample | x | | | | | | |
| MW-43 | | | NS | Not Sampled | | | | | | | |
| MW-44S | | | NS | Not Sampled | | | | | | | |
| MW-44I | MW-44I | 1/30/2020 | FS | Primary Field Sample | x | x | x | x | x | x | x |
| | DUP1 | 1/30/2020 | FD | Field Duplicate | x | x | x | x | x | x | x |
| MW-44D | MW-44D | 1/30/2020 | FS | Primary Field Sample | x | x | x | x | x | x | x |
| MW-45 | | | NS | Not Sampled | | | | | | | |
| MW-46 | | | NS | Not Sampled | | | | | | | |
| MW-47 | | | NS | Not Sampled | | | | | | | |
| MW-48S | | | NS | Not Sampled | | | | | | | |
| MW-48I | MW-48I | 1/30/2020 | FS | Primary Field Sample | x | x | x | x | x | x | x |
| MW-48D | MW48D | 1/30/2020 | FS | Primary Field Sample | x | x | x | x | x | x | x |
| | MW48DMS | 1/30/2020 | MS | Matrix Spike | x | x | x | x | x | x | x |
| | MW48DMSD | 1/30/2020 | MSD | Matrix Spike Duplicate | x | x | x | x | x | x | x |
| MW-49 | | | NS | Not Sampled | | | | | | | |
| MW-50 | | | NS | Not Sampled | | | | | | | |
| MW-51 | | | NS | Not Sampled | | | | | | | |
| MW-52 | | | NS | Not Sampled | | | | | | | |
| MW-53 | | | NS | Not Sampled | | | | | | | |
| MW-54 | | | NS | Not Sampled | | | | | | | |
| PT-3A | | | NS | Not Sampled | | | | | | | |
| **Field QC** | | | | | | | | | | | |
| Equipment Blank | EB01302020 | 1/30/2020 | EB | Equipment Rinsate Blank | X | | | | | | |
| Trip Blank | TB01302020 | 1/30/2020 | TB | Trip Blank | X | | | | | | |

**Notes:**

EPA = U.S. Environmental Protection Agency
FS = Primary Field Sample
FD = Field Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
NS = Not Sampled
Fe = iron
Mn = manganese
As = arsenic
$CO_2$ = carbon dioxide
EB = Equipment Rinsate Blank
TB = Trip Blank
QC = Quality Control
TOC = Total Organic Carbon
VOC = Volatile Organic Compound

**Table 3**
**Field QC Analytical Results**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| QC Sample ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron | Manganese | Arsenic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 |
| **Field Duplicate** | | | | | | | | | | | | | |
| DUP1 | 1/30/2020 | FD | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <41.2 | **13.1** | **2.5** |
| **Field QC** | | | | | | | | | | | | | |
| EB01302020 | 1/30/2020 | EB | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | NA | NA | NA |
| TB01302020 | 1/30/2020 | TB | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | NA | NA | NA |

**Notes:**

All results are reported in micrograms per liter (µg/L)
ROD/MCL/RG = Record of Decision/Maximum Contaminant Level/Remedial Goal
EB = Equipment Blank
TB = Trip Blank
FD = Field Duplicate
NA = Not analyzed for this constituent
QC = Quality Control
Bold Results = detected values reported below the constituents' ROD/MCL/RG
Bold Outlined Results = values reported at or above the constituents' MCL/ROD/RG
<n = Constiutent not detected at or above the method detection limit (MDL)

**Table 4**
**Field Duplicate Analytical Results**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Sample Date | Compound | Method Detection Limit | Result | Duplicate Result | Units | RPD |
|---|---|---|---|---|---|---|---|
| **Metals** | | | | | | | |
| MW44I (DUP1) | 1/30/2020 | Iron | 40.0 | ND | ND | µg/L | NA |
| | | Manganese | 1.1 | **10.6** | **13.1** | µg/L | 21.1 |
| | | Arsenic | 0.68 | **2.5** | **2.5** | µg/L | 0.0 |
| **VOCs** | | | | | | | |
| MW44I (DUP1) | 1/30/2020 | Acetone | 1.1 | ND | ND | µg/L | NA |
| | | Benzene | 0.05 | ND | ND | µg/L | NA |
| | | Bromobenzene | 0.05 | ND | ND | µg/L | NA |
| | | Bromochloromethane | 0.05 | ND | ND | µg/L | NA |
| | | Bromodichloromethane | 0.05 | ND | ND | µg/L | NA |
| | | Bromoform | 0.3 | ND | ND | µg/L | NA |
| | | Bromomethane | 0.1 | ND | ND | µg/L | NA |
| | | 2-Butanone | 0.7 | ND | ND | µg/L | NA |
| | | t-Butyl Alcohol | 1.6 | ND | ND | µg/L | NA |
| | | n-Butylbenzene | 0.07 | ND | ND | µg/L | NA |
| | | sec-Butylbenzene | 0.05 | ND | ND | µg/L | NA |
| | | tert-Butylbenzene | 0.05 | ND | ND | µg/L | NA |
| | | Carbon Disulfide | 0.09 | ND | ND | µg/L | NA |
| | | Carbon Tetrachloride | 0.06 | ND | ND | µg/L | NA |
| | | Chlorobenzene | 0.05 | ND | ND | µg/L | NA |
| | | Chloroethane | 0.09 | ND | ND | µg/L | NA |
| | | Chloroform | 0.05 | ND | ND | µg/L | NA |
| | | Chloromethane | 0.09 | ND | ND | µg/L | NA |
| | | 2-Chlorotoluene | 0.05 | ND | ND | µg/L | NA |
| | | 4-Chlorotoluene | 0.05 | ND | ND | µg/L | NA |
| | | 1,2-Dibromo-3-chloropropane | 0.2 | ND | ND | µg/L | NA |
| | | Dibromochloromethane | 0.06 | ND | ND | µg/L | NA |
| | | 1,2-Dibromoethane | 0.05 | ND | ND | µg/L | NA |
| | | Dibromomethane | 0.05 | ND | ND | µg/L | NA |
| | | 1,2-Dichlorobenzene | 0.05 | ND | ND | µg/L | NA |
| | | 1,3-Dichlorobenzene | 0.05 | ND | ND | µg/L | NA |
| | | 1,4-Dichlorobenzene | 0.06 | ND | ND | µg/L | NA |
| | | Dichlorodifluoromethane | 0.1 | ND | ND | µg/L | NA |
| | | 1,1-Dichloroethane | 0.05 | ND | ND | µg/L | NA |
| | | 1,2-Dichloroethane | 0.05 | ND | ND | µg/L | NA |
| | | 1,1-Dichloroethene | 0.05 | ND | ND | µg/L | NA |
| | | cis-1,2-Dichloroethene | 0.05 | ND | ND | µg/L | NA |
| | | trans-1,2-Dichloroethene | 0.05 | ND | ND | µg/L | NA |
| | | 1,2-Dichloropropane | 0.05 | ND | ND | µg/L | NA |
| | | 1,3-Dichloropropane | 0.05 | ND | ND | µg/L | NA |
| | | 2,2-Dichloropropane | 0.06 | ND | ND | µg/L | NA |
| | | 1,1-Dichloropropene | 0.05 | ND | ND | µg/L | NA |
| | | cis-1,3-Dichloropropene | 0.05 | ND | ND | µg/L | NA |
| | | trans-1,3-Dichloropropene | 0.05 | ND | ND | µg/L | NA |
| | | Ethylbenzene | 0.05 | ND | ND | µg/L | NA |
| | | Hexachlorobutadiene | 0.1 | ND | ND | µg/L | NA |
| | | Isopropylbenzene | 0.05 | ND | ND | µg/L | NA |
| | | p-Isopropyltoluene | 0.05 | ND | ND | µg/L | NA |
| | | Methyl Tertiary Butyl Ether | 0.05 | ND | ND | µg/L | NA |
| | | 4-Methyl-2-Pentanone | 0.6 | ND | ND | µg/L | NA |
| | | Methylene Chloride | 0.06 | ND | ND | µg/L | NA |

**Table 4**
**Field Duplicate Analytical Results**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Sample Date | Compound | Method Detection Limit | Result | Duplicate Result | Units | RPD |
|---|---|---|---|---|---|---|---|
| MW44I (DUP1) | 1/30/2020 | Naphthalene | 0.09 | ND | ND | µg/L | NA |
| | | n-Propylbenzene | 0.05 | ND | ND | µg/L | NA |
| | | Styrene | 0.05 | ND | ND | µg/L | NA |
| | | 1,1,1,2-Tetrachloroethane | 0.05 | ND | ND | µg/L | NA |
| | | 1,1,2,2-Tetrachloroethane | 0.06 | ND | ND | µg/L | NA |
| | | Tetrachloroethene | 0.05 | ND | ND | µg/L | NA |
| | | Toluene | 0.05 | ND | ND | µg/L | NA |
| | | 1,2,3-Trichlorobenzene | 0.1 | ND | ND | µg/L | NA |
| | | 1,2,4-Trichlorobenzene | 0.09 | ND | ND | µg/L | NA |
| | | 1,1,1-Trichloroethane | 0.06 | ND | ND | µg/L | NA |
| | | 1,1,2-Trichloroethane | 0.05 | ND | ND | µg/L | NA |
| | | Trichloroethene | 0.05 | ND | ND | µg/L | NA |
| | | Trichlorofluoromethane | 0.1 | ND | ND | µg/L | NA |
| | | 1,2,3-Trichloropropane | 0.06 | ND | ND | µg/L | NA |
| | | 1,2,4-Trimethylbenzene | 0.05 | ND | ND | µg/L | NA |
| | | 1,3,5-Trimethylbenzene | 0.05 | ND | ND | µg/L | NA |
| | | Vinyl Chloride | 0.08 | ND | ND | µg/L | NA |
| | | m+p-Xylene | 0.08 | ND | ND | µg/L | NA |
| | | o-Xylene | 0.05 | ND | ND | µg/L | NA |

**Notes:**

RPD = Relative Percent Difference = [S-D/([S+D]/2)]×100

Where : S = First sample value (original value)

D = Second sample value (duplicate value)

NA = Neither the primary nor duplicate sample contained reportable levels of the associated analyte; agreement is considered to be acceptable.

ND = The sample was Not Detected above corresponding MDL

Dispute = Disagreement where detections occurred in the duplicate sample but not in the primary sample, or in the primary sample but not in the duplicate sample.

J = Organic constituent qualifier used by Eurofins Lancaster Laboratories Environmental indicating an estimated value of a detection that is between the maximum detection limit and the reporting limit for the specific compound.

µg/L = micrograms per liter

$CaCO_3$ = calcium carbonate

µg/L* = µg/L as $CaCO_3$

VOC = volatile organic compound

$CO_2$ = carbon dioxide

N = nitrogen

** = RPD determined on estimated value

-- = Not analyazed/ Not avavilable/ Not applicable

**Table 5**
**Summary of Groundwater Monitoring Activities**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Sampled | Water Level | Comments |
|---|---|---|---|
| MW-2D | x | x | |
| MW-9 | NS | -- | Dry |
| MW-11SP | NS | x | Water Below Pump |
| MW-11IP | x | x | |
| MW-13 | NS | x | Water Below Pump |
| MW-21 | NS | -- | Permanantly Damaged / Backfilled |
| MW-23 | x | x | |
| MW-24I | x | x | |
| MW-25I | x | x | |
| MW-34I | x | x | |
| MW-43 | NS | -- | Dry |
| MW-44S | NS | -- | Dry |
| MW-44I | x | x | |
| MW-44D | x | x | |
| MW-45 | NS | x | Residual Water / Dry |
| MW-46 | NS | -- | Dry |
| MW-47 | NS | x | Residual Water / Dry |
| MW-48S | NS | x | Residual Water / Dry |
| MW-48I | x | x | |
| MW-48D | x | x | |
| MW-49 | NS | -- | Dry |
| MW-50 | NS | x | Residual Water / Dry |
| MW-51 | NS | x | Residual Water / Dry |
| MW-52 | NS | x | Residual Water / Dry |
| MW-53 | NS | x | Residual Water / Dry |
| MW-54 | NS | -- | Dry |
| PT-3A | NS | -- | Enhanced Reductive Dechlorination Pilot Study well / Dry |

**Notes:**
NS = Not Sampled
x = Activity Peformed
-- Not Available / Not Applicable

# Table 6
# Groundwater Field Parameters
# Purity Oil Sales Superfund Site, Malaga, California
# First Half 2020

ARCADIS Design & Consultancy for natural and built assets

| Monitoring Point Designation | Field Date | pH (pH units) | Conductivity (umhos/cm) | Temperature (°C) | Dissolved Oxygen (mg/L) | Eh (mV) | Turbidity (NTU) |
|---|---|---|---|---|---|---|---|
| **Shallow** | | | | | | | |
| **MW-42** | 1/29/2020 | dry | dry | dry | dry | dry | dry |
| **MW-43** | 1/29/2020 | dry | dry | dry | dry | dry | dry |
| **MW-44S** | 1/29/2020 | dry | dry | dry | dry | dry | dry |
| **MW-45** | 1/29/2020 | dry | dry | dry | dry | dry | dry |
| **MW-46** | 1/29/2020 | dry | dry | dry | dry | dry | dry |
| **MW-47** | 1/29/2020 | dry | dry | dry | dry | dry | dry |
| **MW-48S** | 1/29/2020 | dry | dry | dry | dry | dry | dry |
| **MW-49** | 1/29/2020 | dry | dry | dry | dry | dry | dry |
| **MW-50** | 1/29/2020 | dry | dry | dry | dry | dry | dry |
| **MW-51** | 1/29/2020 | dry | dry | dry | dry | dry | dry |
| **MW-54** | 1/29/2020 | dry | dry | dry | dry | dry | dry |
| **PT-3A** | 1/29/2020 | dry | dry | dry | dry | dry | dry |
| **Shallow to Intermediate** | | | | | | | |
| **MW-9** | 1/29/2020 | dry | dry | dry | dry | dry | dry |
| **MW-11IP** | 1/30/2020 | 7.59 | 540 | 21.5 | 6.99 | 67.60 | 3.25 |
| **MW-11SP** | 1/29/2020 | dry | dry | dry | dry | dry | dry |
| **MW-13** | 1/29/2020 | | | Water Below Pump | | | |
| **MW-52** | 1/29/2020 | dry | dry | dry | dry | dry | dry |
| **MW-53** | 1/29/2020 | dry | dry | dry | dry | dry | dry |
| **Intermediate** | | | | | | | |
| **MW-21** | 1/29/2020 | | | Well Backfilled | | | |
| **MW-23** | 1/30/2020 | 7.07 | 458 | 21.9 | 3.8 | 108.9 | 3.52 |
| **MW-24I** | 1/30/2020 | 7.16 | 720 | 21.10 | 0.58 | 40.5 | 4.04 |
| **MW-25I** | 1/30/2020 | 7.64 | 419 | 20.50 | 9.89 | 79.7 | 3.15 |
| **MW-34I** | 1/30/2020 | 7.39 | 1080 | 21.60 | 1.58 | 79.9 | 3.03 |
| **MW-44I** | 1/30/2020 | 7.67 | 203 | 22.8 | 3.11 | 49.2 | 4.35 |
| **MW-48I** | 1/30/2020 | 7.99 | 409 | 21.3 | 4.43 | 52.9 | 3.41 |
| **Deep** | | | | | | | |
| **MW-2D** | 1/30/2020 | 8.02 | 179 | 19.8 | 0.77 | 54.8 | 5.03 |
| **MW-44D** | 1/30/2020 | 8.19 | 232 | 22.8 | 3.74 | 39.4 | 111.00 |
| **MW-48D** | 1/30/2020 | 7.85 | 329 | 21.2 | 1.39 | 15.7 | 20.00 |

**Notes:**

umhos/cm - micromhos per centimeter

°C - degrees Celsius

Eh - reduction potential

mg/L - milligrams per liter

mV - millivolt

NTU - nephelometric turbidity unit

**Table 7**
**Depth to Water and Groundwater Elevation Data**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Company | Top of Casing (ft msl) | Depth to Water (ft BTOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **Shallow** | | | | | | |
| MW-43 | 1/28/2020 | Arcadis | 293.29 | Dry | Dry | Well dry |
| MW-44S | 1/28/2020 | Arcadis | 289.97 | Dry | Dry | Well dry |
| MW-45 | 1/28/2020 | Arcadis | 291.55 | 75.23 | NA | Residual water / Well dry |
| MW-46 | 1/28/2020 | Arcadis | 305.64 | Dry | Dry | Well dry |
| MW-47 | 1/28/2020 | Arcadis | 289.54 | 73.04 | NA | Residual water / Well dry |
| MW-48S | 1/28/2020 | Arcadis | 305.91 | 90.12 | NA | Residual water / Well dry |
| MW-49 | 1/28/2020 | Arcadis | 291.73 | Dry | Dry | Well dry |
| MW-54 | 1/28/2020 | Arcadis | 290.06 | Dry | Dry | Well dry |
| PT-3A | 1/28/2020 | Arcadis | 289.88 | Dry | Dry | Well dry |
| **Shallow to Intermediate** | | | | | | |
| MW-9 | 1/28/2020 | Arcadis | 290.94 | Dry | Dry | Well dry |
| MW-11SP/IP* | 1/28/2020 | Arcadis | 290.64 | 80.39 | 210.25 | |
| MW-13 | 1/28/2020 | Arcadis | 289.53 | 80.17 | 209.36 | Water below pump |
| MW-21 | 1/28/2020 | NA | NA | NA | NA | Well Permanantly Damaged |
| MW-50 | 1/28/2020 | Arcadis | 291.35 | 82.72 | NA | Residual water / Well dry |
| MW-51 | 1/28/2020 | Arcadis | 291.43 | 81.29 | NA | Residual water / Well dry |
| MW-52 | 1/28/2020 | Arcadis | 290.83 | 81.73 | NA | Residual water / Well dry |
| MW-53 | 1/28/2020 | Arcadis | 291.41 | 83.52 | NA | Residual water / Well dry |
| **Intermediate** | | | | | | |
| MW-23 | 1/28/2020 | Arcadis | 289.99 | 81.91 | 208.08 | |
| MW-24I | 1/28/2020 | Arcadis | 288.51 | 79.72 | 208.79 | |
| MW-25I | 1/28/2020 | Arcadis | 292.90 | 83.92 | 208.98 | |
| MW-34I | 1/28/2020 | Arcadis | 288.59 | 81.82 | 206.77 | |
| MW-44I | 1/28/2020 | Arcadis | 290.16 | 79.74 | 210.42 | |
| MW-48I | 1/28/2020 | Arcadis | 305.66 | 96.03 | 209.63 | |
| **Deep** | | | | | | |
| MW-2D | 1/28/2020 | Arcadis | 289.73 | 78.52 | 211.21 | |
| MW-44D | 1/28/2020 | Arcadis | 290.16 | 79.67 | 210.49 | |
| MW-48D | 1/28/2020 | Arcadis | 305.70 | 96.21 | 209.49 | |

**Notes:**
ft BTOC = feet below top of casing
ft msl = feet above mean sea level
TOC = top of casing
NA = not available
* Intermediate pump added to well in Jan. 2010.

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **Extraction Wells (shallow)** | | | | | | |
| **EW-1** | 5/7/2001 | IT | 299.82 | 62.87 | 236.95 | |
| | 10/15/2002 | IT | | 63.58 | 236.24 | |
| | 6/3/2002 | SECOR | 299.77 | NA | NA | |
| | 9/17/2002 | SECOR | | 78.36 | 221.41 | Pump running during measurement |
| | 11/18/2002 | SECOR | | 63.99 | 235.78 | Residual water / Well dry |
| | 1/27/2003 | SECOR | | 78.98 | 220.79 | |
| | 6/16/2003 | SECOR | | 77.90 | 221.87 | |
| | 9/8/2003 | SECOR | | 67.56 | 232.21 | |
| | 12/8/2003 | SECOR | | 78.60 | 221.17 | |
| | 3/8/2004 | SECOR | | 76.35 | 223.42 | |
| | 8/6/2004 | SECOR | | 75.85 | 223.92 | |
| | 8/5/2005 | SECOR | | 67.97 | 231.80 | Pump off during measurement |
| | 11/11/2005 | SECOR | | 66.08 | 233.69 | Pump off during measurement |
| | 2/9/2006 | SECOR | | 66.43 | 233.34 | Pump off during measurement |
| | 5/18/2006 | SECOR | | 66.44 | 233.33 | Pump off during measurement |
| | 8/11/2006 | SECOR | | NA | NA | |
| | 10/2/2006 | SECOR | | NA | NA | Unsafe to gauge |
| | 1/19/2007 | SECOR | | | Decommissioned October 2006 | |
| **EW-2** | 5/7/2001 | IT | 301.81 | 65.56 | 236.25 | |
| | 10/15/2001 | IT | | 66.53 | 235.28 | |
| | 6/3/2002 | SECOR | 301.75 | 63.27 | 238.48 | |
| | 9/17/2002 | SECOR | | 78.45 | 223.30 | Pump running during measurement |
| | 11/18/2002 | SECOR | | 78.90 | 222.85 | |
| | 1/27/2003 | SECOR | | 77.78 | 223.97 | |
| | 6/16/2003 | SECOR | | 78.74 | 223.01 | |
| | 9/8/2003 | SECOR | | 67.92 | 233.83 | |
| | 12/8/2003 | SECOR | | 78.79 | 222.96 | |
| | 3/8/2004 | SECOR | | 78.75 | 223.00 | |
| | 6/7/2004 | SECOR | | 78.83 | 222.92 | |
| | 8/6/2004 | SECOR | | 75.72 | 226.03 | |
| | 11/12/2004 | SECOR | | 78.76 | 222.99 | |
| | 3/11/2005 | SECOR | | 78.71 | 223.04 | |
| | 5/20/2005 | SECOR | | 78.61 | 223.14 | |
| | 8/5/2005 | SECOR | | 70.74 | 231.01 | Pump off during measurement |
| | 11/11/2005 | SECOR | | 68.76 | 232.99 | Pump off during measurement |
| | 2/9/2006 | SECOR | | 68.99 | 232.76 | Pump off during measurement |
| | 5/18/2006 | SECOR | | 69.05 | 232.70 | Pump off during measurement |
| | 8/11/2006 | SECOR | | NA | NA | |
| | 10/2/2006 | SECOR | | NA | NA | Unsafe to gauge |
| | 1/19/2007 | SECOR | | | Decommissioned October 2006 | |
| **Shallow** | | | | | | |
| **MW-2S** | 12/28/1987 | CH2M Hill 1988 | 289.27 | 39.24 | 250.03 | |
| | 1/14/1988 | CH2M Hill 1988 | | 39.30 | 249.97 | |
| | 2/18/1988 | CH2M Hill 1988 | | 39.34 | 249.93 | |
| | 3/3/1988 | CH2M Hill 1988 | | 39.46 | 249.81 | |
| | 4/2/1988 | CH2M Hill 1988 | | 39.10 | 250.17 | |
| | 4/17/1995 | Envirosolve | 289.21 | 56.35 | 232.86 | |
| | 7/7/1995 | Envirosolve | | 56.03 | 233.18 | |
| | 10/23/1995 | Envirosolve | | 54.71 | 234.50 | |
| | 4/15/1996 | Envirosolve | | 54.75 | 234.46 | |
| | 3/16/1998 | Envirosolve | | 52.68 | 236.53 | |
| | 6/22/1998 | Envirosolve | | 51.10 | 238.11 | |
| | 9/14/1998 | Envirosolve | | 50.64 | 238.57 | |
| | 12/14/1998 | Envirosolve | | 50.53 | 238.68 | |
| | 3/15/1999 | IT | 289.21 | 50.85 | 238.36 | |
| | 6/14/1999 | IT | | 50.92 | 238.29 | |
| | 9/13/1999 | IT | | 51.06 | 238.15 | |
| | 12/13/1999 | IT | | 50.24 | 238.97 | |
| | 3/13/2000 | IT | | 49.92 | 239.29 | |
| | 6/19/2000 | IT | | 49.14 | 240.07 | |
| | 9/11/2000 | IT | | 48.64 | 240.57 | |
| | 12/18/2000 | IT | | 48.38 | 240.83 | |
| | 5/7/2001 | IT | | 50.74 | 238.47 | |
| | 10/15/2001 | IT | | 51.64 | 237.57 | |
| | 6/3/2002 | SECOR | 288.97 | 52.46 | 237.15 | |
| | 9/16/2002 | SECOR | | 51.47 | 237.50 | MicroPurge® pump installed |
| | 11/18/2002 | SECOR | | 52.26 | 236.71 | |
| | 1/27/2003 | SECOR | | 52.49 | 236.48 | |
| | 6/16/2003 | SECOR | | 53.06 | 235.91 | |
| | 9/8/2003 | SECOR | | 53.30 | 235.67 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-2S cont.** | 12/8/2003 | SECOR | | 53.06 | 235.91 | |
| | 3/8/2004 | SECOR | | 53.17 | 235.80 | |
| | 6/7/2004 | SECOR | | 54.45 | 234.52 | |
| | 8/6/2004 | SECOR | | 54.95 | 234.02 | |
| | 11/12/2004 | SECOR | | 55.28 | 233.69 | |
| | 3/11/2005 | SECOR | | 55.46 | 233.51 | |
| | 5/20/2005 | SECOR | | 55.12 | 233.85 | |
| | 8/5/2005 | SECOR | | 55.78 | 233.19 | |
| | 11/11/2005 | SECOR | | 53.43 | 235.54 | |
| | 2/9/2006 | SECOR | | 53.98 | 234.99 | |
| | 5/18/2006 | SECOR | | 54.05 | 234.92 | |
| | 8/11/2006 | SECOR | | 54.21 | 234.76 | |
| | 10/2/2006 | SECOR | | 53.73 | 235.24 | |
| | 1/19/2007 | SECOR | | 54.93 | 234.04 | |
| | 4/20/2007 | SECOR | | 56.32 | 232.65 | |
| | 7/26/2007 | SECOR | | 56.24 | 232.73 | |
| | 11/2/2007 | SECOR | | 58.02 | 230.95 | |
| | 2/8/2008 | SECOR | | 59.76 | 229.21 | |
| | 5/2/2008 | SECOR | | 60.82 | 228.15 | |
| | 8/8/2008 | Stantec | 289.04 | 60.52 | 228.52 | |
| | 10/17/2008 | Stantec | | 61.22 | 227.82 | |
| | 1/30/2009 | Stantec | | 62.59 | 226.45 | |
| | 5/1/2009 | Stantec | | 63.50 | 225.54 | |
| | 7/24/2009 | Stantec | | 62.32 | 226.72 | Lack of Water |
| | 11/10/2009 | Stantec | | 62.30 | 226.74 | Lack of Water |
| | 2/8/2010 | Stantec | | Removed from Monitoring Well Network First Quarter 2010 | | |
| **MW-3** | 2/28/1982 | USEPA-ERT 1982 | 301.52 | 47.34 | 254.18 | |
| | 8/7/1984 | Harding Lawson Associates 1986 | 291.36 | 42.13 | 249.23 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 41.90 | 249.46 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 41.88 | 249.48 | |
| | 5/27/1986 | CH2M Hill 1988 | 291.52 | 40.37 | 251.15 | |
| | 7/9/1986 | CH2M Hill 1988 | | 40.56 | 250.96 | |
| | 8/11/1986 | CH2M Hill 1988 | | 40.51 | 251.01 | |
| | 8/22/1986 | CH2M Hill 1988 | | 40.45 | 251.07 | |
| | 9/23/1986 | CH2M Hill 1988 | | 40.52 | 251.00 | |
| | 10/21/1986 | CH2M Hill 1988 | | 40.31 | 251.07 | |
| | 11/14/1986 | CH2M Hill 1988 | | 40.22 | 251.30 | |
| | 12/22/1986 | CH2M Hill 1988 | | 40.35 | 251.17 | |
| | 1/19/1987 | CH2M Hill 1988 | | 40.27 | 251.25 | |
| | 2/17/1987 | CH2M Hill 1988 | | 40.29 | 251.23 | |
| | 4/10/1987 | CH2M Hill 1988 | | 40.00 | 251.52 | |
| | 4/28/1987 | CH2M Hill 1988 | | 40.20 | 251.32 | |
| | 5/21/1987 | CH2M Hill 1988 | | 40.29 | 251.23 | |
| | 6/30/1987 | CH2M Hill 1988 | 291.52 | 40.52 | 251.00 | |
| | 8/17/1987 | CH2M Hill 1988 | | 40.62 | 250.90 | |
| | 9/15/1987 | CH2M Hill 1988 | | 41.43 | 250.09 | |
| | 10/26/1987 | CH2M Hill 1988 | | 41.99 | 249.53 | |
| | 12/28/1987 | CH2M Hill 1988 | | 42.12 | 249.40 | |
| | 1/14/1988 | CH2M Hill 1988 | | 42.17 | 249.35 | |
| | 2/18/1988 | CH2M Hill 1988 | | 42.23 | 249.29 | |
| | 3/3/1988 | CH2M Hill 1988 | | 42.30 | 249.22 | |
| | 4/2/1988 | CH2M Hill 1988 | | 42.01 | 249.51 | |
| | 3/16/1998 | Envirosolve | 291.50 | 55.57 | 235.93 | |
| | 6/22/1998 | Envirosolve | | 54.03 | 237.47 | |
| | 9/14/1998 | Envirosolve | | 53.52 | 237.98 | |
| | 12/14/1998 | Envirosolve | 291.50 | 53.44 | 238.06 | |
| | 3/15/1999 | IT | | 53.76 | 237.74 | |
| | 6/14/1999 | IT | | 54.10 | 237.40 | |
| | 9/13/1999 | IT | | 54.14 | 237.36 | |
| | 12/13/1999 | IT | | 53.18 | 238.32 | |
| | 3/13/2000 | IT | | 52.63 | 238.87 | |
| | 6/19/2000 | IT | | 52.11 | 239.39 | |
| | 9/11/2000 | IT | | 51.42 | 240.08 | |
| | 12/18/2000 | IT | | 50.89 | 240.61 | |
| | 5/7/2001 | IT | 294.46 | 56.61 | 237.85 | |
| | 10/15/2001 | IT | | 57.36 | 237.10 | |
| | 6/3/2002 | SECOR | 294.26 | 58.05 | 236.51 | |
| | 9/16/2002 | SECOR | 303.26 | 65.92 | 237.34 | Top of casing has been elevated |
| | 11/18/2002 | SECOR | | 66.72 | 236.54 | |
| | 1/27/2003 | SECOR | | 67.16 | 236.10 | |
| | 6/16/2003 | SECOR | | 67.75 | 235.51 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-3 cont.** | 9/8/2003 | SECOR | | 67.99 | 235.27 | |
| | 12/8/2003 | SECOR | | 67.89 | 235.37 | |
| | 3/8/2004 | SECOR | | NA | NA | Well is dry |
| | 6/7/2004 | SECOR | | NA | NA | Well is dry |
| | 8/6/2004 | SECOR | | NA | NA | Well is dry |
| | 11/12/2004 | SECOR | | NA | NA | Well is dry |
| | 3/11/2005 | SECOR | | NA | NA | Well is dry |
| | 5/20/2005 | SECOR | | NA | NA | Well is dry |
| | 8/5/2005 | SECOR | | NA | NA | Well is dry |
| | 11/11/2005 | SECOR | | NA | NA | Well is dry |
| | 2/9/2006 | SECOR | | NA | NA | Well is dry |
| | 5/18/2006 | SECOR | | NA | NA | Well is dry |
| | 8/11/2006 | SECOR | | NA | NA | Well is dry |
| | 10/2/2006 | SECOR | | NA | NA | Well is dry |
| | 1/19/2007 | SECOR | | | Decommissioned October 2006 | |
| **MW-4** | 2/28/1982 | USEPA-ERT 1982 | 300.81 | 47.68 | 253.13 | |
| | 8/7/1984 | Harding Lawson Associates 1986 | 290.63 | 42.07 | 248.56 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 41.76 | 248.87 | |
| | 5/26/1986 | CH2M Hill 1988 | 290.78 | 40.23 | 250.55 | |
| | 7/9/1986 | CH2M Hill 1988 | | 40.61 | 250.17 | |
| | 9/23/1986 | CH2M Hill 1988 | | 40.36 | 250.42 | |
| | 10/21/1986 | CH2M Hill 1988 | | 40.25 | 250.53 | |
| | 11/14/1986 | CH2M Hill 1988 | | 40.44 | 250.34 | |
| | 12/22/1986 | CH2M Hill 1988 | | 40.68 | 250.10 | |
| | 1/19/1987 | CH2M Hill 1988 | | 40.56 | 250.22 | |
| | 2/17/1987 | CH2M Hill 1988 | | 40.56 | 250.22 | |
| | 4/10/1987 | CH2M Hill 1988 | | 40.29 | 250.49 | |
| | 4/28/1987 | CH2M Hill 1988 | | 40.51 | 250.27 | |
| | 5/21/1987 | CH2M Hill 1988 | | 40.40 | 250.38 | |
| | 6/30/1987 | CH2M Hill 1988 | | 40.39 | 250.39 | |
| | 8/17/1987 | CH2M Hill 1988 | | 40.83 | 249.95 | |
| | 9/15/1987 | CH2M Hill 1988 | 290.78 | 41.86 | 248.92 | |
| | 10/26/1987 | CH2M Hill 1988 | | 42.40 | 248.38 | |
| | 12/28/1987 | CH2M Hill 1988 | | 42.44 | 248.34 | |
| | 1/14/1988 | CH2M Hill 1988 | | 42.47 | 248.31 | |
| | 2/18/1988 | CH2M Hill 1988 | | 42.50 | 248.28 | |
| | 3/3/1988 | CH2M Hill 1988 | | 42.15 | 248.63 | |
| | 4/2/1988 | CH2M Hill 1988 | | 41.88 | 248.90 | |
| | 11/11/2005 | SECOR | | | Decommissioned February 1998 | |
| **MW-5D** | 8/7/1984 | Harding Lawson Associates 1986 | 296.75 | 48.95 | 247.80 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 48.68 | 248.07 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 48.65 | 248.10 | |
| | 5/27/1986 | CH2M Hill 1988 | 269.71 | 19.89 | 249.82 | |
| | 7/9/1986 | CH2M Hill 1988 | | 20.25 | 249.46 | |
| | 8/11/1986 | CH2M Hill 1988 | | 20.17 | 249.54 | |
| | 8/22/1986 | CH2M Hill 1988 | | 20.19 | 249.52 | |
| | 9/23/1986 | CH2M Hill 1988 | 296.71 | 20.14 | 249.57 | |
| | 10/21/1986 | CH2M Hill 1988 | | 19.96 | 249.75 | |
| | 11/14/1986 | CH2M Hill 1988 | | 20.13 | 249.58 | |
| | 12/22/1986 | CH2M Hill 1988 | | 20.25 | 249.46 | |
| | 1/19/1987 | CH2M Hill 1988 | | 20.10 | 249.61 | |
| | 2/17/1987 | CH2M Hill 1988 | | 20.13 | 249.58 | |
| | 4/10/1987 | CH2M Hill 1988 | | 19.79 | 249.92 | |
| | 4/28/1987 | CH2M Hill 1988 | | 19.97 | 249.74 | |
| | 5/21/1987 | CH2M Hill 1988 | | 47.03 | 249.68 | |
| | 6/30/1987 | CH2M Hill 1988 | | 47.03 | 249.68 | |
| | 8/17/1987 | CH2M Hill 1988 | | 47.52 | 249.19 | |
| | 9/15/1987 | CH2M Hill 1988 | | 48.52 | 248.19 | |
| | 10/26/1987 | CH2M Hill 1988 | | 48.90 | 247.81 | |
| | 12/28/1987 | CH2M Hill 1988 | | 48.95 | 247.76 | |
| | 1/14/1988 | CH2M Hill 1988 | | 48.93 | 247.78 | |
| | 2/18/1988 | CH2M Hill 1988 | | 49.00 | 247.71 | |
| | 3/3/1988 | CH2M Hill 1988 | | 48.71 | 248.00 | |
| | 4/2/1988 | CH2M Hill 1988 | | 48.63 | 248.08 | |
| | 6/14/1999 | IT | 296.66 | 61.10 | 235.56 | |
| | 9/13/1999 | IT | | 61.03 | 235.63 | |
| | 12/13/1999 | IT | | 59.94 | 236.72 | |
| | 3/13/2000 | IT | | 59.63 | 237.03 | |
| | 6/19/2000 | IT | | 58.95 | 237.71 | |
| | 9/11/2000 | IT | | 58.42 | 238.24 | |
| | 12/18/2000 | IT | | 57.64 | 239.02 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-5D cont.** | 5/7/2001 | IT | 301.71 | 65.59 | 236.12 | |
| | 10/15/2001 | IT | | 66.39 | 235.32 | |
| | 6/3/2002 | SECOR | 301.60 | 67.17 | 234.43 | |
| | 9/16/2002 | SECOR | 307.76 | 71.82 | 235.94 | MicroPurge® pump installed; TOC was elevated |
| | 11/18/2002 | SECOR | | 72.62 | 235.14 | |
| | 1/27/2003 | SECOR | | 73.01 | 234.75 | |
| | 6/16/2003 | SECOR | | 73.65 | 234.11 | |
| | 9/8/2003 | SECOR | | 73.82 | 233.94 | |
| | 12/8/2003 | SECOR | | 73.76 | 234.00 | |
| | 3/8/2004 | SECOR | | 74.04 | 233.72 | |
| | 6/7/2004 | SECOR | | 74.99 | 232.77 | |
| | 8/6/2004 | SECOR | | 75.54 | 232.22 | |
| | 11/12/2004 | SECOR | | 75.85 | 231.91 | |
| | 3/11/2005 | SECOR | | 75.88 | 231.88 | |
| | 5/20/2005 | SECOR | | 75.92 | 231.84 | |
| | 8/5/2005 | SECOR | | 76.70 | 231.06 | |
| | 11/11/2005 | SECOR | | 74.70 | 233.06 | |
| | 2/9/2006 | SECOR | | 74.93 | 232.83 | |
| | 5/18/2006 | SECOR | | 75.02 | 232.74 | |
| | 8/11/2006 | SECOR | 307.76 | NA | NA | Unsafe to gauge |
| | 10/2/2006 | SECOR | | NA | NA | Unsafe to gauge |
| | 1/19/2007 | SECOR | | | Decommissioned October 2006 | |
| **MW-5S** | 8/7/1984 | Harding Lawson Associates 1986 | 296.75 | 48.94 | 247.81 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 48.65 | 248.10 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 48.61 | 248.14 | |
| | 5/27/1986 | CH2M Hill 1988 | | 46.92 | 249.83 | |
| | 7/9/1986 | CH2M Hill 1988 | | 47.33 | 249.42 | |
| | 8/11/1986 | CH2M Hill 1988 | | 47.15 | 249.60 | |
| | 8/22/1986 | CH2M Hill 1988 | | 47.17 | 249.58 | |
| | 9/23/1986 | CH2M Hill 1988 | | 47.11 | 249.64 | |
| | 10/21/1986 | CH2M Hill 1988 | | 47.01 | 249.74 | |
| | 11/14/1986 | CH2M Hill 1988 | | 47.09 | 249.66 | |
| | 12/22/1986 | CH2M Hill 1988 | | 47.30 | 249.45 | |
| | 1/19/1987 | CH2M Hill 1988 | | 47.15 | 249.60 | |
| | 2/17/1987 | CH2M Hill 1988 | | 47.12 | 249.63 | |
| | 4/10/1987 | CH2M Hill 1988 | | 46.82 | 249.93 | |
| | 4/28/1987 | CH2M Hill 1988 | | 46.99 | 249.76 | |
| | 5/21/1987 | CH2M Hill 1988 | | 47.02 | 249.73 | |
| | 6/30/1987 | CH2M Hill 1988 | | 47.21 | 249.54 | |
| | 8/17/1987 | CH2M Hill 1988 | | 47.51 | 249.24 | |
| | 9/15/1987 | CH2M Hill 1988 | | 48.48 | 248.27 | |
| | 10/26/1987 | CH2M Hill 1988 | | 48.96 | 247.79 | |
| | 12/28/1987 | CH2M Hill 1988 | | 48.98 | 247.77 | |
| | 1/14/1988 | CH2M Hill 1988 | | 48.94 | 247.81 | |
| | 2/18/1988 | CH2M Hill 1988 | | 49.02 | 247.73 | |
| | 3/3/1988 | CH2M Hill 1988 | | 48.73 | 248.02 | |
| | 4/2/1988 | CH2M Hill 1988 | | 48.65 | 248.10 | |
| | 9/13/1999 | IT | 296.77 | 59.55 | 237.22 | May be residual water trapped in well |
| | 12/13/1999 | IT | | 59.60 | 237.17 | May be hitting top of pump |
| | 3/13/2000 | IT | | 59.52 | 237.25 | |
| | 6/19/2000 | IT | | 59.00 | 237.77 | |
| | 9/11/2000 | IT | | 58.36 | 238.41 | |
| | 12/18/2000 | IT | | 57.60 | 239.17 | |
| | 5/7/2001 | IT | 301.92 | 65.76 | 236.16 | |
| | 10/15/2001 | IT | | 66.54 | 235.38 | |
| | 6/3/2002 | SECOR | 301.81 | 67.29 | 234.52 | |
| | 9/16/2002 | SECOR | 308.59 | 71.88 | 236.71 | Top of casing has been elevated |
| | 11/18/2002 | SECOR | | 72.74 | 235.85 | |
| | 1/27/2003 | SECOR | | 73.16 | 235.43 | |
| | 6/16/2003 | SECOR | | 73.78 | 234.81 | Not purged |
| | 9/8/2003 | SECOR | | 73.81 | 234.78 | |
| | 12/8/2003 | SECOR | | 73.85 | 234.74 | |
| | 3/8/2004 | SECOR | | 74.17 | 234.42 | |
| | 6/7/2004 | SECOR | | NA | NA | Well is dry |
| | 8/6/2004 | SECOR | | NA | NA | Well is dry |
| | 11/12/2004 | SECOR | | NA | NA | Well is dry |
| | 3/11/2005 | SECOR | | NA | NA | Well is dry |
| | 8/5/2005 | SECOR | | NA | NA | Well is dry |
| | 11/11/2005 | SECOR | | NA | NA | Well is dry |
| | 2/9/2006 | SECOR | | NA | NA | Well is dry |
| | 5/18/2006 | SECOR | | NA | NA | Well is dry |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-5S cont.** | 8/11/2006 | SECOR | | NA | NA | |
| | 10/2/2006 | SECOR | | NA | NA | Sealed |
| | 1/19/2007 | SECOR | | | Decommissioned October 2006 | |
| **MW-6S** | 12/28/1987 | CH2M Hill 1988 | 295.64 | 47.17 | 248.47 | |
| | 1/14/1988 | CH2M Hill 1988 | | 47.21 | 248.43 | |
| | 2/18/1988 | CH2M Hill 1988 | | 47.28 | 248.36 | |
| | 3/3/1988 | CH2M Hill 1988 | | 47.21 | 248.43 | |
| | 4/2/1988 | CH2M Hill 1988 | 295.64 | 46.92 | 248.72 | |
| | 4/17/1995 | Envirosolve | 295.81 | 64.94 | 230.87 | |
| | 7/7/1995 | Envirosolve | | 64.56 | 231.25 | |
| | 10/23/1995 | Envirosolve | | 63.26 | 232.55 | |
| | 4/15/1996 | Envirosolve | | 63.23 | 232.58 | |
| | 3/16/1998 | Envirosolve | | 60.89 | 234.92 | |
| | 6/22/1998 | Envirosolve | 295.81 | 59.43 | 236.38 | |
| | 9/14/1998 | Envirosolve | | 58.88 | 236.93 | |
| | 12/14/1998 | Envirosolve | | 59.07 | 236.74 | |
| | 3/15/1999 | IT | | 59.22 | 236.59 | |
| | 6/14/1999 | IT | 295.81 | 59.97 | 235.84 | |
| | 9/13/1999 | IT | | 59.55 | 236.26 | |
| | 12/13/1999 | IT | | 58.58 | 237.23 | |
| | 3/13/2000 | IT | | 58.25 | 237.56 | |
| | 6/19/2000 | IT | | 57.49 | 238.32 | |
| | 9/11/2000 | IT | | 57.05 | 238.76 | |
| | 12/18/2000 | IT | | 56.17 | 239.64 | |
| | 5/7/2001 | IT | 299.13 | 62.09 | 237.04 | |
| | 10/15/2001 | IT | | 62.96 | 236.17 | |
| | 6/3/2002 | SECOR | 299.09 | 64.05 | 235.04 | |
| | 9/16/2002 | SECOR | 304.68 | 68.46 | 236.22 | MicroPurge® pump installed; TOC was elevated |
| | 11/18/2002 | SECOR | | 68.90 | 235.78 | |
| | 1/27/2003 | SECOR | | 69.70 | 234.98 | |
| | 6/16/2003 | SECOR | | 70.21 | 234.41 | |
| | 9/8/2003 | SECOR | | 70.45 | 234.23 | |
| | 12/8/2003 | SECOR | | 70.31 | 234.37 | |
| | 3/8/2004 | SECOR | | 70.62 | 234.06 | |
| | 6/7/2004 | SECOR | | 71.43 | 233.25 | |
| | 8/6/2004 | SECOR | | 72.05 | 232.63 | |
| | 11/12/2004 | SECOR | | 72.25 | 232.43 | |
| | 3/11/2005 | SECOR | | 72.38 | 232.30 | |
| | 5/20/2005 | SECOR | | 72.13 | 232.55 | |
| | 8/5/2005 | SECOR | | 72.87 | 231.81 | |
| | 11/11/2005 | SECOR | | 70.90 | 233.78 | |
| | 2/9/2006 | SECOR | | 71.22 | 233.46 | |
| | 5/18/2006 | SECOR | | 71.27 | 233.41 | |
| | 8/11/2006 | SECOR | | 71.73 | 232.95 | |
| | 10/2/2006 | SECOR | | NA | NA | Unsafe to gauge |
| | 1/19/2007 | SECOR | | | Decommissioned October 2006 | |
| **MW-7S** | 8/7/1984 | Harding Lawson Associates 1986 | 293.99 | 45.63 | 248.36 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 45.37 | 248.62 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 45.32 | 248.67 | |
| | 5/27/1986 | CH2M Hill 1988 | 294.18 | 43.82 | 250.36 | |
| | 7/9/1986 | CH2M Hill 1988 | | 44.19 | 249.99 | |
| | 8/11/1986 | CH2M Hill 1988 | | 44.10 | 250.08 | |
| | 8/22/1986 | CH2M Hill 1988 | | 44.07 | 250.11 | |
| | 9/23/1986 | CH2M Hill 1988 | | 43.96 | 250.22 | |
| | 10/21/1986 | CH2M Hill 1988 | | 43.95 | 250.23 | |
| | 11/14/1986 | CH2M Hill 1988 | | 43.94 | 250.24 | |
| | 12/22/1986 | CH2M Hill 1988 | | 43.97 | 250.21 | |
| | 1/19/1987 | CH2M Hill 1988 | | 43.78 | 250.40 | |
| | 2/17/1987 | CH2M Hill 1988 | | 43.80 | 250.38 | |
| | 4/10/1987 | CH2M Hill 1988 | | 43.62 | 250.56 | |
| | 4/28/1987 | CH2M Hill 1988 | 294.18 | 43.71 | 250.47 | |
| | 5/21/1987 | CH2M Hill 1988 | | 43.77 | 250.41 | |
| | 6/30/1987 | CH2M Hill 1988 | | 44.08 | 250.10 | |
| | 8/17/1987 | CH2M Hill 1988 | | 44.23 | 249.95 | |
| | 9/15/1987 | CH2M Hill 1988 | | 45.17 | 249.01 | |
| | 10/26/1987 | CH2M Hill 1988 | | 45.57 | 248.61 | |
| | 12/28/1987 | CH2M Hill 1988 | 294.18 | 45.72 | 248.46 | |
| | 1/14/1988 | CH2M Hill 1988 | | 45.64 | 248.54 | |
| | 2/18/1988 | CH2M Hill 1988 | | 45.77 | 248.41 | |
| | 3/3/1988 | CH2M Hill 1988 | | 45.74 | 248.44 | |
| | 4/2/1988 | CH2M Hill 1988 | | 45.48 | 248.70 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-7S cont.** | 1/16/1995 | Envirosolve | | 62.87 | 231.31 | |
| | 4/17/1995 | Envirosolve | 294.15 | 63.24 | 230.91 | |
| | 7/7/1995 | Envirosolve | | 62.88 | 231.27 | |
| | 10/23/1995 | Envirosolve | | 61.60 | 232.55 | |
| | 4/15/1996 | Envirosolve | | 61.57 | 232.58 | |
| | 3/16/1998 | Envirosolve | | 59.21 | 234.94 | |
| | 6/22/1998 | Envirosolve | | 57.73 | 236.42 | |
| | 9/14/1998 | Envirosolve | | 57.19 | 236.96 | |
| | 12/14/1998 | Envirosolve | | 57.39 | 236.76 | |
| | 3/15/1999 | IT | | 57.70 | 236.45 | |
| | 6/14/1999 | IT | | 57.97 | 236.18 | |
| | 9/13/1999 | IT | | 57.97 | 236.18 | |
| | 12/13/1999 | IT | | 56.92 | 237.23 | |
| | 3/13/2000 | IT | | 56.70 | 237.45 | |
| | 6/19/2000 | IT | | 55.72 | 238.43 | |
| | 9/11/2000 | IT | | 55.07 | 239.08 | |
| | 12/18/2000 | IT | | 54.26 | 239.89 | |
| | 5/7/2001 | IT | 298.83 | 61.50 | 237.33 | |
| | 10/15/2001 | IT | | 62.57 | 236.26 | |
| | 6/3/2002 | SECOR | 298.79 | 63.70 | 235.09 | |
| | 9/16/2002 | SECOR | | 65.86 | 236.22 | MicroPurge® pump installed; TOC was elevated |
| | 11/18/2002 | SECOR | 302.08 | 66.36 | 235.72 | |
| | 1/27/2003 | SECOR | | 66.94 | 235.14 | |
| | 6/16/2003 | SECOR | | 67.58 | 234.50 | |
| | 9/8/2003 | SECOR | | 67.80 | 234.28 | |
| | 12/8/2003 | SECOR | | 67.71 | 234.37 | |
| | 3/8/2004 | SECOR | | 67.88 | 234.20 | |
| | 6/7/2004 | SECOR | | 68.94 | 233.14 | |
| | 8/6/2004 | SECOR | | 69.34 | 232.74 | |
| | 11/12/2004 | SECOR | | 69.75 | 232.33 | |
| | 3/11/2005 | SECOR | | 69.78 | 232.30 | |
| | 5/20/2005 | SECOR | | 69.74 | 232.34 | |
| | 8/5/2005 | SECOR | | 70.38 | 231.70 | |
| | 11/11/2005 | SECOR | | 68.45 | 233.63 | |
| | 2/9/2006 | SECOR | | 68.77 | 233.31 | |
| | 5/18/2006 | SECOR | | 68.79 | 233.29 | |
| | 8/11/2006 | SECOR | | 69.1 | 232.98 | |
| | 10/2/2006 | SECOR | | NA | NA | Unsafe to gauge |
| | 1/19/2007 | SECOR | | | Decommissioned October 2006 | |
| **MW-8** | 12/28/1987 | CH2M Hill 1988 | 296.67 | 49.18 | 247.49 | |
| | 1/14/1988 | CH2M Hill 1988 | | 49.13 | 247.54 | |
| | 2/18/1988 | CH2M Hill 1988 | | 49.22 | 247.45 | |
| | 3/3/1988 | CH2M Hill 1988 | | 48.78 | 247.89 | |
| | 4/2/1988 | CH2M Hill 1988 | | 48.88 | 247.79 | |
| | 1/16/1995 | Envirosolve | | 65.77 | 230.90 | |
| | 4/17/1995 | Envirosolve | 296.83 | 66.57 | 230.26 | |
| | 7/7/1995 | Envirosolve | | 66.22 | 230.61 | |
| | 10/23/1995 | Envirosolve | 296.83 | 64.96 | 231.87 | |
| | 4/15/1996 | Envirosolve | | 64.88 | 231.95 | |
| | 3/16/1998 | Envirosolve | | 62.85 | 233.98 | |
| | 6/22/1998 | Envirosolve | | 61.45 | 235.38 | |
| | 9/14/1998 | Envirosolve | | 60.89 | 235.94 | |
| | 12/14/1998 | Envirosolve | | 60.67 | 236.16 | |
| | 3/15/1999 | IT | | 61.04 | 235.79 | |
| | 6/14/1999 | IT | 296.83 | 61.68 | 235.15 | |
| | 9/13/1999 | IT | | 61.39 | 235.44 | |
| | 12/13/1999 | IT | | 60.36 | 236.47 | |
| | 3/13/2000 | IT | | 60.04 | 236.79 | |
| | 6/19/2000 | IT | | 59.41 | 237.42 | |
| | 9/11/2000 | IT | | 59.06 | 237.77 | |
| | 12/18/2000 | IT | | 58.27 | 238.56 | |
| | 5/7/2001 | IT | 301.87 | 66.03 | 235.84 | |
| | 10/15/2001 | IT | | 66.85 | 235.02 | |
| | 6/3/2002 | SECOR | 300.72 | 66.53 | 234.19 | |
| | 9/16/2002 | SECOR | 307.86 | 72.27 | 235.59 | MicroPurge® pump installed; TOC was elevated |
| | 11/18/2002 | SECOR | | 73.04 | 234.82 | |
| | 1/27/2003 | SECOR | | 73.44 | 234.42 | |
| | 6/16/2003 | SECOR | | 74.01 | 233.85 | |
| | 9/8/2003 | SECOR | | 74.13 | 233.73 | |
| | 12/8/2003 | SECOR | | 72.78 | 235.08 | |
| | 3/8/2004 | SECOR | | 73.11 | 234.75 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-8 cont.** | 6/7/2004 | SECOR | | 74.04 | 233.82 | |
| | 8/6/2004 | SECOR | | 74.63 | 233.23 | |
| | 11/12/2004 | SECOR | | 74.92 | 232.94 | |
| | 3/18/2005 | SECOR | | 74.95 | 232.91 | |
| | 5/20/2005 | SECOR | | 74.98 | 232.88 | |
| | 8/5/2005 | SECOR | | 75.82 | 232.04 | |
| | 11/11/2005 | SECOR | | 73.83 | 234.03 | |
| | 2/9/2006 | SECOR | | 73.96 | 233.90 | |
| | 5/18/2006 | SECOR | | 73.99 | 233.87 | |
| | 8/11/2006 | SECOR | | NA | NA | Unsafe to gauge |
| | 10/2/2006 | SECOR | | NA | NA | Unsafe to gauge |
| | 1/19/2007 | SECOR | | Decommissioned October 2006 | | |
| **MW-10** | 12/28/1987 | CH2M Hill 1988 | 290.91 | 43.65 | 247.26 | |
| | 1/14/1988 | CH2M Hill 1988 | | 43.08 | 247.83 | |
| | 2/18/1988 | CH2M Hill 1988 | | 43.09 | 247.82 | |
| | 3/3/1988 | CH2M Hill 1988 | | 43.05 | 247.86 | |
| | 4/2/1988 | CH2M Hill 1988 | | 42.73 | 248.18 | |
| | 1/16/1995 | Envirosolve | | 59.06 | 231.85 | |
| | 4/17/1995 | Envirosolve | 288.68 | 57.60 | 231.08 | |
| | 7/7/1995 | Envirosolve | 290.63 | 59.58 | 231.05 | |
| | 10/23/1995 | Envirosolve | | 58.38 | 232.25 | |
| | 4/15/1996 | Envirosolve | | 58.28 | 232.35 | |
| | 3/16/1998 | Envirosolve | | 56.20 | 234.43 | |
| | 6/22/1998 | Envirosolve | | 54.81 | 235.82 | |
| | 9/14/1998 | Envirosolve | | 54.20 | 236.43 | |
| | 12/14/1998 | Envirosolve | | 54.07 | 236.56 | |
| | 3/15/1999 | IT | | 54.31 | 236.32 | |
| | 6/14/1999 | IT | | 54.80 | 235.83 | |
| | 9/13/1999 | IT | | 54.86 | 235.77 | |
| | 12/13/1999 | IT | | 54.07 | 236.56 | |
| | 3/13/2000 | IT | | 53.31 | 237.32 | |
| | 6/19/2000 | IT | | 53.07 | 237.56 | |
| | 9/11/2000 | IT | | 52.55 | 238.08 | |
| | 12/18/2000 | IT | | 51.60 | 239.03 | |
| | 5/7/2001 | IT | | 53.99 | 236.64 | |
| | 10/15/2001 | IT | | 54.78 | 235.85 | |
| | 6/3/2002 | SECOR | | 55.70 | 234.93 | |
| | 9/16/2002 | SECOR | | 54.37 | 236.26 | MicroPurge® pump installed |
| | 11/18/2002 | SECOR | | 55.32 | 235.31 | |
| | 1/27/2003 | SECOR | | 55.71 | 234.92 | |
| | 6/16/2003 | SECOR | | 56.41 | 234.22 | |
| | 9/8/2003 | SECOR | | 56.59 | 234.04 | |
| | 12/8/2003 | SECOR | 290.63 | 56.53 | 234.10 | |
| | 3/8/2004 | SECOR | | 56.85 | 233.78 | |
| | 6/7/2004 | SECOR | | 57.64 | 232.99 | |
| | 8/6/2004 | SECOR | | 58.22 | 232.41 | |
| | 11/12/2004 | SECOR | | 58.64 | 231.99 | |
| | 3/11/2005 | SECOR | | 58.65 | 231.98 | |
| | 5/20/2005 | SECOR | | 58.68 | 231.95 | Grass and foliage needs cutting |
| | 8/5/2005 | SECOR | | 59.34 | 231.29 | |
| | 11/11/2005 | SECOR | | 57.41 | 233.22 | |
| | 2/9/2006 | SECOR | | 57.76 | 232.87 | |
| | 5/18/2006 | SECOR | | 57.84 | 232.79 | |
| | 8/11/2006 | SECOR | 290.63 | 58.17 | 232.46 | |
| | 10/2/2006 | SECOR | | 57.80 | 232.83 | |
| | 1/19/2007 | SECOR | | 58.70 | 231.93 | |
| | 4/20/2007 | SECOR | | 59.82 | 230.81 | |
| | 7/26/2007 | SECOR | | 60.22 | 230.41 | |
| | 11/2/2007 | SECOR | | 61.86 | 228.77 | |
| | 2/8/2008 | SECOR | | 63.13 | 227.50 | |
| | 5/2/2008 | SECOR | | 63.69 | 226.94 | |
| | 8/8/2008 | Stantec | 290.69 | 64.19 | 226.50 | |
| | 10/17/2008 | Stantec | | 64.60 | 226.09 | |
| | 1/30/2009 | Stantec | | 65.78 | 224.91 | |
| | 5/1/2009 | Stantec | | 66.80 | 223.89 | |
| | 7/24/2009 | Stantec | | 66.15 | 224.54 | Lack of Water |
| | 11/10/2009 | Stantec | | 65.89 | 224.80 | Lack of Water |
| | 2/8/2010 | Stantec | | Removed from Monitoring Well Network First Quarter 2010 | | |
| **MW-12** | 2/28/1982 | USEPA-ERT 1982 | 300.74 | 48.17 | 252.57 | |
| | 8/7/1984 | Harding Lawson Associates 1986 | 290.50 | 43.00 | 247.50 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-12 cont.** | 9/11/1984 | Harding Lawson Associates 1986 | | 42.81 | 247.69 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 42.82 | 247.68 | |
| | 5/27/1986 | CH2M Hill 1988 | 290.64 | 41.19 | 249.45 | |
| | 7/9/1986 | CH2M Hill 1988 | | 41.56 | 249.08 | |
| | 8/11/1986 | CH2M Hill 1988 | | 41.49 | 249.15 | |
| | 8/22/1986 | CH2M Hill 1988 | | 41.47 | 249.17 | |
| | 9/23/1986 | CH2M Hill 1988 | | 41.47 | 249.17 | |
| | 10/21/1986 | CH2M Hill 1988 | | 41.31 | 249.33 | |
| | 11/14/1986 | CH2M Hill 1988 | | 41.16 | 249.48 | |
| | 12/22/1986 | CH2M Hill 1988 | | 41.38 | 249.26 | |
| | 1/19/1987 | CH2M Hill 1988 | | 41.23 | 249.41 | |
| | 2/17/1987 | CH2M Hill 1988 | | 41.17 | 249.47 | |
| | 4/28/1987 | CH2M Hill 1988 | | 41.00 | 249.64 | |
| | 5/21/1987 | CH2M Hill 1988 | | 41.19 | 249.45 | |
| | 6/30/1987 | CH2M Hill 1988 | | 41.41 | 249.23 | |
| | 8/17/1987 | CH2M Hill 1988 | | 41.55 | 249.09 | |
| | 9/15/1987 | CH2M Hill 1988 | | 42.54 | 248.10 | |
| | 10/26/1987 | CH2M Hill 1988 | | 43.02 | 247.62 | |
| | 12/28/1987 | CH2M Hill 1988 | | 43.06 | 247.58 | |
| | 1/14/1988 | CH2M Hill 1988 | | 43.12 | 247.52 | |
| | 2/18/1988 | CH2M Hill 1988 | | 43.09 | 247.55 | |
| | 3/3/1988 | CH2M Hill 1988 | | 43.15 | 247.49 | |
| | 4/2/1988 | CH2M Hill 1988 | 290.64 | 42.95 | 247.69 | |
| | 8/5/2005 | SECOR | | NA | NA | Well is dry |
| | 11/11/2005 | SECOR | | NA | NA | Well is dry |
| | 2/9/2006 | SECOR | | | Decommissioned December 2005 | |
| **MW-14D** | 8/7/1984 | Harding Lawson Associates 1986 | 296.70 | 49.81 | 246.89 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 49.51 | 247.19 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | 296.70 | 49.53 | 247.17 | |
| | 5/27/1986 | CH2M Hill 1988 | 296.68 | 47.63 | 249.05 | |
| | 7/9/1986 | CH2M Hill 1988 | | 48.19 | 248.49 | |
| | 8/11/1986 | CH2M Hill 1988 | | 47.94 | 248.74 | |
| | 8/22/1986 | CH2M Hill 1988 | | 48.00 | 248.68 | |
| | 9/23/1986 | CH2M Hill 1988 | | 47.91 | 248.77 | |
| | 10/21/1986 | CH2M Hill 1988 | | 47.83 | 248.85 | |
| | 11/14/1986 | CH2M Hill 1988 | | 47.92 | 248.76 | |
| | 12/22/1986 | CH2M Hill 1988 | | 48.10 | 248.58 | |
| | 1/19/1987 | CH2M Hill 1988 | | 47.95 | 248.73 | |
| | 2/17/1987 | CH2M Hill 1988 | | 47.93 | 248.75 | |
| | 4/10/1987 | CH2M Hill 1988 | | 47.66 | 249.02 | |
| | 4/28/1987 | CH2M Hill 1988 | | 47.82 | 248.86 | |
| | 5/21/1987 | CH2M Hill 1988 | | 47.85 | 248.83 | |
| | 6/30/1987 | CH2M Hill 1988 | | 48.11 | 248.57 | |
| | 8/17/1987 | CH2M Hill 1988 | | 48.36 | 248.32 | |
| | 9/15/1987 | CH2M Hill 1988 | | 49.49 | 247.19 | |
| | 10/26/1987 | CH2M Hill 1988 | | 49.80 | 246.88 | |
| | 12/28/1987 | CH2M Hill 1988 | | 49.76 | 246.92 | |
| | 1/14/1988 | CH2M Hill 1988 | | 49.23 | 247.45 | |
| | 2/18/1988 | CH2M Hill 1988 | 296.67 | 49.79 | 246.89 | |
| | 3/3/1988 | CH2M Hill 1988 | | 49.20 | 247.48 | |
| | 4/2/1988 | CH2M Hill 1988 | | 49.53 | 247.15 | |
| | 4/17/1995 | Envirosolve | | 66.92 | 229.75 | |
| | 7/7/1995 | Envirosolve | | 66.60 | 230.07 | |
| | 10/23/1995 | Envirosolve | | 65.27 | 231.40 | |
| | 4/15/1996 | Envirosolve | | 65.21 | 231.46 | |
| | 3/16/1998 | Envirosolve | | 63.21 | 233.46 | |
| | 6/22/1998 | Envirosolve | | 61.83 | 234.84 | |
| | 9/14/1998 | Envirosolve | | 61.22 | 235.45 | |
| | 12/14/1998 | Envirosolve | | 61.01 | 235.66 | |
| | 3/15/1999 | IT | | 61.44 | 235.23 | |
| | 6/14/1999 | IT | | 62.17 | 234.50 | |
| | 9/13/1999 | IT | | 61.88 | 234.79 | |
| | 12/13/1999 | IT | | 60.64 | 236.03 | |
| | 3/13/2000 | IT | | 60.37 | 236.30 | |
| | 6/19/2000 | IT | | 59.75 | 236.92 | |
| | 9/11/2000 | IT | | 59.29 | 237.38 | |
| | 12/18/2000 | IT | | 58.43 | 238.24 | |
| | 6/3/2002 | SECOR | 301.85 | NA | NA | Well has obstruction |
| | 9/16/2002 | SECOR | | NA | NA | Well has obstruction |
| | 11/18/2002 | SECOR | | NA | NA | Well has obstruction |
| | 8/5/2005 | SECOR | | NA | NA | Well has obstruction |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-14D cont.** | 11/11/2005 | SECOR | | NA | NA | Well has obstruction |
| | 2/9/2006 | SECOR | | | Decommissioned December 2005 | |
| **MW-14S** | 8/7/1984 | Harding Lawson Associates 1986 | 296.68 | 49.80 | 246.88 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 49.49 | 247.19 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 49.50 | 247.18 | |
| | 5/27/1986 | CH2M Hill 1988 | | 47.49 | 249.19 | |
| | 7/9/1986 | CH2M Hill 1988 | | 48.17 | 248.51 | |
| | 8/11/1986 | CH2M Hill 1988 | | 47.96 | 248.72 | |
| | 8/22/1986 | CH2M Hill 1988 | | 48.02 | 248.66 | |
| | 9/23/1986 | CH2M Hill 1988 | 296.68 | 47.71 | 248.97 | |
| | 10/21/1986 | CH2M Hill 1988 | | 47.81 | 248.87 | |
| | 11/14/1986 | CH2M Hill 1988 | | 47.92 | 248.76 | |
| | 12/22/1986 | CH2M Hill 1988 | | 48.08 | 248.60 | |
| | 1/19/1987 | CH2M Hill 1988 | | 47.92 | 248.76 | |
| | 2/17/1987 | CH2M Hill 1988 | | 47.92 | 248.76 | |
| | 4/10/1987 | CH2M Hill 1988 | | 47.62 | 249.06 | |
| | 4/28/1987 | CH2M Hill 1988 | | 47.82 | 248.86 | |
| | 5/21/1987 | CH2M Hill 1988 | | 47.87 | 248.81 | |
| | 6/30/1987 | CH2M Hill 1988 | | 48.06 | 248.62 | |
| | 8/17/1987 | CH2M Hill 1988 | | 48.36 | 248.32 | |
| | 9/15/1987 | CH2M Hill 1988 | | 49.45 | 247.23 | |
| | 10/26/1987 | CH2M Hill 1988 | | 49.73 | 246.95 | |
| | 12/28/1987 | CH2M Hill 1988 | | 49.76 | 246.92 | |
| | 1/14/1988 | CH2M Hill 1988 | | 49.71 | 246.97 | |
| | 2/18/1988 | CH2M Hill 1988 | | 49.80 | 246.88 | |
| | 3/3/1988 | CH2M Hill 1988 | | 49.21 | 247.47 | |
| | 4/2/1988 | CH2M Hill 1988 | | 49.52 | 247.16 | |
| | 9/13/1999 | IT | 296.67 | 59.66 | 237.01 | |
| | 12/13/1999 | IT | | 59.69 | 236.98 | May be hitting top of pump |
| | 3/13/2000 | IT | | 59.64 | 237.03 | |
| | 6/19/2000 | IT | | 59.64 | 237.03 | |
| | 9/11/2000 | IT | | 59.44 | 237.23 | |
| | 12/18/2000 | IT | | 52.40 | 244.27 | |
| | 5/7/2001 | IT | 301.75 | 66.16 | 235.59 | |
| | 6/3/2002 | SECOR | 301.62 | NA | NA | Well has obstruction |
| | 9/16/2002 | SECOR | | NA | NA | Well has obstruction |
| | 11/18/2002 | SECOR | | NA | NA | Well has obstruction |
| | 8/5/2005 | SECOR | | NA | NA | Well has obstruction |
| | 11/11/2005 | SECOR | | NA | NA | Well has obstruction |
| | 2/9/2006 | SECOR | | | Decommissioned December 2005 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-16** | 12/28/1987 | CH2M Hill 1988 | 295.97 | 49.55 | 246.42 | |
| | 1/14/1988 | CH2M Hill 1988 | | 49.60 | 246.37 | |
| | 2/18/1988 | CH2M Hill 1988 | | 49.60 | 246.37 | |
| | 3/3/1988 | CH2M Hill 1988 | 296.18 | 49.20 | 246.77 | |
| | 4/2/1988 | CH2M Hill 1988 | | 49.28 | 246.69 | |
| | 10/23/1995 | Envirosolve | | 65.28 | 230.90 | |
| | 4/15/1996 | Envirosolve | | 65.22 | 230.96 | |
| | 3/16/1998 | Envirosolve | | 63.21 | 232.97 | |
| | 6/22/1998 | Envirosolve | | 61.83 | 234.35 | |
| | 9/14/1998 | Envirosolve | | 61.18 | 235.00 | |
| | 12/14/1998 | Envirosolve | | 60.98 | 235.20 | |
| | 3/15/1999 | IT | | 61.29 | 234.89 | |
| | 6/14/1999 | IT | | 62.11 | 234.07 | |
| | 9/13/1999 | IT | | 61.73 | 234.45 | |
| | 12/13/1999 | IT | | 60.55 | 235.63 | |
| | 3/13/2000 | IT | | 60.02 | 236.16 | |
| | 6/19/2000 | IT | | 59.59 | 236.59 | |
| | 9/11/2000 | IT | | 59.44 | 236.74 | |
| | 12/18/2000 | IT | | 58.47 | 237.71 | |
| | 5/7/2001 | IT | 300.50 | 65.58 | 234.92 | |
| | 10/15/2001 | IT | | 66.73 | 233.77 | |
| | 6/3/2002 | SECOR | 300.47 | 66.15 | 234.32 | |
| | 9/16/2002 | SECOR | 302.65 | 68.18 | 234.47 | MicroPurge® pump installed; TOC was elevated |
| | 11/18/2002 | SECOR | | 69.02 | 233.63 | |
| | 1/27/2003 | SECOR | | 69.38 | 233.27 | |
| | 6/16/2003 | SECOR | | 69.81 | 232.84 | |
| | 9/8/2003 | SECOR | | 69.94 | 232.71 | |
| | 12/8/2003 | SECOR | 302.65 | 69.94 | 232.71 | |
| | 3/8/2004 | SECOR | | 70.19 | 232.46 | |
| | 6/7/2004 | SECOR | | 71.03 | 231.62 | |
| | 8/6/2004 | SECOR | | 71.67 | 230.98 | |
| | 11/12/2004 | SECOR | | 71.95 | 230.70 | |
| | 3/11/2005 | SECOR | | 71.96 | 230.69 | |
| | 5/20/2005 | SECOR | | 72.13 | 230.52 | |
| | 8/5/2005 | SECOR | | 72.97 | 229.68 | |
| | 11/11/2005 | SECOR | | 71.05 | 231.60 | |
| | 2/9/2006 | SECOR | | 71.20 | 231.45 | |
| | 5/18/2006 | SECOR | | 71.27 | 231.38 | |
| | 8/11/2006 | SECOR | | 71.68 | 230.97 | |
| | 10/2/2006 | SECOR | | 71.42 | 231.23 | Well is below grade |
| | 1/19/2007 | SECOR | | 72.05 | 230.60 | |
| | 4/20/2007 | SECOR | | 73.27 | 229.38 | |
| | 7/26/2007 | SECOR | 295.94 | 66.82 | 229.12 | Casing knocked over; resurveyed 7/26/2007 |
| | 11/2/2007 | SECOR | | 68.67 | 227.27 | |
| | 2/8/2008 | SECOR | | 69.80 | 226.14 | |
| | 5/2/2008 | SECOR | | 69.97 | 225.97 | |
| | 8/8/2008 | Stantec | 296.04 | 70.01 | 226.03 | |
| | 10/17/2008 | Stantec | | 70.10 | 225.94 | |
| | 1/30/2009 | Stantec | | 70.10 | 225.94 | |
| | 5/1/2009 | Stantec | | 70.10 | 225.94 | |
| | 7/24/2009 | Stantec | | Dry | Dry | Residual water / Lack of water |
| | 11/10/2009 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/8/2010 | Stantec | | Removed from Monitoring Well Network First Quarter 2010 | | |
| **MW-19** | 12/28/1987 | CH2M Hill 1988 | 291.08 | 44.38 | 246.70 | |
| | 1/14/1988 | CH2M Hill 1988 | | 44.43 | 246.65 | |
| | 2/18/1988 | CH2M Hill 1988 | | 44.40 | 246.68 | |
| | 3/3/1988 | CH2M Hill 1988 | | 44.43 | 246.65 | |
| | 4/2/1988 | CH2M Hill 1988 | | 44.35 | 246.73 | |
| | 6/14/1999 | IT | 291.04 | 56.81 | 234.23 | |
| | 9/13/1999 | IT | | 56.55 | 234.49 | |
| | 12/13/1999 | IT | | 55.53 | 235.51 | |
| | 3/13/2000 | IT | | 55.14 | 235.90 | |
| | 6/19/2000 | IT | | 53.35 | 237.69 | |
| | 9/11/2000 | IT | 290.47 | 53.04 | 237.43 | |
| | 12/18/2000 | IT | | 52.41 | 238.06 | |
| | 5/7/2001 | IT | 291.04 | 54.96 | 236.08 | |
| | 10/15/2001 | IT | | 55.52 | 235.52 | |
| | 6/3/2002 | SECOR | 290.47 | 56.37 | 234.10 | |
| | 9/16/2002 | SECOR | | 55.27 | 235.20 | MicroPurge® pump installed |
| | 11/18/2002 | SECOR | | 56.12 | 234.35 | |
| | 1/27/2003 | SECOR | | 56.56 | 233.91 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-19 cont.** | 6/16/2003 | SECOR | | 57.12 | 233.35 | |
| | 9/8/2003 | SECOR | | 57.21 | 233.26 | |
| | 12/8/2003 | SECOR | | 57.16 | 233.31 | |
| | 3/8/2004 | SECOR | | 57.65 | 232.82 | |
| | 6/7/2004 | SECOR | | 58.38 | 232.09 | |
| | 8/6/2004 | SECOR | | 59.01 | 231.46 | |
| | 11/12/2004 | SECOR | | 59.35 | 231.12 | |
| | 3/11/2005 | SECOR | | 59.23 | 231.24 | |
| | 5/20/2005 | SECOR | | 59.44 | 231.03 | |
| | 8/5/2005 | SECOR | | 60.23 | 230.24 | |
| | 11/11/2005 | SECOR | | 58.47 | 232.00 | Monument severely dented |
| | 2/9/2006 | SECOR | | 58.46 | 232.01 | Monument severely dented |
| | 5/18/2006 | SECOR | | 58.66 | 231.81 | Monument severely dented |
| | 8/11/2006 | SECOR | | 59.01 | 231.46 | Monument severely dented |
| | 10/2/2006 | SECOR | 290.47 | 58.89 | 231.58 | Difficult to access |
| | 1/19/2007 | SECOR | | 59.45 | 231.02 | Dented |
| | 4/20/2007 | SECOR | | 60.70 | 229.77 | Dented |
| | 7/26/2007 | SECOR | | 61.16 | 229.31 | Dented |
| | 11/2/2007 | SECOR | | 62.51 | 227.96 | |
| | 2/8/2008 | SECOR | | 63.92 | 226.55 | |
| | 5/2/2008 | SECOR | | 64.59 | 225.88 | |
| | 8/8/2008 | Stantec | 290.59 | 64.58 | 226.01 | Mud at bottom of well |
| | 10/17/2008 | Stantec | | Dry | Dry | Well is Dry |
| | 1/30/2009 | Stantec | | Dry | Dry | Well is Dry |
| | 5/1/2009 | Stantec | | Dry | Dry | Well is Dry |
| | 7/24/2009 | Stantec | | Dry | Dry | Well is Dry |
| | 11/10/2009 | Stantec | | Dry | Dry | Well is Dry |
| | 2/8/2010 | Stantec | | Removed from Monitoring Well Network First Quarter 2010 | | |
| **MW-24** | 12/28/1987 | CH2M Hill 1988 | 289.61 | 44.72 | 244.89 | |
| | 1/14/1988 | CH2M Hill 1988 | | 44.69 | 244.92 | |
| | 2/18/1988 | CH2M Hill 1988 | | 44.72 | 244.89 | |
| | 3/3/1988 | CH2M Hill 1988 | | 44.81 | 244.80 | |
| | 4/2/1988 | CH2M Hill 1988 | 289.61 | 44.87 | 244.74 | |
| | 1/16/1995 | Envirosolve | | 60.86 | 228.75 | |
| | 4/17/1995 | Envirosolve | 289.85 | 61.57 | 228.28 | |
| | 7/7/1995 | Envirosolve | | 61.98 | 227.87 | |
| | 10/23/1995 | Envirosolve | | 60.58 | 229.27 | |
| | 4/15/1996 | Envirosolve | | 60.23 | 229.62 | |
| | 3/16/1998 | Envirosolve | | 58.07 | 231.78 | |
| | 6/22/1998 | Envirosolve | | 56.96 | 232.89 | |
| | 9/14/1998 | Envirosolve | | 56.25 | 233.60 | |
| | 8/5/2005 | SECOR | | NA | NA | Lost/Unable to Locate |
| | 2/8/2010 | Stantec | | Removed from Monitoring Well Network First Quarter 2010 | | |
| **MW-25** | 12/28/1987 | CH2M Hill 1988 | 290.72 | 44.74 | 245.98 | |
| | 1/14/1988 | CH2M Hill 1988 | | 44.78 | 245.94 | |
| | 2/18/1988 | CH2M Hill 1988 | | 44.77 | 245.95 | |
| | 3/3/1988 | CH2M Hill 1988 | | 44.81 | 245.91 | |
| | 4/2/1988 | CH2M Hill 1988 | | 44.79 | 245.93 | |
| | 1/16/1995 | Envirosolve | | 61.00 | 229.72 | |
| | 4/17/1995 | Envirosolve | 290.70 | 61.49 | 229.21 | |
| | 7/7/1995 | Envirosolve | | 61.67 | 229.03 | |
| | 10/23/1995 | Envirosolve | | 60.40 | 230.30 | |
| | 4/15/1996 | Envirosolve | | 60.08 | 230.62 | |
| | 3/16/1998 | Envirosolve | | 58.00 | 232.70 | |
| | 6/22/1998 | Envirosolve | | 56.78 | 233.92 | |
| | 9/14/1998 | Envirosolve | | 56.10 | 234.60 | |
| | 12/14/1998 | Envirosolve | | 55.91 | 234.79 | |
| | 3/15/1999 | IT | | 56.21 | 234.49 | |
| | 6/14/1999 | IT | | 56.88 | 233.82 | |
| | 9/13/1999 | IT | | 56.61 | 234.09 | |
| | 12/13/1999 | IT | | 55.48 | 235.22 | |
| | 3/13/2000 | IT | | 55.15 | 235.55 | |
| | 6/19/2000 | IT | | 54.32 | 236.38 | |
| | 9/11/2000 | IT | | 54.09 | 236.61 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-25 cont.** | 12/18/2000 | IT | | 53.38 | 237.32 | |
| | 5/7/2001 | IT | | 56.05 | 234.65 | |
| | 10/15/2001 | IT | | 56.71 | 233.99 | |
| | 6/3/2002 | SECOR | | 57.52 | 233.18 | |
| | 9/16/2002 | SECOR | | 56.00 | 234.70 | MicroPurge® pump installed |
| | 11/18/2002 | SECOR | | 56.91 | 233.79 | |
| | 1/27/2003 | SECOR | | 57.31 | 233.39 | |
| | 6/16/2003 | SECOR | | 57.95 | 232.75 | |
| | 9/8/2003 | SECOR | 290.70 | 58.19 | 232.51 | |
| | 12/8/2003 | SECOR | | 58.03 | 232.67 | |
| | 3/8/2004 | SECOR | | 58.42 | 232.28 | |
| | 6/7/2004 | SECOR | | 59.30 | 231.40 | |
| | 8/6/2004 | SECOR | | 58.89 | 231.81 | |
| | 11/12/2004 | SECOR | | 60.06 | 230.64 | |
| | 3/11/2005 | SECOR | | 60.10 | 230.60 | |
| | 5/20/2005 | SECOR | | 60.25 | 230.45 | Forklift and hydraulics nearby |
| | 8/5/2005 | SECOR | | 61.15 | 229.55 | |
| | 11/11/2005 | SECOR | | 59.26 | 231.44 | |
| | 2/9/2006 | SECOR | | 59.29 | 231.41 | |
| | 5/18/2006 | SECOR | | 59.43 | 231.27 | |
| | 8/11/2006 | SECOR | | 59.96 | 230.74 | |
| | 10/2/2006 | SECOR | | 59.71 | 230.99 | |
| | 1/19/2007 | SECOR | | 60.28 | 230.42 | |
| | 4/20/2007 | SECOR | | 61.43 | 229.27 | |
| | 7/26/2007 | SECOR | | 61.93 | 228.77 | |
| | 11/2/2007 | SECOR | | 63.35 | 227.35 | |
| | 2/8/2008 | SECOR | | 64.58 | 226.12 | |
| | 5/2/2008 | SECOR | | 65.47 | 225.23 | |
| | 8/8/2008 | Stantec | 290.61 | 65.99 | 224.62 | Broken concrete pad |
| | 10/17/2008 | Stantec | | 66.18 | 224.43 | Broken concrete pad |
| | 1/30/2009 | Stantec | | 67.48 | 223.13 | |
| | 5/1/2009 | Stantec | | Dry | Dry | Well is Dry |
| | 7/24/2009 | Stantec | | Dry | Dry | Well is Dry |
| | 11/10/2009 | Stantec | | Dry | Dry | Well is Dry |
| | 2/8/2010 | Stantec | | Removed from Monitoring Well Network First Quarter 2010 | | |
| **MW-34S** | 1/16/1995 | Envirosolve | 288.51 | 62.47 | 226.04 | |
| | 4/17/1995 | Envirosolve | | 62.35 | 226.16 | |
| | 7/7/1995 | Envirosolve | | 63.52 | 224.99 | |
| | 10/23/1995 | Envirosolve | | 62.05 | 226.46 | |
| | 4/15/1996 | Envirosolve | | 61.56 | 226.95 | |
| | 3/16/1998 | Envirosolve | | 59.16 | 229.35 | |
| | 6/22/1998 | Envirosolve | | 58.68 | 229.83 | |
| | 9/14/1998 | Envirosolve | | 57.65 | 230.86 | |
| | 12/14/1998 | Envirosolve | | 57.65 | 230.86 | |
| | 3/15/1999 | IT | | 57.73 | 230.78 | |
| | 6/14/1999 | IT | | 58.20 | 230.31 | |
| | 9/13/1999 | IT | | 56.30 | 232.21 | |
| | 12/13/1999 | IT | | 57.26 | 231.25 | |
| | 3/13/2000 | IT | | 56.78 | 231.73 | |
| | 6/19/2000 | IT | | 55.78 | 232.73 | |
| | 9/11/2000 | IT | | 55.68 | 232.83 | |
| | 12/18/2000 | IT | | 55.02 | 233.49 | |
| | 5/7/2001 | IT | | 57.21 | 231.30 | |
| | 10/15/2001 | IT | | 57.67 | 230.84 | |
| | 6/3/2002 | SECOR | 288.51 | 59.02 | 229.49 | |
| | 9/16/2002 | SECOR | | 57.44 | 231.07 | MicroPurge® pump installed |
| | 11/18/2002 | SECOR | | 58.19 | 230.32 | |
| | 1/27/2003 | SECOR | | 58.72 | 229.79 | |
| | 6/16/2003 | SECOR | | 59.38 | 229.13 | |
| | 9/8/2003 | SECOR | | 59.68 | 228.83 | |
| | 12/8/2003 | SECOR | | 59.48 | 229.03 | |
| | 3/8/2004 | SECOR | | 59.90 | 228.61 | |
| | 6/7/2004 | SECOR | | 61.02 | 227.49 | |
| | 8/6/2004 | SECOR | | 61.36 | 227.15 | |
| | 11/12/2004 | SECOR | | 61.43 | 227.08 | |
| | 3/11/2005 | SECOR | | 61.24 | 227.27 | |
| | 5/20/2005 | SECOR | 288.51 | 61.78 | 226.73 | |
| | 8/5/2005 | SECOR | | 62.43 | 226.08 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-34S cont.** | 11/11/2005 | SECOR | | 61.08 | 227.43 | |
| | 2/9/2006 | SECOR | | 60.93 | 227.58 | |
| | 5/18/2006 | SECOR | | 61.06 | 227.45 | |
| | 8/11/2006 | SECOR | | 61.74 | 226.77 | |
| | 10/2/2006 | SECOR | | 61.88 | 226.63 | |
| | 1/19/2007 | SECOR | | 62.15 | 226.36 | |
| | 4/20/2007 | SECOR | | 63.21 | 225.30 | |
| | 7/26/2007 | SECOR | | 64.07 | 224.44 | |
| | 11/2/2007 | SECOR | | 65.00 | 223.51 | |
| | 2/8/2008 | SECOR | | 66.22 | 222.29 | |
| | 5/2/2008 | SECOR | | 67.08 | 221.43 | |
| | 8/8/2008 | Stantec | 288.50 | 67.82 | 220.68 | |
| | 10/17/2008 | Stantec | | 68.27 | 220.23 | |
| | 1/30/2009 | Stantec | | 69.18 | 219.32 | |
| | 5/1/2009 | Stantec | | 69.97 | 218.53 | |
| | 7/24/2009 | Stantec | | 70.33 | 218.17 | Lack of Water |
| | 11/10/2009 | Stantec | | 69.99 | 218.51 | Lack of Water |
| | 2/8/2010 | Stantec | | Removed from Monitoring Well Network First Quarter 2010 | | |
| **MW-42** | 5/2/2008 | SECOR | 292.02 | 64.32 | 227.70 | |
| | 8/8/2008 | Stantec | 292.06 | 64.13 | 227.93 | |
| | 10/17/2008 | Stantec | | 64.59 | 227.47 | |
| | 1/30/2009 | Stantec | | 65.72 | 226.34 | |
| | 5/1/2009 | Stantec | | 66.88 | 225.18 | |
| | 7/24/2009 | Stantec | | 65.85 | 226.21 | |
| | 11/10/2009 | Stantec | | 65.68 | 226.38 | |
| | 2/8/2010 | Stantec | | 66.86 | 225.20 | |
| | 5/11/2010 | Stantec | | 66.85 | 225.21 | |
| | 8/2/2010 | Stantec | | 65.95 | 226.11 | |
| | 10/18/2010 | Stantec | | 65.40 | 226.66 | |
| | 2/14/2011 | Stantec | | 65.90 | 226.16 | |
| | 5/9/2011 | Stantec | | 66.47 | 225.59 | |
| | 8/1/2011 | Stantec | | 65.47 | 226.59 | |
| | 10/17/2011 | Stantec | | 65.07 | 226.99 | |
| | 2/6/2012 | Stantec | | 65.72 | 226.34 | |
| | 5/4/2012 | Stantec | | 66.83 | 225.23 | |
| | 7/16/2012 | Stantec | | 66.64 | 225.42 | |
| | 1/22/2013 | Stantec | | 69.04 | 223.02 | |
| | 7/8/2013 | Stantec | | 70.71 | 221.35 | |
| | 1/21/2014 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/14/2014 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/12/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/6/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/17/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/26/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/5/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/30/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/11/2019 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/16/2019 | Arcadis | | Dry | Dry | |
| | 1/28/2020 | Arcadis | | Dry | Dry | Well Dry |
| **MW-43** | 5/2/2008 | SECOR | 293.27 | 66.92 | 226.35 | |
| | 8/8/2008 | Stantec | 293.29 | 67.08 | 226.21 | |
| | 10/17/2008 | Stantec | | 67.47 | 225.82 | |
| | 1/30/2009 | Stantec | | 68.61 | 224.68 | |
| | 5/1/2009 | Stantec | | 69.59 | 223.70 | |
| | 7/24/2009 | Stantec | | 69.09 | 224.20 | |
| | 11/10/2009 | Stantec | | 68.74 | 224.55 | |
| | 2/8/2010 | Stantec | | 69.56 | 223.73 | |
| | 5/11/2010 | Stantec | | 69.82 | 223.47 | |
| | 8/2/2010 | Stantec | | 69.29 | 224.00 | |
| | 10/18/2010 | Stantec | | 68.72 | 224.57 | |
| | 2/14/2011 | Stantec | | 68.71 | 224.58 | |
| | 5/9/2011 | Stantec | | 69.29 | 224.00 | |
| | 8/1/2011 | Stantec | | 68.78 | 224.51 | |
| | 10/17/2011 | Stantec | | 68.28 | 225.01 | |
| | 2/6/2012 | Stantec | | 68.63 | 224.66 | |
| | 5/4/2012 | Stantec | | 69.55 | 223.74 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-43 cont.** | 7/16/2012 | Stantec | | 69.65 | 223.64 | |
| | 1/22/2013 | Stantec | | 71.80 | 221.49 | |
| | 7/8/2013 | Stantec | | 73.72 | 219.57 | |
| | 1/21/2014 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/14/2014 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/12/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/6/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/17/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/26/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/5/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/30/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/11/2019 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/16/2019 | Arcadis | | Dry | Dry | |
| | 1/28/2020 | Arcadis | | Dry | Dry | Well dry |
| **MW-44S** | 5/2/2008 | SECOR | 289.95 | 63.22 | 226.73 | |
| | 8/8/2008 | Stantec | 289.97 | 63.04 | 226.93 | |
| | 10/17/2008 | Stantec | | 63.23 | 226.74 | |
| | 1/30/2009 | Stantec | | 64.52 | 225.45 | |
| | 5/1/2009 | Stantec | | 65.60 | 224.37 | |
| | 7/24/2009 | Stantec | | 65.00 | 224.97 | |
| | 11/10/2009 | Stantec | | 64.61 | 225.36 | |
| | 2/8/2010 | Stantec | | 65.69 | 224.28 | |
| | 5/11/2010 | Stantec | | 65.77 | 224.20 | |
| | 8/2/2010 | Stantec | | 65.02 | 224.95 | |
| | 10/18/2010 | Stantec | | 64.51 | 225.46 | |
| | 2/14/2011 | Stantec | | 64.53 | 225.44 | |
| | 5/9/2011 | Stantec | | 65.31 | 224.66 | |
| | 8/1/2011 | Stantec | | 64.56 | 225.41 | |
| | 10/17/2011 | Stantec | | 64.01 | 225.96 | |
| | 2/6/2012 | Stantec | | 64.56 | 225.41 | |
| | 5/4/2012 | Stantec | | 65.51 | 224.46 | |
| | 7/16/2012 | Stantec | | 65.41 | 224.56 | |
| | 1/22/2013 | Stantec | | 67.73 | 222.24 | |
| | 7/8/2013 | Stantec | | 69.57 | 220.40 | |
| | 1/21/2014 | Stantec | | 73.40 | 216.57 | |
| | 7/14/2014 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/12/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/6/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/17/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/26/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/5/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/30/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/11/2019 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/16/2019 | Arcadis | | Dry | Dry | |
| | 1/28/2020 | Arcadis | | Dry | Dry | Well dry |
| **MW-45** | 5/2/2008 | SECOR | 291.74 | 64.73 | 227.01 | |
| | 8/8/2008 | Stantec | 291.55 | 64.55 | 227.00 | |
| | 10/17/2008 | Stantec | | 64.90 | 226.65 | |
| | 1/30/2009 | Stantec | | 66.27 | 225.28 | |
| | 5/1/2009 | Stantec | | 67.20 | 224.35 | |
| | 7/24/2009 | Stantec | | 66.49 | 225.06 | |
| | 11/10/2009 | Stantec | | 66.06 | 225.49 | |
| | 2/8/2010 | Stantec | 291.55 | 67.00 | 224.55 | |
| | 5/11/2010 | Stantec | | 67.33 | 224.22 | |
| | 8/2/2010 | Stantec | | 66.54 | 225.01 | |
| | 10/18/2010 | Stantec | | 65.92 | 225.63 | |
| | 2/14/2011 | Stantec | | 66.20 | 225.35 | |
| | 5/9/2011 | Stantec | | 66.78 | 224.77 | |
| | 8/1/2011 | Stantec | | 66.11 | 225.44 | |
| | 10/17/2011 | Stantec | | 65.64 | 225.91 | |
| | 2/6/2012 | Stantec | | 66.16 | 225.39 | |
| | 5/4/2012 | Stantec | | 67.15 | 224.40 | |
| | 7/16/2012 | Stantec | | 66.98 | 224.57 | |
| | 1/22/2013 | Stantec | | 69.20 | 222.35 | |
| | 7/8/2013 | Stantec | | 71.19 | 220.36 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-45 cont.** | 1/21/2014 | Stantec | | 75.00 | 216.55 | |
| | 7/14/2014 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/12/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/6/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/17/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/26/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/5/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/30/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/11/2019 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/16/2019 | Arcadis | | 75.08 | Dry | Residual water / Well dry |
| | 1/28/2020 | Arcadis | | 75.23 | Dry | Residual water / Well dry |
| **MW-46** | 5/2/2008 | SECOR | 305.60 | 79.37 | 226.23 | |
| | 8/8/2008 | Stantec | 305.64 | 79.60 | 226.04 | |
| | 10/17/2008 | Stantec | | 79.94 | 225.70 | |
| | 1/30/2009 | Stantec | | 81.18 | 224.46 | |
| | 5/1/2009 | Stantec | | 82.10 | 223.54 | |
| | 7/24/2009 | Stantec | | 81.70 | 223.94 | |
| | 11/10/2009 | Stantec | | 81.38 | 224.26 | |
| | 2/8/2010 | Stantec | | 82.00 | 223.64 | |
| | 5/11/2010 | Stantec | | 82.32 | 223.32 | |
| | 8/2/2010 | Stantec | | 81.82 | 223.82 | |
| | 10/18/2010 | Stantec | | 81.11 | 224.53 | |
| | 2/14/2011 | Stantec | | 81.14 | 224.50 | |
| | 5/9/2011 | Stantec | | 81.73 | 223.91 | |
| | 8/1/2011 | Stantec | | 81.21 | 224.43 | |
| | 10/17/2011 | Stantec | | 80.70 | 224.94 | |
| | 2/6/2012 | Stantec | | 81.13 | 224.51 | |
| | 5/4/2012 | Stantec | | 82.10 | 223.54 | |
| | 7/16/2012 | Stantec | | 82.20 | 223.44 | |
| | 1/22/2013 | Stantec | | 84.13 | 221.51 | |
| | 7/8/2013 | Stantec | | 86.10 | 219.54 | |
| | 1/21/2014 | Stantec | | 89.90 | 215.74 | |
| | 7/14/2014 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/12/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/6/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/17/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/26/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/5/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/30/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/11/2019 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/16/2019 | Arcadis | | Dry | Dry | |
| | 1/28/2020 | Arcadis | | Dry | Dry | Well dry |
| **MW-47** | 5/2/2008 | SECOR | 289.65 | 62.90 | 226.75 | |
| | 8/8/2008 | Stantec | 289.54 | 62.94 | 226.60 | |
| | 10/17/2008 | Stantec | | 63.23 | 226.31 | |
| | 1/30/2009 | Stantec | | 64.50 | 225.04 | |
| | 5/1/2009 | Stantec | | 65.36 | 224.18 | |
| | 7/24/2009 | Stantec | | 64.80 | 224.74 | |
| | 11/10/2009 | Stantec | | 64.38 | 225.16 | |
| | 2/8/2010 | Stantec | | 65.35 | 224.19 | |
| | 5/11/2010 | Stantec | | 65.60 | 223.94 | |
| | 8/2/2010 | Stantec | | 64.98 | 224.56 | |
| | 10/18/2010 | Stantec | | 64.27 | 225.27 | |
| | 2/14/2011 | Stantec | | 64.56 | 224.98 | |
| | 5/9/2011 | Stantec | | 65.15 | 224.39 | |
| | 8/1/2011 | Stantec | | 64.60 | 224.94 | |
| | 10/17/2011 | Stantec | | 64.07 | 225.47 | |
| | 2/6/2012 | Stantec | | 64.50 | 225.04 | |
| | 5/4/2012 | Stantec | | 65.22 | 224.32 | |
| | 7/16/2012 | Stantec | | 65.48 | 224.06 | |
| | 1/22/2013 | Stantec | | 67.61 | 221.93 | |
| | 7/8/2013 | Stantec | | 69.51 | 220.03 | |
| | 1/21/2014 | Stantec | | 73.21 | 216.33 | |
| | 7/14/2014 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/12/2015 | Stantec | | Dry | Dry | Residual water / Well dry |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-47 cont.** | 7/6/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/17/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/26/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/5/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/30/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/11/2019 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/16/2019 | Arcadis | | 72.98 | Dry | Residual water / Well dry |
| | 1/28/2020 | Arcadis | | 73.04 | Dry | Residual water / Well dry |
| **MW-48S** | 5/2/2008 | SECOR | 305.86 | 79.78 | 226.08 | |
| | 8/8/2008 | Stantec | 305.91 | 80.35 | 225.56 | |
| | 10/17/2008 | Stantec | | 80.76 | 225.15 | |
| | 1/30/2009 | Stantec | | 81.92 | 223.99 | |
| | 5/1/2009 | Stantec | | 82.85 | 223.06 | |
| | 7/24/2009 | Stantec | | 82.60 | 223.31 | |
| | 11/10/2009 | Stantec | | 82.24 | 223.67 | |
| | 2/8/2010 | Stantec | | 83.06 | 222.85 | |
| | 5/11/2010 | Stantec | | 83.15 | 222.76 | |
| | 8/2/2010 | Stantec | | 82.64 | 223.27 | |
| | 10/18/2010 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/14/2011 | Stantec | | 82.00 | 223.91 | |
| | 5/9/2011 | Stantec | | 82.52 | 223.39 | |
| | 8/1/2011 | Stantec | | 82.10 | 223.81 | |
| | 10/17/2011 | Stantec | | 81.60 | 224.31 | |
| | 2/6/2012 | Stantec | | 81.94 | 223.97 | |
| | 5/4/2012 | Stantec | | 82.93 | 222.98 | |
| | 7/16/2012 | Stantec | | 83.01 | 222.90 | |
| | 1/22/2013 | Stantec | | 84.90 | 221.01 | |
| | 7/8/2013 | Stantec | | 87.01 | 218.90 | |
| | 1/21/2014 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/14/2014 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/12/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/6/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/17/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/26/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/5/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/30/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/11/2019 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/16/2019 | Arcadis | | 89.92 | Dry | Residual water / Well dry |
| | 1/28/2020 | Arcadis | | 90.12 | Dry | Residual water / Well dry |
| **MW-49** | 5/2/2008 | SECOR | 291.71 | 65.98 | 225.73 | |
| | 8/8/2008 | Stantec | 291.73 | 66.40 | 225.33 | |
| | 10/17/2008 | Stantec | | 66.89 | 224.84 | |
| | 1/30/2009 | Stantec | | 68.08 | 223.65 | |
| | 5/1/2009 | Stantec | | 68.94 | 222.79 | |
| | 7/24/2009 | Stantec | | 68.58 | 223.15 | |
| | 11/10/2009 | Stantec | | 68.66 | 223.07 | |
| | 2/8/2010 | Stantec | | 69.03 | 222.70 | |
| | 5/11/2010 | Stantec | | 69.23 | 222.50 | |
| | 8/2/2010 | Stantec | | 68.90 | 222.83 | |
| | 10/18/2010 | Stantec | | 68.19 | 223.54 | |
| | 2/14/2011 | Stantec | | 67.86 | 223.87 | |
| | 5/9/2011 | Stantec | | 68.70 | 223.03 | |
| | 8/1/2011 | Stantec | | 68.25 | 223.48 | |
| | 10/17/2011 | Stantec | | 67.76 | 223.97 | |
| | 2/6/2012 | Stantec | | 67.98 | 223.75 | |
| | 5/4/2012 | Stantec | | 69.00 | 222.73 | |
| | 7/16/2012 | Stantec | | 69.11 | 222.62 | |
| | 1/22/2013 | Stantec | | 71.14 | 220.59 | |
| | 7/8/2013 | Stantec | | 73.02 | 218.71 | |
| | 1/21/2014 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/14/2014 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/12/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/6/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | Dry | Dry | Residual water / Well dry |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-49 cont.** | 1/17/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/26/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/5/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/30/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/11/2019 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/16/2019 | Arcadis | | 74.53 | Dry | Residual water / Well dry |
| | 1/28/2020 | Arcadis | | Dry | Dry | Well dry |
| **MW-54** | 2/8/2010 | Stantec | 290.06 | 64.58 | 225.48 | |
| | 5/11/2010 | Stantec | 290.06 | 64.74 | 225.32 | |
| | 8/2/2010 | Stantec | | 63.84 | 226.22 | |
| | 10/18/2010 | Stantec | | 63.25 | 226.81 | |
| | 2/14/2011 | Stantec | | 63.70 | 226.36 | |
| | 5/9/2011 | Stantec | | 64.21 | 225.85 | |
| | 8/1/2011 | Stantec | | 63.23 | 226.83 | |
| | 10/17/2011 | Stantec | | 62.90 | 227.16 | |
| | 2/6/2012 | Stantec | | 63.54 | 226.52 | |
| | 5/4/2012 | Stantec | | 64.70 | 225.36 | |
| | 7/16/2012 | Stantec | | 64.40 | 225.66 | |
| | 1/22/2013 | Stantec | | 66.85 | 223.21 | |
| | 7/8/2013 | Stantec | | 68.49 | 221.57 | |
| | 1/21/2014 | Stantec | | 72.59 | 217.47 | |
| | 7/14/2014 | Stantec | | 75.31 | 214.75 | |
| | 1/12/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/6/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/17/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/26/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/5/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/30/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/11/2019 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/16/2019 | Arcadis | | Dry | Dry | |
| | 1/28/2020 | Arcadis | | Dry | Dry | Well dry |
| **ERD PT-3A** | 2/14/2011 | Stantec | 289.88 | 64.82 | 225.06 | |
| | 5/9/2011 | Stantec | | 65.34 | 224.54 | |
| | 8/1/2011 | Stantec | | 64.70 | 225.18 | |
| | 10/17/2011 | Stantec | | 63.82 | 226.06 | |
| | 2/6/2012 | Stantec | | 64.41 | 225.47 | |
| | 5/4/2012 | Stantec | | 65.60 | 224.28 | |
| | 7/16/2012 | Stantec | | 65.63 | 224.25 | |
| | 1/22/2013 | Stantec | | 67.70 | 222.18 | |
| | 7/8/2013 | Stantec | | 69.62 | 220.26 | |
| | 1/21/2014 | Stantec | | 73.49 | 216.39 | |
| | 7/14/2014 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/12/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/6/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/17/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/26/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/5/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/30/2018 | Stantec | | -- | -- | |
| | 2/11/2019 | Stantec | | -- | -- | |
| | 7/16/2019 | Arcadis | | Dry | Dry | |
| | 1/28/2020 | Arcadis | | Dry | Dry | Well Dry |
| **Shallow to Intermediate** | | | | | | |
| **MW-7I** | 8/7/1984 | Harding Lawson Associates 1986 | 294.05 | 45.69 | 248.36 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 45.44 | 248.61 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 45.40 | 248.65 | |
| | 5/27/1986 | CH2M Hill 1988 | 294.04 | 43.59 | 250.45 | |
| | 7/9/1986 | CH2M Hill 1988 | | 44.14 | 249.90 | |
| | 8/11/1986 | CH2M Hill 1988 | | 43.91 | 250.13 | |
| | 8/22/1986 | CH2M Hill 1988 | | 43.94 | 250.10 | |
| | 9/20/1986 | CH2M Hill 1988 | | 43.92 | 250.12 | |
| | 10/21/1986 | CH2M Hill 1988 | | 43.68 | 250.36 | |
| | 11/14/1986 | CH2M Hill 1988 | 294.04 | 43.66 | 250.38 | |
| | 12/22/1986 | CH2M Hill 1988 | | 43.84 | 250.20 | |
| | 1/19/1987 | CH2M Hill 1988 | | 43.67 | 250.37 | |
| | 2/17/1987 | CH2M Hill 1988 | | 43.72 | 250.32 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-7I cont.** | 4/10/1987 | CH2M Hill 1988 | | 43.48 | 250.56 | |
| | 4/28/1987 | CH2M Hill 1988 | | 43.57 | 250.47 | |
| | 5/21/1987 | CH2M Hill 1988 | | 43.67 | 250.37 | |
| | 6/30/1987 | CH2M Hill 1988 | | 43.98 | 250.06 | |
| | 8/17/1987 | CH2M Hill 1988 | | 44.13 | 249.91 | |
| | 9/15/1987 | CH2M Hill 1988 | | 45.05 | 248.99 | |
| | 10/26/1987 | CH2M Hill 1988 | | 45.46 | 248.58 | |
| | 12/28/1987 | CH2M Hill 1988 | | 45.58 | 248.46 | |
| | 1/14/1988 | CH2M Hill 1988 | | 45.54 | 248.50 | |
| | 2/18/1988 | CH2M Hill 1988 | | 45.65 | 248.39 | |
| | 3/3/1988 | CH2M Hill 1988 | | 45.60 | 248.44 | |
| | 4/2/1988 | CH2M Hill 1988 | | 45.34 | 248.70 | |
| | 4/17/1995 | Envirosolve | 293.99 | 62.76 | 231.23 | |
| | 7/7/1995 | Envirosolve | | 62.42 | 231.57 | |
| | 10/23/1995 | Envirosolve | | 61.18 | 232.81 | |
| | 4/15/1996 | Envirosolve | | 61.17 | 232.82 | |
| | 3/16/1998 | Envirosolve | | 59.07 | 234.92 | |
| | 6/22/1998 | Envirosolve | | 57.60 | 236.39 | |
| | 9/14/1998 | Envirosolve | | 57.04 | 236.95 | |
| | 12/14/1998 | Envirosolve | | 57.04 | 236.95 | |
| | 3/15/1999 | IT | | 57.42 | 236.57 | |
| | 6/14/1999 | IT | | 57.70 | 236.29 | |
| | 9/13/1999 | IT | | 57.67 | 236.32 | |
| | 12/13/1999 | IT | | 56.63 | 237.36 | |
| | 3/13/2000 | IT | | 56.37 | 237.62 | |
| | 6/19/2000 | IT | | 55.59 | 238.40 | |
| | 9/11/2000 | IT | | 54.96 | 239.03 | |
| | 12/18/2000 | IT | | 54.31 | 239.68 | |
| | 5/7/2001 | IT | 298.79 | 61.82 | 236.97 | |
| | 10/15/2001 | IT | | 62.58 | 236.21 | |
| | 6/3/2002 | SECOR | 298.74 | 63.44 | 235.30 | |
| | 9/16/2002 | SECOR | 301.17 | 64.64 | 236.53 | MicroPurge® pump installed; TOC was elevated |
| | 11/18/2002 | SECOR | | 65.37 | 235.80 | |
| | 1/27/2003 | SECOR | | 65.88 | 235.29 | |
| | 6/16/2003 | SECOR | | 66.47 | 234.70 | |
| | 9/8/2003 | SECOR | | 66.67 | 234.50 | |
| | 12/8/2003 | SECOR | | 66.57 | 234.60 | |
| | 3/8/2004 | SECOR | | 66.92 | 234.25 | |
| | 6/7/2004 | SECOR | | 67.83 | 233.34 | |
| | 8/6/2004 | SECOR | | 68.40 | 232.77 | |
| | 11/12/2004 | SECOR | | 68.72 | 232.45 | |
| | 3/11/2005 | SECOR | | 68.74 | 232.43 | |
| | 5/20/2005 | SECOR | | 68.68 | 232.49 | |
| | 8/5/2005 | SECOR | | 69.41 | 231.76 | |
| | 11/11/2005 | SECOR | | 67.46 | 233.71 | |
| | 2/9/2006 | SECOR | | 67.79 | 233.38 | |
| | 5/18/2006 | SECOR | | 67.83 | 233.34 | |
| | 8/11/2006 | SECOR | | 68.11 | 233.06 | |
| | 10/2/2006 | SECOR | | NA | NA | Unsafe to Gauge |
| | 1/19/2007 | SECOR | | | Decommissioned October 2006 | |
| **MW-9** | 8/7/1984 | Harding Lawson Associates 1986 | 291.00 | 43.26 | 247.74 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 43.01 | 247.99 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 43.00 | 248.00 | |
| | 5/27/1986 | CH2M Hill 1988 | | 41.58 | 249.42 | |
| | 7/9/1986 | CH2M Hill 1988 | 291.00 | 41.67 | 249.33 | |
| | 8/11/1986 | CH2M Hill 1988 | | 43.93 | 247.07 | |
| | 8/22/1986 | CH2M Hill 1988 | | 41.52 | 249.48 | |
| | 9/23/1986 | CH2M Hill 1988 | | 41.48 | 249.52 | |
| | 10/21/1986 | CH2M Hill 1988 | | 41.36 | 249.64 | |
| | 11/14/1986 | CH2M Hill 1988 | | 41.31 | 249.69 | |
| | 12/22/1986 | CH2M Hill 1988 | | 41.57 | 249.43 | |
| | 1/19/1987 | CH2M Hill 1988 | | 41.41 | 249.59 | |
| | 2/17/1987 | CH2M Hill 1988 | | 41.32 | 249.68 | |
| | 4/10/1987 | CH2M Hill 1988 | | 41.10 | 249.90 | |
| | 4/28/1987 | CH2M Hill 1988 | | 41.29 | 249.71 | |
| | 5/21/1987 | CH2M Hill 1988 | | 41.32 | 249.68 | |
| | 8/17/1987 | CH2M Hill 1988 | | 41.72 | 249.28 | |
| | 9/15/1987 | CH2M Hill 1988 | | 42.92 | 248.08 | |
| | 10/26/1987 | CH2M Hill 1988 | | 42.13 | 248.87 | |
| | 12/28/1987 | CH2M Hill 1988 | | 43.24 | 247.76 | |
| | 1/14/1988 | CH2M Hill 1988 | | 43.25 | 247.75 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-9 cont.** | 2/18/1988 | CH2M Hill 1988 | | 43.27 | 247.73 | |
| | 3/3/1988 | CH2M Hill 1988 | | 43.13 | 247.87 | |
| | 4/2/1988 | CH2M Hill 1988 | | 43.00 | 248.00 | |
| | 6/3/2002 | SECOR | 290.90 | 56.29 | 234.61 | |
| | 9/16/2002 | SECOR | | 54.97 | 235.93 | MicroPurge® pump installed |
| | 11/18/2002 | SECOR | | 55.78 | 235.12 | |
| | 1/27/2003 | SECOR | | 56.20 | 234.70 | |
| | 6/16/2003 | SECOR | | 56.84 | 234.06 | |
| | 9/8/2003 | SECOR | | 57.00 | 233.90 | |
| | 12/8/2003 | SECOR | | 56.93 | 233.97 | |
| | 3/8/2004 | SECOR | | 57.24 | 233.66 | |
| | 6/7/2004 | SECOR | | 58.15 | 232.75 | |
| | 8/6/2004 | SECOR | | 58.61 | 232.29 | |
| | 11/12/2004 | SECOR | | 59.05 | 231.85 | |
| | 3/11/2005 | SECOR | | 59.08 | 231.82 | |
| | 5/20/2005 | SECOR | | 59.09 | 231.81 | Grass and foliage needs cutting |
| | 8/5/2005 | SECOR | 290.90 | 59.88 | 231.02 | |
| | 11/11/2005 | SECOR | | 57.82 | 233.08 | |
| | 2/9/2006 | SECOR | | 58.15 | 232.75 | |
| | 5/18/2006 | SECOR | | 58.24 | 232.66 | |
| | 8/11/2006 | SECOR | | 58.64 | 232.26 | |
| | 10/2/2006 | SECOR | | 58.30 | 232.60 | |
| | 1/19/2007 | SECOR | | 59.06 | 231.84 | |
| | 4/20/2007 | SECOR | | 60.34 | 230.56 | |
| | 7/26/2007 | SECOR | | 60.68 | 230.22 | |
| | 11/2/2007 | SECOR | | 62.38 | 228.52 | |
| | 2/8/2008 | SECOR | | 63.67 | 227.23 | |
| | 5/2/2008 | SECOR | | 64.43 | 226.47 | |
| | 8/8/2008 | Stantec | 290.94 | 64.66 | 226.28 | |
| | 10/17/2008 | Stantec | | 64.99 | 225.95 | |
| | 1/30/2009 | Stantec | | 66.25 | 224.69 | |
| | 5/1/2009 | Stantec | | 67.24 | 223.70 | |
| | 7/24/2009 | Stantec | | 66.59 | 224.35 | |
| | 11/10/2009 | Stantec | | 66.22 | 224.72 | |
| | 2/8/2010 | Stantec | | 67.09 | 223.85 | |
| | 5/11/2010 | Stantec | | 67.31 | 223.63 | |
| | 8/2/2010 | Stantec | | 66.70 | 224.24 | |
| | 10/18/2010 | Stantec | | 65.92 | 225.02 | |
| | 2/14/2011 | Stantec | | 66.20 | 224.74 | |
| | 5/9/2011 | Stantec | | 66.74 | 224.20 | |
| | 8/1/2011 | Stantec | | 66.18 | 224.76 | |
| | 10/17/2011 | Stantec | | 65.60 | 225.34 | |
| | 2/6/2012 | Stantec | | 66.02 | 224.92 | |
| | 5/4/2012 | Stantec | | 67.15 | 223.79 | |
| | 7/16/2012 | Stantec | | 67.91 | 223.03 | |
| | 1/22/2013 | Stantec | | 69.13 | 221.81 | |
| | 7/8/2013 | Stantec | | 71.20 | 219.74 | |
| | 1/21/2014 | Stantec | | 74.87 | 216.07 | |
| | 7/14/2014 | Stantec | | 77.51 | 213.43 | |
| | 1/12/2015 | Stantec | | 80.35 | 210.59 | |
| | 7/6/2015 | Stantec | | Dry | Dry | |
| | 1/19/2016 | Stantec | | Dry | Dry | |
| | 7/18/2016 | Stantec | | Dry | Dry | |
| | 1/17/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/26/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/5/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/30/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/11/2019 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/16/2019 | Arcadis | | Dry | Dry | |
| | 1/28/2020 | Arcadis | | Dry | Dry | Well dry |
| **MW-11** | 8/7/1984 | Harding Lawson Associates 1986 | 290.87 | 42.99 | 247.88 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 42.75 | 248.12 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 42.76 | 248.11 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-11 cont.** | 5/27/1986 | CH2M Hill 1988 | 291.04 | 41.30 | 249.74 | |
| | 7/9/1986 | CH2M Hill 1988 | 291.04 | 41.55 | 249.49 | |
| | 8/11/1986 | CH2M Hill 1988 | | 41.50 | 249.54 | |
| | 8/22/1986 | CH2M Hill 1988 | | 41.45 | 249.59 | |
| | 9/23/1986 | CH2M Hill 1988 | | 41.40 | 249.64 | |
| | 10/21/1986 | CH2M Hill 1988 | | 41.25 | 249.79 | |
| | 11/14/1986 | CH2M Hill 1988 | | 41.21 | 249.83 | |
| | 12/22/1986 | CH2M Hill 1988 | | 41.39 | 249.65 | |
| | 1/19/1987 | CH2M Hill 1988 | | 41.26 | 249.78 | |
| | 2/17/1987 | CH2M Hill 1988 | | 41.22 | 249.82 | |
| | 4/10/1987 | CH2M Hill 1988 | | 40.99 | 250.05 | |
| | 4/28/1987 | CH2M Hill 1988 | | 41.14 | 249.90 | |
| | 5/21/1987 | CH2M Hill 1988 | | 41.22 | 249.82 | |
| | 6/30/1987 | CH2M Hill 1988 | | 41.46 | 249.58 | |
| | 8/17/1987 | CH2M Hill 1988 | | 41.61 | 249.43 | |
| | 9/15/1987 | CH2M Hill 1988 | | 41.61 | 249.43 | |
| | 10/26/1987 | CH2M Hill 1988 | | 43.09 | 247.95 | |
| | 12/28/1987 | CH2M Hill 1988 | | 43.10 | 247.94 | |
| | 1/14/1988 | CH2M Hill 1988 | | 43.14 | 247.90 | |
| | 2/18/1988 | CH2M Hill 1988 | | 43.16 | 247.88 | |
| | 3/3/1988 | CH2M Hill 1988 | | 43.12 | 247.92 | |
| | 4/2/1988 | CH2M Hill 1988 | | 42.90 | 248.14 | |
| | 1/16/1995 | Envirosolve | | 59.68 | 231.36 | |
| | 7/7/1995 | Envirosolve | 291.02 | 59.92 | 231.10 | |
| | 10/23/1995 | Envirosolve | | 58.73 | 232.29 | |
| | 4/15/1996 | Envirosolve | | 58.61 | 232.41 | |
| | 3/16/1998 | Envirosolve | | 56.56 | 234.46 | |
| | 6/22/1998 | Envirosolve | | 55.12 | 235.90 | |
| | 9/14/1998 | Envirosolve | | 54.53 | 236.49 | |
| | 12/14/1998 | Envirosolve | | 54.44 | 236.58 | |
| | 3/15/1999 | IT | | 54.73 | 236.29 | |
| | 6/14/1999 | IT | 291.02 | 55.22 | 235.80 | |
| | 9/13/1999 | IT | | 55.11 | 235.91 | |
| | 12/13/1999 | IT | | 53.42 | 237.60 | |
| | 3/13/2000 | IT | | 53.75 | 237.27 | |
| | 6/19/2000 | IT | | 53.00 | 238.02 | |
| | 9/11/2000 | IT | | 52.59 | 238.43 | |
| | 12/18/2000 | IT | | 51.98 | 239.04 | |
| | 5/7/2001 | IT | | 54.57 | 236.45 | |
| | 10/15/2001 | IT | | 55.26 | 235.76 | |
| | 6/3/2002 | SECOR | 290.82 | 56.09 | 234.73 | |
| | 9/16/2002 | SECOR | | 54.42 | 236.40 | MicroPurge® pump installed |
| | 11/18/2002 | SECOR | 290.82 | 55.25 | 235.57 | |
| | 1/27/2003 | SECOR | | 55.66 | 235.16 | |
| | 6/16/2003 | SECOR | | 56.27 | 234.55 | |
| | 9/8/2003 | SECOR | | 56.47 | 234.35 | |
| | 12/8/2003 | SECOR | | 56.42 | 234.40 | |
| | 3/8/2004 | SECOR | | 56.75 | 234.07 | |
| | 6/7/2004 | SECOR | | 57.64 | 233.18 | |
| | 8/6/2004 | SECOR | | 58.18 | 232.64 | |
| | 11/12/2004 | SECOR | | 58.52 | 232.30 | |
| | 3/11/2005 | SECOR | | 58.56 | 232.26 | |
| | 5/20/2005 | SECOR | | 58.55 | 232.27 | Grass and foliage needs cutting |
| | 8/5/2005 | SECOR | | 59.33 | 231.49 | |
| | 11/11/2005 | SECOR | | 57.39 | 233.43 | |
| | 2/9/2006 | SECOR | | 57.65 | 233.17 | |
| | 5/18/2006 | SECOR | | 57.70 | 233.12 | |
| | 8/11/2006 | SECOR | | 58.05 | 232.77 | |
| | 10/2/2006 | SECOR | 290.82 | 57.74 | 233.08 | |
| | 1/19/2007 | SECOR | | 58.57 | 232.25 | |
| | 4/20/2007 | SECOR | 290.82 | 59.82 | 231.00 | |
| | 7/26/2007 | SECOR | | 60.10 | 230.72 | |
| | 11/2/2007 | SECOR | | 61.70 | 229.12 | |
| | 2/8/2008 | SECOR | | 63.17 | 227.65 | |
| | 5/2/2008 | SECOR | | 63.71 | 227.11 | |
| | 8/8/2008 | Stantec | 290.64 | 64.17 | 226.47 | |
| | 10/17/2008 | Stantec | | 64.52 | 226.12 | |
| | 1/30/2009 | Stantec | | 65.74 | 224.90 | |
| | 5/1/2009 | Stantec | | 66.74 | 223.90 | |
| | 7/24/2009 | Stantec | | 66.03 | 224.61 | |
| | 11/10/2009 | Stantec | | 65.75 | 224.89 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-11SP/IP*** | 2/8/2010 | Stantec | | 66.60 | 224.04 | |
| | 5/11/2010 | Stantec | | 66.79 | 223.85 | |
| | 8/2/2010 | Stantec | | 66.18 | 224.46 | |
| | 10/18/2010 | Stantec | | 65.50 | 225.14 | |
| | 2/14/2011 | Stantec | | 65.70 | 224.94 | |
| | 5/9/2011 | Stantec | | 66.33 | 224.31 | |
| | 8/1/2011 | Stantec | | 65.68 | 224.96 | |
| | 10/17/2011 | Stantec | | 65.17 | 225.47 | |
| | 2/6/2012 | Stantec | | 65.61 | 225.03 | |
| | 5/4/2012 | Stantec | | 66.64 | 224.00 | |
| | 7/16/2012 | Stantec | | 66.64 | 224.00 | |
| | 1/22/2013 | Stantec | | 68.50 | 222.14 | |
| | 7/8/2013 | Stantec | | 70.72 | 219.92 | |
| | 1/21/2014 | Stantec | | 74.45 | 216.19 | |
| | 7/14/2014 | Stantec | | 77.15 | 213.49 | |
| | 1/12/2015 | Stantec | | 79.80 | 210.84 | |
| | 7/6/2015 | Stantec | | 82.04 | 208.60 | |
| | 1/19/2016 | Stantec | | 86.40 | 204.24 | Residual Water/Unable to Sample |
| | 7/18/2016 | Stantec | | 85.18 | 205.46 | |
| | 1/17/2017 | Stantec | | 83.98 | 206.66 | |
| | 7/26/2017 | Stantec | | 82.16 | 208.48 | |
| | 2/5/2018 | Stantec | | 81.56 | 209.08 | |
| | 7/30/2018 | Stantec | | 82.40 | 208.24 | |
| | 2/11/2019 | Stantec | | 82.82 | 207.82 | |
| | 7/16/2019 | Arcadis | | 81.35 | 209.29 | |
| | 1/28/2020 | Arcadis | | 80.39 | 210.25 | |
| **MW-13** | 8/7/1984 | Harding Lawson Associates 1986 | 289.77 | 42.68 | 247.09 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 42.34 | 247.43 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 42.35 | 247.42 | |
| | 5/27/1986 | CH2M Hill 1988 | 289.96 | 40.84 | 249.12 | |
| | 7/9/1986 | CH2M Hill 1988 | | 41.11 | 248.85 | |
| | 8/22/1986 | CH2M Hill 1988 | | 40.96 | 249.00 | |
| | 9/23/1986 | CH2M Hill 1988 | | 40.75 | 249.21 | |
| | 10/21/1986 | CH2M Hill 1988 | | 40.74 | 249.22 | |
| | 11/14/1986 | CH2M Hill 1988 | | 40.91 | 249.05 | |
| | 12/22/1986 | CH2M Hill 1988 | | 41.10 | 248.86 | |
| | 1/19/1987 | CH2M Hill 1988 | | 40.91 | 249.05 | |
| | 2/17/1987 | CH2M Hill 1988 | | 40.93 | 249.03 | |
| | 4/10/1987 | CH2M Hill 1988 | | 40.72 | 249.24 | |
| | 4/28/1987 | CH2M Hill 1988 | | 40.97 | 248.99 | |
| | 5/21/1987 | CH2M Hill 1988 | | 40.89 | 249.07 | |
| | 6/30/1987 | CH2M Hill 1988 | | 40.13 | 249.83 | |
| | 8/17/1987 | CH2M Hill 1988 | | 40.42 | 249.54 | |
| | 9/15/1987 | CH2M Hill 1988 | | 42.47 | 247.49 | |
| | 10/26/1987 | CH2M Hill 1988 | | 42.82 | 247.14 | |
| | 12/28/1987 | CH2M Hill 1988 | | 42.83 | 247.13 | |
| | 1/14/1988 | CH2M Hill 1988 | | 42.86 | 247.10 | |
| | 2/18/1988 | CH2M Hill 1988 | | 42.86 | 247.10 | |
| | 3/3/1988 | CH2M Hill 1988 | 289.96 | 41.87 | 248.09 | |
| | 4/2/1988 | CH2M Hill 1988 | | 42.49 | 247.47 | |
| | 7/7/1995 | Envirosolve | 289.92 | 59.61 | 230.31 | |
| | 10/23/1995 | Envirosolve | | 58.26 | 231.66 | |
| | 4/15/1996 | Envirosolve | | 58.30 | 231.62 | |
| | 3/16/1998 | Envirosolve | | 56.37 | 233.55 | |
| | 6/22/1998 | Envirosolve | | 54.90 | 235.02 | |
| | 9/14/1998 | Envirosolve | | 54.35 | 235.57 | |
| | 12/14/1998 | Envirosolve | | 54.04 | 235.88 | |
| | 3/15/1999 | IT | | 54.58 | 235.34 | |
| | 6/14/1999 | IT | | 55.37 | 234.55 | |
| | 9/13/1999 | IT | | 54.99 | 234.93 | |
| | 12/13/1999 | IT | 289.92 | 53.76 | 236.16 | |
| | 3/13/2000 | IT | | 53.43 | 236.49 | |
| | 6/19/2000 | IT | | 52.91 | 237.01 | |
| | 9/11/2000 | IT | | 52.72 | 237.20 | |
| | 12/18/2000 | IT | | 51.85 | 238.07 | |
| | 5/7/2001 | IT | | 54.82 | 235.10 | |
| | 10/15/2001 | IT | | 55.74 | 234.18 | |
| | 6/3/2002 | SECOR | 289.74 | 56.21 | 233.53 | |
| | 9/16/2002 | SECOR | | 54.50 | 235.24 | MicroPurge® pump installed |
| | 11/18/2002 | SECOR | | 55.29 | 234.45 | |
| | 1/27/2003 | SECOR | 289.74 | 55.62 | 234.12 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-13 cont.** | 6/16/2003 | SECOR | | 56.27 | 233.47 | |
| | 9/8/2003 | SECOR | | 56.40 | 233.34 | |
| | 12/8/2003 | SECOR | | 56.28 | 233.46 | |
| | 3/8/2004 | SECOR | | 56.60 | 233.14 | |
| | 6/7/2004 | SECOR | | 57.48 | 232.26 | |
| | 8/6/2004 | SECOR | | 58.12 | 231.62 | |
| | 11/12/2004 | SECOR | | 58.39 | 231.35 | |
| | 3/11/2005 | SECOR | | 58.38 | 231.36 | |
| | 5/20/2005 | SECOR | | 58.55 | 231.19 | Used cars dripping fluids nearby |
| | 8/5/2005 | SECOR | | 59.41 | 230.33 | |
| | 11/11/2005 | SECOR | | 57.39 | 232.35 | Used cars dripping fluids nearby |
| | 2/9/2006 | SECOR | | 57.48 | 232.26 | |
| | 5/18/2006 | SECOR | | 57.67 | 232.07 | |
| | 8/11/2006 | SECOR | | 58.15 | 231.59 | |
| | 10/2/2006 | SECOR | | 57.80 | 231.94 | Slightly dented |
| | 1/19/2007 | SECOR | | 58.41 | 231.33 | Partially obstructed by car |
| | 4/20/2007 | SECOR | | 59.72 | 230.02 | |
| | 7/26/2007 | SECOR | | 60.05 | 229.69 | Broken clasp; casing not locked |
| | 11/2/2007 | SECOR | | 61.77 | 227.97 | |
| | 2/8/2008 | SECOR | | 63.04 | 226.70 | |
| | 5/2/2008 | SECOR | | 63.58 | 226.16 | |
| | 8/8/2008 | Stantec | 289.53 | 64.08 | 225.45 | Repaired |
| | 10/17/2008 | Stantec | | 64.51 | 225.02 | |
| | 1/30/2009 | Stantec | | 65.72 | 223.81 | |
| | 5/1/2009 | Stantec | | 66.71 | 222.82 | |
| | 7/24/2009 | Stantec | | 66.21 | 223.32 | |
| | 11/10/2009 | Stantec | | 66.09 | 223.44 | Replaced lock |
| | 2/8/2010 | Stantec | | 66.59 | 222.94 | |
| | 5/11/2010 | Stantec | | 66.80 | 222.73 | |
| | 8/2/2010 | Stantec | | 66.42 | 223.11 | |
| | 10/18/2010 | Stantec | | 65.73 | 223.80 | |
| | 2/14/2011 | Stantec | | 65.65 | 223.88 | |
| | 5/9/2011 | Stantec | | 66.23 | 223.30 | |
| | 8/1/2011 | Stantec | | 65.80 | 223.73 | |
| | 10/17/2011 | Stantec | | 65.25 | 224.28 | |
| | 2/6/2012 | Stantec | | 65.54 | 223.99 | |
| | 5/4/2012 | Stantec | | 66.58 | 222.95 | |
| | 7/16/2012 | Stantec | | 66.67 | 222.86 | |
| | 1/22/2013 | Stantec | | 68.64 | 220.89 | |
| | 7/8/2013 | Stantec | | 70.68 | 218.85 | |
| | 1/21/2014 | Stantec | | 74.47 | 215.06 | |
| | 7/14/2014 | Stantec | | 76.71 | 212.82 | |
| | 1/12/2015 | Stantec | | 80.00 | 209.53 | |
| | 7/6/2015 | Stantec | | 82.10 | 207.43 | |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/17/2017 | Stantec | | 84.23 | 205.30 | |
| | 7/26/2017 | Stantec | | 82.53 | 207.00 | |
| | 2/5/2018 | Stantec | | 81.69 | 207.84 | Insufficient Water |
| | 7/30/2018 | Stantec | | 82.60 | 206.93 | Insufficient Water |
| | 2/11/2019 | Stantec | | 82.90 | 206.63 | Insufficient Water |
| | 7/16/2019 | Arcadis | | 81.42 | 208.11 | |
| | 1/28/2020 | Arcadis | | 80.17 | 209.36 | Pump above water level |
| **MW-18** | 8/7/1984 | Harding Lawson Associates 1986 | 289.53 | 42.94 | 246.59 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 42.65 | 246.88 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 42.69 | 246.84 | |
| | 5/27/1986 | CH2M Hill 1988 | 289.58 | 41.05 | 248.53 | |
| | 7/9/1986 | CH2M Hill 1988 | | 41.34 | 248.24 | |
| | 8/22/1986 | CH2M Hill 1988 | | 41.26 | 248.32 | |
| | 9/23/1986 | CH2M Hill 1988 | | 41.16 | 248.42 | |
| | 10/21/1986 | CH2M Hill 1988 | | 41.05 | 248.53 | |
| | 11/14/1986 | CH2M Hill 1988 | | 41.05 | 248.53 | |
| | 12/22/1986 | CH2M Hill 1988 | | 41.29 | 248.29 | |
| | 1/19/1987 | CH2M Hill 1988 | | 41.10 | 248.48 | |
| | 2/17/1987 | CH2M Hill 1988 | | 41.09 | 248.49 | |
| | 4/10/1987 | CH2M Hill 1988 | | 40.84 | 248.74 | |
| | 4/28/1987 | CH2M Hill 1988 | | 41.05 | 248.53 | |
| | 5/21/1987 | CH2M Hill 1988 | | 41.05 | 248.53 | |
| | 6/30/1987 | CH2M Hill 1988 | | 41.05 | 248.53 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-18 cont.** | 8/17/1987 | CH2M Hill 1988 | | 41.51 | 248.07 | |
| | 9/15/1987 | CH2M Hill 1988 | | 42.36 | 247.22 | |
| | 10/26/1987 | CH2M Hill 1988 | | 42.86 | 246.72 | |
| | 12/28/1987 | CH2M Hill 1988 | 246.67 | 0.00 | 246.67 | |
| | 1/14/1988 | CH2M Hill 1988 | | -0.01 | 246.68 | |
| | 2/18/1988 | CH2M Hill 1988 | | 0.02 | 246.65 | |
| | 3/3/1988 | CH2M Hill 1988 | | -0.28 | 246.95 | |
| | 4/2/1988 | CH2M Hill 1988 | | -0.13 | 246.80 | |
| | 4/17/1995 | Envirosolve | 289.80 | 60.18 | 229.62 | |
| | 7/7/1995 | Envirosolve | | 60.03 | 229.77 | |
| | 10/23/1995 | Envirosolve | | 58.68 | 231.12 | |
| | 6/7/2004 | SECOR | 289.90 | 59.34 | 230.46 | |
| | 8/6/2004 | SECOR | | 59.97 | 229.83 | |
| | 11/12/2004 | SECOR | | NA | NA | Obstructed |
| | 3/11/2005 | SECOR | | NA | NA | Obstructed |
| | 5/20/2005 | SECOR | | NA | NA | Obstructed |
| | 8/5/2005 | SECOR | | NA | NA | Buried |
| | 11/11/2005 | SECOR | | NA | NA | Buried |
| | 2/9/2006 | SECOR | | | Decommissioned December 2005 | |
| **MW-20** | 7/7/1995 | Envirosolve | 288.53 | 60.37 | 228.16 | |
| | 10/23/1995 | Envirosolve | | 58.67 | 229.86 | |
| | 4/15/1996 | Envirosolve | | 58.63 | 229.90 | |
| | 3/16/1998 | Envirosolve | | 56.49 | 232.04 | |
| | 6/22/1998 | Envirosolve | | 55.17 | 233.36 | |
| | 9/14/1998 | Envirosolve | | 54.47 | 234.06 | |
| | 12/14/1998 | Envirosolve | | 54.19 | 234.34 | |
| | 3/15/1999 | IT | | 54.80 | 233.73 | |
| | 6/14/1999 | IT | | 55.70 | 232.83 | |
| | 9/13/1999 | IT | | 55.12 | 233.41 | |
| | 12/13/1999 | IT | | 53.85 | 234.68 | |
| | 3/13/2000 | IT | | 53.62 | 234.91 | |
| | 6/19/2000 | IT | | 53.04 | 235.49 | |
| | 9/11/2000 | IT | | 52.89 | 235.64 | |
| | 12/18/2000 | IT | | 51.92 | 236.61 | |
| | 5/7/2001 | IT | | 55.07 | 233.46 | |
| | 10/15/2001 | IT | | 56.09 | 232.44 | |
| | 6/3/2002 | SECOR | 288.40 | 56.38 | 232.02 | |
| | 9/16/2002 | SECOR | | 55.01 | 233.39 | MicroPurge® pump installed |
| | 11/18/2002 | SECOR | | 55.86 | 232.54 | |
| | 1/27/2003 | SECOR | | 56.16 | 232.24 | |
| | 6/16/2003 | SECOR | | 56.73 | 231.67 | |
| | 9/8/2003 | SECOR | | 56.91 | 231.49 | |
| | 12/8/2003 | SECOR | | 56.71 | 231.69 | |
| | 3/8/2004 | SECOR | | 57.16 | 231.24 | |
| | 6/7/2004 | SECOR | | 58.02 | 230.38 | |
| | 8/6/2004 | SECOR | | 58.59 | 229.81 | |
| | 11/12/2004 | SECOR | | 58.84 | 229.56 | Bent lid, broken latch, marked with fencing |
| | 3/11/2005 | SECOR | | 58.83 | 229.57 | |
| | 5/20/2005 | SECOR | | 59.12 | 229.28 | Lid broken, no lock |
| | 8/5/2005 | SECOR | | 60.05 | 228.35 | Well box damaged, dented, smashed |
| | 11/11/2005 | SECOR | | 58.06 | 230.34 | Lid is broken, no lock |
| | 2/9/2006 | SECOR | | 58.02 | 230.38 | |
| | 5/18/2006 | SECOR | | 58.30 | 230.10 | |
| | 8/11/2006 | SECOR | | 58.75 | 229.65 | |
| | 10/2/2006 | SECOR | | 58.55 | 229.85 | No lock; dented |
| | 1/19/2007 | SECOR | | 58.97 | 229.43 | No lock; lid dented |
| | 4/20/2007 | SECOR | | 60.27 | 228.13 | No lock; lid dented |
| | 7/26/2007 | SECOR | | 60.54 | 227.86 | |
| | 11/2/2007 | SECOR | | 62.26 | 226.14 | |
| | 2/8/2008 | SECOR | | 63.52 | 224.88 | |
| | 5/2/2008 | SECOR | | 63.88 | 224.52 | |
| | 8/8/2008 | Stantec | 288.52 | 64.50 | 224.02 | Repaired |
| | 10/17/2008 | Stantec | | 65.30 | 223.22 | |
| | 1/30/2009 | Stantec | | 66.42 | 222.10 | |
| | 5/1/2009 | Stantec | | 67.44 | 221.08 | |
| | 7/24/2009 | Stantec | | 66.84 | 221.68 | |
| | 11/10/2009 | Stantec | | 66.56 | 221.96 | |
| | 2/8/2010 | Stantec | | 67.27 | 221.25 | |
| | 5/11/2010 | Stantec | 288.52 | 67.38 | 221.14 | |
| | 8/2/2010 | Stantec | | 67.14 | 221.38 | |
| | 10/18/2010 | Stantec | | 66.53 | 221.99 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-20 cont.** | 2/14/2011 | Stantec | | 66.31 | 222.21 | |
| | 5/9/2011 | Stantec | | 66.80 | 221.72 | |
| | 8/1/2011 | Stantec | | 66.51 | 222.01 | |
| | 10/17/2011 | Stantec | | 66.00 | 222.52 | |
| | 2/6/2012 | Stantec | | 66.24 | 222.28 | |
| | 5/4/2012 | Stantec | | 67.23 | 221.29 | |
| | 7/16/2012 | Stantec | | 67.25 | 221.27 | |
| | 1/22/2013 | Stantec | | 69.12 | 219.40 | |
| | 7/8/2013 | Stantec | | 71.04 | 217.48 | |
| | 1/21/2014 | Stantec | | 75.49 | 213.03 | |
| | 7/14/2014 | Stantec | | NA | NA | No access, debris covering well. |
| | 1/12/2015 | Stantec | | NA | NA | No access to well |
| | 7/6/2015 | Stantec | | NA | NA | Buried, no access. |
| | 1/19/2016 | Stantec | | NA | NA | Buried, no access. |
| | 7/18/2016 | Stantec | | NA | NA | Buried, no access. |
| | 1/17/2017 | Stantec | | NA | NA | Buried, no access. |
| | 7/26/2017 | Stantec | | NA | NA | Buried, no access. |
| | 2/5/2018 | Stantec | | NA | NA | Buried, no access. |
| | 7/30/2018 | Stantec | | NA | NA | Buried, no access. |
| | 2/11/2019 | Stantec | | NA | NA | Buried, no access. |
| | 7/16/2019 | Arcadis | | NA | NA | Buried, no access. |
| | 1/28/2020 | Arcadis | | NA | NA | Buried, no access. |
| **MW-21** | 8/7/1984 | Harding Lawson Associates 1986 | 289.80 | 43.84 | 245.96 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | 289.80 | 43.54 | 246.26 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 43.55 | 246.25 | |
| | 5/27/1986 | CH2M Hill 1988 | 289.73 | 41.89 | 247.84 | |
| | 7/9/1986 | CH2M Hill 1988 | 289.73 | 42.43 | 247.30 | |
| | 8/11/1986 | CH2M Hill 1988 | | 42.03 | 247.70 | |
| | 8/22/1986 | CH2M Hill 1988 | | 41.97 | 247.76 | |
| | 9/23/1986 | CH2M Hill 1988 | | 41.90 | 247.83 | |
| | 10/21/1986 | CH2M Hill 1988 | | 41.74 | 247.99 | |
| | 11/14/1986 | CH2M Hill 1988 | | 41.83 | 247.90 | |
| | 12/22/1986 | CH2M Hill 1988 | | 42.05 | 247.68 | |
| | 1/19/1987 | CH2M Hill 1988 | | 41.85 | 247.88 | |
| | 2/17/1987 | CH2M Hill 1988 | | 41.83 | 247.90 | |
| | 4/10/1987 | CH2M Hill 1988 | | 41.62 | 248.11 | |
| | 4/28/1987 | CH2M Hill 1988 | | 41.85 | 247.88 | |
| | 5/21/1987 | CH2M Hill 1988 | | 42.05 | 247.68 | |
| | 6/30/1987 | CH2M Hill 1988 | | 42.18 | 247.55 | |
| | 8/17/1987 | CH2M Hill 1988 | | 42.41 | 247.32 | |
| | 9/15/1987 | CH2M Hill 1988 | | 43.62 | 246.11 | |
| | 10/26/1987 | CH2M Hill 1988 | | 43.80 | 245.93 | |
| | 12/28/1987 | CH2M Hill 1988 | | 43.76 | 245.97 | |
| | 1/14/1988 | CH2M Hill 1988 | | 43.81 | 245.92 | |
| | 2/18/1988 | CH2M Hill 1988 | | 43.81 | 245.92 | |
| | 3/3/1988 | CH2M Hill 1988 | 289.73 | 43.69 | 246.04 | |
| | 4/2/1988 | CH2M Hill 1988 | | 43.75 | 245.98 | |
| | 4/17/1995 | Envirosolve | 289.77 | 60.84 | 228.93 | |
| | 7/7/1995 | Envirosolve | | 60.86 | 228.91 | |
| | 10/23/1995 | Envirosolve | | 59.36 | 230.41 | |
| | 4/15/1996 | Envirosolve | | 59.19 | 230.58 | |
| | 3/15/1999 | IT | | 55.25 | 234.52 | |
| | 6/14/1999 | IT | | 56.19 | 233.58 | |
| | 9/13/1999 | IT | | 55.70 | 234.07 | |
| | 12/13/1999 | IT | | 54.56 | 235.21 | |
| | 3/13/2000 | IT | | 54.26 | 235.51 | |
| | 6/19/2000 | IT | | 53.39 | 236.38 | |
| | 9/11/2000 | IT | | 53.25 | 236.52 | |
| | 12/18/2000 | IT | | 52.39 | 237.38 | |
| | 5/7/2001 | IT | | 55.13 | 234.64 | |
| | 10/15/2001 | IT | | 56.21 | 233.56 | |
| | 6/3/2002 | SECOR | 289.47 | 56.56 | 232.83 | |
| | 9/16/2002 | SECOR | | 55.29 | 234.18 | MicroPurge® pump installed |
| | 11/18/2002 | SECOR | | 56.14 | 233.33 | |
| | 1/27/2003 | SECOR | | 56.51 | 232.96 | |
| | 6/16/2003 | SECOR | | 57.09 | 232.38 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-21 cont.** | 9/8/2003 | SECOR | | 57.22 | 232.25 | |
| | 12/8/2003 | SECOR | | 57.13 | 232.34 | |
| | 3/8/2004 | SECOR | | 57.54 | 231.93 | |
| | 6/7/2004 | SECOR | | 58.33 | 231.14 | |
| | 8/6/2004 | SECOR | | 58.97 | 230.50 | |
| | 11/12/2004 | SECOR | | 59.23 | 230.24 | Marked with orange fencing |
| | 3/11/2005 | SECOR | | 59.25 | 230.22 | Marked with orange fencing |
| | 5/20/2005 | SECOR | | 59.44 | 230.03 | Marked with orange fencing |
| | 8/5/2005 | SECOR | | 60.35 | 229.12 | |
| | 11/11/2005 | SECOR | | 58.38 | 231.09 | No lock; marked with orange fencing |
| | 2/9/2006 | SECOR | | 58.42 | 231.05 | |
| | 5/18/2006 | SECOR | | 58.63 | 230.84 | |
| | 8/11/2006 | SECOR | 289.47 | 59.08 | 230.39 | |
| | 10/2/2006 | SECOR | | 58.87 | 230.60 | No lock |
| | 1/19/2007 | SECOR | | 59.39 | 230.08 | No lock |
| | 4/20/2007 | SECOR | | 60.63 | 228.84 | No lock |
| | 7/26/2007 | SECOR | | 60.92 | 228.55 | No lock |
| | 11/2/2007 | SECOR | | 62.57 | 226.90 | |
| | 2/8/2008 | SECOR | | 63.88 | 225.59 | |
| | 5/2/2008 | SECOR | | 64.30 | 225.17 | |
| | 8/8/2008 | Stantec | 289.53 | 64.91 | 224.62 | Repaired |
| | 10/17/2008 | Stantec | | 65.46 | 224.07 | |
| | 1/30/2009 | Stantec | | 66.66 | 222.87 | |
| | 5/1/2009 | Stantec | | 67.55 | 221.98 | |
| | 7/24/2009 | Stantec | | 67.12 | 222.41 | |
| | 11/10/2009 | Stantec | | 66.81 | 222.72 | |
| | 2/8/2010 | Stantec | | 67.59 | 221.94 | |
| | 5/11/2010 | Stantec | | 67.64 | 221.89 | |
| | 8/2/2010 | Stantec | | 67.37 | 222.16 | |
| | 10/18/2010 | Stantec | | 66.73 | 222.80 | |
| | 2/14/2011 | Stantec | | 66.62 | 222.91 | |
| | 5/9/2011 | Stantec | | 67.14 | 222.39 | |
| | 8/1/2011 | Stantec | | 66.75 | 222.78 | |
| | 10/17/2011 | Stantec | | 66.22 | 223.31 | |
| | 2/6/2012 | Stantec | | 66.54 | 222.99 | |
| | 5/4/2012 | Stantec | | 67.52 | 222.01 | |
| | 7/16/2012 | Stantec | | 67.60 | 221.93 | |
| | 1/22/2013 | Stantec | | 69.71 | 219.82 | |
| | 7/8/2013 | Stantec | | 71.50 | 218.03 | |
| | 1/21/2014 | Stantec | | 75.70 | 213.83 | |
| | 7/14/2014 | Stantec | | 77.10 | 212.43 | |
| | 1/12/2015 | Stantec | | 81.11 | 208.42 | |
| | 7/6/2015 | Stantec | | Dry | Dry | |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/17/2017 | Stantec | | NA | NA | Well backfilled to 4' bgs |
| | 7/26/2017 | Stantec | | NA | NA | Well backfilled to 4' bgs |
| | 2/5/2018 | Stantec | | NA | NA | Well backfilled to 4' bgs |
| | 7/30/2018 | Stantec | | NA | NA | Well backfilled to 4' bgs |
| | 2/11/2019 | Stantec | | NA | NA | Well backfilled to 4' bgs |
| | 7/16/2019 | Arcadis | | NA | NA | Well backfilled to 4' bgs |
| | 1/28/2020 | Arcadis | | NA | NA | Well permanently damaged |
| **MW-30P** | 6/19/2000 | IT | NA | 54.13 | NA | |
| | 5/7/2001 | IT | | 55.51 | NA | |
| | 8/5/2005 | SECOR | | NA | NA | Not functional |
| | 11/11/2005 | SECOR | | NA | NA | Not functional |
| | 2/9/2006 | SECOR | | NA | NA | |
| | 5/18/2006 | SECOR | | NA | NA | Not functional - no sounding port |
| | 8/11/2006 | SECOR | | NA | NA | Not functional - no sounding port |
| | 10/2/2006 | SECOR | | NA | NA | Broken |
| | 1/19/2007 | SECOR | | NA | NA | Lost/Unable to Locate |
| | 4/20/2007 | SECOR | | NA | NA | Lost/Unable to Locate |
| | 2/8/2010 | Stantec | | Removed from Monitoring Well Network First Quarter 2010 | | |
| **MW-31P** | 5/21/1987 | CH2M Hill 1988 | 290.47 | 45.25 | 245.22 | |
| | 6/30/1987 | CH2M Hill 1988 | | 46.18 | 244.29 | |
| | 9/15/1987 | CH2M Hill 1988 | | 46.89 | 243.58 | |
| | 10/26/1987 | CH2M Hill 1988 | | 47.01 | 243.46 | |
| | 2/18/1988 | CH2M Hill 1988 | | 46.75 | 243.72 | |
| | 3/3/1988 | CH2M Hill 1988 | | 47.00 | 243.47 | |
| | 4/2/1988 | CH2M Hill 1988 | | 47.16 | 243.31 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-31P cont.** | 1/16/1995 | Envirosolve | | 62.95 | 227.52 | |
| | 4/17/1995 | Envirosolve | 290.44 | 62.92 | 227.52 | |
| | 7/7/1995 | Envirosolve | | 63.28 | 227.16 | |
| | 10/23/1995 | Envirosolve | | 62.53 | 227.91 | |
| | 4/15/1996 | Envirosolve | | 61.77 | 228.67 | |
| | 3/16/1998 | Envirosolve | | 59.76 | 230.68 | |
| | 6/22/1998 | Envirosolve | | 58.74 | 231.70 | |
| | 9/14/1998 | Envirosolve | | 57.89 | 232.55 | |
| | 12/14/1998 | Envirosolve | | 57.86 | 232.58 | |
| | 3/15/1999 | IT | | 57.98 | 232.46 | |
| | 6/14/1999 | IT | | 58.41 | 232.03 | |
| | 9/13/1999 | IT | | 58.11 | 232.33 | |
| | 12/13/1999 | IT | | 57.40 | 233.04 | |
| | 3/13/2000 | IT | | 56.81 | 233.63 | |
| | 6/19/2000 | IT | 290.44 | 55.58 | 234.86 | |
| | 9/11/2000 | IT | | 55.10 | 235.34 | |
| | 12/18/2000 | IT | | 54.96 | 235.48 | |
| | 5/7/2001 | IT | | 57.06 | 233.38 | |
| | 10/15/2001 | IT | | 57.20 | 233.24 | |
| | 6/3/2002 | SECOR | | 58.69 | 231.75 | |
| | 9/16/2002 | SECOR | | 57.10 | 233.34 | |
| | 11/18/2002 | SECOR | | 58.18 | 232.26 | |
| | 1/27/2003 | SECOR | | 58.72 | 231.72 | |
| | 6/16/2003 | SECOR | 290.44 | 59.33 | 231.11 | |
| | 9/8/2003 | SECOR | | 59.63 | 230.81 | |
| | 12/8/2003 | SECOR | | 59.60 | 230.84 | |
| | 3/8/2004 | SECOR | | 59.92 | 230.52 | |
| | 6/7/2004 | SECOR | | 60.87 | 229.57 | |
| | 8/6/2004 | SECOR | | 61.19 | 229.25 | |
| | 11/12/2004 | SECOR | | 61.59 | 228.85 | Casing rusting out, holes on side |
| | 3/11/2005 | SECOR | | 61.39 | 229.05 | |
| | 5/20/2005 | SECOR | | 61.68 | 228.76 | Concrete cracked, casing rotting |
| | 8/5/2005 | SECOR | | 62.71 | 227.73 | |
| | 11/11/2005 | SECOR | | 61.22 | 229.22 | Concrete cracked, casing rotting |
| | 2/9/2006 | SECOR | | 61.50 | 228.94 | |
| | 5/18/2006 | SECOR | | 61.06 | 229.38 | |
| | 8/11/2006 | SECOR | | 61.61 | 228.83 | Rusted and broken |
| | 10/2/2006 | SECOR | | 61.79 | 228.65 | Rusted and broken |
| | 1/19/2007 | SECOR | | 62.24 | 228.20 | Rusted and broken |
| | 4/20/2007 | SECOR | | 63.18 | 227.26 | Rusted and broken |
| | 7/26/2007 | SECOR | | 63.94 | 226.50 | Casing is rusted; pump is broken |
| | 11/2/2007 | SECOR | | 65.01 | 225.43 | Casing is rusted; pump is broken |
| | 2/8/2008 | SECOR | | 66.32 | 224.12 | Casing is rusted; pump is broken |
| | 5/2/2008 | SECOR | | 67.06 | 223.38 | |
| | 8/8/2008 | Stantec | 290.42 | 67.84 | 222.58 | Casing is rusted |
| | 10/17/2008 | Stantec | | 68.08 | 222.34 | Casing is rusted |
| | 1/30/2009 | Stantec | | 69.12 | 221.30 | |
| | 5/1/2009 | Stantec | | 69.95 | 220.47 | |
| | 7/24/2009 | Stantec | | 69.97 | 220.45 | |
| | 11/10/2009 | Stantec | | 69.44 | 220.98 | |
| | 2/8/2010 | Stantec | | 69.95 | 220.47 | |
| | 5/11/2010 | Stantec | | 70.15 | 220.27 | |
| | 8/2/2010 | Stantec | | 69.82 | 220.60 | |
| | 10/18/2010 | Stantec | | 69.09 | 221.33 | |
| | 2/14/2011 | Stantec | | 69.20 | 221.22 | |
| | 5/9/2011 | Stantec | | 69.93 | 220.49 | |
| | 8/1/2011 | Stantec | | 69.70 | 220.72 | |
| | 10/17/2011 | Stantec | | 68.84 | 221.58 | |
| | 2/6/2012 | Stantec | | 69.51 | 220.91 | |
| | 5/4/2012 | Stantec | | 70.28 | 220.14 | |
| | 7/16/2012 | Stantec | | 70.23 | 220.19 | |
| | 1/22/2013 | Stantec | | 71.73 | 218.69 | |
| | 7/8/2013 | Stantec | | Dry | Dry | |
| | 1/21/2014 | Stantec | | Dry | Dry | |
| | 7/14/2014 | Stantec | | Dry | Dry | |
| | 1/12/2015 | Stantec | | Dry | Dry | |
| | 7/6/2015 | Stantec | | Dry | Dry | |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/17/2017 | Stantec | | NA | NA | No access |
| | 7/26/2017 | Stantec | | NA | NA | No access |
| | 2/5/2018 | Stantec | | Dry | Dry | Residual water / Well dry |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-31P cont.** | 7/30/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/11/2019 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/16/2019 | Arcadis | | Dry | Dry | |
| | 1/28/2020 | Arcadis | | Removed from Monitoring Well Network Third Quarter 2012 | | |
| **MW-36** | 7/7/1995 | Envirosolve | 286.83 | 62.74 | 224.09 | |
| | 10/23/1995 | Envirosolve | | 61.95 | 224.88 | |
| | 4/15/1996 | Envirosolve | | 61.10 | 225.73 | |
| | 8/5/2005 | SECOR | | Decommissioned October 1997 | | |
| **MW-38** | 1/16/1995 | Envirosolve | 289.06 | 63.44 | 225.62 | |
| | 4/17/1995 | Envirosolve | | 63.08 | 225.98 | |
| | 7/7/1995 | Envirosolve | | 63.99 | 225.07 | |
| | 10/23/1995 | Envirosolve | | 63.43 | 225.63 | |
| | 4/15/1996 | Envirosolve | | 62.16 | 226.90 | |
| | 3/16/1998 | Envirosolve | | 60.13 | 228.93 | |
| | 6/22/1998 | Envirosolve | | 59.67 | 229.39 | |
| | 9/14/1998 | Envirosolve | | 58.44 | 230.62 | |
| | 12/14/1998 | Envirosolve | | 58.75 | 230.31 | |
| | 3/15/1999 | IT | | 58.56 | 230.50 | |
| | 6/14/1999 | IT | | 58.94 | 230.12 | |
| | 9/13/1999 | IT | | 58.38 | 230.68 | |
| | 12/13/1999 | IT | | 58.17 | 230.89 | |
| | 3/13/2000 | IT | | 57.39 | 231.67 | |
| | 6/19/2000 | IT | | 55.89 | 233.17 | |
| | 9/11/2000 | IT | | 55.27 | 233.79 | |
| | 12/18/2000 | IT | | 55.60 | 233.46 | |
| | 5/7/2001 | IT | | 57.22 | 231.84 | |
| | 10/15/2001 | IT | | 57.19 | 231.87 | |
| | 6/3/2002 | SECOR | | 59.07 | 229.49 | |
| | 9/16/2002 | SECOR | | 57.28 | 231.78 | MicroPurge® pump installed |
| | 11/18/2002 | SECOR | | 58.50 | 230.56 | |
| | 1/27/2003 | SECOR | | 59.05 | 230.01 | |
| | 6/16/2003 | SECOR | | 59.66 | 229.40 | |
| | 9/8/2003 | SECOR | 289.06 | 60.03 | 229.03 | |
| | 12/8/2003 | SECOR | | 60.06 | 229.00 | |
| | 3/8/2004 | SECOR | | 60.31 | 228.75 | |
| | 6/7/2004 | SECOR | | 61.26 | 227.80 | |
| | 8/6/2004 | SECOR | | 61.66 | 227.40 | |
| | 11/12/2004 | SECOR | | 61.96 | 227.10 | |
| | 3/11/2005 | SECOR | | 61.59 | 227.47 | |
| | 5/20/2005 | SECOR | | 62.01 | 227.05 | Sulfur pile nearby |
| | 8/5/2005 | SECOR | | 63.11 | 225.95 | |
| | 11/11/2005 | SECOR | | 61.84 | 227.22 | Sulfur pile nearby |
| | 2/9/2006 | SECOR | | 61.59 | 227.47 | |
| | 5/18/2006 | SECOR | | 61.43 | 227.63 | |
| | 8/11/2006 | SECOR | | 62.08 | 226.98 | |
| | 10/2/2006 | SECOR | | 62.40 | 226.66 | |
| | 1/19/2007 | SECOR | | 62.81 | 226.25 | |
| | 4/20/2007 | SECOR | | 63.59 | 225.47 | |
| | 7/26/2007 | SECOR | | 64.47 | 224.59 | |
| | 11/2/2007 | SECOR | | 65.52 | 223.54 | |
| | 2/8/2008 | SECOR | | 66.73 | 222.33 | |
| | 5/2/2008 | SECOR | | 67.54 | 221.52 | |
| | 8/8/2008 | Stantec | 288.91 | 68.43 | 220.48 | |
| | 10/17/2008 | Stantec | | 68.72 | 220.19 | |
| | 1/30/2009 | Stantec | | 69.63 | 219.28 | |
| | 5/1/2009 | Stantec | | 70.44 | 218.47 | |
| | 7/24/2009 | Stantec | | 70.61 | 218.30 | |
| | 11/10/2009 | Stantec | | 70.30 | 218.61 | |
| | 2/8/2010 | Stantec | | Removed from Monitoring Well Network First Quarter 2010 | | |
| **MW-39** | 1/16/1995 | Envirosolve | 291.26 | 62.83 | 228.43 | |
| | 4/17/1995 | Envirosolve | | 62.91 | 228.35 | |
| | 7/7/1995 | Envirosolve | | 63.34 | 227.92 | |
| | 10/23/1995 | Envirosolve | | 62.37 | 228.89 | |
| | 4/15/1996 | Envirosolve | | 61.74 | 229.52 | |
| | 3/16/1998 | Envirosolve | | 59.67 | 231.59 | |
| | 6/22/1998 | Envirosolve | | 58.75 | 232.51 | |
| | 9/14/1998 | Envirosolve | | 57.85 | 233.41 | |
| | 12/14/1998 | Envirosolve | | 57.70 | 233.56 | |
| | 3/15/1999 | IT | | 57.82 | 233.44 | |
| | 6/14/1999 | IT | | 58.35 | 232.91 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-39 cont.** | 9/13/1999 | IT | | 58.11 | 233.15 | |
| | 12/13/1999 | IT | | 57.27 | 233.99 | |
| | 3/13/2000 | IT | | 56.77 | 234.49 | |
| | 6/19/2000 | IT | | 55.72 | 235.54 | |
| | 9/11/2000 | IT | | 55.28 | 235.98 | |
| | 12/18/2000 | IT | | 54.92 | 236.34 | |
| | 5/7/2001 | IT | | 57.15 | 234.11 | |
| | 10/15/2001 | IT | 291.26 | 57.47 | 233.79 | |
| | 6/3/2002 | SECOR | | 58.73 | 232.53 | |
| | 9/16/2002 | SECOR | | 57.20 | 234.06 | MicroPurge® pump installed |
| | 11/18/2002 | SECOR | | 58.16 | 233.10 | |
| | 1/27/2003 | SECOR | | 58.60 | 232.66 | |
| | 6/16/2003 | SECOR | | 59.22 | 232.04 | |
| | 9/8/2003 | SECOR | | 59.49 | 231.77 | |
| | 12/8/2003 | SECOR | | 59.58 | 231.68 | |
| | 3/8/2004 | SECOR | | 59.76 | 231.50 | |
| | 6/7/2004 | SECOR | | 60.70 | 230.56 | |
| | 8/6/2004 | SECOR | | 61.19 | 230.07 | |
| | 11/12/2004 | SECOR | | 61.49 | 229.77 | |
| | 3/11/2005 | SECOR | | 61.41 | 229.85 | |
| | 5/20/2005 | SECOR | 291.26 | 61.65 | 229.61 | |
| | 8/5/2005 | SECOR | | 62.58 | 228.68 | |
| | 11/11/2005 | SECOR | | 60.95 | 230.31 | |
| | 2/9/2006 | SECOR | | 60.85 | 230.41 | |
| | 5/18/2006 | SECOR | | 60.91 | 230.35 | |
| | 8/11/2006 | SECOR | | 61.46 | 229.80 | |
| | 10/2/2006 | SECOR | | 61.43 | 229.83 | |
| | 1/19/2007 | SECOR | | 61.96 | 229.30 | |
| | 4/20/2007 | SECOR | | 62.98 | 228.28 | |
| | 7/26/2007 | SECOR | | 63.66 | 227.60 | |
| | 11/2/2007 | SECOR | | 64.90 | 226.36 | |
| | 2/8/2008 | SECOR | | 66.17 | 225.09 | |
| | 5/2/2008 | SECOR | | 66.90 | 224.36 | |
| | 8/8/2008 | Stantec | 291.09 | 67.57 | 223.52 | |
| | 10/17/2008 | Stantec | | 67.69 | 223.40 | |
| | 1/30/2009 | Stantec | | 68.77 | 222.32 | |
| | 5/1/2009 | Stantec | | 69.71 | 221.38 | |
| | 7/24/2009 | Stantec | | 69.64 | 221.45 | |
| | 11/10/2009 | Stantec | | 69.21 | 221.88 | |
| | 2/8/2010 | Stantec | | 69.81 | 221.28 | |
| | 5/11/2010 | Stantec | | 70.03 | 221.06 | |
| | 8/2/2010 | Stantec | | 69.69 | 221.40 | |
| | 10/18/2010 | Stantec | | 68.96 | 222.13 | |
| | 2/14/2011 | Stantec | | 68.99 | 222.10 | |
| | 5/9/2011 | Stantec | | 69.65 | 221.44 | |
| | 8/1/2011 | Stantec | | 69.42 | 221.67 | |
| | 10/17/2011 | Stantec | | 68.96 | 222.13 | |
| | 2/6/2012 | Stantec | | 69.15 | 221.94 | |
| | 5/4/2012 | Stantec | | 70.02 | 221.07 | |
| | 7/16/2012 | Stantec | | 70.35 | 220.74 | |
| | 1/22/2013 | Stantec | | 72.41 | 218.68 | |
| | 7/8/2013 | Stantec | | 74.61 | 216.48 | |
| | 1/21/2014 | Stantec | | 78.49 | 212.60 | |
| | 7/14/2014 | Stantec | | 81.21 | 209.88 | |
| | 1/12/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/6/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | NA | NA | No access |
| | 1/17/2017 | Stantec | | NA | NA | No access |
| | 7/26/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/5/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/30/2018 | Stantec | | Dry | Dry | Residual water / Well dry |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-39 cont.** | 2/11/2019 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/16/2019 | Arcadis | | Dry | Dry | |
| | 1/28/2020 | Arcadis | | Removed from Monitoring Well Network Third Quarter 2012 | | |
| **MW-40** | 1/16/1995 | Envirosolve | 288.76 | 58.93 | 229.83 | |
| | 4/17/1995 | Envirosolve | | 58.98 | 229.78 | |
| | 7/7/1995 | Envirosolve | | 59.21 | 229.55 | |
| | 10/23/1995 | Envirosolve | | 58.30 | 230.46 | |
| | 4/15/1996 | Envirosolve | | 57.73 | 231.03 | |
| | 3/16/1998 | Envirosolve | 288.76 | 55.70 | 233.06 | |
| | 6/22/1998 | Envirosolve | | 54.64 | 234.12 | |
| | 9/14/1998 | Envirosolve | | 53.84 | 234.92 | |
| | 12/14/1998 | Envirosolve | | 53.66 | 235.10 | |
| | 3/15/1999 | IT | 288.76 | 53.77 | 234.99 | |
| | 6/14/1999 | IT | | 54.20 | 234.56 | |
| | 9/13/1999 | IT | | 54.23 | 234.53 | |
| | 12/13/1999 | IT | | 53.24 | 235.52 | |
| | 3/13/2000 | IT | | 52.83 | 235.93 | |
| | 6/19/2000 | IT | | 51.77 | 236.99 | |
| | 9/11/2000 | IT | | 51.26 | 237.50 | |
| | 12/18/2000 | IT | | 50.88 | 237.88 | |
| | 5/7/2001 | IT | | 53.03 | 235.73 | |
| | 10/15/2001 | IT | | 53.36 | 235.40 | |
| | 6/3/2002 | SECOR | | 54.66 | 234.10 | |
| | 9/16/2002 | SECOR | | 53.25 | 235.51 | MicroPurge® pump installed |
| | 11/18/2002 | SECOR | | 54.22 | 234.54 | |
| | 1/27/2003 | SECOR | | 54.77 | 233.99 | |
| | 6/16/2003 | SECOR | | 55.33 | 233.43 | |
| | 9/8/2003 | SECOR | | 55.57 | 233.19 | |
| | 12/8/2003 | SECOR | | 55.60 | 233.16 | |
| | 3/8/2004 | SECOR | | 55.94 | 232.82 | |
| | 6/7/2004 | SECOR | | 56.77 | 231.99 | |
| | 8/6/2004 | SECOR | | 57.26 | 231.50 | |
| | 11/12/2004 | SECOR | | 57.65 | 231.11 | |
| | 3/11/2005 | SECOR | | 57.62 | 231.14 | |
| | 5/20/2005 | SECOR | | 57.71 | 231.05 | |
| | 8/5/2005 | SECOR | | 58.66 | 230.10 | |
| | 11/11/2005 | SECOR | | 56.85 | 231.91 | |
| | 2/9/2006 | SECOR | | 57.03 | 231.73 | |
| | 5/18/2006 | SECOR | | 57.01 | 231.75 | |
| | 8/11/2006 | SECOR | 288.76 | 57.42 | 231.34 | |
| | 10/2/2006 | SECOR | | 57.35 | 231.41 | |
| | 1/19/2007 | SECOR | | 58.03 | 230.73 | |
| | 4/20/2007 | SECOR | | 59.08 | 229.68 | |
| | 7/26/2007 | SECOR | | 59.61 | 229.15 | |
| | 11/2/2007 | SECOR | | 60.96 | 227.80 | |
| | 2/8/2008 | SECOR | | 62.29 | 226.47 | |
| | 5/2/2008 | SECOR | | 63.09 | 225.67 | |
| | 8/8/2008 | Stantec | 288.73 | 63.54 | 225.19 | |
| | 10/17/2008 | Stantec | | 63.61 | 225.12 | |
| | 1/30/2009 | Stantec | | 64.85 | 223.88 | |
| | 5/1/2009 | Stantec | | 65.79 | 222.94 | |
| | 7/24/2009 | Stantec | | 65.51 | 223.22 | |
| | 11/10/2009 | Stantec | | 64.95 | 223.78 | |
| | 2/8/2010 | Stantec | | 65.73 | 223.00 | |
| | 5/11/2010 | Stantec | | 66.00 | 222.73 | |
| | 8/2/2010 | Stantec | | 65.52 | 223.21 | |
| | 10/18/2010 | Stantec | | 64.75 | 223.98 | |
| | 2/14/2011 | Stantec | | 65.00 | 223.73 | |
| | 5/9/2011 | Stantec | | 65.65 | 223.08 | |
| | 8/1/2011 | Stantec | | 65.30 | 223.43 | |
| | 10/17/2011 | Stantec | | 64.75 | 223.98 | |
| | 2/6/2012 | Stantec | | 64.97 | 223.76 | |
| | 5/4/2012 | Stantec | | 66.00 | 222.73 | |
| | 7/16/2012 | Stantec | | 66.30 | 222.43 | |
| | 1/22/2013 | Stantec | | 68.39 | 220.34 | |
| | 7/8/2013 | Stantec | | 70.41 | 218.32 | |
| | 1/21/2014 | Stantec | | 74.30 | 214.43 | |
| | 7/14/2014 | Stantec | | 77.00 | 211.73 | |
| | 1/12/2015 | Stantec | | 79.60 | 209.13 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-40 cont.** | 7/6/2015 | Stantec | | Dry | Dry | |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/17/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/26/2017 | Stantec | | 80.80 | 207.93 | |
| | 2/5/2018 | Stantec | | 80.27 | 208.46 | |
| | 7/30/2018 | Stantec | | 81.20 | 207.53 | |
| | 2/11/2019 | Stantec | | 81.60 | 207.13 | |
| | 7/16/2019 | Arcadis | | Dry | Dry | |
| | 1/28/2020 | Arcadis | | Removed from Monitoring Well Network Third Quarter 2012 | | |
| **MW-41** | 1/16/1995 | Envirosolve | 290.45 | 60.08 | 230.37 | |
| | 4/17/1995 | Envirosolve | | 60.16 | 230.29 | |
| | 7/7/1995 | Envirosolve | 290.45 | 60.29 | 230.16 | |
| | 10/23/1995 | Envirosolve | | 59.35 | 231.10 | |
| | 4/15/1996 | Envirosolve | | 58.87 | 231.58 | |
| | 3/16/1998 | Envirosolve | | 56.84 | 233.61 | |
| | 6/22/1998 | Envirosolve | | 55.70 | 234.75 | |
| | 9/14/1998 | Envirosolve | | 54.96 | 235.49 | |
| | 12/14/1998 | Envirosolve | | 54.77 | 235.68 | |
| | 3/15/1999 | IT | | 54.91 | 235.54 | |
| | 6/14/1999 | IT | | 55.32 | 235.13 | |
| | 9/13/1999 | IT | | 55.37 | 235.08 | |
| | 12/13/1999 | IT | | 54.38 | 236.07 | |
| | 3/13/2000 | IT | | 52.97 | 237.48 | |
| | 6/19/2000 | IT | | 53.00 | 237.45 | |
| | 9/11/2000 | IT | | 52.48 | 237.97 | |
| | 12/18/2000 | IT | | 52.06 | 238.39 | |
| | 5/7/2001 | IT | | 54.27 | 236.18 | |
| | 10/15/2001 | IT | 290.45 | 54.67 | 235.78 | |
| | 6/3/2002 | SECOR | | 55.87 | 234.58 | |
| | 9/16/2002 | SECOR | | 54.41 | 236.04 | MicroPurge® pump installed |
| | 11/18/2002 | SECOR | | 55.35 | 235.10 | |
| | 1/27/2003 | SECOR | | 55.86 | 234.59 | |
| | 6/16/2003 | SECOR | | 56.41 | 234.04 | |
| | 9/8/2003 | SECOR | 290.45 | 56.65 | 233.80 | |
| | 12/8/2003 | SECOR | | 56.69 | 233.76 | |
| | 3/8/2004 | SECOR | | 57.02 | 233.43 | |
| | 6/7/2004 | SECOR | | 57.86 | 232.59 | |
| | 8/6/2004 | SECOR | | 58.36 | 232.09 | |
| | 11/12/2004 | SECOR | | 58.75 | 231.70 | |
| | 3/11/2005 | SECOR | | 58.73 | 231.72 | |
| | 5/20/2005 | SECOR | | 58.81 | 231.64 | |
| | 8/5/2005 | SECOR | | 59.72 | 230.73 | |
| | 11/11/2005 | SECOR | | 57.92 | 232.53 | |
| | 2/9/2006 | SECOR | | 58.06 | 232.39 | |
| | 5/18/2006 | SECOR | | 58.07 | 232.38 | |
| | 8/11/2006 | SECOR | | 58.43 | 232.02 | |
| | 10/2/2006 | SECOR | | 58.25 | 232.20 | |
| | 1/19/2007 | SECOR | | 59.05 | 231.40 | |
| | 4/20/2007 | SECOR | | 60.13 | 230.32 | |
| | 7/26/2007 | SECOR | | 60.60 | 229.85 | |
| | 11/2/2007 | SECOR | 290.45 | 62.03 | 228.42 | |
| | 2/8/2008 | SECOR | | 63.34 | 227.11 | |
| | 5/2/2008 | SECOR | | 64.21 | 226.24 | |
| | 8/8/2008 | Stantec | 290.30 | 64.58 | 225.72 | |
| | 10/17/2008 | Stantec | | 64.68 | 225.62 | |
| | 1/30/2009 | Stantec | | 65.87 | 224.43 | |
| | 5/1/2009 | Stantec | | 66.80 | 223.50 | |
| | 7/24/2009 | Stantec | | 66.47 | 223.83 | |
| | 11/10/2009 | Stantec | | 65.89 | 224.41 | |
| | 2/8/2010 | Stantec | | 66.75 | 223.55 | |
| | 5/11/2010 | Stantec | | 67.02 | 223.28 | |
| | 8/2/2010 | Stantec | | 66.49 | 223.81 | |
| | 10/18/2010 | Stantec | | 65.80 | 224.50 | |
| | 2/14/2011 | Stantec | | 66.00 | 224.30 | |
| | 5/9/2011 | Stantec | | 66.64 | 223.66 | |
| | 8/1/2011 | Stantec | | 66.25 | 224.05 | |
| | 10/17/2011 | Stantec | | 65.63 | 224.67 | |
| | 2/6/2012 | Stantec | | 66.93 | 223.37 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-41 cont.** | 5/4/2012 | Stantec | | 66.95 | 223.35 | |
| | 7/16/2012 | Stantec | | 67.21 | 223.09 | |
| | 1/22/2013 | Stantec | | 69.20 | 221.10 | |
| | 7/8/2013 | Stantec | | 71.30 | 219.00 | |
| | 1/21/2014 | Stantec | | 75.10 | 215.20 | |
| | 7/14/2014 | Stantec | | 77.87 | 212.43 | |
| | 1/12/2015 | Stantec | | 80.48 | 209.82 | |
| | 7/6/2015 | Stantec | | 82.59 | 207.71 | |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/17/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/26/2017 | Stantec | | 81.90 | 208.40 | |
| | 2/5/2018 | Stantec | | 81.37 | 208.93 | |
| | 7/30/2018 | Stantec | | 82.25 | 208.05 | |
| | 2/11/2019 | Stantec | | 82.64 | 207.66 | |
| | 7/16/2019 | Arcadis | | 81.22 | 209.08 | |
| | 1/28/2020 | Arcadis | | Removed from Monitoring Well Network Third Quarter 2012 | | |
| **MW-50** | 2/8/2010 | Stantec | 291.35 | 68.92 | 222.43 | |
| | 5/11/2010 | Stantec | 291.35 | 69.13 | 222.22 | |
| | 8/2/2010 | Stantec | | 68.78 | 222.57 | |
| | 10/18/2010 | Stantec | | 68.13 | 223.22 | |
| | 2/14/2011 | Stantec | | 68.10 | 223.25 | |
| | 5/9/2011 | Stantec | | 68.60 | 222.75 | |
| | 8/1/2011 | Stantec | | 68.18 | 223.17 | |
| | 10/17/2011 | Stantec | | 67.70 | 223.65 | |
| | 2/6/2012 | Stantec | | 68.00 | 223.35 | |
| | 5/4/2012 | Stantec | | 68.95 | 222.40 | |
| | 7/16/2012 | Stantec | | 69.00 | 222.35 | |
| | 1/22/2013 | Stantec | | 71.20 | 220.15 | |
| | 7/8/2013 | Stantec | | 72.93 | 218.42 | |
| | 1/21/2014 | Stantec | | 77.04 | 214.31 | |
| | 7/14/2014 | Stantec | | 78.50 | 212.85 | |
| | 1/12/2015 | Stantec | | 82.50 | 208.85 | |
| | 7/6/2015 | Stantec | | Dry | Dry | |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/17/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/26/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/5/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/30/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/11/2019 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/16/2019 | Arcadis | | 82.17 | Dry | Residual water / Well dry |
| | 1/28/2020 | Arcadis | | 82.72 | Dry | Residual water / Well dry |
| **MW-51** | 2/8/2010 | Stantec | 291.43 | 68.40 | 223.03 | |
| | 5/11/2010 | Stantec | 291.43 | 68.61 | 222.82 | |
| | 8/2/2010 | Stantec | | 68.05 | 223.38 | |
| | 10/18/2010 | Stantec | | 67.40 | 224.03 | |
| | 2/14/2011 | Stantec | | 67.50 | 223.93 | |
| | 5/9/2011 | Stantec | | 68.18 | 223.25 | |
| | 8/1/2011 | Stantec | | 67.73 | 223.70 | |
| | 10/17/2011 | Stantec | | 67.20 | 224.23 | |
| | 2/6/2012 | Stantec | | 67.50 | 223.93 | |
| | 5/4/2012 | Stantec | | 68.46 | 222.97 | |
| | 7/16/2012 | Stantec | | 68.63 | 222.80 | |
| | 1/22/2013 | Stantec | | 70.60 | 220.83 | |
| | 7/8/2013 | Stantec | | 72.70 | 218.73 | |
| | 1/21/2014 | Stantec | | 76.50 | 214.93 | |
| | 7/14/2014 | Stantec | | 79.21 | 212.22 | |
| | 1/12/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/6/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/17/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/26/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/5/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/30/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/11/2019 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/16/2019 | Arcadis | | 81.18 | Dry | Residual water / Well dry |
| | 1/28/2020 | Arcadis | | 81.29 | Dry | Residual water / Well dry |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-52** | 2/8/2010 | Stantec | 290.83 | 68.51 | 222.32 | |
| | 5/11/2010 | Stantec | 290.83 | 68.87 | 221.96 | |
| | 8/2/2010 | Stantec | | 68.54 | 222.29 | |
| | 10/18/2010 | Stantec | | 67.81 | 223.02 | |
| | 2/14/2011 | Stantec | | 67.78 | 223.05 | |
| | 5/9/2011 | Stantec | | 68.36 | 222.47 | |
| | 8/1/2011 | Stantec | | 68.02 | 222.81 | |
| | 10/17/2011 | Stantec | | 67.51 | 223.32 | |
| | 2/6/2012 | Stantec | | 67.76 | 223.07 | |
| | 5/4/2012 | Stantec | | 68.70 | 222.13 | |
| | 7/16/2012 | Stantec | | 68.92 | 221.91 | |
| | 1/22/2013 | Stantec | | 70.91 | 219.92 | |
| | 7/8/2013 | Stantec | | 73.02 | 217.81 | |
| | 1/21/2014 | Stantec | | 77.01 | 213.82 | |
| | 7/14/2014 | Stantec | | 79.48 | 211.35 | |
| | 1/12/2015 | Stantec | | 82.44 | 208.39 | |
| | 7/6/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/17/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/26/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/5/2018 | Stantec | | 83.09 | 207.74 | Insufficient Water |
| | 7/30/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/11/2019 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/16/2019 | Arcadis | | Dry | Dry | |
| | 1/28/2020 | Arcadis | | 81.73 | Dry | Residual water / Well dry |
| **MW-53** | 2/8/2010 | Stantec | 291.41 | 71.27 | 220.14 | |
| | 5/11/2010 | Stantec | 291.41 | 71.62 | 219.79 | |
| | 8/2/2010 | Stantec | | 71.43 | 219.98 | |
| | 10/18/2010 | Stantec | | 70.82 | 220.59 | |
| | 2/14/2011 | Stantec | | 70.45 | 220.96 | |
| | 5/9/2011 | Stantec | | 71.20 | 220.21 | |
| | 8/1/2011 | Stantec | | 71.04 | 220.37 | |
| | 10/17/2011 | Stantec | | 70.66 | 220.75 | |
| | 2/6/2012 | Stantec | | 70.79 | 220.62 | |
| | 5/4/2012 | Stantec | | 71.62 | 219.79 | |
| | 7/16/2012 | Stantec | | 71.93 | 219.48 | |
| | 1/22/2013 | Stantec | | 71.12 | 220.29 | |
| | 7/8/2013 | Stantec | | 76.29 | 215.12 | |
| | 1/21/2014 | Stantec | | 80.20 | 211.21 | |
| | 7/14/2014 | Stantec | | 82.95 | 208.46 | |
| | 1/12/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/6/2015 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/19/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/18/2016 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 1/17/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/26/2017 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/5/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/30/2018 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 2/11/2019 | Stantec | | Dry | Dry | Residual water / Well dry |
| | 7/16/2019 | Arcadis | | 84.52 | Dry | Residual water / Well dry |
| | 1/28/2020 | Arcadis | | 83.52 | Dry | Residual water / Well dry |
| **Intermediate** | | | | | | |
| **MW-23** | 1/16/1995 | Envirosolve | 287.93 | 59.30 | 228.63 | |
| | 4/17/1995 | Envirosolve | | 59.97 | 227.96 | |
| | 7/7/1995 | Envirosolve | | 60.08 | 227.85 | |
| | 10/23/1995 | Envirosolve | | 58.71 | 229.22 | |
| | 4/15/1996 | Envirosolve | | 58.55 | 229.38 | |
| | 3/16/1998 | Envirosolve | | 56.36 | 231.57 | |
| | 6/22/1998 | Envirosolve | | 55.19 | 232.74 | |
| | 9/14/1998 | Envirosolve | | 54.44 | 233.49 | |
| | 3/15/1999 | IT | 287.93 | 56.75 | 231.18 | |
| | 6/14/1999 | IT | | 57.44 | 230.49 | |
| | 9/13/1999 | IT | | 56.94 | 230.99 | |
| | 12/13/1999 | IT | | 55.93 | 232.00 | |
| | 3/13/2000 | IT | | 55.53 | 232.40 | |
| | 6/19/2000 | IT | | 54.84 | 233.09 | |
| | 9/11/2000 | IT | 290.01 | 54.57 | 235.44 | |
| | 12/18/2000 | IT | | 53.86 | 236.15 | |
| | 5/7/2001 | IT | | 56.62 | 233.39 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-23 cont.** | 10/15/2001 | IT | | 57.30 | 232.71 | |
| | 6/3/2002 | SECOR | | 58.00 | 232.01 | |
| | 9/16/2002 | SECOR | | 56.58 | 233.43 | MicroPurge® pump installed |
| | 11/18/2002 | SECOR | | 57.53 | 232.48 | |
| | 1/27/2003 | SECOR | | 57.81 | 232.20 | |
| | 6/16/2003 | SECOR | | 58.43 | 231.58 | |
| | 9/8/2003 | SECOR | | 58.70 | 231.31 | |
| | 12/8/2003 | SECOR | | 58.55 | 231.46 | |
| | 3/8/2004 | SECOR | | 58.88 | 231.13 | |
| | 6/7/2004 | SECOR | | 59.88 | 230.13 | |
| | 8/6/2004 | SECOR | | 60.37 | 229.64 | |
| | 11/12/2004 | SECOR | | 60.59 | 229.42 | |
| | 3/11/2005 | SECOR | | 60.49 | 229.52 | |
| | 5/20/2005 | SECOR | | 60.81 | 229.20 | |
| | 8/5/2005 | SECOR | 290.01 | 61.73 | 228.28 | |
| | 11/11/2005 | SECOR | | 59.90 | 230.11 | |
| | 2/9/2006 | SECOR | | 59.85 | 230.16 | |
| | 5/18/2006 | SECOR | | 60.02 | 229.99 | |
| | 8/11/2006 | SECOR | | 60.58 | 229.43 | |
| | 10/2/2006 | SECOR | | 60.48 | 229.53 | |
| | 1/19/2007 | SECOR | | 60.88 | 229.13 | |
| | 4/20/2007 | SECOR | | 62.10 | 227.91 | |
| | 7/26/2007 | SECOR | | 62.65 | 227.36 | |
| | 11/2/2007 | SECOR | | 64.09 | 225.92 | |
| | 2/8/2008 | SECOR | | 65.29 | 224.72 | |
| | 5/2/2008 | SECOR | | 65.96 | 224.05 | |
| | 8/8/2008 | Stantec | 289.99 | 66.57 | 223.42 | |
| | 10/17/2008 | Stantec | | 67.02 | 222.97 | |
| | 1/30/2009 | Stantec | | 68.12 | 221.87 | |
| | 5/1/2009 | Stantec | | 69.00 | 220.99 | |
| | 7/24/2009 | Stantec | | 68.88 | 221.11 | |
| | 11/10/2009 | Stantec | | 68.30 | 221.69 | |
| | 2/8/2010 | Stantec | | 68.99 | 221.00 | |
| | 5/11/2010 | Stantec | | 69.22 | 220.77 | |
| | 8/2/2010 | Stantec | | 68.95 | 221.04 | |
| | 10/18/2010 | Stantec | | 68.30 | 221.69 | |
| | 2/14/2011 | Stantec | | 68.13 | 221.86 | |
| | 5/9/2011 | Stantec | | 68.73 | 221.26 | |
| | 8/1/2011 | Stantec | | 68.34 | 221.65 | |
| | 10/17/2011 | Stantec | | 67.91 | 222.08 | |
| | 2/6/2012 | Stantec | | 68.14 | 221.85 | |
| | 5/4/2012 | Stantec | | 69.15 | 220.84 | |
| | 7/16/2012 | Stantec | | 69.41 | 220.58 | |
| | 1/22/2013 | Stantec | | 71.42 | 218.57 | |
| | 7/8/2013 | Stantec | | 73.65 | 216.34 | |
| | 1/21/2014 | Stantec | | 77.58 | 212.41 | |
| | 7/14/2014 | Stantec | | 80.11 | 209.88 | |
| | 1/12/2015 | Stantec | | 83.15 | 206.84 | |
| | 7/6/2015 | Stantec | | 85.11 | 204.88 | |
| | 1/19/2016 | Stantec | | 88.97 | 201.02 | |
| | 7/18/2016 | Stantec | | 87.96 | 202.03 | |
| | 1/17/2017 | Stantec | | 86.42 | 203.57 | |
| | 7/26/2017 | Stantec | | 84.70 | 205.29 | |
| | 2/5/2018 | Stantec | | 83.96 | 206.03 | |
| | 7/30/2018 | Stantec | | 84.80 | 205.19 | |
| | 2/11/2019 | Stantec | | 84.92 | 205.07 | |
| | 7/16/2019 | Arcadis | | 83.31 | 206.68 | |
| | 1/28/2020 | Arcadis | | 81.91 | 208.08 | |
| **MW-24I** | 5/2/2008 | SECOR | 288.46 | 63.52 | 224.94 | |
| | 8/8/2008 | Stantec | 288.51 | 64.17 | 224.34 | |
| | 10/17/2008 | Stantec | | 64.58 | 223.93 | |
| | 1/30/2009 | Stantec | | 65.89 | 222.62 | |
| | 5/1/2009 | Stantec | | 66.65 | 221.86 | |
| | 7/24/2009 | Stantec | | 66.32 | 222.19 | |
| | 11/10/2009 | Stantec | | 66.02 | 222.49 | |
| | 2/8/2010 | Stantec | | 66.61 | 221.90 | |
| | 5/11/2010 | Stantec | | 66.98 | 221.53 | |
| | 8/2/2010 | Stantec | | 65.32 | 223.19 | |
| | 10/18/2010 | Stantec | | 65.69 | 222.82 | |
| | 2/14/2011 | Stantec | | 65.82 | 222.69 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-24I cont.** | 5/9/2011 | Stantec | | 66.24 | 222.27 | |
| | 8/1/2011 | Stantec | | 66.06 | 222.45 | |
| | 10/17/2011 | Stantec | | 65.58 | 222.93 | |
| | 2/6/2012 | Stantec | | 65.71 | 222.80 | |
| | 5/4/2012 | Stantec | | 66.78 | 221.73 | |
| | 7/16/2012 | Stantec | | 66.91 | 221.60 | |
| | 1/22/2013 | Stantec | | 68.91 | 219.60 | |
| | 7/8/2013 | Stantec | | 71.03 | 217.48 | |
| | 1/21/2014 | Stantec | | 75.15 | 213.36 | |
| | 7/14/2014 | Stantec | | 77.53 | 210.98 | |
| | 1/12/2015 | Stantec | | 80.70 | 207.81 | |
| | 7/6/2015 | Stantec | | 82.62 | 205.89 | |
| | 1/19/2016 | Stantec | | 86.65 | 201.86 | |
| | 7/18/2016 | Stantec | | 85.65 | 202.86 | |
| | 1/17/2017 | Stantec | | 84.19 | 204.32 | |
| | 7/26/2017 | Stantec | | 82.48 | 206.03 | |
| | 2/5/2018 | Stantec | | 81.61 | 206.90 | |
| | 7/30/2018 | Stantec | | 82.15 | 206.36 | |
| | 2/11/2019 | Stantec | | 82.80 | 205.71 | |
| | 7/16/2019 | Arcadis | | 81.15 | 207.36 | |
| | 1/28/2020 | Arcadis | | 79.72 | 208.79 | |
| **MW-25I** | 5/2/2008 | SECOR | 292.88 | 67.59 | 225.29 | |
| | 8/8/2008 | Stantec | 292.90 | 68.17 | 224.73 | Pump broken |
| | 10/17/2008 | Stantec | | 68.50 | 224.40 | |
| | 1/30/2009 | Stantec | | 69.71 | 223.19 | |
| | 5/1/2009 | Stantec | | 70.51 | 222.39 | |
| | 7/24/2009 | Stantec | | 70.41 | 222.49 | |
| | 11/10/2009 | Stantec | | 69.85 | 223.05 | |
| | 2/8/2010 | Stantec | | 70.70 | 222.20 | |
| | 5/11/2010 | Stantec | | 70.91 | 221.99 | |
| | 8/2/2010 | Stantec | | 70.59 | 222.31 | |
| | 10/18/2010 | Stantec | | 69.85 | 223.05 | |
| | 2/14/2011 | Stantec | | 69.80 | 223.10 | |
| | 5/9/2011 | Stantec | | 70.40 | 222.50 | |
| | 8/1/2011 | Stantec | | 70.02 | 222.88 | |
| | 10/17/2011 | Stantec | | 69.50 | 223.40 | |
| | 2/6/2012 | Stantec | | 69.79 | 223.11 | |
| | 5/4/2012 | Stantec | | 70.70 | 222.20 | |
| | 7/16/2012 | Stantec | | 70.87 | 222.03 | |
| | 1/22/2013 | Stantec | | 72.83 | 220.07 | |
| | 7/8/2013 | Stantec | | 75.01 | 217.89 | |
| | 1/21/2014 | Stantec | | 79.00 | 213.90 | |
| | 7/14/2014 | Stantec | | 81.50 | 211.40 | |
| | 1/12/2015 | Stantec | | 84.51 | 208.39 | |
| | 7/6/2015 | Stantec | | 86.53 | 206.37 | |
| | 1/19/2016 | Stantec | | 90.50 | 202.40 | |
| | 7/18/2016 | Stantec | | 89.50 | 203.40 | |
| | 1/17/2017 | Stantec | | 87.95 | 204.95 | |
| | 7/26/2017 | Stantec | | 86.31 | 206.59 | |
| | 2/5/2018 | Stantec | | 85.57 | 207.33 | |
| | 7/30/2018 | Stantec | | 86.40 | 206.50 | |
| | 2/11/2019 | Stantec | | 86.70 | 206.20 | |
| | 7/16/2019 | Arcadis | | 85.03 | 207.87 | |
| | 1/28/2020 | Arcadis | | 83.92 | 208.98 | |
| **MW-29P** | 5/21/1987 | CH2M Hill 1988 | 288.88 | 44.83 | 244.05 | |
| | 6/30/1987 | CH2M Hill 1988 | | 45.04 | 243.84 | |
| | 9/15/1987 | CH2M Hill 1988 | | 46.77 | 242.11 | |
| | 10/26/1987 | CH2M Hill 1988 | | 46.56 | 242.32 | |
| | 2/18/1988 | CH2M Hill 1988 | | 46.22 | 242.66 | |
| | 3/3/1988 | CH2M Hill 1988 | | 46.47 | 242.41 | |
| | 4/2/1988 | CH2M Hill 1988 | 288.88 | 48.05 | 240.83 | |
| | 4/17/1995 | Envirosolve | | 62.40 | 226.48 | |
| | 4/15/1996 | Envirosolve | | 61.32 | 227.56 | |
| | 6/22/1998 | Envirosolve | | 58.20 | 230.68 | |
| | 6/14/1999 | IT | | 58.03 | 230.85 | |
| | 9/13/1999 | IT | | 57.58 | 231.30 | |
| | 12/13/1999 | IT | | 56.84 | 232.04 | |
| | 3/13/2000 | IT | | 56.38 | 232.50 | |
| | 9/11/2000 | IT | | 55.07 | 233.81 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-29P cont.** | 12/18/2000 | IT | | 54.57 | 234.31 | |
| | 5/7/2001 | IT | 288.88 | 56.97 | 231.91 | |
| | 10/15/2001 | IT | | 57.52 | 231.36 | |
| | 6/3/2002 | SECOR | | 58.62 | 230.26 | |
| | 9/16/2002 | SECOR | | 57.22 | 231.66 | |
| | 11/18/2002 | SECOR | | 58.03 | 230.85 | |
| | 1/27/2003 | SECOR | | 58.51 | 230.37 | |
| | 6/16/2003 | SECOR | | 59.14 | 229.74 | |
| | 9/8/2003 | SECOR | | 59.35 | 229.53 | |
| | 3/8/2004 | SECOR | | 59.61 | 229.27 | |
| | 6/7/2004 | SECOR | | 60.74 | 228.14 | |
| | 8/6/2004 | SECOR | | 61.14 | 227.74 | |
| | 11/12/2004 | SECOR | | 61.20 | 227.68 | |
| | 3/11/2005 | SECOR | | 61.01 | 227.87 | |
| | 5/20/2005 | SECOR | | 61.51 | 227.37 | |
| | 8/5/2005 | SECOR | | 62.28 | 226.60 | |
| | 11/11/2005 | SECOR | | 60.77 | 228.11 | Pump not functional |
| | 2/9/2006 | SECOR | | 60.63 | 228.25 | |
| | 5/18/2006 | SECOR | | 60.81 | 228.07 | |
| | 8/11/2006 | SECOR | | 61.49 | 227.39 | Broken |
| | 10/2/2006 | SECOR | | 61.54 | 227.34 | Broken |
| | 1/19/2007 | SECOR | | 61.80 | 227.08 | Broken |
| | 4/20/2007 | SECOR | 288.88 | 62.95 | 225.93 | |
| | 7/26/2007 | SECOR | | 63.73 | 225.15 | Pump is broken |
| | 11/2/2007 | SECOR | | 64.85 | 224.03 | |
| | 2/8/2008 | SECOR | | NA | NA | |
| | 5/2/2008 | SECOR | | 66.85 | 222.03 | |
| | 8/8/2008 | Stantec | 288.84 | 67.53 | 221.31 | |
| | 10/17/2008 | Stantec | | 68.02 | 220.82 | |
| | 1/30/2009 | Stantec | | 68.95 | 219.89 | |
| | 5/1/2009 | Stantec | | 69.78 | 219.06 | |
| | 7/24/2009 | Stantec | | 69.91 | 218.93 | |
| | 11/10/2009 | Stantec | | 69.48 | 219.36 | |
| | 2/8/2010 | Stantec | | 69.84 | 219.00 | |
| | 5/11/2010 | Stantec | | 70.05 | 218.79 | |
| | 8/2/2010 | Stantec | | 69.98 | 218.86 | |
| | 10/18/2010 | Stantec | | 69.31 | 219.53 | |
| | 2/14/2011 | Stantec | | 69.04 | 219.80 | |
| | 5/9/2011 | Stantec | | 69.63 | 219.21 | |
| | 8/1/2011 | Stantec | | 69.48 | 219.36 | |
| | 10/17/2011 | Stantec | | 68.10 | 220.74 | |
| | 2/6/2012 | Stantec | | 69.23 | 219.61 | |
| | 5/4/2012 | Stantec | | 70.02 | 218.82 | |
| | 7/16/2012 | Stantec | | 70.44 | 218.40 | |
| | 1/22/2013 | Stantec | | 72.48 | 216.36 | |
| | 7/8/2013 | Stantec | | 74.89 | 213.95 | |
| | 1/21/2014 | Stantec | | 78.70 | 210.14 | |
| | 7/14/2014 | Stantec | | 81.41 | 207.43 | |
| | 1/12/2015 | Stantec | | 84.12 | 204.72 | |
| | 7/6/2015 | Stantec | | 86.40 | 202.44 | |
| | 1/19/2016 | Stantec | | 89.85 | 198.99 | |
| | 7/18/2016 | Stantec | | 88.70 | 200.14 | |
| | 1/17/2017 | Stantec | | 86.70 | 202.14 | |
| | 7/26/2017 | Stantec | | 84.92 | 203.92 | |
| | 2/5/2018 | Stantec | | 84.22 | 204.62 | |
| | 7/30/2018 | Stantec | | 85.11 | 203.73 | |
| | 2/11/2019 | Stantec | | 85.05 | 203.79 | |
| | 7/16/2019 | Arcadis | | 83.37 | 205.47 | |
| | 1/28/2020 | Arcadis | | Removed from Monitoring Well Network Third Quarter 2012 | | |
| **MW-34I** | 1/16/1995 | Envirosolve | 288.57 | 62.65 | 225.92 | |
| | 4/17/1995 | Envirosolve | | 62.65 | 225.92 | |
| | 7/7/1995 | Envirosolve | | 63.51 | 225.06 | |
| | 10/23/1995 | Envirosolve | | 62.28 | 226.29 | |
| | 4/15/1996 | Envirosolve | | 61.79 | 226.78 | |
| | 3/16/1998 | Envirosolve | | 59.38 | 229.19 | |
| | 6/22/1998 | Envirosolve | | 58.89 | 229.68 | |
| | 9/14/1998 | Envirosolve | | 57.91 | 230.66 | |
| | 12/14/1998 | Envirosolve | | 57.87 | 230.70 | |
| | 3/15/1999 | IT | | 57.95 | 230.62 | |
| | 6/14/1999 | IT | | 58.42 | 230.15 | |
| | 9/13/1999 | IT | | 57.86 | 230.71 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-34I cont.** | 12/13/1999 | IT | | 57.45 | 231.12 | |
| | 3/13/2000 | IT | | 56.94 | 231.63 | |
| | 6/19/2000 | IT | | 55.99 | 232.58 | |
| | 9/11/2000 | IT | | 55.65 | 232.92 | |
| | 12/18/2000 | IT | | 55.25 | 233.32 | |
| | 5/7/2001 | IT | | 57.45 | 231.12 | |
| | 10/15/2001 | IT | | 57.91 | 230.66 | |
| | 6/3/2002 | SECOR | | 59.15 | 229.42 | |
| | 9/16/2002 | SECOR | | 57.59 | 230.98 | MicroPurge® pump installed |
| | 11/18/2002 | SECOR | | 58.48 | 230.09 | |
| | 1/27/2003 | SECOR | | 58.99 | 229.58 | |
| | 6/16/2003 | SECOR | 288.57 | 59.64 | 228.93 | |
| | 9/8/2003 | SECOR | | 60.00 | 228.57 | |
| | 12/8/2003 | SECOR | | 59.75 | 228.82 | |
| | 3/8/2004 | SECOR | | 60.14 | 228.43 | |
| | 6/7/2004 | SECOR | | 61.26 | 227.31 | |
| | 8/6/2004 | SECOR | | 61.62 | 226.95 | |
| | 11/12/2004 | SECOR | | 61.72 | 226.85 | |
| | 3/11/2005 | SECOR | | 61.54 | 227.03 | |
| | 5/20/2005 | SECOR | | 62.00 | 226.57 | |
| | 8/5/2005 | SECOR | | 62.76 | 225.81 | |
| | 11/11/2005 | SECOR | | 61.40 | 227.17 | |
| | 2/9/2006 | SECOR | | 61.20 | 227.37 | |
| | 5/18/2006 | SECOR | | 61.34 | 227.23 | |
| | 8/11/2006 | SECOR | | 62.04 | 226.53 | |
| | 10/2/2006 | SECOR | | 62.19 | 226.38 | |
| | 1/19/2007 | SECOR | | 62.47 | 226.10 | |
| | 4/20/2007 | SECOR | | 63.50 | 225.07 | |
| | 7/26/2007 | SECOR | | 64.34 | 224.23 | |
| | 11/2/2007 | SECOR | | 65.36 | 223.21 | |
| | 2/8/2008 | SECOR | | 66.53 | 222.04 | |
| | 5/2/2008 | SECOR | | 67.40 | 221.17 | |
| | 8/8/2008 | Stantec | 288.59 | 68.14 | 220.45 | Lid bent |
| | 10/17/2008 | Stantec | | 68.60 | 219.99 | Repaired |
| | 1/30/2009 | Stantec | | 69.47 | 219.12 | |
| | 5/1/2009 | Stantec | | 70.29 | 218.30 | |
| | 7/24/2009 | Stantec | | 70.60 | 217.99 | |
| | 11/10/2009 | Stantec | | 70.13 | 218.46 | |
| | 2/8/2010 | Stantec | | 70.43 | 218.16 | |
| | 5/11/2010 | Stantec | | 70.55 | 218.04 | |
| | 8/2/2010 | Stantec | | 70.50 | 218.09 | |
| | 10/18/2010 | Stantec | | 69.86 | 218.73 | |
| | 2/14/2011 | Stantec | | 69.60 | 218.99 | |
| | 5/9/2011 | Stantec | | 70.24 | 218.35 | |
| | 8/1/2011 | Stantec | | 70.10 | 218.49 | |
| | 10/17/2011 | Stantec | | 69.80 | 218.79 | |
| | 2/6/2012 | Stantec | | 69.90 | 218.69 | |
| | 5/4/2012 | Stantec | | 70.64 | 217.95 | |
| | 7/16/2012 | Stantec | | 71.00 | 217.59 | |
| | 1/22/2013 | Stantec | | 73.18 | 215.41 | |
| | 7/8/2013 | Stantec | | 75.51 | 213.08 | |
| | 1/21/2014 | Stantec | | 79.54 | 209.05 | |
| | 7/14/2014 | Stantec | | 82.24 | 206.35 | |
| | 1/12/2015 | Stantec | | 84.79 | 203.80 | |
| | 7/6/2015 | Stantec | | 86.98 | 201.61 | |
| | 1/19/2016 | Stantec | | 90.40 | 198.19 | |
| | 7/18/2016 | Stantec | | 89.20 | 199.39 | |
| | 1/17/2017 | Stantec | | 87.04 | 201.55 | |
| | 7/26/2017 | Stantec | | 85.23 | 203.36 | |
| | 2/5/2018 | Stantec | | 84.65 | 203.94 | |
| | 7/30/2018 | Stantec | | 85.33 | 203.26 | |
| | 2/11/2019 | Stantec | | 85.15 | 203.44 | |
| | 7/16/2019 | Arcadis | | 83.60 | 204.99 | |
| | 1/28/2020 | Arcadis | | 81.82 | 206.77 | |
| **MW-44I** | 5/2/2008 | SECOR | 290.10 | 62.98 | 227.12 | |
| | 8/8/2008 | Stantec | 290.16 | 63.30 | 226.86 | |
| | 10/17/2008 | Stantec | | 63.63 | 226.53 | |
| | 1/30/2009 | Stantec | | 65.00 | 225.16 | |
| | 5/1/2009 | Stantec | | 65.90 | 224.26 | |
| | 7/24/2009 | Stantec | | 65.20 | 224.96 | |
| | 11/10/2009 | Stantec | | 64.94 | 225.22 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-44I cont.** | 2/8/2010 | Stantec | | 65.90 | 224.26 | |
| | 5/11/2010 | Stantec | | 65.98 | 224.18 | |
| | 8/2/2010 | Stantec | | 65.02 | 225.14 | |
| | 10/18/2010 | Stantec | | 64.78 | 225.38 | |
| | 2/14/2011 | Stantec | | 65.00 | 225.16 | |
| | 5/9/2011 | Stantec | | 65.60 | 224.56 | |
| | 8/1/2011 | Stantec | | 64.82 | 225.34 | |
| | 10/17/2011 | Stantec | | 64.38 | 225.78 | |
| | 2/6/2012 | Stantec | | 64.58 | 225.58 | |
| | 4/5/2012 | Stantec | | 65.93 | 224.23 | |
| | 7/16/2012 | Stantec | | 65.83 | 224.33 | |
| | 1/22/2013 | Stantec | | 68.02 | 222.14 | |
| | 7/8/2013 | Stantec | | 69.85 | 220.31 | |
| | 1/21/2014 | Stantec | | 73.90 | 216.26 | |
| | 7/14/2014 | Stantec | | 76.53 | 213.63 | |
| | 1/12/2015 | Stantec | | 79.30 | 210.86 | |
| | 7/6/2015 | Stantec | | 81.62 | 208.54 | |
| | 1/19/2016 | Stantec | | 85.48 | 204.68 | |
| | 7/18/2016 | Stantec | | 84.51 | 205.65 | |
| | 1/17/2017 | Stantec | | 83.35 | 206.81 | |
| | 7/26/2017 | Stantec | | 81.48 | 208.68 | |
| | 2/5/2018 | Stantec | | 80.97 | 209.19 | |
| | 7/30/2018 | Stantec | | 81.72 | 208.44 | |
| | 2/11/2019 | Stantec | | 82.27 | 207.89 | |
| | 7/16/2019 | Arcadis | | 80.63 | 209.53 | |
| | 1/28/2020 | Arcadis | | 79.74 | 210.42 | |
| **MW-48I** | 5/2/2008 | SECOR | 305.65 | 80.00 | 225.65 | |
| | 8/8/2008 | Stantec | 305.66 | 80.06 | 225.60 | |
| | 10/17/2008 | Stantec | | 80.50 | 225.16 | |
| | 1/30/2009 | Stantec | | 81.69 | 223.97 | |
| | 5/1/2009 | Stantec | | 82.68 | 222.98 | |
| | 7/24/2009 | Stantec | | 82.22 | 223.44 | |
| | 11/10/2009 | Stantec | | 81.94 | 223.72 | |
| | 2/8/2010 | Stantec | | 82.68 | 222.98 | |
| | 5/11/2010 | Stantec | | 82.88 | 222.78 | |
| | 8/2/2010 | Stantec | | 82.53 | 223.13 | |
| | 10/18/2010 | Stantec | | 81.76 | 223.90 | |
| | 2/14/2011 | Stantec | | 81.72 | 223.94 | |
| | 5/9/2011 | Stantec | | 82.30 | 223.36 | |
| | 8/1/2011 | Stantec | | 81.82 | 223.84 | |
| | 10/17/2011 | Stantec | | 81.34 | 224.32 | |
| | 2/6/2012 | Stantec | | 81.83 | 223.83 | |
| | 5/4/2012 | Stantec | | 82.63 | 223.03 | |
| | 7/16/2012 | Stantec | | 82.70 | 222.96 | |
| | 1/22/2013 | Stantec | | 84.72 | 220.94 | |
| | 7/8/2013 | Stantec | | 86.70 | 218.96 | |
| | 1/21/2014 | Stantec | | 90.60 | 215.06 | |
| | 7/14/2014 | Stantec | | 93.00 | 212.66 | |
| | 1/12/2015 | Stantec | | 96.20 | 209.46 | |
| | 7/6/2015 | Stantec | | 98.19 | 207.47 | |
| | 1/19/2016 | Stantec | | 102.24 | 203.42 | |
| | 7/18/2016 | Stantec | | 101.40 | 204.26 | |
| | 1/17/2017 | Stantec | | 100.09 | 205.57 | |
| | 7/26/2017 | Stantec | | 98.52 | 207.14 | |
| | 2/5/2018 | Stantec | | 97.64 | 208.02 | |
| | 7/30/2018 | Stantec | | 98.56 | 207.10 | |
| | 2/11/2019 | Stantec | | 98.86 | 206.80 | |
| | 7/16/2019 | Arcadis | | 97.30 | 208.36 | |
| | 1/28/2020 | Arcadis | | 96.03 | 209.63 | |
| **Deep** | | | | | | |
| **MW-2D** | 12/28/1987 | CH2M Hill 1988 | 289.74 | 39.83 | 249.91 | |
| | 1/14/1988 | CH2M Hill 1988 | | 39.85 | 249.89 | |
| | 2/18/1988 | CH2M Hill 1988 | | 39.90 | 249.84 | |
| | 3/3/1988 | CH2M Hill 1988 | | 40.04 | 249.70 | |
| | 4/2/1988 | CH2M Hill 1988 | | 39.72 | 250.02 | |
| | 7/7/1995 | Envirosolve | 289.69 | 56.49 | 233.20 | |
| | 10/23/1995 | Envirosolve | 289.69 | 55.21 | 234.48 | |
| | 4/15/1996 | Envirosolve | | 55.28 | 234.41 | |
| | 3/16/1998 | Envirosolve | | 53.29 | 236.40 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-2D cont.** | 6/22/1998 | Envirosolve | | 51.59 | 238.10 | |
| | 9/14/1998 | Envirosolve | | 51.11 | 238.58 | |
| | 12/14/1998 | Envirosolve | | 50.87 | 238.82 | |
| | 3/15/1999 | IT | | 51.47 | 238.22 | |
| | 6/14/1999 | IT | | 51.75 | 237.94 | |
| | 9/13/1999 | IT | | 51.75 | 237.94 | |
| | 12/13/1999 | IT | | 50.75 | 238.94 | |
| | 3/13/2000 | IT | | 50.76 | 238.93 | |
| | 6/19/2000 | IT | | 49.76 | 239.93 | |
| | 9/11/2000 | IT | | 49.28 | 240.41 | |
| | 12/18/2000 | IT | | 48.91 | 240.78 | |
| | 5/7/2001 | IT | 289.69 | 51.24 | 238.45 | |
| | 10/15/2001 | IT | | 52.23 | 237.46 | |
| | 6/3/2002 | SECOR | 289.61 | 52.94 | 236.67 | |
| | 9/16/2002 | SECOR | | 52.13 | 237.48 | MicroPurge® pump installed |
| | 11/18/2002 | SECOR | | 53.06 | 236.55 | |
| | 1/27/2003 | SECOR | | 53.25 | 236.36 | |
| | 6/16/2003 | SECOR | | 53.80 | 235.81 | |
| | 9/8/2003 | SECOR | | 53.90 | 235.71 | |
| | 12/8/2003 | SECOR | | 53.98 | 235.63 | |
| | 3/8/2004 | SECOR | | 54.32 | 235.29 | |
| | 6/7/2004 | SECOR | | 55.19 | 234.42 | |
| | 8/6/2004 | SECOR | | 55.67 | 233.94 | |
| | 11/12/2004 | SECOR | | 56.07 | 233.54 | |
| | 3/11/2005 | SECOR | | 56.10 | 233.51 | |
| | 5/20/2005 | SECOR | | 54.61 | 235.00 | Well housing damaged |
| | 8/5/2005 | SECOR | | 56.53 | 233.08 | Concrete well box destroyed |
| | 11/11/2005 | SECOR | | 54.05 | 235.56 | Well box repaired |
| | 2/9/2006 | SECOR | | 54.81 | 234.80 | |
| | 5/18/2006 | SECOR | | 54.75 | 234.86 | |
| | 8/11/2006 | SECOR | | 54.89 | 234.72 | |
| | 10/2/2006 | SECOR | | 54.44 | 235.17 | |
| | 1/19/2007 | SECOR | | 55.65 | 233.96 | |
| | 4/20/2007 | SECOR | | 57.03 | 232.58 | |
| | 7/26/2007 | SECOR | | 56.96 | 232.65 | |
| | 11/2/2007 | SECOR | | 58.97 | 230.64 | |
| | 2/8/2008 | SECOR | | 60.46 | 229.15 | |
| | 5/2/2008 | SECOR | | 61.54 | 228.07 | |
| | 8/8/2008 | Stantec | 289.73 | 61.22 | 228.51 | |
| | 10/17/2008 | Stantec | | 61.68 | 228.05 | |
| | 1/30/2009 | Stantec | | 63.35 | 226.38 | |
| | 5/1/2009 | Stantec | | 64.20 | 225.53 | |
| | 7/24/2009 | Stantec | | 63.08 | 226.65 | |
| | 11/10/2009 | Stantec | | 63.00 | 226.73 | |
| | 2/8/2010 | Stantec | | 64.21 | 225.52 | |
| | 5/11/2010 | Stantec | | 64.21 | 225.52 | |
| | 8/2/2010 | Stantec | | 63.20 | 226.53 | |
| | 10/18/2010 | Stantec | | 62.72 | 227.01 | |
| | 2/14/2011 | Stantec | | 63.21 | 226.52 | |
| | 5/9/2011 | Stantec | | 63.68 | 226.05 | |
| | 8/1/2011 | Stantec | | 63.21 | 226.52 | |
| | 10/17/2011 | Stantec | | 62.84 | 226.89 | |
| | 2/6/2012 | Stantec | | 63.00 | 226.73 | |
| | 5/4/2012 | Stantec | | 64.02 | 225.71 | |
| | 7/16/2012 | Stantec | | 63.80 | 225.93 | |
| | 1/22/2013 | Stantec | | 66.40 | 223.33 | |
| | 7/8/2013 | Stantec | | 67.92 | 221.81 | |
| | 1/21/2014 | Stantec | | 72.02 | 217.71 | |
| | 7/14/2014 | Stantec | | 74.72 | 215.01 | |
| | 1/12/2015 | Stantec | | 77.40 | 212.33 | |
| | 7/6/2015 | Stantec | | 79.50 | 210.23 | |
| | 1/19/2016 | Stantec | | 83.63 | 206.10 | |
| | 7/18/2016 | Stantec | | 82.73 | 207.00 | |
| | 1/17/2017 | Stantec | | 81.91 | 207.82 | |
| | 7/26/2017 | Stantec | | 79.89 | 209.84 | |
| | 2/5/2018 | Stantec | | 79.57 | 210.16 | |
| | 7/30/2018 | Stantec | | 80.30 | 209.43 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-2D cont.** | 2/11/2019 | Stantec | | 81.06 | 208.67 | |
| | 7/16/2019 | Arcadis | | 79.09 | 210.64 | |
| | 1/28/2020 | Arcadis | | 78.52 | 211.21 | |
| **MW-6D** | 12/28/1987 | CH2M Hill 1988 | 296.94 | 48.57 | 248.37 | |
| | 1/14/1988 | CH2M Hill 1988 | 296.94 | 48.60 | 248.34 | |
| | 2/18/1988 | CH2M Hill 1988 | | 48.68 | 248.26 | |
| | 3/3/1988 | CH2M Hill 1988 | | 48.70 | 248.24 | |
| | 4/2/1988 | CH2M Hill 1988 | | 48.50 | 248.44 | |
| | 1/16/1995 | Envirosolve | | 64.95 | 231.99 | |
| | 4/17/1995 | Envirosolve | 296.68 | 65.49 | 231.19 | |
| | 7/7/1995 | Envirosolve | | 65.17 | 231.51 | |
| | 10/23/1995 | Envirosolve | 296.68 | 63.94 | 232.74 | |
| | 4/15/1996 | Envirosolve | | 63.98 | 232.70 | |
| | 3/16/1998 | Envirosolve | | 61.87 | 234.81 | |
| | 6/22/1998 | Envirosolve | | 60.35 | 236.33 | |
| | 9/14/1998 | Envirosolve | | 59.81 | 236.87 | |
| | 12/14/1998 | Envirosolve | | 59.66 | 237.02 | |
| | 6/14/1999 | IT | | 60.46 | 236.22 | |
| | 6/19/2000 | IT | | 58.11 | 238.57 | |
| | 9/11/2000 | IT | | 57.93 | 238.75 | |
| | 12/18/2000 | IT | | 57.17 | 239.51 | |
| | 5/7/2001 | IT | 299.41 | 62.70 | 236.71 | |
| | 10/15/2001 | IT | | 63.28 | 236.13 | |
| | 6/3/2002 | SECOR | 296.66 | 61.51 | 235.15 | |
| | 9/16/2002 | SECOR | 306.72 | 70.26 | 236.46 | MicroPurge® pump installed; TOC was elevated |
| | 11/18/2002 | SECOR | | 71.13 | 235.59 | |
| | 1/27/2003 | SECOR | | 71.49 | 235.23 | |
| | 6/16/2003 | SECOR | | 72.09 | 234.63 | |
| | 9/8/2003 | SECOR | | 72.31 | 234.41 | |
| | 12/8/2003 | SECOR | | 72.09 | 234.63 | |
| | 3/8/2004 | SECOR | | 72.56 | 234.16 | |
| | 6/7/2004 | SECOR | | 73.38 | 233.34 | |
| | 8/6/2004 | SECOR | | 74.03 | 232.69 | |
| | 11/12/2004 | SECOR | | 74.32 | 232.40 | |
| | 3/11/2005 | SECOR | | 74.47 | 232.25 | |
| | 5/20/2005 | SECOR | | 74.32 | 232.40 | |
| | 8/5/2005 | SECOR | | 75.11 | 231.61 | |
| | 11/11/2005 | SECOR | | 73.16 | 233.56 | |
| | 2/9/2006 | SECOR | | 73.34 | 233.38 | |
| | 5/18/2006 | SECOR | | 73.41 | 233.31 | |
| | 8/11/2006 | SECOR | | 73.84 | 232.88 | |
| | 10/2/2006 | SECOR | | NA | NA | Unsafe to gauge |
| | 1/19/2007 | SECOR | | | Decommissioned October 2006 | |
| **MW-26P** | 5/21/1987 | CH2M Hill 1988 | 289.80 | 43.17 | 246.63 | |
| | 6/30/1987 | CH2M Hill 1988 | | 43.60 | 246.20 | |
| | 9/15/1987 | CH2M Hill 1988 | | 44.96 | 244.84 | |
| | 10/26/1987 | CH2M Hill 1988 | | 45.18 | 244.62 | |
| | 2/18/1988 | CH2M Hill 1988 | | 45.07 | 244.73 | |
| | 3/3/1988 | CH2M Hill 1988 | | 45.22 | 244.58 | |
| | 4/2/1988 | CH2M Hill 1988 | | 45.21 | 244.59 | |
| | 4/17/1995 | Envirosolve | 290.79 | 61.50 | 229.29 | |
| | 7/7/1995 | Envirosolve | | 61.46 | 229.33 | |
| | 10/23/1995 | Envirosolve | | 60.55 | 230.24 | |
| | 4/15/1996 | Envirosolve | | 60.25 | 230.54 | |
| | 3/16/1998 | Envirosolve | | 58.21 | 232.58 | |
| | 6/22/1998 | Envirosolve | 290.79 | 56.97 | 233.82 | |
| | 9/14/1998 | Envirosolve | | 56.25 | 234.54 | |
| | 12/14/1998 | Envirosolve | | 56.05 | 234.74 | |
| | 3/15/1999 | IT | | 56.45 | 234.34 | |
| | 6/14/1999 | IT | | 56.78 | 234.01 | |
| | 9/13/1999 | IT | | 56.75 | 234.04 | |
| | 12/13/1999 | IT | | 55.68 | 235.11 | |
| | 3/13/2000 | IT | | 55.20 | 235.59 | |
| | 6/19/2000 | IT | | 54.24 | 236.55 | |
| | 9/11/2000 | IT | | 53.81 | 236.98 | |
| | 12/18/2000 | IT | | 53.47 | 237.32 | |
| | 5/7/2001 | IT | | 55.81 | 234.98 | |
| | 6/3/2002 | SECOR | | 57.24 | 233.55 | |
| | 9/16/2002 | SECOR | | 55.77 | 235.02 | |
| | 11/18/2002 | SECOR | 290.79 | 56.83 | 233.96 | |
| | 1/27/2003 | SECOR | | 57.25 | 233.54 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-26P cont.** | 6/16/2003 | SECOR | | 57.79 | 233.00 | |
| | 9/8/2003 | SECOR | | 58.09 | 232.70 | |
| | 12/8/2003 | SECOR | | 58.06 | 232.73 | |
| | 3/8/2004 | SECOR | | 58.40 | 232.39 | |
| | 6/7/2004 | SECOR | | 59.30 | 231.49 | |
| | 8/6/2004 | SECOR | | 59.80 | 230.99 | |
| | 11/12/2004 | SECOR | | 60.15 | 230.64 | |
| | 3/11/2005 | SECOR | | 60.08 | 230.71 | |
| | 5/20/2005 | SECOR | | 60.23 | 230.56 | |
| | 8/5/2005 | SECOR | | 61.16 | 229.63 | |
| | 11/11/2005 | SECOR | | 59.43 | 231.36 | Pump is not functional |
| | 2/9/2006 | SECOR | | 59.47 | 231.32 | |
| | 5/18/2006 | SECOR | | 59.52 | 231.27 | |
| | 8/11/2006 | SECOR | | 59.97 | 230.82 | |
| | 10/2/2006 | SECOR | | 59.91 | 230.88 | |
| | 1/19/2007 | SECOR | | 60.60 | 230.19 | |
| | 4/20/2007 | SECOR | | 61.62 | 229.17 | |
| | 7/26/2007 | SECOR | | 62.13 | 228.66 | |
| | 11/2/2007 | SECOR | | 63.62 | 227.17 | |
| | 2/8/2008 | SECOR | | 64.92 | 225.87 | |
| | 5/2/2008 | SECOR | | 65.63 | 225.16 | |
| | 8/8/2008 | Stantec | 290.73 | 66.10 | 224.63 | |
| | 10/17/2008 | Stantec | | 66.30 | 224.43 | |
| | 1/30/2009 | Stantec | | 67.50 | 223.23 | |
| | 5/1/2009 | Stantec | | 68.39 | 222.34 | |
| | 7/24/2009 | Stantec | | 68.17 | 222.56 | |
| | 11/10/2009 | Stantec | | 67.69 | 223.04 | |
| | 2/8/2010 | Stantec | | 68.38 | 222.35 | |
| | 5/11/2010 | Stantec | | 68.61 | 222.12 | |
| | 8/2/2010 | Stantec | | 68.15 | 222.58 | |
| | 10/18/2010 | Stantec | | 67.40 | 223.33 | |
| | 2/14/2011 | Stantec | | 67.67 | 223.06 | |
| | 5/9/2011 | Stantec | | NA | NA | |
| | 8/1/2011 | Stantec | | 67.90 | 222.83 | |
| | 10/17/2011 | Stantec | | 67.40 | 223.33 | |
| | 2/6/2012 | Stantec | | NA | NA | |
| | 5/4/2012 | Stantec | | 68.63 | 222.10 | |
| | 7/16/2012 | Stantec | | NA | NA | |
| | 1/22/2013 | Stantec | | NA | NA | |
| | 7/8/2013 | Stantec | | NA | NA | |
| | 1/21/2014 | Stantec | | NA | NA | |
| | 7/14/2014 | Stantec | | 79.60 | 211.13 | |
| | 1/12/2015 | Stantec | | NA | NA | No access, gate was locked |
| | 7/6/2015 | Stantec | | NA | NA | No access |
| | 1/19/2016 | Stantec | | NA | NA | No access |
| | 7/18/2016 | Stantec | | NA | NA | No access |
| | 1/17/2017 | Stantec | | NA | NA | No access |
| | 7/26/2017 | Stantec | | NA | NA | No access |
| | 2/5/2018 | Stantec | | NA | NA | Pump broken |
| | 7/30/2018 | Stantec | | NA | NA | Pump broken |
| | 2/11/2019 | Stantec | | NA | NA | Pump broken |
| | 7/16/2019 | Arcadis | | 82.49 | 208.24 | |
| | 1/28/2020 | Arcadis | | Removed from Monitoring Well Network Third Quarter 2012 | | |
| **MW-27P** | 5/21/1987 | CH2M Hill 1988 | 288.18 | 43.03 | 245.15 | |
| | 6/30/1987 | CH2M Hill 1988 | | 43.27 | 244.91 | |
| | 9/15/1987 | CH2M Hill 1988 | | 44.81 | 243.37 | |
| | 10/26/1987 | CH2M Hill 1988 | | 44.88 | 243.30 | |
| | 2/18/1988 | CH2M Hill 1988 | | 44.52 | 243.66 | |
| | 3/3/1988 | CH2M Hill 1988 | | 44.77 | 243.41 | |
| | 4/2/1988 | CH2M Hill 1988 | | 45.36 | 242.82 | |
| | 4/17/1995 | Envirosolve | 288.19 | 61.00 | 227.19 | |
| | 7/7/1995 | Envirosolve | 288.19 | 61.26 | 226.93 | |
| | 10/23/1995 | Envirosolve | | 59.89 | 228.30 | |
| | 4/15/1996 | Envirosolve | | 59.76 | 228.43 | |
| | 3/15/1999 | IT | | 56.01 | 232.18 | |
| | 6/14/1999 | IT | | 56.57 | 231.62 | |
| | 9/13/1999 | IT | | 56.05 | 232.14 | |
| | 8/5/2005 | SECOR | | NA | NA | |
| | 11/11/2005 | SECOR | | NA | NA | Lost/Unable to Locate |
| | 2/8/2010 | Stantec | | Removed from Monitoring Well Network First Quarter 2010 | | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-28P** | 5/21/1987 | CH2M Hill 1988 | 290.79 | 44.98 | 245.81 | |
| | 6/30/1987 | CH2M Hill 1988 | | 45.16 | 245.63 | |
| | 9/15/1987 | CH2M Hill 1988 | | 46.58 | 244.21 | |
| | 10/26/1987 | CH2M Hill 1988 | | 46.71 | 244.08 | |
| | 2/18/1988 | CH2M Hill 1988 | | 46.50 | 244.29 | |
| | 3/3/1988 | CH2M Hill 1988 | | 46.70 | 244.09 | |
| | 4/2/1988 | CH2M Hill 1988 | | 47.00 | 243.79 | |
| | 1/16/1995 | Envirosolve | | 62.27 | 228.52 | |
| | 4/17/1995 | Envirosolve | 290.76 | 62.95 | 227.81 | |
| | 7/7/1995 | Envirosolve | 290.76 | 63.15 | 227.61 | |
| | 10/23/1995 | Envirosolve | | 61.99 | 228.77 | |
| | 4/15/1996 | Envirosolve | | 61.62 | 229.14 | |
| | 3/16/1998 | Envirosolve | | 60.46 | 230.30 | |
| | 6/14/1999 | IT | | 58.46 | 232.30 | |
| | 9/13/1999 | IT | | 57.89 | 232.87 | |
| | 12/13/1999 | IT | | 57.15 | 233.61 | |
| | 3/13/2000 | IT | | 56.71 | 234.05 | |
| | 6/19/2000 | IT | | 55.82 | 234.94 | |
| | 9/11/2000 | IT | | 55.45 | 235.31 | |
| | 12/18/2000 | IT | | 54.98 | 235.78 | |
| | 5/7/2001 | IT | | 57.45 | 233.31 | |
| | 10/15/2001 | IT | | 57.85 | 232.91 | |
| | 6/3/2002 | SECOR | | 58.91 | 231.85 | |
| | 9/16/2002 | SECOR | 290.76 | 57.41 | 233.35 | |
| | 11/18/2002 | SECOR | | 58.43 | 232.33 | |
| | 1/27/2003 | SECOR | | 58.83 | 231.93 | |
| | 6/16/2003 | SECOR | | 59.43 | 231.33 | |
| | 9/8/2003 | SECOR | | 59.74 | 231.02 | |
| | 12/8/2003 | SECOR | | 59.69 | 231.07 | |
| | 3/8/2004 | SECOR | | 59.96 | 230.80 | |
| | 6/7/2004 | SECOR | | 60.66 | 230.10 | |
| | 8/6/2004 | SECOR | | 61.41 | 229.35 | |
| | 11/12/2004 | SECOR | | 61.65 | 229.11 | |
| | 3/11/2005 | SECOR | | 61.53 | 229.23 | |
| | 5/20/2005 | SECOR | | 61.86 | 228.90 | Debris around casing |
| | 8/5/2005 | SECOR | | 62.75 | 228.01 | |
| | 11/11/2005 | SECOR | | 61.08 | 229.68 | Debris around casing |
| | 2/9/2006 | SECOR | | 60.99 | 229.77 | West Coast Waste; casing area clean |
| | 5/18/2006 | SECOR | | 61.10 | 229.66 | |
| | 8/11/2006 | SECOR | | 61.69 | 229.07 | |
| | 10/2/2006 | SECOR | | 61.66 | 229.10 | |
| | 1/19/2007 | SECOR | | 62.11 | 228.65 | |
| | 4/20/2007 | SECOR | | 63.23 | 227.53 | |
| | 7/26/2007 | SECOR | | 63.88 | 226.88 | |
| | 11/2/2007 | SECOR | | 65.21 | 225.55 | |
| | 2/8/2008 | SECOR | | 66.40 | 224.36 | |
| | 5/2/2008 | SECOR | | NA | NA | Obstruction in well |
| | 8/8/2008 | Stantec | 290.74 | NA | NA | |
| | 10/17/2008 | Stantec | | 68.11 | 222.63 | |
| | 1/30/2009 | Stantec | | 69.19 | 221.55 | |
| | 5/1/2009 | Stantec | | 69.98 | 220.76 | |
| | 7/24/2009 | Stantec | | 70.00 | 220.74 | |
| | 11/10/2009 | Stantec | | 69.51 | 221.23 | |
| | 2/8/2010 | Stantec | | 70.16 | 220.58 | |
| | 5/11/2010 | Stantec | | 70.30 | 220.44 | |
| | 8/2/2010 | Stantec | | 70.05 | 220.69 | |
| | 10/18/2010 | Stantec | | 69.33 | 221.41 | |
| | 2/14/2011 | Stantec | | 69.26 | 221.48 | |
| | 5/9/2011 | Stantec | | 69.95 | 220.79 | |
| | 8/1/2011 | Stantec | | 69.68 | 221.06 | |
| | 10/17/2011 | Stantec | | 69.17 | 221.57 | |
| | 2/6/2012 | Stantec | | 69.41 | 221.33 | |
| | 5/4/2012 | Stantec | | 70.29 | 220.45 | |
| | 7/16/2012 | Stantec | | 70.66 | 220.08 | |
| | 1/22/2013 | Stantec | | 72.61 | 218.13 | |
| | 7/8/2013 | Stantec | | 74.88 | 215.86 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-28P cont.** | 1/21/2014 | Stantec | | 78.81 | 211.93 | |
| | 7/14/2014 | Stantec | | 81.42 | 209.32 | |
| | 1/12/2015 | Stantec | | 84.11 | 206.63 | |
| | 7/6/2015 | Stantec | | 87.79 | 202.95 | |
| | 1/19/2016 | Stantec | | 90.00 | 200.74 | |
| | 7/18/2016 | Stantec | | 88.85 | 201.89 | |
| | 1/17/2017 | Stantec | | 87.00 | 203.74 | |
| | 7/26/2017 | Stantec | | 85.26 | 205.48 | |
| | 2/5/2018 | Stantec | | 84.60 | 206.14 | |
| | 7/30/2018 | Stantec | | 85.45 | 205.29 | |
| | 2/11/2019 | Stantec | | 85.57 | 205.17 | |
| | 7/16/2019 | Arcadis | | 83.91 | 206.83 | |
| | 1/28/2020 | Arcadis | | Removed from Monitoring Well Network Third Quarter 2012 | | |
| **MW-34D** | 1/16/1995 | Envirosolve | | | 225.90 | |
| | 4/17/1995 | Envirosolve | 288.61 | 62.65 | 225.96 | |
| | 7/7/1995 | Envirosolve | 288.61 | 63.50 | 225.11 | |
| | 10/23/1995 | Envirosolve | | 62.27 | 226.34 | |
| | 4/15/1996 | Envirosolve | | 61.79 | 226.82 | |
| | 3/16/1998 | Envirosolve | | 59.37 | 229.24 | |
| | 6/22/1998 | Envirosolve | | 58.88 | 229.73 | |
| | 9/14/1998 | Envirosolve | | 57.91 | 230.70 | |
| | 12/14/1998 | Envirosolve | | 57.86 | 230.75 | |
| | 3/15/1999 | IT | | 57.94 | 230.67 | |
| | 6/14/1999 | IT | | 58.41 | 230.20 | |
| | 9/13/1999 | IT | 288.61 | 57.85 | 230.76 | |
| | 12/13/1999 | IT | | 57.44 | 231.17 | |
| | 3/13/2000 | IT | | 56.94 | 231.67 | |
| | 6/19/2000 | IT | | 55.97 | 232.64 | |
| | 9/11/2000 | IT | | 55.42 | 233.19 | |
| | 12/18/2000 | IT | | 55.27 | 233.34 | |
| | 5/7/2001 | IT | | 57.48 | 231.13 | |
| | 10/15/2001 | IT | | 57.91 | 230.70 | |
| | 6/3/2002 | SECOR | | 59.18 | 229.43 | |
| | 9/16/2002 | SECOR | | 57.56 | 231.05 | MicroPurge® pump installed |
| | 11/18/2002 | SECOR | | 58.46 | 230.15 | |
| | 1/27/2003 | SECOR | | 58.96 | 229.65 | |
| | 6/16/2003 | SECOR | | 59.61 | 229.00 | |
| | 9/8/2003 | SECOR | | 59.99 | 228.62 | |
| | 12/8/2003 | SECOR | | 59.73 | 228.88 | |
| | 3/8/2004 | SECOR | | 60.12 | 228.49 | |
| | 6/7/2004 | SECOR | | 61.26 | 227.35 | |
| | 8/6/2004 | SECOR | | 61.60 | 227.01 | |
| | 11/12/2004 | SECOR | | 61.69 | 226.92 | |
| | 3/11/2005 | SECOR | | 61.48 | 227.13 | |
| | 5/20/2005 | SECOR | | 61.98 | 226.63 | |
| | 8/5/2005 | SECOR | | 62.75 | 225.86 | |
| | 11/11/2005 | SECOR | 288.61 | 61.37 | 227.24 | |
| | 2/9/2006 | SECOR | | 61.17 | 227.44 | |
| | 5/18/2006 | SECOR | | 61.31 | 227.30 | |
| | 8/11/2006 | SECOR | | 62.01 | 226.60 | |
| | 10/2/2006 | SECOR | | 62.19 | 226.42 | |
| | 1/19/2007 | SECOR | | 62.44 | 226.17 | |
| | 4/20/2007 | SECOR | | 63.48 | 225.13 | |
| | 7/26/2007 | SECOR | | 64.33 | 224.28 | |
| | 11/2/2007 | SECOR | | 65.35 | 223.26 | |
| | 2/8/2008 | SECOR | | 66.53 | 222.08 | |
| | 5/2/2008 | SECOR | | 67.40 | 221.21 | |
| | 8/8/2008 | Stantec | 288.62 | 68.12 | 220.50 | |
| | 10/17/2008 | Stantec | | 68.60 | 220.02 | |
| | 1/30/2009 | Stantec | | 69.49 | 219.13 | |
| | 5/1/2009 | Stantec | | 70.30 | 218.32 | |
| | 7/24/2009 | Stantec | | 70.52 | 218.10 | |
| | 11/10/2009 | Stantec | | 69.92 | 218.70 | |
| | 2/8/2010 | Stantec | | 70.43 | 218.19 | |
| | 5/11/2010 | Stantec | | 70.53 | 218.09 | |
| | 8/2/2010 | Stantec | | 70.49 | 218.13 | |
| | 10/18/2010 | Stantec | | 69.84 | 218.78 | |
| | 2/14/2011 | Stantec | | 69.59 | 219.03 | |
| | 5/9/2011 | Stantec | | 70.20 | 218.42 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-34D cont.** | 8/1/2011 | Stantec | | 70.05 | 218.57 | |
| | 10/17/2011 | Stantec | | 69.78 | 218.84 | |
| | 2/6/2012 | Stantec | | 69.91 | 218.71 | |
| | 5/4/2012 | Stantec | | 70.64 | 217.98 | |
| | 7/16/2012 | Stantec | | 71.00 | 217.62 | |
| | 1/22/2013 | Stantec | | 73.20 | 215.42 | |
| | 7/8/2013 | Stantec | | 75.54 | 213.08 | |
| | 1/21/2014 | Stantec | | 79.51 | 209.11 | |
| | 7/14/2014 | Stantec | | 82.23 | 206.39 | |
| | 1/12/2015 | Stantec | | 84.77 | 203.85 | |
| | 7/6/2015 | Stantec | | 86.98 | 201.64 | |
| | 1/19/2016 | Stantec | | 90.40 | 198.22 | |
| | 7/18/2016 | Stantec | | 89.98 | 198.64 | |
| | 1/17/2017 | Stantec | | 87.05 | 201.57 | |
| | 7/26/2017 | Stantec | | 85.21 | 203.41 | |
| | 2/5/2018 | Stantec | | 84.64 | 203.98 | |
| | 7/30/2018 | Stantec | | 85.35 | 203.27 | |
| | 2/11/2019 | Stantec | | 85.21 | 203.41 | |
| | 7/16/2019 | Arcadis | | 83.57 | 205.05 | |
| | 1/28/2020 | Arcadis | | 81.79 | 206.83 | |
| **MW-44D** | 5/2/2008 | SECOR | 290.06 | 63.08 | 226.98 | |
| | 8/8/2008 | Stantec | 290.16 | 63.21 | 226.95 | |
| | 10/17/2008 | Stantec | | 63.61 | 226.55 | |
| | 1/30/2009 | Stantec | | 64.99 | 225.17 | |
| | 5/1/2009 | Stantec | | 65.88 | 224.28 | |
| | 7/24/2009 | Stantec | | 65.16 | 225.00 | |
| | 11/10/2009 | Stantec | | 64.85 | 225.31 | |
| | 2/8/2010 | Stantec | | 65.84 | 224.32 | |
| | 5/11/2010 | Stantec | | 65.96 | 224.20 | |
| | 8/2/2010 | Stantec | | 65.29 | 224.87 | |
| | 10/18/2010 | Stantec | | 64.61 | 225.55 | |
| | 2/14/2011 | Stantec | | 64.92 | 225.24 | |
| | 5/9/2011 | Stantec | | 65.48 | 224.68 | |
| | 8/1/2011 | Stantec | | 64.76 | 225.40 | |
| | 10/17/2011 | Stantec | | 64.28 | 225.88 | |
| | 2/6/2012 | Stantec | | 64.81 | 225.35 | |
| | 5/4/2012 | Stantec | | 65.89 | 224.27 | |
| | 7/16/2012 | Stantec | | 65.83 | 224.33 | |
| | 1/22/2013 | Stantec | | 68.03 | 222.13 | |
| | 7/8/2013 | Stantec | | 69.90 | 220.26 | |
| | 1/21/2014 | Stantec | | 73.84 | 216.32 | |
| | 7/14/2014 | Stantec | | 76.44 | 213.72 | |
| | 1/12/2015 | Stantec | | 79.23 | 210.93 | |
| | 7/6/2015 | Stantec | | 81.55 | 208.61 | |
| | 1/19/2016 | Stantec | | 85.47 | 204.69 | |
| | 7/18/2016 | Stantec | | 84.40 | 205.76 | |
| | 1/17/2017 | Stantec | | 83.25 | 206.91 | |
| | 7/26/2017 | Stantec | | 81.38 | 208.78 | |
| | 2/5/2018 | Stantec | | 80.87 | 209.29 | |
| | 7/30/2018 | Stantec | | 81.62 | 208.54 | |
| | 2/11/2019 | Stantec | | 82.22 | 207.94 | |
| | 7/16/2019 | Arcadis | | 80.50 | 209.66 | |
| | 1/28/2020 | Arcadis | | 79.67 | 210.49 | |
| **MW-48D** | 5/2/2008 | SECOR | 305.61 | 79.81 | 225.80 | |
| | 8/8/2008 | Stantec | 305.70 | 80.10 | 225.60 | |
| | 10/17/2008 | Stantec | | 80.51 | 225.19 | |
| | 1/30/2009 | Stantec | | 81.97 | 223.73 | |
| | 5/1/2009 | Stantec | | 82.65 | 223.05 | |
| | 7/24/2009 | Stantec | | 82.31 | 223.39 | |
| | 11/10/2009 | Stantec | 305.70 | 81.91 | 223.79 | |
| | 2/8/2010 | Stantec | | 82.71 | 222.99 | |
| | 5/11/2010 | Stantec | | 81.84 | 223.86 | |
| | 8/2/2010 | Stantec | | 81.74 | 223.96 | |
| | 10/18/2010 | Stantec | | 81.79 | 223.91 | |
| | 2/14/2011 | Stantec | | 81.83 | 223.87 | |
| | 5/9/2011 | Stantec | | 81.73 | 223.97 | |
| | 8/1/2011 | Stantec | | 81.80 | 223.90 | |
| | 10/17/2011 | Stantec | | 81.30 | 224.40 | |
| | 2/6/2012 | Stantec | | 81.72 | 223.98 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-48D cont.** | 5/4/2012 | Stantec | | 82.70 | 223.00 | |
| | 7/16/2012 | Stantec | | 82.77 | 222.93 | |
| | 1/22/2013 | Stantec | | 84.91 | 220.79 | |
| | 7/8/2013 | Stantec | | 86.89 | 218.81 | |
| | 1/21/2014 | Stantec | | 90.71 | 214.99 | |
| | 7/14/2014 | Stantec | | 93.10 | 212.60 | |
| | 1/12/2015 | Stantec | | 96.28 | 209.42 | |
| | 7/6/2015 | Stantec | | 98.35 | 207.35 | |
| | 1/19/2016 | Stantec | | 102.38 | 203.32 | |
| | 7/18/2016 | Stantec | | 101.53 | 204.17 | |
| | 1/17/2017 | Stantec | | 100.32 | 205.38 | |
| | 7/26/2017 | Stantec | | 98.58 | 207.12 | |
| | 2/5/2018 | Stantec | | 97.76 | 207.94 | |
| | 7/30/2018 | Stantec | | 98.65 | 207.05 | |
| | 2/11/2019 | Stantec | | 99.00 | 206.70 | |
| | 7/16/2019 | Arcadis | | 97.29 | 208.41 | |
| | 1/28/2020 | Arcadis | | 96.21 | 209.49 | |
| **Unknown Depth** | | | | | | |
| **EPA-3** | 2/28/1982 | USEPA-ERT 1982 | 300.72 | 48.59 | 252.13 | |
| **EPA-5** | 2/28/1982 | USEPA-ERT 1982 | 299.15 | 47.75 | 251.40 | |
| **EPA-6** | 2/28/1982 | USEPA-ERT 1982 | 300.04 | 47.34 | 252.70 | |
| **EPA-7** | 2/28/1982 | USEPA-ERT 1982 | 300.47 | 49.16 | 251.31 | |
| | 8/7/1984 | Harding Lawson Associates 1986 | 289.33 | 43.18 | 246.15 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 42.87 | 246.46 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 42.92 | 246.41 | |
| **MW-1P** | 5/21/1987 | CH2M Hill 1988 | 292.50 | 10.14 | 252.36 | |
| | 6/30/1987 | CH2M Hill 1988 | | 40.11 | 252.39 | |
| | 2/18/1988 | CH2M Hill 1988 | 292.50 | 41.90 | 250.60 | |
| | 3/13/1988 | CH2M Hill 1988 | | 42.12 | 250.38 | |
| | 4/2/1988 | CH2M Hill 1988 | | 41.60 | 250.90 | |
| **MW-15** | 8/7/1984 | Harding Lawson Associates 1986 | 289.98 | 42.84 | 247.14 | Buried under scrap metal |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 42.57 | 247.41 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 42.60 | 247.38 | |
| | 5/27/1986 | CH2M Hill 1988 | 290.08 | 40.85 | 249.23 | |
| | 7/9/1986 | CH2M Hill 1988 | | 41.43 | 248.65 | |
| | 8/22/1986 | CH2M Hill 1988 | | 41.23 | 248.85 | |
| | 9/23/1986 | CH2M Hill 1988 | | 41.18 | 248.90 | |
| | 10/21/1986 | CH2M Hill 1988 | | 41.06 | 249.02 | |
| | 11/14/1986 | CH2M Hill 1988 | | 41.02 | 249.06 | |
| | 12/22/1986 | CH2M Hill 1988 | | 41.21 | 248.87 | |
| | 1/19/1987 | CH2M Hill 1988 | | 41.02 | 249.06 | |
| | 2/17/1987 | CH2M Hill 1988 | | 41.03 | 249.05 | |
| | 4/10/1987 | CH2M Hill 1988 | | 40.83 | 249.25 | |
| | 4/28/1987 | CH2M Hill 1988 | | 40.95 | 249.13 | |
| | 5/21/1987 | CH2M Hill 1988 | | 40.96 | 249.12 | |
| | 6/30/1987 | CH2M Hill 1988 | | 41.25 | 248.83 | |
| | 8/17/1987 | CH2M Hill 1988 | | 40.45 | 249.63 | |
| | 9/15/1987 | CH2M Hill 1988 | | 42.48 | 247.60 | |
| | 10/26/1987 | CH2M Hill 1988 | | 42.83 | 247.25 | |
| | 12/28/1987 | CH2M Hill 1988 | | 42.91 | 247.17 | |
| | 1/14/1988 | CH2M Hill 1988 | | 42.92 | 247.16 | |
| | 2/18/1988 | CH2M Hill 1988 | | 42.95 | 247.13 | |
| | 3/3/1988 | CH2M Hill 1988 | | 42.68 | 247.40 | |
| | 4/2/1988 | CH2M Hill 1988 | | 42.68 | 247.40 | |
| | 8/5/2005 | SECOR | 290.08 | NA | NA | Buried under scrap metal |
| | 11/11/2005 | SECOR | | NA | NA | Buried under scrap metal |
| | 2/9/2006 | SECOR | | NA | NA | Buried under scrap metal |
| | 5/18/2006 | SECOR | | NA | NA | Buried under scrap metal |
| | 8/11/2006 | SECOR | | NA | NA | Buried under scrap metal |
| | 10/2/2006 | SECOR | | NA | NA | Buried under scrap metal |
| | 1/19/2007 | SECOR | | NA | NA | Buried under scrap metal |
| | 4/20/2007 | SECOR | | NA | NA | Buried under scrap metal |
| | 7/26/2007 | SECOR | | NA | NA | Buried under scrap metal |
| | 11/2/2007 | SECOR | | NA | NA | Buried under scrap metal |
| | 2/8/2008 | SECOR | | NA | NA | Buried under scrap metal |
| | 2/8/2010 | Stantec | | Removed from Monitoring Well Network First Quarter 2010 | | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-17** | 12/28/1987 | CH2M Hill 1988 | 289.84 | 43.15 | 246.69 | |
| | 1/14/1988 | CH2M Hill 1988 | | 43.07 | 246.77 | |
| | 2/18/1988 | CH2M Hill 1988 | | 43.20 | 246.64 | |
| | 3/3/1988 | CH2M Hill 1988 | 289.84 | 42.87 | 246.97 | |
| | 4/2/1988 | CH2M Hill 1988 | | 43.00 | 246.84 | |
| | 8/5/2005 | SECOR | | NA | NA | Buried under scrap metal |
| | 11/11/2005 | SECOR | | NA | NA | Buried under scrap metal |
| | 2/9/2006 | SECOR | | NA | NA | Buried under scrap metal |
| | 5/18/2006 | SECOR | | NA | NA | Buried under scrap metal |
| | 8/11/2006 | SECOR | | NA | NA | Buried under scrap metal |
| | 10/2/2006 | SECOR | | NA | NA | Buried under scrap metal |
| | 1/19/2007 | SECOR | | NA | NA | Buried under scrap metal |
| | 4/20/2007 | SECOR | | NA | NA | Buried under scrap metal |
| | 7/26/2007 | SECOR | | NA | NA | Buried under scrap metal |
| | 11/2/2007 | SECOR | | NA | NA | Buried under scrap metal |
| | 2/8/2008 | SECOR | | NA | NA | Buried under scrap metal |
| | 2/8/2010 | Stantec | | Removed from Monitoring Well Network First Quarter 2010 | | |
| **MW-22P** | 5/21/1987 | CH2M Hill 1988 | 289.73 | 41.45 | 248.28 | |
| | 2/18/1988 | CH2M Hill 1988 | | 43.13 | 246.60 | |
| | 3/3/1988 | CH2M Hill 1988 | | 43.27 | 246.46 | |
| | 4/2/1988 | CH2M Hill 1988 | | 43.22 | 246.51 | |
| | 6/14/1999 | IT | 289.71 | 54.98 | 234.73 | |
| | 9/13/1999 | IT | | 84.87 | 234.84 | |
| | 8/5/2005 | SECOR | | NA | NA | Obstructed |
| | 11/11/2005 | SECOR | | NA | NA | Obstructed |
| | 2/9/2006 | SECOR | | NA | NA | Obstructed |
| | 5/18/2006 | SECOR | | NA | NA | Obstructed |
| | 8/11/2006 | SECOR | | NA | NA | Broken |
| | 10/2/2006 | SECOR | | NA | NA | Broken |
| | 1/19/2007 | SECOR | | NA | NA | Broken |
| | 4/20/2007 | SECOR | | NA | NA | Broken |
| | 7/26/2007 | SECOR | | NA | NA | Broken |
| | 11/2/2007 | SECOR | | NA | NA | Broken |
| | 2/8/2008 | SECOR | | NA | NA | Broken |
| | 5/2/2008 | SECOR | | NA | NA | Broken |
| | 8/8/2008 | Stantec | | NA | NA | |
| | 10/17/2008 | Stantec | 289.67 | 64.48 | 225.19 | |
| | 1/30/2009 | Stantec | | 65.63 | 224.04 | |
| | 5/1/2009 | Stantec | | 66.65 | 223.02 | |
| | 7/24/2009 | Stantec | | 66.58 | 223.09 | |
| | 11/10/2009 | Stantec | | 65.71 | 223.96 | |
| | 2/8/2010 | Stantec | | Removed from Monitoring Well Network First Quarter 2010 | | |
| **MW-32P** | 5/21/1987 | CH2M Hill 1988 | 287.85 | 44.64 | 243.21 | |
| | 6/30/1987 | CH2M Hill 1988 | | 44.93 | 242.92 | |
| | 2/18/1988 | CH2M Hill 1988 | | 46.30 | 241.55 | |
| | 3/3/1988 | CH2M Hill 1988 | | 46.47 | 241.38 | |
| | 4/2/1988 | CH2M Hill 1988 | | 54.17 | 233.68 | |
| | 4/17/1995 | Envirosolve | | 61.90 | 225.95 | |
| | 4/15/1996 | Envirosolve | | 60.92 | 226.93 | |
| | 6/14/1999 | IT | | 57.70 | 230.15 | |
| | 9/13/1999 | IT | | 57.23 | 230.62 | |
| | 3/13/2000 | IT | | 56.15 | 231.70 | |
| | 6/19/2000 | IT | | 55.22 | 232.63 | |
| | 9/11/2000 | IT | 287.85 | 54.67 | 233.18 | |
| | 12/18/2000 | IT | | 54.40 | 233.45 | |
| | 5/7/2001 | IT | | 56.45 | 231.40 | |
| | 6/3/2002 | SECOR | | 58.10 | 229.75 | |
| | 9/16/2002 | SECOR | | 56.78 | 231.07 | |
| | 11/18/2002 | SECOR | | 57.61 | 230.24 | |
| | 1/27/2003 | SECOR | | 58.14 | 229.71 | |
| | 6/16/2003 | SECOR | | 58.78 | 229.07 | |
| | 9/8/2003 | SECOR | 287.85 | 59.26 | 228.59 | |
| | 12/8/2003 | SECOR | | 58.99 | 228.86 | |
| | 3/8/2004 | SECOR | | 59.31 | 228.54 | |
| | 6/10/2004 | SECOR | | 60.32 | 227.53 | |
| | 8/12/2004 | SECOR | | 60.84 | 227.01 | |
| | 11/12/2004 | SECOR | | 60.95 | 226.90 | |
| | 3/11/2005 | SECOR | | NA | NA | Unable to access property |
| | 5/20/2005 | SECOR | | 61.21 | 226.64 | |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-32P cont.** | 8/5/2005 | SECOR | | NA | NA | No property access |
| | 11/11/2005 | SECOR | | NA | NA | Unable to access property |
| | 2/9/2006 | SECOR | | 60.42 | 227.43 | Sierra Nevada Trailers; OK |
| | 5/25/2006 | SECOR | | 60.57 | 227.28 | Gauged during sampling |
| | 8/11/2006 | SECOR | | 61.27 | 226.58 | |
| | 10/2/2006 | SECOR | | NA | NA | |
| | 1/19/2007 | SECOR | | 61.70 | 226.15 | |
| | 4/20/2007 | SECOR | | 62.77 | 225.08 | |
| | 7/26/2007 | SECOR | | 63.60 | 224.25 | |
| | 11/2/2007 | SECOR | | 64.67 | 223.18 | |
| | 2/8/2008 | SECOR | | 65.79 | 222.06 | |
| | 5/2/2008 | SECOR | | 66.08 | 221.77 | |
| | 8/8/2008 | Stantec | 287.81 | 66.12 | 221.69 | |
| | 10/17/2008 | Stantec | | 67.89 | 219.92 | |
| | 1/30/2009 | Stantec | | 68.76 | 219.05 | |
| | 5/1/2009 | Stantec | | 69.62 | 218.19 | |
| | 7/24/2009 | Stantec | | 69.74 | 218.07 | |
| | 11/10/2009 | Stantec | | 69.38 | 218.43 | |
| | 2/8/2010 | Stantec | | 69.72 | 218.09 | |
| | 5/11/2010 | Stantec | | 69.82 | 217.99 | |
| | 8/2/2010 | Stantec | | 69.77 | 218.04 | |
| | 10/18/2010 | Stantec | | 69.11 | 218.70 | |
| | 2/14/2011 | Stantec | | 68.85 | 218.96 | |
| | 5/9/2011 | Stantec | | 70.10 | 217.71 | |
| | 8/1/2011 | Stantec | | 69.92 | 217.89 | |
| | 10/17/2011 | Stantec | | 69.07 | 218.74 | |
| | 2/6/2012 | Stantec | | 69.16 | 218.65 | |
| | 5/4/2012 | Stantec | | 69.92 | 217.89 | |
| | 7/16/2012 | Stantec | | 70.31 | 217.50 | |
| | 1/22/2013 | Stantec | | 71.23 | 216.58 | |
| | 7/8/2013 | Stantec | | 74.89 | 212.92 | |
| | 1/21/2014 | Stantec | | 78.70 | 209.11 | |
| | 7/14/2014 | Stantec | | NA | NA | No access, locked gate. |
| | 1/12/2015 | Stantec | | 84.01 | 203.80 | |
| | 7/6/2015 | Stantec | | NA | NA | No access |
| | 1/19/2016 | Stantec | | NA | NA | No access |
| | 7/18/2016 | Stantec | | NA | NA | No access |
| | 1/17/2017 | Stantec | | NA | NA | No access |
| | 7/26/2017 | Stantec | | NA | NA | No access |
| | 2/5/2018 | Stantec | | 83.70 | 204.11 | Pump broken |
| | 7/30/2018 | Stantec | | NA | NA | Pump broken |
| | 2/11/2019 | Stantec | | 84.50 | 203.31 | Pump broken |
| | 7/16/2019 | Arcadis | | 82.81 | 205.00 | |
| | 1/28/2020 | Arcadis | | Removed from Monitoring Well Network Third Quarter 2012 | | |
| **MW-33P** | 5/21/1987 | CH2M Hill 1988 | 287.86 | 44.23 | 243.63 | |
| | 6/30/1987 | CH2M Hill 1988 | | 44.46 | 243.40 | |
| | 9/15/1987 | CH2M Hill 1988 | | 46.17 | 241.69 | |
| | 10/26/1987 | CH2M Hill 1988 | | 45.95 | 241.91 | |
| | 2/18/1988 | CH2M Hill 1988 | | 45.63 | 242.23 | |
| | 3/3/1988 | CH2M Hill 1988 | | 45.90 | 241.96 | |
| | 4/2/1988 | CH2M Hill 1988 | | 48.76 | 239.10 | |
| | 4/17/1995 | Envirosolve | | 61.44 | 226.42 | |
| | 9/13/1999 | IT | | 56.79 | 231.07 | |
| | 12/13/1999 | IT | | 56.21 | 231.65 | |
| | 3/13/2000 | IT | | 55.72 | 232.14 | |
| | 6/19/2000 | IT | | 54.74 | 233.12 | |
| | 9/11/2000 | IT | 287.86 | 54.17 | 233.69 | |
| | 12/18/2000 | IT | | 53.84 | 234.02 | |
| | 5/7/2001 | IT | | 56.00 | 231.86 | |
| | 10/15/2001 | IT | | 56.40 | 231.46 | |
| | 6/3/2002 | SECOR | | 57.65 | 230.21 | |
| | 9/16/2002 | SECOR | | 56.21 | 231.65 | |
| | 11/18/2002 | SECOR | | 57.18 | 230.68 | |
| | 1/27/2003 | SECOR | | 57.66 | 230.20 | |
| | 6/16/2003 | SECOR | | 58.31 | 229.55 | |
| | 9/8/2003 | SECOR | | 58.48 | 229.38 | |
| | 12/8/2003 | SECOR | | 58.48 | 229.38 | |
| | 6/7/2004 | SECOR | | 59.90 | 227.96 | |
| | 8/6/2004 | SECOR | | 60.31 | 227.55 | |
| | 11/12/2004 | SECOR | | NA | NA | No sampling port |

**Table 8**
**Historical Depth to Water and Groundwater Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **MW-33P cont.** | 3/11/2005 | SECOR | | 60.24 | 227.62 | |
| | 5/20/2005 | SECOR | | 60.71 | 227.15 | Pump not functional |
| | 8/5/2005 | SECOR | | 61.61 | 226.25 | |
| | 11/11/2005 | SECOR | 287.86 | 60.10 | 227.76 | Pump is not functional |
| | 2/9/2006 | SECOR | | 59.90 | 227.96 | |
| | 5/18/2006 | SECOR | | 60.02 | 227.84 | |
| | 8/11/2006 | SECOR | | 60.70 | 227.16 | |
| | 10/2/2006 | SECOR | | 60.83 | 227.03 | |
| | 1/19/2007 | SECOR | | 61.13 | 226.73 | |
| | 4/20/2007 | SECOR | | 62.16 | 225.70 | |
| | 7/26/2007 | SECOR | | 62.99 | 224.87 | |
| | 11/2/2007 | SECOR | | 64.05 | 223.81 | |
| | 2/8/2008 | SECOR | | 65.26 | 222.60 | |
| | 5/2/2008 | SECOR | | NA | NA | |
| | 8/8/2008 | Stantec | 287.83 | 66.83 | 221.00 | Rust on sounder |
| | 10/17/2008 | Stantec | | 67.23 | 220.60 | |
| | 1/30/2009 | Stantec | | 68.15 | 219.68 | |
| | 5/1/2009 | Stantec | | 69.00 | 218.83 | |
| | 7/24/2009 | Stantec | | 69.18 | 218.65 | |
| | 11/10/2009 | Stantec | | 68.72 | 219.11 | |
| | 2/8/2010 | Stantec | | 69.09 | 218.74 | |
| | 5/11/2010 | Stantec | | 69.12 | 218.71 | |
| | 8/2/2010 | Stantec | | 69.13 | 218.70 | |
| | 10/18/2010 | Stantec | | 68.45 | 219.38 | |
| | 2/14/2011 | Stantec | | 68.26 | 219.57 | |
| | 5/9/2011 | Stantec | | 68.93 | 218.90 | |
| | 8/1/2011 | Stantec | | 68.76 | 219.07 | |
| | 10/17/2011 | Stantec | | 68.44 | 219.39 | |
| | 2/6/2012 | Stantec | | 68.60 | 219.23 | |
| | 5/4/2012 | Stantec | | 69.36 | 218.47 | |
| | 7/16/2012 | Stantec | | 69.75 | 218.08 | |
| | 1/22/2013 | Stantec | | 71.80 | 216.03 | |
| | 7/8/2013 | Stantec | | 74.16 | 213.67 | |
| | 1/21/2014 | Stantec | | 78.10 | 209.73 | |
| | 7/14/2014 | Stantec | | 80.83 | 207.00 | |
| | 1/12/2015 | Stantec | | 83.41 | 204.42 | |
| | 7/6/2015 | Stantec | | 85.98 | 201.85 | |
| | 1/19/2016 | Stantec | | 89.04 | 198.79 | |
| | 7/18/2016 | Stantec | | 88.03 | 199.80 | |
| | 1/17/2017 | Stantec | | 85.69 | 202.14 | |
| | 7/26/2017 | Stantec | | 83.93 | 203.90 | |
| | 2/5/2018 | Stantec | | 83.25 | 204.58 | |
| | 7/30/2018 | Stantec | | 84.05 | 203.78 | |
| | 2/11/2019 | Stantec | | 84.03 | 203.80 | |
| | 7/16/2019 | Arcadis | | 82.30 | 205.53 | |
| | 1/28/2020 | Arcadis | | Removed from Monitoring Well Network Third Quarter 2012 | | |

**Notes:**

ft msl = feet above mean sea level
TOC = top of casing
NA = Not Available
Ref. Elev. = reference elevation
elev. = elevation
DTW = depth to water
Wells MW-26P, MW-27P, and MW-33P previously identified as shallow to intermediate interval wells.
Well MW-31P screen intervals previously unidentified.
Wells MW-14D and MW-29P previously identified as deep interval wells.
Well screens that intersect the intermediate and deep intervals are considered intermediate interval wells.
* Intermediate pump added to well in December 2009.

ARCADIS Design & Consultancy for natural and built assets

**Table 9**
**Targeted VOC and Metals Analytical Data**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron | Manganese | Arsenic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300(1) | 50(1) | 10 |
| **Shallow** | | | | | | | | | | | | | |
| MW-43 | 1/30/2020 | FS | | | | | | NS | | | | | |
| MW-44S | 1/30/2020 | FS | | | | | | NS | | | | | |
| MW-45 | 1/30/2020 | FS | | | | | | NS | | | | | |
| MW-46 | 1/30/2020 | FS | | | | | | NS | | | | | |
| MW-47 | 1/30/2020 | FS | | | | | | NS | | | | | |
| MW-48S | 1/30/2020 | FS | | | | | | NS | | | | | |
| MW-49 | 1/30/2020 | FS | | | | | | NS | | | | | |
| MW-54 | 1/30/2020 | FS | | | | | | NS | | | | | |
| PT-3A | 1/30/2020 | FS | | | | | | NS | | | | | |
| **Shallow to Intermediate** | | | | | | | | | | | | | |
| MW-11IP | 1/30/2020 | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <41.2 | <3.1 | **2.0 J** |
| **Intermediate** | | | | | | | | | | | | | |
| MW-23 | 1/30/2020 | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <41.2 | <3.1 | **2.3** |
| MW-24I | 1/30/2020 | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <41.2 | **39.9** | **1.4 J** |
| MW-25I | 1/30/2020 | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <41.2 | <3.1 | **2.6** |
| MW-34I | 1/30/2020 | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | NA | NA | NA |
| MW-44I | 1/30/2020 | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <41.2 | **10.6** | **2.5** |
| MW-48I | 1/30/2020 | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <41.2 | <3.1 | **2.3** |
| DUP1 | 1/30/2020 | FD | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <41.2 | **13.1** | **2.5** |
| **Deep** | | | | | | | | | | | | | |
| MW-2D | 1/30/2020 | FS | NA | NA | NA | NA | NA | NA | NA | NA | <41.2 | **5.3 J** | **3.5** |
| MW-44D | 1/30/2020 | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <41.2 | <3.1 | **9.6** |
| MW-48D | 1/30/2020 | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | **58.4 J** | **539** | **7.9** |

**Notes:**
All results are reported in micrograms per liter (µg/L)
ROD/MCL/RG = Record of Decision/Maximum Contaminant Level/Remedial Goal
(1) Denotes Secondary MCL
FS = Field Sample
FD = Field Duplicate
NS = Not sampled this event (scheduled for sampling) as well was dry
J = estimated values between the Method Detection Limit (MDL) and Limit of Quantification (LOQ)
NA = Not analyzed for this constituent
Bold Results = detected values reported below the constituents' ROD/MCL/RG
Bold Outlined Results = values reported at or above the constituents' ROD/MCL/RG
<n = Constiutent not detected at or above the method detection limit (MDL)
Wells screens that intersect the intermediate and deep intervals are considered intermediate interval wells.

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **Extraction Wells (Shallow)** | | | | | | | | | | | | | | |
| **EW-1** | 6/18/1999 | REG FF | **0.62** | **0.89** | **1.8** | <0.5 | **24** | <0.5 | <0.5 | <0.5 | **120** | **440** | NS | NS |
| | 9/16/1999 | REG FF | **0.86** | **0.81** | **1.8** | <0.5 | **23** | <0.5 | <0.5 | <0.5 | **900** | **430** | NS | NS |
| | 12/15/1999 | REG FF | **0.60** | **0.84** | **1.9** | <0.5 | **24** | <0.5 | **0.57** | <0.5 | **560** | **400** | NS | NS |
| | 3/15/2000 | REG FF | **0.63** | **0.85** | **1.8** | <0.5 | **26** | **0.4** | **0.55** | **0.37** | **830** | **440** | NS | NS |
| | 6/20/2000 | REG FF | <0.5 | **0.72** | **1.6** | <0.5 | **21** | <0.5 | <0.5 | <0.5 | **680** | **380** | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | **60** | <5 | <5 | <5 | **6,100** | **1,000** | NS | NS |
| | 10/18/2001 | REG | **1.9** | **2.6** | **2.8** | <0.5 | **85** | **0.96** | **0.70** | <0.5 | **5,400 J** | **890** | NS | NS |
| | 6/11/2002 | FS FF | **0.71** | **1.3** | **1.5** | <0.5 | **34** | **0.88** | **0.47** | **0.33** | **1,530** | **641** | <45 | <34 |
| | 9/20/2002 | FS FF | **0.87** | **1.4** | **1.7** | **0.15 J** | **37** | **0.55** | **0.61** | **0.32 J** | **4,840** | **888** | **14.1** | **5.2** |
| | 11/21/2002 | FS FF | **0.37** | **0.55** | **0.68** | <0.5 | **16.0** | <0.5 | <0.5 | <0.5 | **1,470** | **643** | **10.9** | <2.0 |
| | 1/29/2003 | FS | **0.5** | **0.79** | **1** | <0.5 | **23** | **0.53** | **0.39** | **0.32** | **1,080** | **661** | **8.3** | <2 |
| | 6/19/2003 | FS | **0.5** | **0.82** | **1** | <0.5 | **22** | **0.89** | **0.41 J** | **0.28 J** | **752** | **622** | **5.9** | <2 |
| | 9/12/2003 | FS | **0.8 J** | **1 J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **1,850** | **693** | <4.9 | <4.7 |
| | 12/11/2003 | FS | **0.6** | **0.9** | **1** | <0.1 | **22** | **0.3 J** | **0.5 J** | **0.3 J** | **807** | **709** | <4.9 | <4.7 |
| | 3/9/2004 | FS | **0.5** | **1** | **1.1** | <0.1 | **27** | **0.3 J** | **0.5 J** | **0.2 J** | **1,130** | **749** | <4.9 | <4.7 |
| | 6/9/2004 | FS | **0.6** | **0.7** | **0.8** | <0.1 | **23** | **0.4 J** | **0.4 J** | **0.2 J** | **1,050** | **658** | <9.4 | <5.9 |
| | 8/10/2004 | FS | **0.9** | **1.1** | **1.2** | <0.1 | **33** | **0.3 J** | **0.6** | **0.3 J** | **1,810** | **826** | **8.4 J** | <5.9 |
| | 11/18/2004 | FS | **0.4 J** | **0.7** | **0.5 J** | <0.1 | **6.2** | <0.1 | <0.1 | **0.2 J** | **643** | **726** | <4.7 | <5.9 |
| | 3/18/2005 | FS | **0.6** | **1.0** | <0.1 | <0.1 | **18.0** | **0.2 J** | **0.2 J** | **0.2 J** | **3,360** | **787** | **15.1** | <5.9 |
| | 5/25/2005 | FS | **0.7** | **1** | <0.1 | <0.1 | **26** | **0.7** | **0.5 J** | **0.2 J** | **1,490** | **799** | **12.1** | <9.4 |
| | 8/11/2005 | FS | **1.4** | **3.0** | **1.3** | **0.2 J** | **83** | **2.9** | **1.1** | **0.6** | **12,500** | **1,400** | <9.3 | <9.4 |
| | 11/18/2005 | FS | **1.2** | **2.4** | **1.0** | **0.1 J** | **71** | **1.3** | **1.1** | **0.5** | **3,190** | **1,010** | **11.9 J** | <9.4 |
| | 2/16/2006 | FS | **1.1** | **2.5** | **1.2** | **0.1 J** | **79** | **1.1** | **1.2** | **0.6** | **2,070** | **927** | **10.2 J** | <9.4 |
| | 5/24/2006 | FS | **1.1** | **2.3** | **0.9** | **0.2 J** | **88** | **1.6** | **1.3** | **0.7** | **2,100** | **992** | **10.3 J** | <9.4 |
| | 8/14/2006 | FS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/6/2006 | FS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | | | Decommissioned October 2006 | | | | | | | | | | | |
| **EW-2** | 6/18/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **380** | **240** | NS | NS |
| | 9/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **81** | **130** | NS | NS |
| | 12/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **64** | **120** | NS | NS |
| | 3/15/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **50** | **100** | NS | NS |
| | 6/20/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **78** | NS | NS |
| | 9/14/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **360** | **80** | NS | NS |
| | 12/20/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | **48** | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | **89** | **630** | NS | NS |
| | 10/17/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **170** | **540** | NS | NS |
| | 6/11/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **14.1** | **82** | <45 | <34 |
| | 9/20/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **47.6 B** | <10 | **1.7 B** | <50 |
| | 11/21/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **363** | **35.4** | **9.3 B** | <2.0 |
| | 1/29/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **8.6** | **25.1** | **1.4** | <2 |
| | 6/19/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | **0.14 J** | <0.5 | <0.5 | <0.5 | <100 | **26** | **2.5** | <2 |
| | 9/12/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **9.3** | <4.9 | <4.7 |
| | 12/11/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **20.2** | <4.9 | <4.7 |
| | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **18.8** | <4.9 | **6.4 J** |
| | 6/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **16.1** | <4.7 | <5.9 |
| | 8/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | <49.5 | **12.3** | <4.7 | <5.9 |
| | 11/18/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **9.8** | <4.7 | <5.9 |
| | 3/17/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **8.2** | <4.7 | <5.9 |
| | 5/25/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **90.4** | <9.3 | <9.4 |
| | 8/12/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | <9.3 | <9.4 |
| | 11/18/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **6.3** | <9.3 | <9.4 |
| | 2/17/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | **23.3** | <9.3 | <9.4 |
| | 5/24/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | **15.9** | <9.3 | <9.4 |
| | 8/14/2006 | FS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/6/2006 | FS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | | | Decommissioned October 2006 | | | | | | | | | | | |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **Shallow** | | | | | | | | | | | | | | |
| **MW-2S** | 2/24/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **600** | **3,800** | NS | NS |
| | 9/14/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **170** | **36** | NS | NS |
| | 12/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **160** | **26** | NS | NS |
| | 3/25/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **200** | **19** | NS | NS |
| | 6/17/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1,200** | **52** | NS | NS |
| | 9/28/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **490** | **31** | NS | NS |
| | 12/6/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **2,100** | **73** | NS | NS |
| | 3/16/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1,300** | **42** | NS | NS |
| | 6/7/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **2,600** | **120** | NS | NS |
| | 4/19/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **3,100** | **360** | NS | NS |
| | 7/12/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **3,900** | **370** | NS | NS |
| | 10/25/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **1,200** | **300** | NS | NS |
| | 1/29/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **2,700** | **290** | NS | NS |
| | 4/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | **0.6** | **590** | **220** | NS | NS |
| | 4/18/1996 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | **0.7** | **1,300** | **220** | NS | NS |
| | 7/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **1,800** | **220** | NS | NS |
| | 10/22/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **1,500** | **160** | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **1,700** | **190** | NS | NS |
| | 6/11/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **960** | **130** | NS | NS |
| | 9/18/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **190** | **39** | NS | NS |
| | 12/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **130** | **46** | NS | NS |
| | 3/18/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **240** | **48** | NS | NS |
| | 6/25/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **70** | **17** | NS | NS |
| | 9/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **37** | **7** | NS | NS |
| | 12/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **47** | **8** | NS | NS |
| | 12/16/1998 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **8** | NS | NS |
| | 3/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **21** | NS | NS |
| | 6/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **8** | NS | NS |
| | 9/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/16/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **52** | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **68** | NS | NS |
| | 9/14/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **83** | NS | NS |
| | 12/20/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | **41** | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **16** | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **44 J** | **38** | NS | NS |
| | 6/6/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **65.3** | **57.1** | <45 | <34 |
| | 9/20/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **25.2 B** | **0.7 B** | **3.2 B** | <50 |
| | 11/25/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **1,360** | **136** | **5.5** | <2.0 |
| | 1/31/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **124** | **14.1** | **3.6** | <2 |
| | 6/18/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **31 J** | <5 | **3.1** | **0.3 J** |
| | 9/10/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **81.1 J** | **3.0 J** | <4.9 | <4.7 |
| | 12/11/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **149 J** | **3.1 J** | <4.9 | <4.7 |
| | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **73 J** | **1.1 J** | <4.9 | <4.7 |
| | 6/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **95.1 J** | **2.0 J** | <9.4 | <5.9 |
| | 8/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **2.8 J** | <4.7 | <5.9 |
| | 11/15/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **83.6J** | **2.3 J** | <4.7 | <5.9 |
| | 3/14/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **2.1 J** | <4.7 | <5.9 |
| | 5/23/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **93.2 J** | **2.1 J** | <9.3 | <9.4 |
| | 8/8/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | <9.3 | <9.4 |
| | 11/14/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | **9.7 J** | <9.4 |
| | 2/10/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **168 J** | **4.9 J** | <9.3 | <9.4 |
| | 5/19/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | <0.96 | <9.3 | <9.4 |
| | 8/14/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 10/3/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 1/22/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **0.63J** | <10 | <9.4 |
| | 4/23/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **0.64J** | <10 | <9.4 |
| | 7/30/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10 | <9.4 |
| | 11/5/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **61.1 J** | **3.4 J** | <10 | <9.4 |
| | 2/11/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 5/5/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/11/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/20/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 2/2/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 5/4/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 7/27/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 11/11/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |

Removed from Monitoring Well Network First Quarter 2010

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-3** | 2/24/1992 | REG FF | <0.5 | <1 | **12** | <1 | <1 | <1 | <1 | <0.5 | **360** | **30** | NS | NS |
| | 6/9/1992 | REG FF | <0.5 | <1 | **7.1** | <1 | <1 | <1 | <1 | <0.5 | **290** | **50** | NS | NS |
| | 9/14/1992 | REG FF | <0.5 | <1 | **6.3** | <1 | <1 | <1 | <1 | <0.5 | **290** | **29** | NS | NS |
| | 3/30/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1,500** | **55** | NS | NS |
| | 6/22/1993 | REG | <0.5 | <1 | **2.2** | <1 | <1 | <1 | <1 | <0.5 | **1,100** | **72** | NS | NS |
| | 10/1/1993 | REG FF | <0.5 | <1 | **2.3** | <1 | <1 | <1 | <1 | <0.5 | **1,600** | **32** | NS | NS |
| | 12/10/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **470** | **18** | NS | NS |
| | 3/15/1994 | REG | <0.5 | <1 | **1.5** | <1 | <1 | <1 | <1 | <0.5 | **1,200** | **26** | NS | NS |
| | 3/16/1994 | REG FF | | | | | | | | | **93** | **17** | NS | NS |
| | 9/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **7** | NS | NS |
| | 12/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **6** | NS | NS |
| | 3/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **330** | **17** | NS | NS |
| | 6/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **50** | **8** | NS | NS |
| | 9/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **14.0** | NS | NS |
| | 12/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/16/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.33** | <0.5 | <30 | **8.0** | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **5.0** | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **34.0** | NS | NS |
| | 10/16/2001 | REG | **0.51** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **30** | **19.0** | NS | NS |
| | 6/6/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **194** | **43.3** | <45 | <34 |
| | 9/18/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.34 J** | <0.5 | **34.1 B** | **2.9 B** | **1.9 B** | **5.5 B** |
| | 11/19/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <9.0 | **22.4** | **6.3 B** | <2.0 |
| | 1/29/2003 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.28 J** | <0.5 | <100 | **55.4** | <1 | <2 |
| | 6/18/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.28** | <0.5 | **2,760** | **228** | **1.1** | **1.2** |
| | | | Decommissioned October 2006 | | | | | | | | | | | |
| **MW-5D** | 2/25/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **250** | **150** | NS | NS |
| | 6/9/1992 | REG FF | | | | | | | | | <40 | **210** | NS | NS |
| | 6/10/1992 | REG | **5.8** | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **40** | **250** | NS | NS |
| | 9/14/1992 | REG FF | **8.6** | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **51** | **270** | NS | NS |
| | 12/13/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **80** | **290** | NS | NS |
| | 3/26/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **56** | **230** | NS | NS |
| | 6/18/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | **220** | NS | NS |
| | 9/28/1993 | REG FF | <0.5 | <1 | **1.6** | <1 | <1 | <1 | <1 | <0.5 | <40 | **240** | NS | NS |
| | 12/7/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **180** | **260** | NS | NS |
| | 6/23/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/15/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **44** | **340** | NS | NS |
| | 12/20/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | **380** | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **280** | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **15 UJ** | **150** | NS | NS |
| | 6/11/2002 | FS FF | **0.31** | **0.16** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | **6.8** | <45 | <34 |
| | 9/18/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **48.8 B** | **68.5** | **3.7 B** | **3.9 B** |
| | 11/20/2002 | FS | <0.5 | **0.27** | <0.5 | <0.5 | **0.27** | <0.5 | <0.5 | <0.5 | <9.0 | **156** | **5.3** | <2.0 |
| | 1/28/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **6.2 B** | **50.3** | <1 | <2 |
| | 6/20/2003 | FS | <0.5 | **0.12 J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | **90** | **1.4** | <2 |
| | 9/9/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **125** | <4.9 | <4.7 |
| | 12/9/2003 | FS | <0.1 | **0.2 J** | <0.1 | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | <45.3 | **120** | <4.9 | <4.7 |
| | 3/11/2004 | FS | <0.1 | **0.2 J** | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <45.3 | **204** | <4.9 | <4.7 |
| | 6/9/2004 | FS | <0.1 | **0.4 J** | <0.1 | <0.1 | **0.5** | <0.1 | <0.1 | <0.1 | <49.5 | **281** | <9.4 | <5.9 |
| | 8/13/2004 | FS | <0.1 | **0.5 J** | <0.1 | <0.1 | **0.6** | <0.1 | <0.1 | <0.1 | <49.5 | **266** | <4.7 | <5.9 |
| | 11/17/2004 | FS | <0.1 | **0.2 J** | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <49.5 | **135** | <4.7 | <5.9 |
| | 3/18/2005 | FS | <0.1 | **0.5 J** | <0.1 | <0.1 | **0.6** | <0.1 | <0.1 | <0.1 | <49.5 | **641** | <4.7 | <5.9 |
| | 5/26/2005 | FS | <0.1 | **0.2 J** | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <37.8 | **329** | <9.3 | <9.4 |
| | 8/11/2005 | FS | <0.1 | **0.1 J** | <0.1 | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | <37.8 | **645** | <9.3 | <9.4 |
| | 11/17/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **181** | <9.3 | <9.4 |
| | 2/15/2006 | FS | <0.1 | **0.1 J** | <0.1 | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | <66.7 | **543** | <9.3 | <9.4 |
| | 5/24/2006 | FS | <0.1 | **0.1 J** | <0.1 | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | <66.7 | **243** | <9.3 | <9.4 |
| | 8/14/2006 | FS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/6/2006 | FS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | | | Decommissioned October 2006 | | | | | | | | | | | |
| **MW-5S** | 6/23/2000 | REG FF | <0.5 | **10** | **2** | <0.5 | **31** | <0.5 | <0.5 | <0.5 | <30 | **190** | NS | NS |
| | 9/15/2000 | REG | <0.5 | **9.6** | **1.5** | <0.5 | **31** | <0.5 | <0.5 | **0.97** | <30 | **200** | NS | NS |
| | 12/20/2000 | REG | <0.5 | **10** | **2.2** | <0.5 | **37** | **0.51** | <0.5 | <3 | **40** | **270** | NS | NS |
| | 5/9/2001 | REG | <5 | **13** | <5 | <5 | **33** | <5 | <5 | <5 | <30 | **380** | NS | NS |
| | 5/9/2001 | FD | <5 | **13** | <5 | <5 | **33** | <5 | <5 | <5 | <30 | **380** | NS | NS |
| | 6/12/2002 | FS FF | **0.39** | **11** | **1.5** | <0.5 | **8.9** | <5 | <5 | **0.68** | **41** | **394** | **12.4** | <34 |
| | 9/18/2002 | FS FF | <0.5 | **6.6** | **0.48 J** | <0.5 | **4.6** | <0.5 | <0.5 | <0.5 | <100 | **49.9** | **3.5 B** | **5.5 B** |
| | 11/20/2002 | FS FF | <0.5 | **5.9** | **0.59** | <0.5 | **3.4** | <0.5 | <0.5 | <0.5 | <9.0 | **15.9** | **7.5** | <2.0 |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-5S cont.** | 1/28/2003 | FS FF | <0.5 | **4.1** | **0.42 J** | <0.5 | **1.0** | <0.5 | <0.5 | <0.5 | <100 | **105** | **1.7 B** | <2 |
| | 6/20/2003 | FS | <0.5 | **4.5** | **0.57** | <0.5 | **0.49 J** | <0.5 | <0.5 | <0.5 | **161** | **265** | **2.0** | **0.5 J** |
| | 9/9/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **112** | <4.9 | <4.7 |
| | 12/10/2003 | FS | <0.1 | **3.8** | **0.4 J** | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | <45.3 | **94.4** | <4.9 | <4.7 |
| | 3/11/2004 | FS | <0.1 | **2.2** | **0.2 J** | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | <45.3 | **114** | <4.9 | **7.2 J** |
| | | | Decommissioned October 2006 | | | | | | | | | | | |
| **MW-6S** | 2/25/1992 | REG FF | <0.5 | **2.0** | **4.0** | <1 | **37** | <1 | **3.0** | <0.5 | **1,100** | **610** | NS | NS |
| | 6/9/1992 | REG FF | | | | | | | | | **360** | **620** | NS | NS |
| | 6/10/1992 | REG | **0.8** | **2.0** | **4.5** | <1 | **71** | <1 | **3.0** | **1** | **630** | **630** | NS | NS |
| | 9/14/1992 | REG FF | <0.5 | **2.2** | **3.4** | <1 | **44** | <1 | **3.0** | <0.5 | **160** | **590** | NS | NS |
| | 12/13/1992 | REG FF | <0.5 | **1.3** | **3.6** | <1 | **39** | <1 | **4.1** | <0.5 | **1,200** | **680** | NS | NS |
| | 3/26/1993 | REG FF | <0.5 | <1 | **2.5** | <1 | **26** | <1 | **3.8** | <0.5 | **1,200** | **610** | NS | NS |
| | 6/30/1993 | REG FF | <0.5 | **1.9** | **3.8** | <1 | **38** | <1 | **4.8** | <0.5 | **740** | **740** | NS | NS |
| | 9/28/1993 | REG FF | <0.5 | **2.4** | **4.1** | <1 | **90** | <1 | **3.8** | **1.4** | **830** | **780** | NS | NS |
| | 12/6/1993 | REG FF | <0.5 | **5.3** | <0.5 | <1 | **170** | **2.2** | **5.2** | <0.5 | **840** | **720** | NS | NS |
| | 3/14/1994 | REG FF | <0.5 | **2.4** | **5.1** | <1 | **46** | <1 | **3.6** | <0.5 | **3,000** | **800** | NS | NS |
| | 6/7/1994 | REG FF | <0.5 | **1.3** | **2.9** | <1 | **34** | <1 | **2.6** | <0.5 | **6,400** | **1,100** | NS | NS |
| | 9/12/1994 | REG FF | <0.5 | **1.9** | **4.3** | <1 | **34** | <1 | **2.1** | <0.5 | **4,300** | **920** | NS | NS |
| | 4/25/1995 | REG FF | **0.7** | **6** | **9.6** | <05 | **99** | **1.8** | **1.6** | **1.9** | **830** | **1,100** | NS | NS |
| | 7/13/1995 | REG FF | **2.1** | **7.6** | **8.4** | <0.5 | **100** | **1.8** | **1.8** | **1.1** | **1,700** | **1,100** | NS | NS |
| | 10/27/1995 | REG FF | **1.1** | **6.4** | **10** | <0.5 | **93** | **1.9** | **1.4** | **1.2** | **2,100** | **1,000** | NS | NS |
| | 1/29/1996 | REG FF | **0.87** | **5.5** | **10** | <0.5 | **79** | **1.5** | **1.0** | **1.3** | **2,400** | **1,100** | NS | NS |
| | 4/19/1996 | REG FF | **0.9** | **5.3** | **9.9** | **0.7** | **68** | **2.0** | **1.1** | **1.0** | **1,600** | **1,100** | NS | NS |
| | 4/19/1996 | FD FF | **1** | **5.2** | **9.6** | **0.6** | **68** | **2.1** | **1.1** | **1.0** | **1,600** | **1,100** | NS | NS |
| | 7/19/1996 | REG FF | **1.2** | **6.5** | **11** | <0.5 | **84** | **1.8** | **1.2** | **1.5** | **1,900** | **1,200** | NS | NS |
| | 10/24/1996 | REG FF | **1.6** | **6.4** | **11** | **1.1** | **78** | **2.4** | **1.6** | **3.7** | **1,700** | **1,300** | NS | NS |
| | 2/27/1997 | REG FF | <0.5 | **4.8** | **10** | <0.5 | **62** | **1.3** | **0.95** | **1.5** | **2,200** | **2,000** | NS | NS |
| | 6/11/1997 | REG FF | **0.62** | **4.1** | **10** | <0.5 | **49** | **1.1** | <0.5 | **1.6** | **1,000** | **1,900** | NS | NS |
| | 9/19/1997 | REG FF | **0.92** | **4.3** | **7.4** | **0.6** | **51** | **1.3** | **0.98** | **0.81** | **1,100** | **1,700** | NS | NS |
| | 12/18/1997 | REG FF | **0.89** | **8.2** | **9.1** | <0.5 | **96** | **2.4** | **1.5** | **2.5** | **2,300** | **1,700** | NS | NS |
| | 3/19/1998 | REG FF | **0.82** | **4.7** | **5.3** | **0.6** | **61** | **1.2** | **1.5** | **1.4** | **1,500** | **1,300** | NS | NS |
| | 6/26/1998 | REG FF | **0.9** | **4** | **4.8** | **0.53** | **66** | **1.4** | **1.8** | **1.5** | **1,200** | **1,300** | NS | NS |
| | 9/17/1998 | REG FF | **0.85** | **3.9** | **5.4** | <0.5 | **50** | **1.0** | **1.4** | **1.3** | **650** | **1,400** | NS | NS |
| | 12/17/1998 | REG FF | **1.6** | **9.8** | **10** | **0.96** | **130** | **26** | **1.3** | **1.6** | **4,500** | **500** | NS | NS |
| | 3/18/1999 | REG FF | **1.8** | **9.3** | **14** | **1.0** | **110** | **2.2** | **1.5** | **1.4** | **1,600** | **1,700** | NS | NS |
| | 9/17/1999 | REG FF | **1.4** | **8.4** | **12** | **0.51** | **130** | **2.1** | **1.2** | **1.2** | **2,400** | **1,800** | NS | NS |
| | 12/16/1999 | REG FF | **1.5** | **7.9** | **13** | **0.69** | **160** | **2.2** | **1.8** | **1.1** | **2,200** | **1,900** | NS | NS |
| | 12/16/1999 | FD FF | **1.4** | **7.4** | **12** | **0.64** | **150** | **2.2** | **2.1** | **1.0** | **2,200** | **2,000** | NS | NS |
| | 3/17/2000 | REG FF | **2.3** | **9.6** | **14** | **0.85** | **180** | **3.1** | **2.4** | **2.2** | **1,600** | **1,700** | NS | NS |
| | 6/23/2000 | REG FF | **2** | **8.3** | **14** | <0.5 | **180** | **2.5** | **1.8** | **0.99** | **80** | **2,100** | NS | NS |
| | 9/15/2000 | REG | **2.4** | **8** | **14** | <0.5 | **230** | **4.3** | **1.5** | <0.5 | **360** | **2,200** | NS | NS |
| | 12/20/2000 | REG | **2.6** | **8.6** | **13** | <0.5 | **170** | **2.4** | **1.3** | <3 | **1,400** | **2,500** | NS | NS |
| | 5/9/2001 | REG | <5 | **8.6** | **12** | <5 | **160** | <5 | <5 | <5 | **2,200** | **2,100** | NS | NS |
| | 10/19/2001 | REG | **1.8** | **8.9** | **14** | <0.5 | **200** | **3** | **1.5** | **2.2** | **4,200 J** | **3,300** | NS | NS |
| | 10/19/2001 | FD | **1.7** | **8.6** | **14** | <0.5 | **210** | **2.7** | **1.6** | **1.6** | **4,300 J** | **3,300** | NS | NS |
| | 6/12/2002 | FS FF | **1.6** | **7** | **11** | **0.45** | **170** | **2.5** | **1.2** | **1.9** | **1,710** | **2,700** | **31.3** | <34 |
| | 6/12/2002 | FD FF | **1.6** | **6.8** | **11** | **0.46** | **170** | **2.5** | **1.2** | **1.9** | **1,970** | **3,740** | <45 | <34 |
| | 9/18/2002 | FS | **2.3** | **11** | **13** | **0.63** | **170 E** | **1.8** | **1.4** | **1.4** | **1,080** | **2,600** | **11.8** | **6.4 B** |
| | 11/20/2002 | FS | **3.5** | **16** | **16** | **0.96** | **220** | **2.2** | **1.4** | **1.4** | **1,290** | **3,000** | **11.8** | <2.0 |
| | 1/28/2003 | FS | **1.8 J** | **8.2** | **11** | <2.5 | **130** | **1.8 J** | **1.2 J** | **0.95 J** | **1,510** | **2,650** | **6.6** | <2 |
| | 1/28/2003 | FD | **1.7 D J** | **8.0 D** | **9.5 D** | <2.5 | **120 D** | **1.8 D J** | **1.1 D J** | **0.91 D J** | **1,580** | **2,710** | **6.5** | <2 |
| | 6/20/2003 | FS | **1.4** | **7.7** | **12** | **0.54** | **160 E** | **2.2** | **1.7** | **1.3** | **1,620** | **2,790** | **6.8** | **0.2 J** |
| | 9/9/2003 | FS | **1 J** | **8** | **10** | <0.5 | **130** | **2J** | **1J** | **0.7 J** | **1,680** | **2,860** | **8.0 J** | <2 |
| | 12/9/2003 | FS | **0.9** | **7.0** | **5.4** | **0.2 J** | **54** | **1.2** | **1.3** | **0.4 J** | **1,590** | **2,740** | **5.6 J** | <4.7 |
| | 3/11/2004 | FS | **0.7** | **6.2** | **6.2** | **0.2 J** | **80** | **1.3** | **1.2** | **0.5 J** | **1,510** | **2,730** | <4.9 | **5.6 J** |
| | 6/9/2004 | FS | **0.9** | **7.0** | **5.0** | **0.2 J** | **78** | **1.3** | **1.2** | **0.5 J** | **1,660** | **2,660** | <9.4 | <5.9 |
| | 8/13/2004 | FS | **1.0** | **8.6** | **6.0** | **0.4 J** | **91** | **1.5** | **1.4** | **0.6** | **1,520** | **2,590** | <4.7 | <5.9 |
| | 11/17/2004 | FS | **0.9** | **8.3** | **5.5** | **0.3 J** | **74** | **1.1** | **1.3** | **0.5 J** | **1,320** | **2,350** | <4.7 | <5.9 |
| | 3/18/2005 | FS | **0.8** | **8.0** | **4.3** | **0.2 J** | **67.0** | **1.1** | **1.4** | **0.4 J** | **1,430** | **2,270** | <4.7 | <5.9 |
| | 5/26/2005 | FS | **0.7** | **7.3** | <0.1 | **0.2 J** | **56** | **1.1** | **1.1** | **0.3 J** | **1,130** | **2,220** | <9.3 | <9.4 |
| | 8/11/2005 | FS | **0.8** | **8.2** | **4.7** | **0.3 J** | **64** | **1.2** | **1** | **0.5 J** | **1,260** | **2,310** | <9.3 | <9.4 |
| | 11/17/2005 | FS | <1.0 | **7.3** | **4.2 J** | <1.0 | **80** | <1.0 | **1.0 J** | <1.0 | **1,220** | **2,490** | <9.3 | <9.4 |
| | 2/15/2006 | FS | **0.1 J** | **1.4** | **0.8** | <0.1 | **14** | **0.2 J** | **0.2 J** | **0.1 J** | **1,140** | **2,420** | <9.3 | <9.4 |
| | 5/24/2006 | FS | **0.7 J** | **5.9** | **3.0** | <0.5 | **70** | **0.7 J** | **0.8 J** | **0.7 J** | **1,660** | **2,910** | <9.3 | <9.4 |
| | 8/16/2006 | FS | **1.1** | **7.7** | **3.6** | <1.0 | **79** | <1.0 | **1.2** | **1.0** | **1,590** | **2,310** | <10 | <9.4 |
| | 10/6/2006 | FS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | | | Decommissioned October 2006 | | | | | | | | | | | |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-7S** | 2/25/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | 11 | <1 | 2.0 | <0.5 | 1,200 | 720 | NS | NS |
| | 2/25/1992 | FD FF | <0.5 | <1 | <0.5 | <1 | 12 | <1 | 3.0 | <0.5 | 1,600 | 790 | NS | NS |
| | 6/9/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | 20 | <1 | 5.0 | <0.5 | 480 | 670 | NS | NS |
| | 9/15/1992 | REG FF | <0.5 | <1 | 0.68 | <1 | 14 | <1 | 4.9 | <0.5 | 160 | 600 | NS | NS |
| | 12/13/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | 15 | <1 | 4.6 | <0.5 | 160 | 670 | NS | NS |
| | 3/24/1993 | REG FF | <0.5 | <1 | 0.89 | <1 | 19 | <1 | 4.2 | <0.5 | 220 | 760 | NS | NS |
| | 6/21/1993 | REG FF | <0.5 | <1 | 0.92 | <1 | <1 | <1 | 3.0 | <0.5 | 600 | 740 | NS | NS |
| | 9/30/1993 | REG FF | <0.5 | <1 | 0.79 | <1 | 26 | <1 | 2.7 | <0.5 | 120 | 690 | NS | NS |
| | 12/6/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | 31 | <1 | 3.1 | <0.5 | 360 | 620 | NS | NS |
| | 3/16/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | 15 | <1 | 2.3 | <0.5 | 290 | 650 | NS | NS |
| | 6/8/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | 19 | <1 | 2.5 | <0.5 | 310 | 770 | NS | NS |
| | 9/12/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | 14 | <1 | 1.7 | <0.5 | 710 | 700 | NS | NS |
| | 1/20/1995 | REG FF | <0.5 | 1.0 | 1.0 | <0.5 | 25 | 1 | 2.2 | <0.5 | <7 | 730 | NS | NS |
| | 4/24/1995 | REG FF | 1.0 | 1.5 | 1.0 | <0.5 | 43 | 1 | 1.0 | 0.5 | 90 | 940 | NS | NS |
| | 7/13/1995 | REG FF | 1.8 | 2.0 | 1.5 | <0.5 | 62 | 6.7 | 0.8 | <0.5 | 1,100 | 1,000 | NS | NS |
| | 10/27/1995 | REG FF | 2.5 | 2.7 | 2.2 | <0.5 | 73 | <0.5 | <0.5 | <0.5 | 2,000 | 880 | NS | NS |
| | 1/29/1996 | REG FF | 2.7 | 2.4 | 2.7 | <0.5 | 66 | 0.72 | 1.1 | 0.51 | 3,000 | 770 | NS | NS |
| | 4/19/1996 | REG FF | 3.3 | 3.1 | 3.3 | 0.5 | 87 | 1.6 | 1.2 | 0.6 | 2,400 | 690 | NS | NS |
| | 7/19/1996 | REG FF | 2.7 | 2.6 | 3.5 | <0.5 | 70 | 1.0 | 1.0 | 0.8 | 3,500 | 690 | NS | NS |
| | 10/24/1996 | REG FF | 2.0 | 2.1 | 3.6 | <0.5 | 54 | <0.5 | 0.88 | <0.5 | 2,600 | 610 | NS | NS |
| | 2/27/1997 | REG FF | 3.1 | 2.9 | 4.3 | <0.5 | 81 | 1.0 | 0.89 | 0.78 | 4,600 | 710 | NS | NS |
| | 6/11/1997 | REG FF | 3.7 | 3.5 | 4.9 | <0.5 | 92 | 2.0 | 0.93 | 0.91 | 4,100 | 550 | NS | NS |
| | 9/19/1997 | REG FF | 2.1 | 2.3 | 4.7 | <0.5 | 60 | 0.98 | 0.66 | 0.79 | 2,700 | 610 | NS | NS |
| | 12/18/1997 | REG FF | 2.0 | 2.8 | 5.5 | <0.5 | 64 | 1.6 | 0.83 | <0.5 | 3,600 | 580 | NS | NS |
| | 3/19/1998 | REG FF | 1.0 | 1.8 | 3.6 | <0.5 | 39 | 0.98 | <0.5 | <0.5 | 2,800 | 510 | NS | NS |
| | 6/26/1998 | REG FF | 1.1 | 1.9 | 3.0 | <0.5 | 53 | 1.1 | <0.5 | 0.78 | 2,200 | 570 | NS | NS |
| | 6/26/1998 | FD FF | 1.2 | 2.0 | 3.1 | <0.5 | 56 | 1.2 | <0.5 | 0.77 | 2,300 | 590 | NS | NS |
| | 9/17/1998 | REG FF | 0.9 | 1.9 | 3.9 | <0.5 | 44 | 1.0 | <0.5 | 0.63 | 2,700 | 530 | NS | NS |
| | 12/17/1998 | REG FF | 4.5 | 4.5 | 5.0 | 0.83 | 130 | 1.7 | 1.1 | 1.1 | 2,200 | 3,400 | NS | NS |
| | 3/18/1999 | REG FF | 3.1 | 2.7 | 3.4 | 0.62 | 71 | <0.5 | 1.2 | 0.58 | 4,200 | 450 | NS | NS |
| | 6/18/1999 | REG FF | 2.4 | 2.2 | 1.9 | <0.5 | 63 | <0.5 | 0.61 | <0.5 | 3,100 | 340 | NS | NS |
| | 6/18/1999 | FD FF | 2.4 | 2.1 | 2.0 | <0.5 | 63 | <0.5 | 0.65 | <0.5 | 3,300 | 360 | NS | NS |
| | 9/16/1999 | REG FF | 2.3 | 2.0 | 1.8 | <0.5 | 60 | <0.5 | 0.58 | <0.5 | 3,600 | 340 | NS | NS |
| | 9/16/1999 | FD FF | 2.2 | 2.0 | 1.7 | <0.5 | 57 | <0.5 | 0.52 | <0.5 | 3,700 | 360 | NS | NS |
| | 12/16/1999 | REG FF | 2.0 | 1.6 | 1.8 | <0.5 | 57 | 0.61 | 0.59 | <0.5 | 3,300 | 340 | NS | NS |
| | 3/17/2000 | REG FF | 1.6 | 1.3 | 1.4 | <0.5 | 37 | 0.47 | 0.49 | 0.46 | 860 | 350 | NS | NS |
| | 6/23/2000 | REG FF | 1.8 | 1.7 | 1.9 | <0.5 | 50 | 0.71 | <0.5 | <0.5 | 140 | 500 | NS | NS |
| | 9/15/2000 | REG | 1.4 | 1.5 | 1.7 | <0.5 | 47 | 0.6 | <0.5 | <0.5 | 1,800 | 490 | NS | NS |
| | 12/20/2000 | REG | 3.2 | 4.5 | 6.4 | <0.5 | 140 | 2.0 | 1.2 | <3 | 5,100 | 920 | NS | NS |
| | 12/20/2000 | FD | 2.6 | 8.4 | 12.0 | 0.67 | 160 | 2.4 | 1.2 | <3 | 4,600 | 2,500 | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | 110 | <5 | <5 | <5 | 1,600 | 560 | NS | NS |
| | 5/9/2001 | FD | <5 | <5 | <5 | <5 | 110 | <5 | <5 | <5 | 1,600 | 540 | NS | NS |
| | 10/19/2001 | REG | 2.8 | 2.3 | 1.7 | <0.5 | 80 | 0.59 | <0.5 | 0.76 | 3,700 J | 520 | NS | NS |
| | 6/12/2002 | FS FF | 3.2 | 2.7 | 1.5 | 0.26 | 83 | 1.3 | 0.58 | 0.58 | 5,030 | 481 | 40.3 | <34 |
| | 9/18/2002 | FS | 1.9 | 1.7 | 1.4 | <0.5 | 54 E | 2.1 | 0.64 | 0.54 | 5,050 | 476 | 26.9 | <50 |
| | 9/18/2002 | FD | 1.9 | 1.6 | 1.4 | <0.5 | 53 E | 1.8 | 0.62 | 0.58 | 5,250 | 482 | 29.4 | 4.8 B |
| | 11/20/2002 | FD | 0.67 | 0.74 | 0.71 | <0.5 | 18 | 0.37 | 0.37 | 0.23 | 1,500 | 509 | 15.3 | <2.0 |
| | 1/28/2003 | FS | 0.75 | 0.78 | 0.75 | <0.5 | 23 | 0.86 | 0.41 J | 0.27 J | 1,470 | 490 | 11.6 | <2 |
| | 6/19/2003 | FS | 1.5 | 1.4 | 1.2 | 0.27 J | 48 E | 0.8 | 0.44 J | <0.5 | 1,090 | 553 | 9.5 | <2 |
| | 9/9/2003 | FS | 2 J | 2 J | 1 J | <0.5 | 47 | 0.5 J | <0.5 | <0.5 | 1,620 | 548 | 12.2 | <2 |
| | 12/9/2003 | FS | 1.0 | 0.8 | <0.1 | <0.1 | 21 | 0.2 J | 0.4 J | 0.2 J | 1,030 | 591 | 8.4 J | <4.7 |
| | 3/12/2004 | FS | 0.7 | 0.9 | 0.7 | <0.1 | 27 | 0.2 J | 0.3 J | 0.2 J | 1,340 | 514 | 11 | <4.7 |
| | 6/9/2004 | FS | 0.7 | 0.8 | 0.4 J | <0.1 | 22 | 0.2 J | 0.3 J | 0.1 J | 912 | 561 | <9.4 | <5.9 |
| | 8/13/2004 | FS | 1.2 | 1.1 | 0.7 | <0.1 | 36 | 0.3 J | 0.3 J | 0.2 J | 1,040 | 557 | 9.5 J | <5.9 |
| | 11/17/2004 | FS | 1.0 | 0.8 | 0.6 | <0.1 | 25 | 0.2 J | 0.3 J | 0.2 J | 752 | 570 | 7.9 J | <5.9 |
| | 3/18/2005 | FS | 0.9 | 1.1 | 0.7 | <0.1 | 27.0 | 0.3 J | 0.2 J | 0.2 J | 575 | 452 | 6.1 J | <5.9 |
| | 5/26/2005 | FS | 0.6 | 0.7 | 0.4 J | <0.1 | 19 | 0.4 J | 0.2 J | 0.1 J | 552 | 581 | 9.9 J | <9.4 |
| | 8/11/2005 | FS | 1.8 | 1.5 | 0.8 | <0.1 | 35 | 1.2 | 0.5 J | 0.3 J | 1,410 | 826 | 10.7 J | <9.4 |
| | 11/17/2005 | FS | 2.4 | 2.1 | 1.5 | 0.1 J | 57 | 1.3 | 0.7 | 0.4 J | 2,310 | 1,090 | 22.9 | <9.4 |
| | 2/16/2006 | FS | 0.6 | 0.5 | 0.3 J | <0.1 | 16 | 0.4 J | 0.7 | 0.1 J | 1,170 | 843 | 13.8 J | <9.4 |
| | 5/25/2006 | FS | 0.8 | 0.6 | 0.4 J | <0.1 | 23 | 0.6 | 0.6 | 0.1 J | 1,770 | 846 | 23 | <9.4 |
| | 8/16/2006 | FS | 2.0 | 1.8 | 1.1 | 0.1 | 46 | 2.1 | 0.8 | 0.4 | 3,210 | 847 | 35.3 | <9.4 |
| | 10/6/2006 | FS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | | | | | | | Decommissioned October 2006 | | | | | | | |
| **MW-8** | 2/20/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 3,200 | 580 | NS | NS |
| | 6/9/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 1,300 | 570 | NS | NS |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-8 cont.** | 9/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 1,100 | 530 | NS | NS |
| | 9/15/1992 | FD FF | <0.5 | <1 | <0.5 | <1 | 1.2 | <1 | <1 | <0.5 | 990 | 530 | NS | NS |
| | 12/13/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | 2.1 | <1 | <1 | <0.5 | 2,300 | 1,000 | NS | NS |
| | 3/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | 1.6 | <1 | <1 | <0.5 | 1,700 | 820 | NS | NS |
| | 6/21/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | 1.6 | <1 | <1 | <0.5 | 2,800 | 1,100 | NS | NS |
| | 10/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | 5.6 | <1 | <1 | <0.5 | 4,000 | 1,400 | NS | NS |
| | 12/10/1993 | REG | <0.5 | <1 | <0.5 | <1 | 2.6 | <1 | <1 | <0.5 | 6,100 | 1,300 | NS | NS |
| | 3/16/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | 1.6 | <1 | <1 | <0.5 | 2,500 | 1,100 | NS | NS |
| | 6/8/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | 2.7 | <1 | <1 | <0.5 | 2,800 | 1,400 | NS | NS |
| | 9/19/1997 | REG FF | <0.5 | 1 | <0.5 | <0.5 | 8.1 | <0.5 | <0.5 | <0.5 | 860 | 1,300 | NS | NS |
| | 12/18/1997 | REG FF | 0.71 | 2.3 | 1.0 | <0.5 | 20 | <0.5 | <0.5 | <0.5 | 770 | 1,100 | NS | NS |
| | 3/18/1998 | REG FF | <0.5 | 2.4 | 1.2 | <0.5 | 25 | <0.5 | <0.5 | <0.5 | 880 | 1,100 | NS | NS |
| | 6/25/1998 | REG FF | 0.58 | 1.4 | 0.57 | <0.5 | 13 | <0.5 | <0.5 | <0.5 | 890 | 1,200 | NS | NS |
| | 6/25/1998 | FD FF | 0.59 | 1.4 | 0.55 | <0.5 | 12 | <0.5 | <0.5 | <0.5 | 840 | 1,100 | NS | NS |
| | 9/17/1998 | REG FF | 0.62 | 1.3 | 0.72 | <0.5 | 13 | <0.5 | <0.5 | <0.5 | 640 | 1,300 | NS | NS |
| | 12/16/1998 | REG FF | 0.51 | 1.7 | 0.99 | <0.5 | 18 | <0.5 | <0.5 | <0.5 | 890 | 1,200 | NS | NS |
| | 3/17/1999 | REG FF | 0.9 | 2.5 | 1.6 | <0.5 | 25 | <0.5 | 0.82 | <0.5 | 970 | 1,300 | NS | NS |
| | 6/18/1999 | REG FF | <0.5 | 1.9 | 0.96 | <0.5 | 20 | <0.5 | <0.5 | <0.5 | 220 | 940 | NS | NS |
| | 9/17/1999 | REG FF | 0.52 | 2.3 | 1.2 | <0.5 | 23 | <0.5 | <0.5 | <0.5 | 60 | 930 | NS | NS |
| | 9/17/1999 | FD FF | <0.5 | 1.8 | 0.98 | <0.5 | 19 | <0.5 | <0.5 | <0.5 | 60 | 970 | NS | NS |
| | 12/16/1999 | REG FF | <0.5 | 0.81 | 0.54 | <0.5 | 9.2 | <0.5 | <0.5 | <0.5 | <30 | 1,000 | NS | NS |
| | 3/16/2000 | REG FF | 0.53 | 1.1 | 0.66 | <0.5 | 13 | <0.5 | <0.5 | <0.5 | 440 | 960 | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | 0.93 | 0.67 | <0.5 | 9.6 | <0.5 | <0.5 | <0.5 | 420 | 1,000 | NS | NS |
| | 6/22/2000 | FD FF | <0.5 | 0.8 | 0.89 | <0.5 | 7.8 | <0.5 | <0.5 | <0.5 | 400 | 1,000 | NS | NS |
| | 9/14/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 610 | 1,000 | NS | NS |
| | 12/20/2000 | REG | <0.5 | 1.5 | 1.2 | <0.5 | 14 | <0.5 | <0.5 | <3 | 340 | 1,400 | NS | NS |
| | 12/20/2000 | FD | <0.5 | <0.5 | 0.81 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | 130 | 1,400 | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | 24 | <5 | <5 | <5 | 800 | 1,000 | NS | NS |
| | 5/9/2001 | FD | <5 | <5 | <5 | <5 | 26 | <5 | <5 | <5 | 700 | 1,000 | NS | NS |
| | 10/17/2001 | REG | 0.65 | 4.6 | 2.7 | <0.5 | 42 | <0.5 | <0.5 | <0.5 | 1,400 | 1,100 | NS | NS |
| | 6/11/2002 | FS FF | 0.50 | 4.5 | 1.9 | <0.5 | 29 | 0.24 | 0.14 | <0.5 | 16.3 | 15.6 | 16.1 | <34 |
| | 9/19/2002 | FS | 0.36 J | 2.5 | 0.78 | <0.5 | 13 | <0.5 | <0.5 | <0.5 | 1190 | 1,060 | 8.4 B | <50 |
| | 11/20/2002 | FS | 0.24 | 5.6 | 2.0 | <0.5 | 32 | <0.5 | <0.5 | <0.5 | 861 | 1,530 | 10.8 | <2.0 |
| | 1/28/2003 | FS | 0.26 J | 3.6 | 1.2 | <0.5 | 19 | <0.5 | 0.15 J | <0.5 | 773 | 1,130 | 5.4 | <2 |
| | 6/20/2003 | FS | 0.26 J | 4 | 1.7 | <0.5 | 26 | 0.24 J | 0.19 | 0.23 J | 814 | 1,200 | 4.6 | <2 |
| | 9/9/2003 | FS | <0.5 | 4 J | 1 J | <0.5 | 17 | <0.5 | <0.5 | <0.5 | 541 | 1,090 | <4.9 | <4.7 |
| | 12/10/2003 | FS | 0.2 J | 2.2 | 0.7 | <0.1 | 12 | <0.1 | 0.1 J | <0.1 | 792 | 1,220 | 7.6 J | <4.7 |
| | 3/11/2004 | FS | 0.3 J | 3.4 | 1.9 | <0.1 | 23 | 0.1 J | 0.2 J | <0.1 | 658 | 1,600 | 5.5 J | <4.7 |
| | 6/9/2004 | FS | 0.2 J | 3.6 | 1.8 | <0.1 | 22 | 0.1 J | 0.2 J | <0.1 | 513 | 1,490 | <9.4 | <5.9 |
| | 8/13/2004 | FS | 0.2 J | 2.9 | 1.2 | <0.1 | 16 | <0.1 | 0.2 J | <0.1 | 781 | 1,540 | 7.1 J | <5.9 |
| | 11/17/2004 | FS | 0.1 J | 1.7 | 0.4 J | <0.1 | 6.3 | <0.1 | 0.2 J | <0.1 | 859 | 1,240 | 6.3 J | <5.9 |
| | 3/18/2005 | FS | <0.1 | 1.7 | 0.3 J | <0.1 | 0.9 | <0.1 | 0.9 | <0.1 | 575 | 843 | 6.0 J | <5.9 |
| | 5/26/2005 | FS | 0.1 J | 1.6 | 0.5 | <0.1 | 1.9 | <0.1 | 0.9 | <0.1 | 986 | 1,720 | <9.3 | <9.4 |
| | 8/11/2005 | FS | 0.1 J | 2 | 0.6 | <0.1 | 5.1 | <0.1 | 0.7 | <0.1 | 1,190 | 1,740 | <9.3 | <9.4 |
| | 11/17/2005 | FS | 0.2 J | 2.0 | 0.4 J | <0.1 | 4.4 | <0.1 | 0.5 | <0.1 | 177 J | 981 | <9.3 | <9.4 |
| | 2/15/2006 | FS | <0.1 | 1.7 | 0.2 J | <0.1 | 0.8 | <0.1 | 1.0 | <0.1 | 201 | 381 | <9.3 | <9.4 |
| | 5/24/2006 | FS | 0.1 J | 1.4 | 0.2 J | <0.1 | 2.2 | <0.1 | 1.0 | <0.1 | 89.1 J | 103 | <9.3 | <9.4 |
| | 8/14/2006 | FS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/6/2006 | FS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | | | | | | | Decommissioned October 2006 | | | | | | | |
| **MW-10** | 2/26/1992 | REG FF | <0.5 | 6 | 2 | <1 | 52 | 3.0 | 1 | <0.5 | <40 | 1,500 | NS | NS |
| | 6/9/1992 | REG FF | <0.5 | 8 | 1.9 | <1 | 78 | 4.0 | 1 | <0.5 | 1,100 | 2,000 | NS | NS |
| | 12/15/1992 | REG | <0.5 | 5.2 | 2.5 | <1 | 47 | 2.5 | 1.6 | <0.5 | 1,300 | 2,000 | NS | NS |
| | 3/25/1993 | REG FF | <0.5 | 3 | 2 | <1 | 27 | 1.5 | 1.4 | <0.5 | 1,100 | 1,700 | NS | NS |
| | 6/18/1993 | REG FF | <0.5 | 6.4 | 2.4 | <1 | 87 | 3.1 | 2.1 | <0.5 | 1,400 | 2,100 | NS | NS |
| | 10/1/1993 | REG FF | 1.4 | 15 | 2.9 | <1 | 180 | 6.3 | 1.8 | <0.5 | 1,900 | 2,200 | NS | NS |
| | 10/1/1993 | FD FF | 1.3 | 15 | 3.2 | 1.6 | 170 | 6.4 | 2.2 | <0.5 | 1,800 | 2,200 | NS | NS |
| | 12/10/1993 | REG | 0.96 | 23 | 3.1 | <1 | 150 | 8.3 | 1.9 | <0.5 | 480 | 2,100 | NS | NS |
| | 3/16/1994 | REG FF | <0.5 | 25 | 2.9 | 1.8 | 150 | 9.0 | 1.9 | 2.6 | 1,400 | 2,200 | NS | NS |
| | 6/9/1994 | REG FF | <0.5 | 25 | 2.7 | 1.9 | 110 | 11 | 2.0 | 2.0 | 1,200 | 2,300 | NS | NS |
| | 9/14/1994 | REG FF | 1.0 | 28 | 3 | 2.3 | 180 | 11 | 2.7 | 3.1 | 870 | 2,000 | NS | NS |
| | 10/27/1995 | REG FF | <0.5 | 19 | 2 | <0.5 | 140 | 7.7 | 1.3 | 1.0 | 2,200 | 2,100 | NS | NS |
| | 1/29/1996 | REG FF | <0.5 | 18 | 1.5 | 0.68 | 120 | 5.2 | 1.0 | 1.0 | 2,100 | 2,000 | NS | NS |
| | 4/19/1996 | REG FF | 0.6 | 16 | 1.3 | 0.80 | 110 | 5.6 | <0.5 | 0.7 | 1,300 | 1,800 | NS | NS |
| | 7/19/1996 | REG FF | 0.5 | 15 | 1.4 | <0.5 | 97 | 4.3 | 0.70 | 1 | 1,200 | 1,800 | NS | NS |
| | 10/24/1996 | REG FF | <0.5 | 13 | 1.2 | <0.5 | 75 | 3.8 | 0.74 | 1.6 | 1,300 | 1,600 | NS | NS |
| | 2/27/1997 | REG FF | <0.5 | 8.8 | <0.5 | <0.5 | 47 | 2.6 | <0.5 | 0.69 | 1,500 | 1,800 | NS | NS |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-10 cont.** | 2/27/1997 | FD FF | <0.5 | **9.1** | **0.68** | **0.55** | **49** | **2.5** | **0.56** | **0.77** | **1,500** | **1,700** | NS | NS |
| | 6/11/1997 | REG FF | <0.5 | **10** | **0.85** | <0.5 | **56** | **3.3** | <0.5 | **1.0** | **1,600** | **1,600** | NS | NS |
| | 9/19/1997 | REG FF | **0.7** | **10** | **1.2** | <0.5 | **65** | **3.2** | <0.5 | **0.94** | **1,500** | **1,700** | NS | NS |
| | 9/19/1997 | FD FF | <0.5 | **9.2** | **1.3** | <0.5 | **62** | **3.1** | <0.5 | **1.0** | **1,400** | **1,700** | NS | NS |
| | 12/18/1997 | REG FF | <0.5 | **8.9** | **1.1** | <0.5 | **49** | **2.6** | <0.5 | **1.3** | **1,200** | **1,500** | NS | NS |
| | 3/19/1998 | REG FF | **0.7** | **8.7** | **1.0** | **0.71** | **50** | **2.6** | **0.66** | **0.83** | **1,500** | **1,600** | NS | NS |
| | 6/25/1998 | REG FF | **1.1** | **6.8** | **1.5** | **0.69** | **62** | **2.4** | **0.83** | **0.76** | **1,700** | **1,800** | NS | NS |
| | 9/17/1998 | REG FF | **1.4** | **7.6** | **2.1** | **0.63** | **73** | **2.6** | **0.95** | **0.81** | **390** | **1,600** | NS | NS |
| | 9/17/1998 | FD FF | **1.5** | **7.5** | **2.3** | <0.5 | **75** | **2.6** | **0.93** | **0.83** | **400** | **1,500** | NS | NS |
| | 12/17/1998 | REG FF | **0.96** | **6.8** | **1.6** | **0.66** | **67** | **2.1** | <0.5 | **0.87** | **42** | **1,100** | NS | NS |
| | 3/18/1999 | REG FF | **2** | **7.2** | **2.3** | **0.87** | **72** | **2.4** | **1.0** | **0.78** | <30 | **1,200** | NS | NS |
| | 3/18/1999 | FD FF | **1.9** | **7** | **2.3** | **0.82** | **69** | **2.3** | **0.99** | **0.75** | <30 | **1,200** | NS | NS |
| | 6/16/1999 | REG FF | **1.2** | **7.8** | **1.9** | <0.5 | **81** | <0.5 | <0.5 | **0.55** | **120** | **1,500** | NS | NS |
| | 9/17/1999 | REG FF | **1.4** | **8.3** | **2.2** | <0.5 | **92** | **2.8** | **0.51** | **0.86** | **110** | **1,600** | NS | NS |
| | 12/16/1999 | REG FF | **1.2** | **5.5** | **2.1** | <0.5 | **71** | **1.8** | **0.7** | **0.67** | **42** | **1,400** | NS | NS |
| | 3/16/2000 | REG FF | **1.3** | **5.5** | **1.6** | **0.29** | **56** | **1.9** | **0.73** | **0.94** | **50** | **1,200** | NS | NS |
| | 3/16/2000 | FD FF | **1.2** | **5.6** | **1.6** | **0.38** | **56** | **1.9** | **0.73** | **0.98** | **40** | **1,100** | NS | NS |
| | 6/21/2000 | REG FF | **1.4** | **5.6** | **2.0** | <0.5 | **67** | **2.2** | <0.5 | **0.69** | **350** | **1,200** | NS | NS |
| | 9/14/2000 | REG | **1.6** | **5** | **2.3** | <0.5 | **83** | **1.9** | <0.5 | <0.5 | **350** | **1,100** | NS | NS |
| | 12/19/2000 | FD | <0.5 | <0.5 | **0.62** | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | **12** | NS | NS |
| | 12/20/2000 | REG | **1.9** | **4.6** | **2.9** | <0.5 | **74** | **2** | **0.55** | <3 | **960** | **1,300** | NS | NS |
| | 5/9/2001 | REG | <5 | **6.4** | <5 | <5 | **74** | <5 | <5 | <5 | <30 | **1,000** | NS | NS |
| | 5/9/2001 | FD | <5 | **6.2** | <5 | <5 | **70** | <5 | <5 | <5 | <30 | **1,000** | NS | NS |
| | 10/17/2001 | REG | **6.5** | **8.9** | **6.9** | <0.5 | **150** | **4.3** | **0.38** | **1.0** | **210** | **1,600** | NS | NS |
| | 6/10/2002 | FS FF | **4.6** | **6.6** | **7.2** | <0.5 | **130** | **4.1** | <0.5 | **0.99** | **1,520** | **1,600** | **42.7** | <34 |
| | 9/19/2002 | FS | **3.1** | **5.4** | **5** | **0.36 J** | **110 D** | **2.8** | **0.33 J** | **0.66** | **1,910** | **1,940** | **2.7 B** | **2.9 B** |
| | 11/21/2002 | FS | **1.7** | **3.6** | **3.8** | **0.36** | **74.0** | **1.6** | **0.18** | **0.65** | **2,240** | **2,110** | **13.4** | <2.0 |
| | 1/29/2003 | FS | **2.3** | **3.7** | **4.0** | **0.28 J** | **88 E** | **2.2** | **0.24 J** | **0.69** | **3,430** | **2,120** | **9.1** | <2 |
| | 6/19/2003 | FS | **2.9** | **4** | **5** | **0.4 J** | **96 E** | **2.1** | **0.27 J** | **0.84** | **3,130** | **2,080** | **7.1** | <2 |
| | 9/11/2003 | FS | **4 J** | **5** | **6** | <0.5 | **110** | **2 J** | <0.5 | <0.5 | **3,840** | **2,190** | <4.9 | <4.7 |
| | 12/10/2003 | FS | **3.4** | **4.4** | **5.1** | **0.4 J** | **85** | **2.3** | **0.3 J** | **0.5** | **3,850** | **2,200** | **6.6J** | <4.7 |
| | 3/10/2004 | FS | **4.3** | **4.7** | **6.6** | **0.4 J** | **110** | **3.2** | **0.4 J** | **0.6** | **4,480** | **2,300** | **6.7J** | <4.7 |
| | 6/10/2004 | FS | **4.7** | **4.6** | **5.4** | **0.3 J** | **110** | **2.8** | **0.3 J** | **0.6** | **4,260** | **2,300** | <4.7 | <5.9 |
| | 8/12/2004 | FS | **6.3** | **6.0** | **7.3** | **0.4 J** | **120** | **3.2** | **0.4 J** | **0.7** | **4,720** | **2,220** | **7.1 J** | <5.9 |
| | 11/18/2004 | FS | **5.8** | **5.2** | **5.9** | **0.5 J** | **130** | **3.1** | **0.4 J** | **0.7** | **4,660** | **2,170** | <4.7 | <5.9 |
| | 3/16/2005 | FS | **5.5** | **5.2** | <0.1 | **0.4 J** | **130** | **3.0** | **0.3 J** | **0.7** | **8,490** | **2,270** | **6.4 J** | <5.9 |
| | 5/25/2005 | FS | **5.9** | **5.3** | <0.1 | **0.4 J** | **120** | **2.8** | **0.4 J** | **0.7** | **7,390** | **2,070** | **11.6 J** | <9.4 |
| | 8/15/2005 | FS | **5.6** | **4.5** | **5.9** | **0.4 J** | **140** | **2.9** | **0.3 J** | **0.6** | **5,580** | **1,920** | **10.1 J** | <9.4 |
| | 11/21/2005 | FS | **5.6** | **4.6** | **6.0** | **0.4 J** | **120** | **2.8** | **0.4 J** | **0.6** | **38,700** | **3,590** | **11.7 J** | <9.4 |
| | 2/16/2006 | FS | **5.2** | **5.0** | **7.2** | **0.3 J** | **120** | **2.4** | **0.4 J** | **0.7** | **17,400** | **2,360** | **13.6 J** | <9.4 |
| | 5/23/2006 | FS | **3.9** | **4.2** | **5.4** | **0.3 J** | **110** | **2.4** | **0.4 J** | **0.7** | **6,050** | **1,670** | <9.3 | <9.4 |
| | 8/18/2006 | FS | **3.8** | **4.5** | **5.9** | **0.3J** | **100** | **2.3** | **0.4J** | **0.6** | **36,200** | **3,690** | **14.7J** | <9.4 |
| | 10/6/2006 | FS | **4.3** | **4.8** | **6.5** | **0.3J** | **120** | **2.5** | **0.4J** | **0.7** | **17,500** | **2,390** | **13.2J** | <9.4 |
| | 1/25/2007 | FS | **3.1** | **4.8** | **5.1** | **0.3J** | **96** | **2.2** | **0.4J** | **0.5** | **36,300** | **3,020** | **14.3J** | <9.4 |
| | 4/26/2007 | FS | **2.5** | **3.9** | **5.0** | **0.2J** | **77** | **1.7** | **0.4J** | **0.4J** | **6,740** | **2,410** | **10.6J** | <9.4 |
| | 8/2/2007 | FS | **2.1** | **3.3** | **4.2** | **0.2 J** | **75** | **1.4** | **0.5 J** | **0.4 J** | **1,700** | **1,800** | **11.0 J** | <9.4 |
| | 11/8/2007 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 2/14/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 5/13/2008 | FS | **1.1** | **2.6** | **2.5** | <0.1 | **35** | **0.6** | **0.3 J** | **0.3 J** | **685** | **1,800** | **14.5 J** | <9.4 |
| | 8/19/2008 | FS | **1.2** | **2.8** | **2.4** | **0.1 J** | **28** | **0.6** | **0.3 J** | **0.3 J** | **809** | **1,770** | <10.2 | <10.7 |
| | 10/24/2008 | FS | **1.6** | **3.1** | **3.0** | **0.1 J** | **65** | **0.6** | **0.3 J** | **0.4 J** | **307** | **1,490** | **6.8** | <10.7 |
| | 2/10/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 5/8/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 7/30/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 11/11/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | | | Removed from Monitoring Well Network First Quarter 2010 | | | | | | | | | | | |
| **MW-14D** | 2/27/1992 | REG FF | **22** | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **960** | **40** | NS | NS |
| | 6/8/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **150** | <10 | NS | NS |
| | 9/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1,600** | **31** | NS | NS |
| | 12/8/1993 | REG | | | | | | | | | **44** | **29** | NS | NS |
| | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **330** | **29** | NS | NS |
| | 6/8/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **640** | **17** | NS | NS |
| | 4/22/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | **10** | NS | NS |
| | 4/19/1996 | REG FF | <0.5 | <0.5 | **0.8** | <0.5 | <0.7 | <0.5 | **1.4** | <0.5 | <30 | <5 | NS | NS |
| | 6/4/997 | REG FF | <0.5 | <0.5 | **1.5** | <0.5 | <0.5 | <0.5 | **1.7** | <0.5 | <30 | <5 | NS | NS |
| | 6/24/1998 | REG FF | <0.5 | <0.5 | **0.99** | <0.5 | <0.5 | <0.5 | **1.7** | <0.5 | <30 | <5 | NS | NS |
| | 6/24/1998 | FD FF | <0.5 | <0.5 | **0.97** | <0.5 | <0.5 | <0.5 | **1.7** | <0.5 | <30 | <5 | NS | NS |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-14D cont.** | 6/18/1999 | REG FF | <0.5 | <0.5 | **0.81** | <0.5 | <0.5 | <0.5 | **1.5** | <0.5 | <30 | <5 | NS | NS |
| | 9/16/1999 | REG FF | <0.5 | <0.5 | **0.86** | <0.5 | <0.5 | <0.5 | **1.8** | <0.5 | <30 | <5 | NS | NS |
| | 12/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **1.4** | <0.5 | <30 | <5 | NS | NS |
| | 3/17/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/22/2000 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.83** | <0.5 | <30 | <5 | NS | NS |
| | 9/14/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/20/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.92** | <3 | <30 | <5 | NS | NS |
| | 2/25/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **7.3** | **0.2** | NS | NS |
| | 6/9/1992 | REG FF | | | | | | | | | **0.6** | **0.02** | NS | NS |
| | | | | | | Decommissioned December 2005 | | | | | | | | |
| **MW-16** | 6/10/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **250** | **10** | NS | NS |
| | 9/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **160** | **20** | NS | NS |
| | 12/13/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **540** | **30** | NS | NS |
| | 3/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **310** | <10 | NS | NS |
| | 6/17/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1,000** | **45** | NS | NS |
| | 10/2/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **340** | **20** | NS | NS |
| | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **590** | **33** | NS | NS |
| | 3/16/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **19,000** | **170** | NS | NS |
| | 3/16/1994 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **26,000** | **210** | NS | NS |
| | 6/10/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **2,400** | **56** | NS | NS |
| | 9/19/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **35** | NS | NS |
| | 12/18/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **280** | **54** | NS | NS |
| | 3/19/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **110** | **48** | NS | NS |
| | 6/25/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **160** | **31** | NS | NS |
| | 9/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **120** | **32** | NS | NS |
| | 12/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **290** | **31** | NS | NS |
| | 3/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **110** | **42** | NS | NS |
| | 3/17/1999 | FD FF | **0.64** | <0.5 | <0.5 | **0.5** | <0.5 | <0.5 | <0.5 | <0.5 | **120** | **43** | NS | NS |
| | 6/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **120** | **47** | NS | NS |
| | 6/17/1999 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **120** | **44** | NS | NS |
| | 9/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **11** | NS | NS |
| | 12/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **23** | NS | NS |
| | 3/16/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **40** | **12** | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/14/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/20/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | <5 | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | <5 | NS | NS |
| | 10/17/2001 | REG | **0.38** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **55** | **17** | NS | NS |
| | 6/11/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **16.3** | **15.6** | <45 | <34 |
| | 9/19/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **46.8 B** | **1.5 B** | <10 | **5.4 B** |
| | 11/20/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **73.2** | **1.6** | **9.9** | 2.0 |
| | 1/28/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **9.6 B** | <5 | **1.0 B** | <2 |
| | 6/20/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **25 J** | <5 | **1.8** | <2 |
| | 9/9/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 9/9/2003 | FD | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 12/10/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 6/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 8/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **0.1 J** | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 11/18/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 3/16/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **82.0 J** | <0.84 | <4.7 | <5.9 |
| | 5/25/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **58.4 J** | **3.0 J** | <9.3 | <9.4 |
| | 8/12/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **772** | **40.0** | <9.3 | <9.4 |
| | 11/21/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **126 J** | **5.8** | <9.3 | <9.4 |
| | 2/14/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **140 J** | **16.2** | <9.3 | <9.4 |
| | 5/23/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | **5.4** | <9.3 | <9.4 |
| | 8/18/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **195 J** | **17.7** | <10 | <9.4 |
| | 10/5/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **613** | **33.0** | <10 | <9.4 |
| | 1/25/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **559** | **28.1** | <10 | <9.4 |
| | 4/26/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **183 J** | **20.3** | <10 | <9.4 |
| | 8/2/2007 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 11/8/2007 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 2/14/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 5/8/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/15/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/20/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 2/11/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 5/11/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-16 cont.** | 8/3/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 11/11/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | | | Removed from Monitoring Well Network First Quarter 2010 | | | | | | | | | | | |
| **MW-19** | 9/19/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **600** | **170** | NS | NS |
| | 12/17/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1,500** | **390** | NS | NS |
| | 3/30/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **180** | **62** | NS | NS |
| | 6/18/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **140** | **48** | NS | NS |
| | 6/18/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **120** | **51** | NS | NS |
| | 10/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **56** | **40** | NS | NS |
| | 12/10/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **160** | **35** | NS | NS |
| | 6/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **160** | **110** | NS | NS |
| | 6/16/1999 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **160** | **110** | NS | NS |
| | 9/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **140** | **200** | NS | NS |
| | 12/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **220** | NS | NS |
| | 12/15/1999 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **200** | NS | NS |
| | 3/15/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **40** | **220** | NS | NS |
| | 6/21/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **80** | NS | NS |
| | 9/14/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **210** | NS | NS |
| | 12/20/2000 | REG | <05 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | **75** | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **140** | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <50 J | **81** | NS | NS |
| | 10/18/2001 | FD | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **2.9 U J** | **75** | NS | NS |
| | 6/7/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **162** | **72** | <45 | <34 |
| | 9/23/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **139** | **4.7 B** | <10 | **5.3 B** |
| | 11/25/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **29.1** | **2.5** | **2.9** | <2.0 |
| | 1/31/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **17.7 B** | **6.4 B** | **1.1** | **0.83 B** |
| | 6/18/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | **2.8 J** | **1.9** | **1.5** |
| | 9/12/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **14.9** | <4.9 | <4.7 |
| | 9/12/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **14.9** | <4.9 | <4.7 |
| | 12/12/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **7.0** | **7.0 J** | <4.7 |
| | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **5.2** | <4.9 | <4.7 |
| | 6/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <9.4 | <5.9 |
| | 8/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **8.4** | <4.7 | <5.9 |
| | 11/19/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **55.6 J** | **14.4** | <4.7 | <5.9 |
| | 3/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **0.1 J** | <0.1 | **3.8** | **4.1** | **7.3** | **1.5** |
| | 5/24/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **14.3** | <9.3 | <9.4 |
| | 8/10/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **4.1 J** | <9.3 | <9.4 |
| | 11/16/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **3.8 J** | <9.3 | <9.4 |
| | 2/14/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | **3.2 J** | <9.3 | <9.4 |
| | 5/23/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | **1.5 J** | <9.3 | <9.4 |
| | 8/15/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **13.1** | <10 | <9.4 |
| | 10/5/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **11.5** | <10 | <9.4 |
| | 1/23/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **4.8J** | <10 | <9.4 |
| | 4/26/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **14.8** | <10 | <9.4 |
| | 7/31/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **116 J** | **33.4** | <10 | <9.4 |
| | 11/7/2007 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 2/12/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 5/8/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/14/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/20/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 2/5/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 5/7/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 7/30/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 11/11/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | | | Removed from Monitoring Well Network First Quarter 2010 | | | | | | | | | | | |
| **MW-24** | 2/21/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **5,900** | **4,100** | NS | NS |
| | 4/22/1992 | REG FF | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | **700** | **1,800** | NS | NS |
| | 6/1/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **300** | **1,800** | NS | NS |
| | 6/17/1992 | REG | | | | | | | | | **410** | **2,400** | NS | NS |
| | 9/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **96** | **1,900** | NS | NS |
| | 12/13/1992 | REG | | | | | | | | | **76** | **1,900** | NS | NS |
| | 12/14/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | **1,900** | NS | NS |
| | 3/23/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **78** | **1,800** | NS | NS |
| | 6/17/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | **1,900** | NS | NS |
| | 9/28/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | **1,400** | NS | NS |
| | 12/6/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **340** | **1,400** | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **160** | **1,400** | NS | NS |
| | 6/7/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **470** | **1,500** | NS | NS |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-24 cont.** | 6/7/1994 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 580 | 1,500 | NS | NS |
| | 9/14/1994 | REG FF | 1.8 | <1 | <0.5 | <1 | 1.1 | <1 | 2.9 | <0.5 | 1,100 | 1,500 | NS | NS |
| | 1/17/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 27 | 700 | NS | NS |
| | 4/21/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 40 | 1,000 | NS | NS |
| | 7/12/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | 790 | NS | NS |
| | 7/12/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | 780 | NS | NS |
| | 10/26/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | 610 | NS | NS |
| | 1/26/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | 730 | NS | NS |
| | 4/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | 0.8 | <0.7 | 1.3 | 0.6 | <0.5 | <30 | 730 | NS | NS |
| | 7/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 680 | NS | NS |
| | 10/23/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 670 | NS | NS |
| | 2/26/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 770 | NS | NS |
| | 6/4/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 660 | NS | NS |
| | 9/18/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 840 | NS | NS |
| | 9/18/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 780 | NS | NS |
| | 12/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 730 | NS | NS |
| | 3/18/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 580 | NS | NS |
| | 6/24/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 730 | NS | NS |
| | 9/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 710 | NS | NS |
| | 9/16/1998 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 730 | NS | NS |
| | | | Removed from Monitoring Well Network First Quarter 2010 | | | | | | | | | | | |
| **MW-25** | 2/20/1992 | REG FF | <0.5 | 2.0 | <0.5 | <1 | 7.0 | <1 | <1 | <0.5 | 330 | 2,400 | NS | NS |
| | 6/2/1992 | REG FF | <0.5 | 1 | <0.5 | <1 | 5.0 | <1 | <1 | <0.5 | 290 | 3,000 | NS | NS |
| | 6/8/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 280 | 60 | NS | NS |
| | 6/8/1992 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 240 | 60 | NS | NS |
| | 9/14/1992 | REG FF | <0.5 | 3.2 | 1.8 | <1 | 15 | <1 | <1 | <0.5 | 1,200 | 2,400 | NS | NS |
| | 12/17/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | 1.9 | <1 | <1 | <0.5 | 480 | 2,300 | NS | NS |
| | 3/15/1993 | REG | | | | | | | | | 780 | 1,800 | NS | NS |
| | 3/23/1993 | REG FF | <0.5 | 1.0 | 1.7 | <1 | 2.3 | <1 | <1 | <0.5 | 340 | 3,200 | NS | NS |
| | 7/1/1993 | REG FF | <0.5 | 1.1 | 1.4 | <1 | 1.2 | <1 | <0.5 | <0.5 | 700 | 2,700 | NS | NS |
| | 9/28/1993 | REG | | | | | | | | | 61 | 1,500 | NS | NS |
| | 9/30/1993 | REG FF | <0.5 | 1.8 | 1.7 | <1 | 22 | <1 | <1 | <0.5 | 290 | 2,100 | NS | NS |
| | 12/9/1993 | REG | <0.5 | 5.5 | 2.20 | <1 | 35 | <1 | <1 | <0.5 | 640 | 3,100 | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | 8.0 | 2.7 | <1 | 36 | <1 | <1 | <0.5 | 220 | 1,900 | NS | NS |
| | 6/7/1994 | REG FF | <0.5 | 4.5 | <0.5 | <1 | 17 | <1 | <1 | <0.5 | 1,800 | 1,100 | NS | NS |
| | 9/14/1994 | REG FF | <0.5 | 4.0 | 1.2 | <1 | 7.5 | <1 | <1 | <0.5 | 2,900 | 1,700 | NS | NS |
| | 9/14/1994 | FD FF | <0.5 | 4.6 | 1.3 | <1 | 10 | <1 | <1 | <0.5 | 7,900 | 1,600 | NS | NS |
| | 9/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 3,600 | 120 | NS | NS |
| | 1/19/1995 | REG FF | <0.5 | 2.0 | <0.5 | <0.5 | 1.8 | <0.5 | <0.5 | <0.5 | 44 | 1,300 | NS | NS |
| | 4/22/1995 | REG FF | <0.5 | 2.0 | <0.5 | <0.5 | 2.3 | <0.5 | <0.5 | <0.5 | 260 | 1,200 | NS | NS |
| | 4/22/1995 | FD FF | <0.5 | 1.8 | <0.5 | <0.5 | 2.1 | <0.5 | <0.5 | <0.5 | 240 | 1,300 | NS | NS |
| | 7/13/1995 | REG FF | <0.5 | 2.8 | 0.7 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 430 | 2,100 | NS | NS |
| | 7/13/1995 | FD FF | <0.5 | 2.8 | 1.1 | <0.5 | 1.9 | <0.5 | <0.5 | <0.5 | 440 | 2,100 | NS | NS |
| | 10/27/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 110 | 1,900 | NS | NS |
| | 10/27/1995 | FD FF | <0.5 | 0.6 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 110 | 1,800 | NS | NS |
| | 1/29/1996 | REG FF | <0.5 | 1.5 | 0.96 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 290 | 1,700 | NS | NS |
| | 1/29/1996 | FD FF | <0.5 | 1.5 | 0.91 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 270 | 1,600 | NS | NS |
| | 4/18/1996 | REG FF | <0.5 | 0.8 | 0.6 | <0.5 | 0.8 | <0.5 | <0.5 | 0.9 | 30 | 1,400 | NS | NS |
| | 7/19/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 50 | 1,500 | NS | NS |
| | 7/19/1996 | FD FF | <0.5 | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 40 | 1,400 | NS | NS |
| | 10/24/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 170 | 1,400 | NS | NS |
| | 10/24/1996 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 160 | 1,400 | NS | NS |
| | 2/27/1997 | REG FF | <0.5 | 0.62 | <0.5 | <0.5 | 2.9 | <0.5 | <0.5 | <0.5 | 640 | 1,700 | NS | NS |
| | 6/5/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | 1.8 | <0.5 | <0.5 | <0.5 | 360 | 1,400 | NS | NS |
| | 6/5/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | 1.9 | <0.5 | <0.5 | <0.5 | 340 | 1,400 | NS | NS |
| | 9/19/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | 0.81 | <0.5 | <0.5 | <0.5 | 630 | 1,600 | NS | NS |
| | 12/18/1997 | REG FF | <0.5 | 1.1 | <0.5 | <0.5 | 3.4 | <0.5 | <0.5 | <0.5 | 500 | 1,400 | NS | NS |
| | 12/18/1997 | FD FF | <0.5 | 1.1 | <0.5 | <0.5 | 3.3 | <0.5 | <0.5 | <0.5 | 500 | 1,400 | NS | NS |
| | 3/19/1998 | REG FF | <0.5 | 1.5 | <0.5 | <0.5 | 4.1 | <0.5 | <0.5 | <0.5 | 520 | 1,400 | NS | NS |
| | 3/19/1998 | FD FF | <0.5 | 1.4 | <0.5 | <0.5 | 4.0 | <0.5 | <0.5 | <0.5 | 460 | 1,300 | NS | NS |
| | 6/25/1998 | REG FF | <0.5 | 1.8 | <0.5 | <0.5 | 5.4 | <0.5 | <0.5 | <0.5 | 610 | 1,400 | NS | NS |
| | 9/17/1998 | REG FF | <0.5 | 1.0 | <0.5 | <0.5 | 2.5 | <0.5 | <0.5 | <0.5 | 640 | 1,600 | NS | NS |
| | 12/17/1998 | REG FF | <0.5 | 2.0 | <0.5 | <0.5 | 5.5 | <0.5 | <0.5 | <0.5 | 320 | 1,300 | NS | NS |
| | 12/17/1998 | FD FF | <0.5 | 2.1 | 0.5 | <0.5 | 6.0 | <0.5 | <0.5 | <0.5 | 320 | 1,300 | NS | NS |
| | 3/18/1999 | REG FF | <0.5 | 1.0 | <0.5 | <0.5 | 2.0 | <0.5 | <0.5 | <0.5 | 340 | 1,200 | NS | NS |
| | 6/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 1,200 | 1,700 | NS | NS |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-25 cont.** | 9/15/1999 | REG FF | <0.5 | **1.0** | **0.92** | <0.5 | **5.5** | <0.5 | <0.5 | <0.5 | **660** | **1,800** | NS | NS |
| | 12/14/1999 | REG FF | <0.5 | **0.62** | **0.99** | <0.5 | **3.7** | <0.5 | <0.5 | <0.5 | **1,900** | **2,500** | NS | NS |
| | 3/15/2000 | REG FF | <0.5 | **0.30** | **0.69** | <0.5 | **1.6** | <0.5 | <0.5 | <0.5 | **1,400** | **2,000** | NS | NS |
| | 3/15/2000 | FD FF | <0.5 | **0.28** | **0.65** | <0.5 | **1.3** | <0.5 | <0.5 | <0.5 | **1,400** | **2,100** | NS | NS |
| | 6/21/2000 | REG FF | <0.5 | <0.5 | **0.53** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **1,400** | NS | NS |
| | 9/13/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **290** | **1,600** | NS | NS |
| | 12/20/2000 | REG | <0.5 | <0.5 | **0.85** | <0.5 | <0.5 | <0.5 | <0.5 | <3 | **130** | **1,400** | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **930** | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **6.7 U J** | **820** | NS | NS |
| | 6/7/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **91.7** | **1,030** | <45 | <34 |
| | 9/23/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | **263** | <10 | **3.4 B** |
| | 9/23/2002 | FD | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **9.9 B** | **258** | <10 | **3 B** |
| | 11/25/2002 | FD | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <9.0 | **148** | **6.9** | <2.0 |
| | 1/31/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **4.1 B** | **55.6** | **3.1** | <2 |
| | 6/18/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | **459** | **2.1** | **0.6 J** |
| | 9/11/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **85.9** | <4.9 | <4.7 |
| | 12/12/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **49.0** | <4.9 | <4.7 |
| | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **11.2** | <4.9 | **4.9 J** |
| | 6/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **40.0** | <9.4 | <5.9 |
| | 8/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **63.5** | <4.7 | <5.9 |
| | 11/19/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **87.3** | <4.7 | <5.9 |
| | 3/16/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **18.7** | <4.7 | <5.9 |
| | 5/24/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **41.2** | <9.3 | <9.4 |
| | 8/10/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **133** | <9.3 | <9.4 |
| | 11/16/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **380** | <9.3 | <9.4 |
| | 2/14/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | **363** | <9.3 | <9.4 |
| | 5/22/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | **107** | <9.3 | <9.4 |
| | 8/15/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **109** | <10 | <9.4 |
| | 10/4/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **62.1** | <10 | <9.4 |
| | 1/25/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **153** | <10 | <9.4 |
| | 4/26/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **48.9** | <10 | <9.4 |
| | 8/2/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **25.3** | <10 | <9.4 |
| | 11/6/2007 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 2/13/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **82.7** | <10.0 | <9.4 |
| | 5/8/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/14/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/20/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 2/5/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 5/1/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 7/30/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 11/11/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | | | Removed from Monitoring Well Network First Quarter 2010 | | | | | | | | | | | |
| **MW-34S** | 2/21/1992 | REG FF | <0.5 | <1 | >0.5 | <1 | <1 | <1 | <1 | <0.5 | **1,100** | **50** | NS | NS |
| | 6/5/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 12/17/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **120** | <10 | NS | NS |
| | 3/23/1993 | REG FF | <0.5 | <1 | **1.5** | <1 | <1 | <1 | <1 | <0.5 | **45** | <10 | NS | NS |
| | 6/14/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **400** | <10 | NS | NS |
| | 12/7/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 12/7/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **74** | <10 | NS | NS |
| | 3/14/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **340** | <10 | NS | NS |
| | 1/18/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **19** | **2** | NS | NS |
| | 1/18/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **8** | <2 | NS | NS |
| | 4/18/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **160** | <5 | NS | NS |
| | 7/11/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/24/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 1/25/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 4/16/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | **0.5** | <0.5 | **0.6** | <30 | <5 | NS | NS |
| | 7/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/22/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/22/1996 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **40** | <5 | NS | NS |
| | 6/23/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-34S cont.** | 3/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/14/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **6** | NS | NS |
| | 6/20/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **10** | NS | NS |
| | 9/12/2000 | REG | <0.5 | <0.5 | **1.0** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **31** | **20** | NS | NS |
| | 12/19/2000 | REG | <0.5 | <0.5 | **0.68** | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | **12** | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **10** | NS | NS |
| | 10/16/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **47** | **15** | NS | NS |
| | 6/4/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | **17.5** | <45 | <34 |
| | 9/23/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **18.2 B** | **13.3** | <10 | **2.8 B** |
| | 11/22/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <9.0 | **20.5** | **6.9 B** | <2.0 |
| | 1/31/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **35 B** | **9.5 B** | **1.8** | <2 |
| | 6/17/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | **1.9** | **0.9 J** |
| | 9/8/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **10** | <4.9 | <4.7 |
| | 12/16/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **7.7** | <4.9 | <4.7 |
| | 3/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 6/7/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <9.4 | <5.9 |
| | 8/10/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **0.96 J** | <4.7 | <5.9 |
| | 11/19/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 3/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.050 | **2.0** | **1.6** | **2.7** |
| | 5/24/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | <9.3 | <9.4 |
| | 8/10/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | <9.3 | <9.4 |
| | 11/16/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | <9.3 | <9.4 |
| | 2/13/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | <0.96 | <9.3 | <9.4 |
| | 5/22/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | <0.96 | <9.3 | <9.4 |
| | 8/15/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.0 J** | <10 | <9.4 |
| | 10/4/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **0.69 J** | <10 | <9.4 |
| | 1/23/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 4/24/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 7/31/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | 0.84 | <10 | <9.4 |
| | 11/6/2007 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 2/12/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 5/6/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.1 J** | <10.0 | <9.4 |
| | 8/12/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **6.3** | <10.2 | <10.7 |
| | 10/21/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.0 J** | **1.6 J** | <10.7 |
| | 2/3/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 5/5/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 7/28/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 11/11/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | | | Removed from Monitoring Well Network First Quarter 2010 | | | | | | | | | | | |
| **MW-42** | 5/12/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **5.7** | <10.0 | <9.4 |
| | 8/14/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **0.5** | <0.1 | <52.2 | **2.1 J** | <10.2 | <10.7 |
| | 10/23/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **0.5** | <0.1 | <52.2 | <0.84 | **2.7** | <10.7 |
| | 2/11/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.4** | <10.7 |
| | 5/7/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **0.1 J** | <0.1 | <52.2 | **7.6** | **2.1** | <10.7 |
| | 7/31/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **0.2 J** | <0.1 | <52.2 | **2.3 J** | **1.9 J** | <8.9 |
| | 11/18/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.2 J** | **1.9 J** | <8.9 |
| | 2/22/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **0.1 J** | <0.1 | <52.2 | <0.84 | **1.7 J** | <8.9 |
| | 5/19/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **0.2 J** | <0.1 | <52.2 | <0.84 | **1.7 J** | <8.9 |
| | 5/19/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | <0.84 | **1.8 J** | <8.9 |
| | 8/3/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.8 J** | <8.9 |
| | 10/26/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.8 J** | <8.9 |
| | 2/17/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.6 J** | <8.9 |
| | 5/12/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.9 J** | <8.9 |
| | 8/8/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | <0.44 | **1.6 J** | <6.9 |
| | 10/27/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **27.6 J** | <0.44 | **1.7 J** | <6.9 |
| | 2/13/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | <0.44 | **1.9 J** | <6.9 |
| | 5/10/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | <0.44 | **2.4** | <6.9 |
| | 7/20/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | <0.83 | **2.0** | <7.5 |
| | 1/28/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **43.5 J** | **9.6** | **1.9 J** | <7.5 |
| | 7/19/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **1.2 J** | **1.5 J** | <8.4 |
| | 1/22/2014 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/14/2014 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/13/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | Removed from Monitoring Well Network Second Half 2015 | | | | | | | | | | | |
| **MW-43** | 5/9/2008 | FS | <0.1 | **6.6** | **1.1** | **0.2 J** | **27** | **0.5 J** | <0.1 | **0.4 J** | <52.2 | **840** | <10.0 | <9.4 |
| | 8/18/2008 | FS | <0.1 | **6.2** | **0.7** | <0.1 | **19** | **0.2 J** | <0.1 | **0.2 J** | <52.2 | **1,190** | <10.2 | <10.7 |
| | 10/24/2008 | FS | <0.1 | **4.8** | **0.6** | <0.1 | **15** | **0.2 J** | <0.1 | **0.2 J** | <52.2 | **1,090** | **2.7** | <10.7 |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-43 cont.** | 2/11/2009 | FS | <0.1 | **2.6** | **0.4 J** | <0.1 | **12** | **0.2 J** | <0.1 | **0.4 J** | <52.2 | **1,470** | **2.2** | <10.7 |
| | 5/11/2009 | FS | <0.1 | **2.9** | **0.4 J** | <0.1 | **12** | **0.2 J** | <0.1 | **0.2 J** | <52.2 | **727** | **2.1** | <10.7 |
| | 8/3/2009 | FS | <0.1 | **4.1** | **0.4 J** | <0.1 | **16** | **0.2 J** | <0.1 | **0.2 J** | <52.2 | **370** | **1.4 J** | <8.9 |
| | 11/19/2009 | FS | <0.1 | **4.1** | **0.6** | <0.1 | **16** | **0.2 J** | <0.1 | **0.3 J** | <52.2 | **321** | **1.1 J** | <8.9 |
| | 2/22/2010 | FS | <0.1 | **3.3** | **0.5** | <0.1 | **15** | **0.2 J** | <0.1 | **0.3 J** | <52.2 | **633** | **1.2 J** | <8.9 |
| | 5/20/2010 | FS | <0.1 | **3.7** | **0.6** | <0.1 | **14** | **0.2 J** | <0.1 | **0.4 J** | <52.2 | **505** | **1.1 J** | <8.9 |
| | 5/20/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **328** | **1.1 J** | <8.9 |
| | 8/12/2010 | FS | **0.1 J** | **3.7** | **0.7** | <0.1 | **13** | **0.2 J** | <0.1 | **0.5** | <52.2 | **1,040** | <0.95 | <8.9 |
| | 8/12/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **1,090** | **0.96 J** | <8.9 |
| | 10/27/2010 | FS | **0.1 J** | **3.4** | **0.7** | <0.1 | **9.7** | **0.1 J** | <0.1 | **0.4 J** | <52.2 | **963** | **1.1 J** | <8.9 |
| | 2/24/2011 | FS | **0.1 J** | **2.9** | **0.6** | <0.1 | **7.4** | <0.1 | <0.1 | **0.2 J** | <52.2 | **300** | **1.1 J** | <8.9 |
| | 5/19/2011 | FS | <0.1 | **3.0** | **0.6** | <0.1 | **5.4** | <0.1 | <0.1 | **0.2 J** | <52.2 | **262** | <0.95 | <8.9 |
| | 8/9/2011 | FS | **0.2 J** | **3.8** | **0.8** | <0.1 | **5.5** | **0.1 J** | <0.1 | **0.6** | <14.1 | **1,230** | **1.0 J** | <6.9 |
| | 10/28/2011 | FS | **0.2 J** | **4.2** | **0.9** | <0.1 | **6.2** | <0.1 | <0.1 | **0.5 J** | **27.0 J** | **2,260** | <0.95 | <6.9 |
| | 2/15/2012 | FS | **0.2 J** | **3.8** | **0.8** | <0.1 | **5.2** | <0.1 | <0.1 | **0.4 J** | <14.1 | **2,080** | <0.95 | <6.9 |
| | 5/11/2012 | FS | **0.2 J** | **4.8** | **1** | <0.1 | **6.5** | <0.1 | <0.1 | **0.4 J** | <14.1 | **1,900** | <0.95 | <6.9 |
| | 7/24/2012 | FS | **0.2 J** | **5.7** | **1.2** | <0.1 | **7.5** | <0.1 | <0.1 | **0.5** | <33.3 | **1,830** | **0.86 J** | <7.5 |
| | 1/31/2013 | FS | <0.1 | **3.4** | **0.8** | <0.1 | **5.3** | <0.1 | <0.1 | **0.2 J** | <33.3 | **1,130** | **1.7 J** | <7.5 |
| | 7/19/2013 | FS | <0.1 | **0.8** | **0.1 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **379** | **200** | **1.5 J** | <8.4 |
| | 1/22/2014 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/14/2014 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/13/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | Removed from Monitoring Well Network Second Half 2015 | | | | | | | | | | | |
| **MW-44S** | 5/13/2008 | FS | **0.4 J** | **0.9** | **1.9** | <0.1 | **7.7** | <0.1 | **0.3 J** | **0.7** | **284** | **4,850** | <10.0 | <9.4 |
| | 8/19/2008 | FS | **0.4 J** | **1** | **2.4** | <0.1 | **5.0** | <0.1 | **0.2 J** | **0.7** | <52.2 | **5,200** | <10.2 | <10.7 |
| | 10/27/2008 | FS | **0.4 J** | **1** | **2.2** | <0.1 | **15** | **0.2 J** | **0.4 J** | **0.7** | **5,460** | **6,060** | **15.8** | <10.7 |
| | 2/6/2009 | FS | **0.5** | **1.4** | **2.1** | <0.1 | **18** | **0.1 J** | **0.4 J** | **0.5 J** | **1,290** | **6,230** | **5.0** | <10.7 |
| | 5/8/2009 | FS | **0.2 J** | **1.2** | **2.5** | <0.1 | **6.7** | <0.1 | **0.2 J** | **0.7** | **3,230** | **5,860** | **9.3** | <10.7 |
| | 7/31/2009 | FS | **0.2 J** | **1** | **2.3** | <0.1 | **6.2** | <0.1 | **0.3 J** | **0.6** | **1,220** | **7,400** | **5.2** | <8.9 |
| | 11/16/2009 | FS | <0.1 | **0.8** | **1.7** | <0.1 | **3.1** | <0.1 | **0.2 J** | **0.3 J** | **689** | **5,600** | **3.1** | <8.9 |
| | 2/18/2010 | FS | <0.1 | **0.8** | **1.7** | <0.1 | **2.5** | <0.1 | **0.1 J** | **0.3 J** | **353** | **5,630** | **1.9 J** | <8.9 |
| | 5/18/2010 | FS | <0.1 | **0.7** | **1.8** | <0.1 | **2.2** | <0.1 | **0.1 J** | **0.4 J** | **716** | **5,830** | **3.8** | <8.9 |
| | 5/18/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | **407** | **5,770** | **2.7** | <8.9 |
| | 8/10/2010 | FS | <0.1 | **0.7** | **1.6** | <0.1 | **3.1** | <0.1 | **0.2 J** | **0.3 J** | **298** | **5,680** | **2.3** | <8.9 |
| | 8/10/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | **259** | **5,480** | **2.5** | <8.9 |
| | 10/25/2010 | FS | <0.1 | **0.5** | **1.4** | <0.1 | **0.5 J** | <0.1 | <0.1 | **0.2 J** | <52.2 | **4,820** | **1.2 J** | <8.9 |
| | 2/23/2011 | FS | <0.1 | **0.3 J** | **0.9** | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | <52.2 | **3,370** | **1.1 J** | <8.9 |
| | 5/16/2011 | FS | <0.1 | **0.3 J** | **0.8** | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <52.2 | **3,390** | **1.1 J** | <8.9 |
| | 8/11/2011 | FS | <0.1 | **0.2 J** | **0.7** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **2,810** | <0.95 | <6.9 |
| | 10/26/2011 | FS | <0.1 | **0.2 J** | **0.7** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **69.5 J** | **2,500** | <0.95 | <6.9 |
| | 2/14/2012 | FS | <0.1 | **0.2 J** | **0.5** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **2,310** | <0.95 | **8.6 J** |
| | 5/10/2012 | FS | <0.1 | **0.2 J** | **0.6** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **2,610** | **1.2 J** | <6.9 |
| | 7/23/2012 | FS | <0.1 | **0.2 J** | **0.5** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **2,190** | **1.0 J** | <7.5 |
| | 1/30/2013 | FS | <0.1 | **0.4 J** | **1.0** | <0.1 | **0.4 J** | <0.1 | <0.1 | <0.1 | **34.0 J** | **3,000** | **1.4 J** | <7.5 |
| | 7/18/2013 | FS | <0.1 | **0.4 J** | **0.9** | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <43.0 | **2,330** | **1.7 J** | <8.4 |
| | 1/28/2014 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/14/2014 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/13/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | Removed from Monitoring Well Network Second Half 2015 | | | | | | | | | | | |
| **MW-45** | 5/13/2008 | FS | **17** | **0.5 J** | **1.3** | <0.1 | **14** | **0.3 J** | **0.1 J** | **0.3 J** | <52.2 | <0.84 | <10.0 | **16.4 J** |
| | 8/18/2008 | FS | **7.7** | **2.1** | **5.8** | **0.1 J** | **33** | **0.9** | **0.2 J** | **0.7** | **57.8 J** | **9.2** | <10.2 | <10.7 |
| | 10/22/2008 | FS | **3.9** | **2.0** | **2.3** | <0.1 | **20** | **0.5 J** | **0.2 J** | **0.3 J** | <52.2 | **28.1** | **8.9** | <10.7 |
| | 2/9/2009 | FS | **2.1** | **1.6** | **1** | <0.1 | **9.8** | **0.2 J** | **0.3 J** | **0.1 J** | **81.9 J** | **38.3** | **7.5** | <10.7 |
| | 5/11/2009 | FS | **3.9** | **1.2** | **2.3** | <0.1 | **14** | **0.2 J** | **0.5 J** | **0.1 J** | **143 J** | **43.5** | **8.8** | <10.7 |
| | 7/31/2009 | FS | **2.5** | **1.4** | **2.4** | <0.1 | **21** | **0.2 J** | **0.1 J** | **0.2 J** | **361** | **73.3** | **10.9** | <8.9 |
| | 11/17/2009 | FS | **3.3 J** | **1.8** | **4.0** | <0.1 | **32** | **0.3 J** | **0.1 J** | **0.2 J** | **795** | **174** | **12.6** | <8.9 |
| | 2/9/2010 | FS | **1.3** | **1.7** | **4.0** | <0.1 | **31** | **0.2 J** | <0.1 | **0.2 J** | **502** | **109** | **12.1** | <8.9 |
| | 5/19/2010 | FS | **0.7** | **1.8** | **4.8** | <0.1 | **30** | **0.3 J** | **0.3 J** | **0.2 J** | **508** | **106** | **12.0** | <8.9 |
| | 5/19/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | **483** | **104** | **11.4** | <8.9 |
| | 8/5/2010 | FS | **0.5** | **1.1** | **1.3** | <0.1 | **17** | **0.1 J** | **0.2 J** | **0.1 J** | **429** | **105** | **13.0** | <8.9 |
| | 8/5/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | **389** | **100** | **11.6** | <8.9 |
| | 10/26/2010 | FS | **0.3 J** | **0.3 J** | **0.6** | <0.1 | **5.4** | <0.1 | **0.1 J** | <0.1 | **80.9 J** | **36.9** | **17.5** | <8.9 |
| | 2/23/2011 | FS | **0.1 J** | **0.1 J** | **0.5** | <0.1 | **2.4** | <0.1 | <0.1 | <0.1 | <52.2 | **29.7** | **15.3** | <8.9 |
| | 5/13/2011 | FS | <0.1 | **0.1 J** | **0.4 J** | <0.1 | **2.0** | <0.1 | <0.1 | <0.1 | **53.7 J** | **32.2** | **17.2** | <8.9 |
| | 8/10/2011 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | **0.9** | <0.1 | <0.1 | <0.1 | **14.6 J** | **5.5** | **22.5** | <6.9 |
| | 10/27/2011 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | **0.7** | <0.1 | <0.1 | <0.1 | <14.1 | **4.4 J** | **17.2** | <6.9 |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-45 cont.** | 2/14/2012 | FS | <0.1 | <0.1 | **0.1 J** | <0.1 | **0.6** | <0.1 | <0.1 | <0.1 | **25.9 J** | **3.0 J** | **16.5** | <6.9 |
| | 5/10/2012 | FS | <0.1 | <0.1 | **0.1 J** | <0.1 | **0.6** | <0.1 | <0.1 | <0.1 | <14.1 | **17.8** | **16.9** | <6.9 |
| | 7/20/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | **0.4 J** | <0.1 | <0.1 | <0.1 | <33.3 | **4.3 J** | **17.3** | <7.5 |
| | 1/30/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | <33.3 | **6.0** | **14.5** | <7.5 |
| | 7/19/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <43.0 | **15.4** | **16.6** | <8.4 |
| | 1/29/2014 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/14/2014 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/13/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | Removed from Monitoring Well Network Second Half 2015 | | | | | | | | | | | |
| **MW-46** | 5/9/2008 | FS | <0.1 | **0.7** | <0.1 | <0.1 | **0.5** | <0.1 | **0.3 J** | <0.1 | <52.2 | **242** | <10.0 | <9.4 |
| | 8/15/2008 | FS | **0.1 J** | **1** | **0.2 J** | <0.1 | **2.0** | <0.1 | **0.5** | <0.1 | <52.2 | **359** | <10.2 | <10.7 |
| | 10/23/2008 | FS | **0.2 J** | **1.1** | **0.2 J** | <0.1 | **2.4** | <0.1 | **0.6** | <0.1 | **145 J** | **399** | **2.1** | <10.7 |
| | 2/9/2009 | FS | <0.1 | **1.0** | **0.1 J** | <0.1 | **1.1** | <0.1 | **0.4 J** | <0.1 | <52.2 | **532** | **2.2** | <10.7 |
| | 5/11/2009 | FS | <0.1 | **0.9** | <0.1 | <0.1 | **0.8** | <0.1 | **0.3 J** | <0.1 | <52.2 | **537** | **2.0** | <10.7 |
| | 7/31/2009 | FS | **0.1 J** | **1** | **0.1 J** | <0.1 | **1.7** | <0.1 | **0.4 J** | <0.1 | <52.2 | **552** | **2.1** | <8.9 |
| | 11/18/2009 | FS | **0.2 J** | **1** | **0.2 J** | <0.1 | **3.6** | <0.1 | **0.5** | <0.1 | <52.2 | **520** | **2.2** | <8.9 |
| | 2/17/2010 | FS | **0.1 J** | **1** | **0.1 J** | <0.1 | **2.0** | <0.1 | **0.3 J** | <0.1 | <52.2 | **503** | **2.0** | <8.9 |
| | 5/20/2010 | FS | <0.1 | **0.9** | **0.1 J** | <0.1 | **1.9** | <0.1 | **0.3 J** | <0.1 | <52.2 | **494** | **2.1** | <8.9 |
| | 5/20/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **500** | **2.3** | <8.9 |
| | 8/10/2010 | FS | **0.1 J** | **0.7** | **0.1 J** | <0.1 | **2.3** | <0.1 | **0.2 J** | <0.1 | <52.2 | **485** | **2.2** | <8.9 |
| | 8/10/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **487** | **2.3** | <8.9 |
| | 10/27/2010 | FS | <0.1 | **0.3 J** | <0.1 | <0.1 | **0.6** | <0.1 | <0.1 | <0.1 | <52.2 | **116** | **3.1** | <8.9 |
| | 2/22/2011 | FS | <0.1 | **0.3 J** | <0.1 | <0.1 | **0.5 J** | <0.1 | <0.1 | <0.1 | <52.2 | **127** | **3.3** | <8.9 |
| | 5/18/2011 | FS | <0.1 | **0.3 J** | <0.1 | <0.1 | **0.4 J** | <0.1 | <0.1 | <0.1 | <52.2 | **201** | **3.5** | <8.9 |
| | 8/10/2011 | FS | <0.1 | **0.3 J** | <0.1 | <0.1 | **0.4 J** | <0.1 | <0.1 | <0.1 | <14.1 | **19.0** | **4.1** | <6.9 |
| | 10/28/2011 | FS | <0.1 | **0.3 J** | <0.1 | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | **39.3 J** | **39.3** | **4.4** | <6.9 |
| | 2/15/2012 | FS | <0.1 | **0.2 J** | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <14.1 | **9.3** | **3.7** | <6.9 |
| | 5/15/2012 | FS | <0.1 | **0.2 J** | <0.1 | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | <14.1 | **8.3** | **3.7** | <6.9 |
| | 7/23/2012 | FS | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **12.2** | **4.7** | <7.5 |
| | 1/28/2013 | FS | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **25.6** | **4.1** | <7.5 |
| | 7/17/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **52.0** | **3.6** | <8.4 |
| | 1/28/2014 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/14/2014 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/13/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | Removed from Monitoring Well Network Second Half 2015 | | | | | | | | | | | |
| **MW-47** | 5/9/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **71.8 J** | **20.8** | <10.0 | <9.4 |
| | 8/15/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10.2 | <10.7 |
| | 10/22/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **3.2** | <10.7 |
| | 2/9/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **145 J** | **13.6** | **2.7** | <10.7 |
| | 5/8/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **0.91 J** | **2.7** | <10.7 |
| | 7/28/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.5** | <8.9 |
| | 11/16/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.5** | <8.9 |
| | 2/9/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.3 J** | **2.6** | <8.9 |
| | 5/17/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.4 J** | **2.6** | <8.9 |
| | 5/17/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | <0.84 | **2.8** | <8.9 |
| | 8/9/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.0** | <8.9 |
| | 10/19/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **5.1** | **2.7** | <8.9 |
| | 2/16/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **348** | **14.2** | **4.9** | <8.9 |
| | 5/11/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **100 J** | **4.4 J** | **3.8** | <8.9 |
| | 8/10/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **32.3 J** | **1.1 J** | **3.1** | <6.9 |
| | 10/21/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **76.0 J** | **2.9 J** | **3.1** | <6.9 |
| | 2/10/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **109 J** | **4.0 J** | **3.1** | <6.9 |
| | 5/8/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | <0.44 | **3.0** | <6.9 |
| | 7/20/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **1.1 J** | **2.5** | <7.5 |
| | 1/24/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **317** | **27.1** | **3.1** | <7.5 |
| | 7/16/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **547** | **20.2** | **3.4** | <8.4 |
| | 1/24/2014 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/14/2014 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/13/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | Removed from Monitoring Well Network Second Half 2015 | | | | | | | | | | | |
| **MW-48S** | 5/9/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **14** | <10.0 | <9.4 |
| | 8/15/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **4.6 J** | <10.2 | <10.7 |
| | 10/23/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.3 J** | **3.1** | <10.7 |
| | 2/6/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.2 J** | **2.8** | <10.7 |
| | 5/7/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.4** | <10.7 |
| | 8/3/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.1 J** | **2.8** | <8.9 |
| | 11/18/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **0.99 J** | **2.6** | <8.9 |
| | 2/19/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.5** | <8.9 |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-48S cont.** | 5/19/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.4 J** | **2.5** | <8.9 |
| | 5/19/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | <0.84 | **2.3** | <8.9 |
| | 8/11/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.9 J** | <8.9 |
| | 10/26/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.7 J** | <8.9 |
| | 2/24/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.5** | <8.9 |
| | 5/18/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.7** | <8.9 |
| | 8/9/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | <0.44 | **2.5** | <6.9 |
| | 10/27/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **57.5 J** | <0.44 | **2.2** | <6.9 |
| | 2/16/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | <0.44 | **2.6** | <6.9 |
| | 5/14/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **0.63 J** | **2.3** | <6.9 |
| | 7/24/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | <0.83 | **2.7** | <7.5 |
| | 1/29/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **3.8 J** | **2.5** | <7.5 |
| | 7/17/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **98.9 J** | **5.4** | **2.0 J** | <8.4 |
| | 1/23/2014 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/14/2014 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/13/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | Removed from Monitoring Well Network Second Half 2015 | | | | | | | | | | | |
| **MW-49** | 5/9/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **0.2 J** | <0.1 | <52.2 | **11.3** | <10.0 | <9.4 |
| | 8/15/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **0.1 J** | <0.1 | <52.2 | **2.8 J** | <10.2 | <10.7 |
| | 10/24/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.1** | <10.7 |
| | 2/11/2009 | FS | <0.1 | **0.2 J** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.6 J** | **2.2** | <10.7 |
| | 5/11/2009 | FS | <0.1 | **0.1 J** | **0.1 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.3 J** | **1.8 J** | <10.7 |
| | 8/3/2009 | FS | <0.1 | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.4** | <8.9 |
| | 11/19/2009 | FS | <0.1 | **0.1 J** | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.4 J** | **1.7 J** | <8.9 |
| | 2/17/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.8 J** | **1.8 J** | <8.9 |
| | 5/20/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.5 J** | **1.4 J** | <8.9 |
| | 5/20/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **1.6 J** | **1.6 J** | <8.9 |
| | 8/12/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.9 J** | **1.9 J** | <8.9 |
| | 10/27/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.1 J** | **1.9 J** | <8.9 |
| | 2/24/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.4** | <8.9 |
| | 5/19/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.8 J** | **1.6 J** | <8.9 |
| | 8/9/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **0.77 J** | **2.1** | <6.9 |
| | 10/28/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **2.4 J** | **2.0 J** | <6.9 |
| | 2/15/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **3.2 J** | **2.0** | <6.9 |
| | 5/11/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **0.61 J** | **2.3** | <6.9 |
| | 7/24/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **2.1 J** | **2.3** | <7.5 |
| | 1/29/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **10.7** | **2.1** | <7.5 |
| | 7/17/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **47.3 J** | **4.7 J** | **2.1** | <8.4 |
| | 1/23/2014 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/14/2014 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/13/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | Removed from Monitoring Well Network Second Half 2015 | | | | | | | | | | | |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-54** | 2/16/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **55.2** | **9.5** | <8.9 |
| | 5/12/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **21.7** | **8.1** | <8.9 |
| | 5/12/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **18.1** | **9.4** | <8.9 |
| | 8/3/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **4.1 J** | **6.7** | <8.9 |
| | 10/19/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **5.1** | **6.4** | <8.9 |
| | 2/22/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **4.4** | <8.9 |
| | 5/10/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **4.2** | <8.9 |
| | 8/2/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **15.8 J** | **0.59 J** | **3.7** | <6.9 |
| | 10/18/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **26.2 J** | <0.44 | **3.7** | <6.9 |
| | 2/7/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **0.89 J** | **3.3** | <6.9 |
| | 5/7/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | <0.44 | **3.1** | <6.9 |
| | 7/17/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | <0.83 | **3.0** | <7.5 |
| | 1/25/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **4.5 J** | **3.3** | <7.5 |
| | 7/9/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **1.1 J** | **3.9** | <8.4 |
| | 1/22/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **2.3 J** | **3.0** | <8.4 |
| | 7/15/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **34.5 J** | **9.6** | **4.3** | **5.9 J** |
| | 1/13/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/7/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/19/2016 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/19/2016 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/17/2017 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/31/2017 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2/6/2018 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/31/2018 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2/12/2019 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/17/2019 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PT-3A** | 2/23/2011 | FS | **0.2 J** | **0.4 J** | **0.5 J** | <0.1 | **6.3** | **0.1 J** | **0.1 J** | **0.1 J** | **6,060** | **1,430** | **14.6** | NA |
| | 5/16/2011 | FS | **0.1 J** | **0.3 J** | **0.3 J** | <0.1 | **4.0** | <0.1 | <0.1 | **0.1 J** | **4,740** | **1,220** | **11.8** | <8.9 |
| | 8/11/2011 | FS | **0.2 J** | **0.3 J** | **0.4 J** | <0.1 | **4.0** | <0.1 | **0.1 J** | **0.1 J** | **5,570** | **1,220** | **11.1** | <6.9 |
| | 10/26/2011 | FS | **0.3 J** | **0.5 J** | **0.7** | <0.1 | **5.0** | <0.1 | **0.2 J** | **0.2 J** | **5,980** | **1,290** | **11.1** | <6.9 |
| | 2/14/2012 | FS | **0.5 J** | **0.7** | **1.0** | <0.1 | **12** | **0.1 J** | **0.5 J** | **0.3 J** | **9,310** | **1,580** | **16.2** | <6.9 |
| | 5/10/2012 | FS | **0.4 J** | **0.7** | **1** | <0.1 | **14** | **0.1 J** | **0.6** | **0.4 J** | **10,000** | **1,780** | **14.8** | <6.9 |
| | 7/23/2012 | FS | **0.2 J** | **0.5** | **0.9** | <0.1 | **8.0** | <0.1 | **0.6** | **0.3 J** | **4,450** | **1,420** | **11.1** | <7.5 |
| | 1/30/2013 | FS | **0.2 J** | **0.4 J** | **0.8** | <0.1 | **2.9** | <0.1 | **0.3 J** | **0.2 J** | **5,650** | **1,830** | **9.8** | <7.5 |
| | 7/19/2013 | FS | <0.1 | **0.1 J** | **0.3 J** | <0.1 | **0.8** | <0.1 | **0.2 J** | <0.1 | **5,510** | **1,200** | **13.2** | <8.4 |
| | 1/29/2014 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/14/2014 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/13/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | Removed from Monitoring Well Network Second Half 2015 | | | | | | | | | | | |
| **Shallow to Intermediate** | | | | | | | | | | | | | | |
| **MW-7I** | 2/20/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1,800** | **70** | NS | NS |
| | 6/9/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **180** | <10 | NS | NS |
| | 6/9/1992 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **140** | <10 | NS | NS |
| | 6/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | **34** | NS | NS |
| | 12/13/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **49** | <10 | NS | NS |
| | 3/25/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **230** | <10 | NS | NS |
| | 3/25/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **260** | **12** | NS | NS |
| | 6/16/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 6/16/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 9/28/1993 | REG FF | <0.5 | <1 | **2.6** | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 12/8/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **100** | <10 | NS | NS |
| | 6/7/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **170** | <10 | NS | NS |
| | 4/22/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **270** | **33** | NS | NS |
| | 4/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | **0.8** | **90** | **15** | NS | NS |
| | 6/5/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/24/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/18/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/23/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **290** | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <50 J | **15** | NS | NS |
| | 6/12/2002 | FS FF | **0.16** | <0.5 | <0.5 | <0.5 | **0.12** | <0.5 | <0.5 | <0.5 | <100 | **2.5** | <45 | <34 |
| | 9/18/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 439 | **3.6 B** | **4.2 B** | **4 B** |
| | 11/21/2002 | FS | <0.5 | **1.0** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **29.8 B** | **1.5 B** | **8 B** | **3.6 B** |
| | 1/28/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **38 B** | <5 | **3.4** | <2 |
| | 6/19/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **76 J** | <5 | **2.6** | <2 |
| | 9/9/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **144 J** | <5 | <4.9 | <2 |
| | 12/9/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 3/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 6/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **98.6 J** | <0.84 | <9.4 | <5.9 |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-7I cont.** | 8/13/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 11/18/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 3/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 5/26/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | **12.5 J** | <9.4 |
| | 8/11/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | <9.3 | <9.4 |
| | 11/21/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **1.6 J** | <9.3 | <9.4 |
| | 2/16/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | <0.96 | <9.3 | <9.4 |
| | 5/23/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | <0.96 | <9.3 | <9.4 |
| | 8/16/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | **0.7** | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 10/6/2006 | NS | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | | Decommissioned October 2006 | | | | | | | | | | | |
| **MW-9** | 5/9/2001 | REG | <5 | **36** | **9.8** | <5 | **210** | <5 | <5 | <5 | <30 | **830** | NS | NS |
| | 10/18/2001 | REG | **0.93** | **24** | **6.6** | <0.5 | **190** | **3.0** | <0.5 | **1.6** | **60 J** | **2,000** | NS | NS |
| | 6/12/2002 | FS FF | **0.11** | **2.1** | **0.49** | <0.5 | **12** | **0.28** | <5 | <5 | <100 | **619** | <45 | <34 |
| | 9/19/2002 | FS | <0.5 | **0.56** | **0.39 J** | <0.5 | **4.9** | <0.5 | <0.5 | <0.5 | <100 | **458** | <10 | **4.7 B** |
| | 11/21/2002 | FS | **0.14** | **8.6** | **2.4** | **0.41** | **46** | **0.69** | <0.5 | **0.62** | 9.0 | **753** | **13.4 B** | **4 B** |
| | 1/29/2003 | FS | <0.5 | **0.41 J** | **0.24 J** | <0.5 | **2.7** | <0.5 | <0.5 | <0.5 | **5.2 B** | **383** | **1.6 B** | <2 |
| | 1/29/2003 | FD | <0.5 | **0.4 J** | **0.24 J** | <0.5 | **2.7** | <0.5 | <0.5 | <0.5 | <100 | **376** | **2.2** | <2 |
| | 6/19/2003 | FS | <0.5 | **0.57** | **0.31 J** | <0.5 | **3.8** | **0.16 J** | <0.5 | <0.5 | <100 | **356** | **2.1** | <2 |
| | 9/11/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | **3 J** | <0.5 | <0.5 | <0.5 | <45.3 | **314** | <4.9 | <4.7 |
| | 12/10/2003 | FS | <0.1 | **0.2 J** | **0.2 J** | <0.1 | **2.1** | <0.1 | **0.1 J** | <0.1 | <45.3 | **296** | <4.9 | <4.7 |
| | 3/12/2004 | FS | <0.1 | **0.1 J** | **0.1 J** | <0.1 | **1.6** | <0.1 | **0.1 J** | <0.1 | <45.3 | **242** | <4.9 | <4.7 |
| | 6/11/2004 | FS | <0.1 | **0.7** | **0.8** | ND | **11** | **0.1 J** | **0.3 J** | **0.1 J** | <49.5 | **322** | <9.4 | <5.9 |
| | 8/11/2004 | FS | <0.1 | **0.3 J** | **0.4 J** | <0.1 | **4.9** | <0.1 | **0.3 J** | <0.1 | <49.5 | **343** | <4.7 | <5.9 |
| | 11/18/2004 | FS | <0.1 | **0.2 J** | **0.2 J** | <0.1 | **2.8** | <0.1 | **0.2 J** | <0.1 | <49.5 | **295** | <4.7 | <5.9 |
| | 3/16/2005 | FS | <0.1 | **0.4 J** | **0.4 J** | <0.1 | **5.8** | <0.1 | **0.3 J** | <0.1 | <49.5 | **355** | <4.7 | <5.9 |
| | 5/25/2005 | FS | <0.1 | **0.2 J** | <0.1 | <0.1 | **4.1** | <0.1 | **0.2 J** | <0.1 | **74.5 J** | **237** | <9.3 | <9.4 |
| | 8/10/2005 | FS | <0.1 | **0.2 J** | **0.3 J** | <0.1 | **2.6** | <0.1 | **0.1 J** | <0.1 | <37.8 | **207** | <9.3 | <9.4 |
| | 11/16/2005 | FS | <0.1 | **0.2 J** | **0.2 J** | <0.1 | **2.1** | <0.1 | <0.1 | <0.1 | <37.8 | **141** | <9.3 | <9.4 |
| | 2/16/2006 | FS | <0.1 | **0.3 J** | **0.2 J** | <0.1 | **2.1** | <0.1 | <0.1 | <0.1 | <66.7 | **224** | <9.3 | <9.4 |
| | 5/23/2006 | FS | <0.1 | **0.2 J** | **0.2 J** | <0.1 | **2.3** | <1.0 | 0.1 J | <0.1 | <66.7 | **216** | <9.3 | <9.4 |
| | 8/18/2006 | FS | <0.1 | **0.2 J** | **0.1 J** | <0.1 | **1.3** | <0.1 | <0.1 | <0.1 | <52.2 | **247** | <10 | <9.4 |
| | 10/5/2006 | FS | <0.1 | **0.1 J** | **0.2 J** | <0.1 | **2.3** | <0.1 | **0.1J** | <0.1 | <52.2 | **295** | <10 | <9.4 |
| | 1/25/2007 | FS | <0.1 | **0.2 J** | **0.3 J** | <0.1 | **2.4** | <0.1 | <0.1 | <0.1 | <52.2 | **229** | <10 | <9.4 |
| | 4/26/2007 | FS | <0.1 | **0.4 J** | **0.5** | <0.1 | **4.5** | <0.1 | **0.1J** | <0.1 | <52.2 | **335** | <10 | <9.4 |
| | 8/2/2007 | FS | <0.1 | <0.1 | **0.1 J** | <0.1 | **1.4** | <0.1 | <0.1 | <0.1 | <52.2 | **190** | <10 | <9.4 |
| | 11/8/2007 | FS | **0.4 J** | **20** | **11** | **0.8** | **170** | **3.4** | **1** | **1.2** | **54.2 J** | **5320** | <10 | <9.4 |
| | 2/14/2008 | FS | **0.3 J** | **17** | **11** | **0.6** | **140** | **2.6** | **0.9** | **1.1** | <52.2 | **3,060** | <10.0 | <9.4 |
| | 5/12/2008 | FS | **0.4 J** | **17** | **9.7** | **0.6** | **160** | **3.0** | **1.0** | **1.3** | <52.2 | **2,990** | <10.0 | <9.4 |
| | 8/14/2008 | FS | <0.1 | **0.2 J** | **0.3 J** | <0.1 | **4.2** | <0.1 | **0.1 J** | <0.1 | <52.2 | **389** | <10.2 | <10.7 |
| | 10/27/2008 | FS | **0.3 J** | **12** | **8.0** | **0.4 J** | **110** | **1.9** | **0.9** | **1.1** | <52.2 | **2,440** | **1.5 J** | <10.7 |
| | 2/9/2009 | FS | **0.3 J** | **12** | **6.9** | **0.4 J** | **110** | **2.3** | **0.8** | **0.9** | <52.2 | **2,710** | **1.4 J** | <10.7 |
| | 5/8/2009 | FS | **0.3 J** | **8.3** | **5.2** | **0.2 J** | **81** | **1.4** | **0.6** | **0.7** | <52.2 | **2,380** | **1.6 J** | <10.7 |
| | 7/30/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | <52.2 | **366** | **1.8 J** | <8.9 |
| | 11/16/2009 | FS | <0.1 | **0.2 J** | <0.1 | <0.1 | **1.5** | <0.1 | <0.1 | <0.1 | **80.7 J** | **190** | **1.7 J** | <8.9 |
| | 2/18/2010 | FS | <0.1 | **0.2 J** | **0.1 J** | <0.1 | **2.1** | <0.1 | <0.1 | <0.1 | **74.4 J** | **280** | **1.7 J** | <8.9 |
| | 5/18/2010 | FS | <0.1 | **0.2 J** | <0.1 | <0.1 | **0.6** | <0.1 | <0.1 | <0.1 | <52.2 | **105** | **1.7 J** | <8.9 |
| | 5/18/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **77.8** | **1.5 J** | <8.9 |
| | 8/9/2010 | FS | <0.1 | **0.2 J** | **0.1 J** | <0.1 | **1.9** | <0.1 | <0.1 | <0.1 | <52.2 | **60.4** | **1.8 J** | <8.9 |
| | 8/9/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **21.2** | **1.7 J** | <8.9 |
| | 10/26/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | <52.2 | **62.0** | **2.0** | <8.9 |
| | 2/17/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | **0.8** | <0.1 | <0.1 | <0.1 | <52.2 | **108** | **1.8 J** | <8.9 |
| | 5/13/2011 | FS | <0.1 | **0.1 J** | <0.1 | <0.1 | **0.7** | <0.1 | <0.1 | <0.1 | <52.2 | **45.7** | **1.9 J** | <8.9 |
| | 8/11/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **99.2 J** | **46.5** | **1.6 J** | <6.9 |
| | 10/26/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | **92.7 J** | **34.6** | **1.6 J** | <6.9 |
| | 2/10/2012 | FS | <0.1 | **0.6** | **0.3 J** | <0.1 | **2.7** | <0.1 | <0.1 | <0.1 | **40.2 J** | **316** | **1.4 J** | <6.9 |
| | 5/14/2012 | FS | **0.1 J** | **3.6** | **1.3** | <0.1 | **22** | **0.3 J** | **0.1 J** | **0.3 J** | <14.1 | **1,090** | **1.2 J** | <6.9 |
| | 7/19/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | **0.4 J** | <0.1 | <0.1 | <0.1 | **45.2 J** | **36.5** | **1.3 J** | <7.5 |
| | 1/31/2013 | FS | <0.1 | **0.8** | **0.4 J** | <0.1 | **2.3** | <0.1 | <0.1 | <0.1 | **42.4 J** | **395** | **1.5 J** | <7.5 |
| | 7/16/2013 | FS | <0.1 | **0.4 J** | **0.3 J** | <0.1 | **2.5** | <0.1 | **0.1 J** | <0.1 | <43.0 | **423** | **1.5 J** | <8.4 |
| | 1/28/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | **75.9 J** | **43.4** | **1.7 J** | <8.4 |
| | 7/21/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **715** | **261** | **1.7 J** | <4.8 |
| | 1/13/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | Removed from Monitoring Well Network Second Half 2015 | | | | | | | | | | | |
| **MW-11** | 2/26/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | **1.0** | <1 | <1 | <0.5 | **1,700** | **350** | NS | NS |
| | 6/9/1992 | REG FF | <0.5 | <1 | **1.2** | <1 | **9.0** | <1 | **1.0** | <0.5 | **3,700** | **270** | NS | NS |
| | 12/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | **7.8** | <1 | **1.1** | <0.5 | **320** | **190** | NS | NS |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-11 cont. | 3/26/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | 6.5 | <1 | <1 | <0.5 | 460 | 200 | NS | NS |
| | 6/18/1993 | REG FF | <0.5 | <1 | 1.6 | <1 | 14 | <1 | 2.0 | <0.5 | 740 | 320 | NS | NS |
| | 10/1/1993 | REG FF | <0.5 | 1.1 | 1.2 | <1 | 23 | <1 | 1.7 | <0.5 | 710 | 120 | NS | NS |
| | 12/10/1993 | REG | <0.5 | 1.9 | <0.5 | <1 | 22 | <1 | 1.4 | <0.5 | 660 | 110 | NS | NS |
| | 3/16/1994 | REG FF | <0.5 | 2.4 | <0.5 | <1 | 19 | <1 | 1.2 | <0.5 | 570 | 65 | NS | NS |
| | 6/8/1994 | REG FF | | | | | | | | | <40 | 53 | NS | NS |
| | 6/8/1994 | FD FF | | | | | | | | | <40 | 58 | NS | NS |
| | 6/9/1994 | REG | <0.5 | <1 | <0.5 | <1 | 11 | <1 | 1.6 | <0.5 | 910 | 82 | NS | NS |
| | 6/9/1994 | FD | <0.5 | 1.5 | <0.5 | <1 | 13 | 1.5 | 1.6 | <0.5 | 870 | 83 | NS | NS |
| | 9/14/1994 | REG FF | <0.5 | 2.6 | 1.8 | <1 | 32 | 2.5 | 2.9 | <0.5 | 840 | 230 | NS | NS |
| | 1/19/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | 8.6 | <0.5 | <0.5 | <0.5 | <7 | 36 | NS | NS |
| | 4/24/1995 | REG FF | <0.5 | 1.7 | 0.6 | <0.5 | 18 | <0.5 | <0.5 | <0.5 | <30 | 86 | NS | NS |
| | 4/24/1995 | FD FF | <0.5 | 1.9 | 0.7 | <0.5 | 19 | 0.8 | <0.5 | <0.5 | 40 | 86 | NS | NS |
| | 7/13/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | 13 | <0.5 | <0.5 | <0.5 | 380 | 140 | NS | NS |
| | 10/26/1995 | REG FF | <0.5 | 3.0 | 1.0 | <0.5 | 27 | 1 | <0.5 | <0.5 | <30 | 59 | NS | NS |
| | 1/29/1996 | REG FF | <0.5 | 3.5 | 1.4 | <0.5 | 30 | 1.3 | <0.5 | <0.5 | <30 | 28 | NS | NS |
| | 4/19/1996 | REG FF | <0.5 | 4.2 | 1.4 | <0.5 | 36 | 2.2 | <0.5 | <0.5 | <30 | 70 | NS | NS |
| | 7/19/1996 | REG FF | 0.7 | 9.3 | 2.2 | <0.5 | 80 | 3.7 | <0.5 | 0.9 | <30 | 130 | NS | NS |
| | 10/24/1996 | REG FF | <0.5 | 6.4 | 1.8 | <0.5 | 55 | 2.8 | <0.5 | 1.0 | 89 | 140 | NS | NS |
| | 2/27/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 7 | NS | NS |
| | 6/11/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | 2.1 | <0.5 | <0.5 | <0.5 | <30 | 26 | NS | NS |
| | 6/11/1997 | FD FF | <0.5 | 0.89 | <0.5 | <0.5 | 6.1 | <0.5 | <0.5 | <0.5 | <30 | 26 | NS | NS |
| | 9/19/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 7 | NS | NS |
| | 12/18/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 13 | NS | NS |
| | 3/19/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 16 | NS | NS |
| | 6/25/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 38 | NS | NS |
| | 9/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 11 | NS | NS |
| | 12/7/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 56 | NS | NS |
| | 3/18/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 12 | NS | NS |
| | 6/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 7.0 | NS | NS |
| | 12/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/15/1999 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/16/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 7.0 | NS | NS |
| | 6/21/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 7.0 | NS | NS |
| | 9/12/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 6.0 | NS | NS |
| | 12/20/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | 6.0 | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | 40 | 49 | NS | NS |
| | 10/17/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | 1.0 | <0.5 | <0.5 | <0.5 | 93 | 150 | NS | NS |
| | 6/10/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | 47.9 | <45 | <34 |
| | 6/10/2002 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | 0.3 | <0.5 | <0.5 | <0.5 | <100 | 58.3 | <45 | <34 |
| | 9/19/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 76.8 B | 45.1 | <10 | 4 B |
| | 9/19/2002 | FD | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 5,250 | 482 | 29.4 | 4.8 B |
| | 11/22/2002 | FS | 0.27 | 0.12 | 0.43 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 22.5 B | 127 | 12.2 B | 3.8 B |
| | 1/29/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | 0.18 J | <0.5 | <0.5 | <0.5 | 15.5 B | 51.8 | 1.6 B | <2 |
| | 6/19/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | 0.15 J | <0.5 | <0.5 | <0.5 | <100 | 50 | 1.7 | <2 |
| | 9/11/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | 36.9 | <4.9 | <4.7 |
| | 12/11/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | 27.5 | <4.9 | <4.7 |
| | 3/10/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | 26.2 | <4.9 | 7.8 J |
| | 6/10/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 84.8 J | 33.3 | <4.7 | <5.9 |
| | 8/12/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | 0.1 J | <0.1 | <0.1 | <0.1 | <49.5 | 34.5 | <4.7 | <5.9 |
| | 11/18/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | 28.7 | <4.7 | <5.9 |
| | 3/16/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | 21.9 | <4.7 | <5.9 |
| | 5/25/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | 18.8 | <9.3 | <9.4 |
| | 8/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | 17.9 | <9.3 | <9.4 |
| | 11/21/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | 15.6 | <9.3 | <9.4 |
| | 2/16/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | 21.9 | <9.3 | <9.4 |
| | 5/23/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | 12.7 | <9.3 | <9.4 |
| | 8/18/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | 17.5 | <10 | <9.4 |
| | 10/6/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | 14.7 | <10 | <9.4 |
| | 1/25/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | 13.7 | <10 | <9.4 |
| | 4/26/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | 22.2 | <10 | <9.4 |
| | 8/2/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | 24.6 | <10 | <9.4 |
| | 11/8/2007 | FS | 3.1 | 1.3 | 2.9 | 0.1 J | 38 | 0.9 | 0.7 | 0.4 J | 5,580 | 1,280 | 26.1 | <9.4 |
| | 2/14/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | 0.6 | <0.1 | <0.1 | <0.1 | 310 | 172 | 17.3 J | <9.4 |
| | 5/12/2008 | FS | 3.4 | 1.5 | 2.9 | <0.1 | 40 | 0.8 | 0.9 | 0.5 | 5,970 | 1,190 | 29.3 | <9.4 |
| | 8/18/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | 0.2 J | <0.1 | <0.1 | <0.1 | <52.2 | 101 | <10.2 | <10.7 |
| | 10/27/2008 | FS | <0.1 | <0.1 | 0.1 J | <0.1 | 0.3 J | <0.1 | <0.1 | <0.1 | <52.2 | 141 | 3.1 | <10.7 |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-11 cont.** | 2/9/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **211** | **99.4** | **4.0** | <10.7 |
| | 5/8/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **754** | **74.4** | **6.5** | <10.7 |
| | 7/30/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **73.6 J** | **29.7** | **2.7** | <8.9 |
| | 11/16/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **72.5 J** | **24.4** | **2.4** | <8.9 |
| **MW-11SP** | 2/18/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **257** | **25.3** | **2.9** | <8.9 |
| | 3/25/2010 | FS | NS | NS | NS | NS | NS | NS | NS | NS | **283** | **23.3** | **2.2** | <8.9 |
| | 3/25/2010 | FS/FF | NS | NS | NS | NS | NS | NS | NS | NS | <52.2 | **18.0** | **2.0** | <8.9 |
| | 5/18/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **794** | **60.4** | **1.9 J** | <8.9 |
| | 5/18/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | **63.0 J** | **11.4** | **1.8 J** | <8.9 |
| | 8/11/2010 | FS | <0.1 | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **190 J** | **76.6** | **2.0 J** | <8.9 |
| | 8/11/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **1.2 J** | **1.6 J** | <8.9 |
| | 10/25/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **149 J** | **56.3** | **1.6 J** | <8.9 |
| | 2/17/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **36.0** | **1.6 J** | <8.9 |
| | 5/13/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **123 J** | **57.4** | **2.2** | <8.9 |
| | 8/10/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **1.0 J** | **1.9 J** | <6.9 |
| | 10/24/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **135 J** | **26.7** | **1.8 J** | <6.9 |
| | 2/10/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **184 J** | **29.1** | **1.9 J** | <6.9 |
| | 5/14/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **73.2 J** | **32.6** | **1.8 J** | <6.9 |
| | 7/23/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **88.5 J** | **44.3** | **1.9 J** | <7.5 |
| | 1/28/2013 | FS | <0.1 | <0.1 | **0.3 J** | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | **1,230** | **111** | **3.5** | <7.5 |
| | 7/16/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **351** | **29.8** | **2.4** | <8.4 |
| | 1/27/2014 | FS | <0.1 | <0.1 | **0.3 J** | <0.1 | **0.4 J** | <0.1 | <0.1 | <0.1 | **2,750** | **74.8** | **2.9** | <8.4 |
| | 7/21/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **218** | **18.1** | **1.1 J** | <4.8 |
| | 1/13/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | Removed from Monitoring Well Network Second Half 2015 | | | | | | | | | | | |
| **MW-11IP** | 2/18/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **7,440** | **110** | **31.2** | <8.9 |
| | 3/25/2010 | FS | NS | NS | NS | NS | NS | NS | NS | NS | **1,780** | **45.0** | **5.9** | <8.9 |
| | 3/25/2010 | FS/FF | NS | NS | NS | NS | NS | NS | NS | NS | <52.2 | **15.7** | **2.2** | <8.9 |
| | 3/25/2010 | FD/FF | NS | NS | NS | NS | NS | NS | NS | NS | **111 J** | **16.4** | **2.0 J** | <8.9 |
| | 5/18/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **939** | **48.6** | **2.9** | <8.9 |
| | 5/18/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | **90.4 J** | **17.9** | **2.0** | <8.9 |
| | 8/11/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **254** | **37.0** | **1.5 J** | <8.9 |
| | 8/11/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **4.7 J** | **1.7 J** | <8.9 |
| | 10/25/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **178 J** | **29.2** | **1.8 J** | <8.9 |
| | 2/17/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **82.9 J** | **15.5** | **1.8 J** | <8.9 |
| | 5/13/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **88.2 J** | **16.0** | **1.8 J** | <8.9 |
| | 8/10/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **55.5 J** | **10.8** | **2.4** | <6.9 |
| | 10/24/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **151 J** | **12.9** | **2.1** | <6.9 |
| | 2/10/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **297** | **17.0** | **2.5** | <6.9 |
| | 5/14/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **119 J** | **27.8** | **1.9 J** | <6.9 |
| | 7/23/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **119 J** | **32.0** | **2.2** | <7.5 |
| | 1/28/2013 | FS | <0.1 | <0.1 | **0.3 J** | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | **1,440** | **140** | **4.1** | <7.5 |
| | 7/16/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **202** | **12.7** | **2.0** | <8.4 |
| | 1/27/2014 | FS | <0.1 | <0.1 | **0.3 J** | <0.1 | **0.4 J** | <0.1 | <0.1 | <0.1 | **11,200** | **305** | **6.9** | <8.4 |
| | 7/21/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **889** | **45.8** | **2.2** | <4.8 |
| | 1/21/2015 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **186 J** | **20.3** | **1.6 J** | <4.8 |
| | 7/7/2015 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | NA | NA | NA | --- |
| | 1/19/2016 | NS | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 7/19/2016 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | NA | NA | NA | --- |
| | 1/19/2017 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **435** | **41.0** | NA | --- |
| | 7/31/2017 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | NA | NA | NA | --- |
| | 2/7/2018 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <80.5 | **7.0** | **2.4** | --- |
| | 7/31/2018 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | NA | NA | NA | --- |
| | 2/12/2019 | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <40.0 | **2.8 J** | **2.2** | --- |
| | 7/17/2019** | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | NA | NA | NA | NA |
| | 1/30/2020** | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <41.2 | <3.1 | **2.0 J** | NA |
| **MW-13** | 2/24/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **2,810** | **20** | NS | NS |
| | 6/2/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1,200** | **10** | NS | NS |
| | 9/17/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1,300** | **23** | NS | NS |
| | 12/13/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1,400** | **17** | NS | NS |
| | 3/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **660** | <10 | NS | NS |
| | 6/21/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1,100** | **27** | NS | NS |
| | 10/2/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **710** | **14** | NS | NS |
| | 10/2/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1,500** | **38** | NS | NS |
| | 12/10/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **720** | **18** | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **61** | NS | NS |
| | 10/17/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **32** | **19** | NS | NS |
| | 6/10/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **35.5** | **13.8** | <45 | <34 |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-13 cont.** | 9/19/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **96.6 B** | **1.9 B** | <10 | **5.4 B** |
| | 11/21/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **11.7 B** | **0.8 B** | **4.7 B** | <2.0 |
| | 1/29/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **10.8 B** | <5 | **1.1 B** | <2 |
| | 6/19/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | **2.0** | <2 |
| | 9/12/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **2.5 J** | <4.9 | <4.7 |
| | 12/10/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **0.79 J** | <4.9 | <4.7 |
| | 3/12/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 6/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | **7.3 J** |
| | 8/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 11/18/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **239** | **1.3 J** | <4.7 | <5.9 |
| | 3/16/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **246** | **2.1 J** | **5.0 J** | <5.9 |
| | 5/25/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **136 J** | **2.9 J** | <9.3 | <9.4 |
| | 8/10/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **961** | **8.5** | <9.3 | <9.4 |
| | 11/16/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **411** | **2.7 J** | <9.3 | <9.4 |
| | 2/14/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **372** | **2.4 J** | <9.3 | <9.4 |
| | 5/22/2006 | FS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/18/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **959** | **3.1 J** | <10 | <9.4 |
| | 10/5/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **312** | **2.9 J** | <10 | <9.4 |
| | 1/25/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **130 J** | **1.9 J** | <10 | <9.4 |
| | 4/26/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **116 J** | **2.5 J** | <10 | <9.4 |
| | 8/2/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **168 J** | **2.5 J** | <10 | <9.4 |
| | 11/8/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **533** | **5.1** | <10 | <9.4 |
| | 2/14/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **480** | **7.5** | <10.0 | <9.4 |
| | 5/8/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **634** | **9.3** | <10.0 | <9.4 |
| | 8/18/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.1 J** | <10.2 | <10.7 |
| | 10/24/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **78.2 J** | **2.4 J** | **1.8 J** | <10.7 |
| | 2/11/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **220** | **6.6** | **2.2** | <10.7 |
| | 5/11/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **102 J** | **7.8** | **1.9 J** | <10.7 |
| | 8/3/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **93.1 J** | **7.4** | **2.2** | <8.9 |
| | 11/19/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **270** | **14.4** | **2.2** | <8.9 |
| | 2/22/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **257** | **11.0** | **2.3** | <8.9 |
| | 5/20/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **299** | **9.9** | **2.2** | <8.9 |
| | 5/20/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **3.5 J** | **2.2** | <8.9 |
| | 8/12/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **6.0** | **2.9** | <8.9 |
| | 8/12/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **2.2 J** | **2.7** | <8.9 |
| | 10/27/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **172 J** | **6.4** | **2.2** | <8.9 |
| | 2/15/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **132 J** | **7.1** | **2.8** | <8.9 |
| | 5/19/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **221** | **8.8** | **2.7** | <8.9 |
| | 8/8/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **265** | **10.3** | **2.5** | <6.9 |
| | 10/28/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **303** | **17.3** | **2.7** | <6.9 |
| | 2/13/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **169 J** | **4.0 J** | **2.9** | <6.9 |
| | 5/9/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **70.8 J** | **11.8** | **2.7** | <6.9 |
| | 7/24/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **58.3 J** | **2.3 J** | **2.9** | <7.5 |
| | 1/28/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **228** | **13.4** | **2.3** | <7.5 |
| | 7/17/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **164 J** | **5.2** | **2.7** | <8.4 |
| | 1/29/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **7,270** | **241** | **7.2** | <8.4 |
| | 7/22/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **6,610** | **264** | **5.3** | <4.8 |
| | 1/13/2015 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **32,400** | **717** | **14.8** | **6.0 J** |
| | 7/7/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---- | --- | --- |
| | 1/19/2016 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---- | --- | --- |
| | 7/19/2016 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---- | --- | --- |
| | 1/19/2017 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---- | --- | --- |
| | 7/31/2017 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---- | --- | --- |
| | 2/6/2018 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---- | --- | --- |
| | 7/31/2018 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---- | --- | --- |
| | 2/12/2019 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---- | --- | --- |
| | 7/17/2019 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---- | --- | --- |
| | 1/30/2020 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---- | --- | --- |
| **MW-18** | 2/27/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **950** | **1,200** | NS | NS |
| | 6/8/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | **180** | NS | NS |
| | 3/17/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **110** | NS | NS |
| | 3/17/2000 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **110** | NS | NS |
| | | | | | | Decommissioned December 2005 | | | | | | | | |
| **MW-20** | 3/10/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **160** | **50** | NS | NS |
| | 6/9/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **640** | **160** | NS | NS |
| | 9/19/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **570** | **100** | NS | NS |
| | 12/16/1992 | REG FF | | | | | | | | | **140** | **12** | NS | NS |
| | 12/18/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | | | NS | NS |
| | 3/24/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **62** | <10 | NS | NS |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-20 cont.** | 7/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **73** | <10 | NS | NS |
| | 9/28/1993 | REG | | | | | | | | | **41** | <10 | NS | NS |
| | 9/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 12/8/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **270** | <10 | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | <5 | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <50 J | **0.93** | NS | NS |
| | 6/5/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **14.1** | <5 | <45 | <34 |
| | 9/20/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | **3 B** | **4 B** |
| | 11/22/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <9.0 | **0.3** | **6.8 B** | **2.1 B** |
| | 1/31/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **4.9 B** | <5 | **8.1** | <2 |
| | 6/17/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **42 J** | <5 | **5.8** | <2 |
| | 9/11/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **13.0 J** | **5.8 J** | <4.7 |
| | 12/12/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | **7.1 J** | <4.7 |
| | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | **7.5 J** | <4.7 |
| | 6/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <9.4 | <5.9 |
| | 8/10/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | **6.0 J** | <5.9 |
| | 11/19/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 3/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.050 | **0.21** | **2.9** | **6.9** |
| | 5/23/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | <9.3 | <9.4 |
| | 8/9/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | <9.3 | <9.4 |
| | 11/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | **11.6 J** | <9.4 |
| | 2/13/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | <0.96 | <9.3 | <9.4 |
| | 5/22/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | <0.96 | **9.8 J** | <9.4 |
| | 8/14/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 10/4/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 1/23/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 4/24/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 7/31/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10 | <9.4 |
| | 11/7/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **10.5 J** | <9.4 |
| | 2/12/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10.0 | <9.4 |
| | 5/7/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10.0 | <9.4 |
| | 8/13/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.3 J** | <10.2 | <10.7 |
| | 10/21/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.1 J** | **6.2** | <10.7 |
| | 2/4/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **0.88 J** | **5.2** | <10.7 |
| | 5/5/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **5.2** | <10.7 |
| | 7/28/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **3.5** | <8.9 |
| | 11/12/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **4.8** | <8.9 |
| | | | Removed from sampling program; gauged only | | | | | | | | | | | |
| **MW-21** | 2/21/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **380** | **50** | NS | NS |
| | 6/1/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **40** | **10** | NS | NS |
| | 9/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **88** | <10 | NS | NS |
| | 12/13/1992 | REG | | | | | | | | | **150** | **13** | NS | NS |
| | 12/14/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 3/22/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **990** | <10 | NS | NS |
| | 6/30/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **170** | <10 | NS | NS |
| | 9/28/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 12/6/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1,000** | **33** | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **84** | <10 | NS | NS |
| | 6/7/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **250** | <10 | NS | NS |
| | 9/12/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **370** | <10 | NS | NS |
| | 1/19/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **10** | <2 | NS | NS |
| | 1/19/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <7 | <2 | NS | NS |
| | 4/21/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 7/12/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/26/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 1/26/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 4/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | **0.9** | <0.7 | **1.3** | **0.6** | <0.5 | <30 | <5 | NS | NS |
| | 7/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/23/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 2/26/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | <5 | NS | NS |
| | 2/26/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/4/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **30** | <5 | NS | NS |
| | 9/18/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/18/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/18/1998 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/24/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-21 cont.** | 6/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **0.018** | NS | NS |
| | 9/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **8.0** | NS | NS |
| | 3/14/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **8.0** | NS | NS |
| | 6/21/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/13/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/20/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | <5 | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **14** | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **2 UJ** | **2.5** | NS | NS |
| | 6/5/2002 | FS FF | <0.5 | **0.11** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | <45 | <34 |
| | 9/20/2002 | FS | <.5 | **0.31 J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | **1.7 B** | **3.3 B** | <50 |
| | 11/22/2002 | FS | <0.5 | **0.21** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **9.4 B** | **1.5 B** | **9.1 B** | <2.0 |
| | 1/31/2003 | FS | <0.5 | **0.26 J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **8.8 B** | <5 | **5.3** | <2 |
| | 6/17/2003 | FS | <0.5 | **0.22 J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | **4.8** | **0.2 J** |
| | 9/11/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **0.84 J** | <4.9 | <4.7 |
| | 12/12/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **385** | **24.4** | **6.4 J** | <4.7 |
| | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **0.51 J** | <4.9 | <4.7 |
| | 6/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <9.4 | <5.9 |
| | 8/10/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 11/19/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 3/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **8.4** | **2.3** | **6.6** | **5.2** |
| | 5/23/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **162 J** | **12.8** | <9.3 | <9.4 |
| | 8/9/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | <9.3 | <9.4 |
| | 11/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | <9.3 | <9.4 |
| | 2/13/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | <0.96 | <9.3 | <9.4 |
| | 5/22/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | <0.96 | <9.3 | <9.4 |
| | 8/14/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.3 J** | <10 | <9.4 |
| | 10/4/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.4 J** | <10 | <9.4 |
| | 1/23/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **203** | **3.7 J** | <10 | <9.4 |
| | 4/24/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 7/31/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10 | <9.4 |
| | 11/6/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10 | <9.4 |
| | 2/12/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10.0 | <9.4 |
| | 5/6/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **101 J** | **4.7 J** | <10.0 | <9.4 |
| | 8/14/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **4.2 J** | <10.2 | <10.7 |
| | 10/21/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.6 J** | **3.1** | <10.7 |
| | 2/5/2009 | FS | <0.1 | **0.2 J** | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **21.4** | **3.0** | <10.7 |
| | 5/5/2009 | FS | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **78.2 J** | **4.3 J** | **2.9** | <10.7 |
| | 7/28/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **0.85 J** | **3.0** | <8.9 |
| | 11/12/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.0 J** | **2.4** | <8.9 |
| | 2/10/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **3.8 J** | **2.5** | <8.9 |
| | 5/13/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.7** | <8.9 |
| | 5/13/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | <0.84 | **2.9** | <8.9 |
| | 8/4/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.9 J** | **2.1** | <8.9 |
| | 10/20/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.1 J** | **2.1** | <8.9 |
| | 2/16/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.7 J** | **2.6** | <8.9 |
| | 5/11/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.1 J** | **2.9** | <8.9 |
| | 8/4/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **25.4 J** | **2.5 J** | **2.5** | <6.9 |
| | 10/20/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **97.2 J** | **1.8 J** | **2.3** | **8.4 J** |
| | 2/9/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **25.9 J** | **1.8 J** | **2.0 J** | <6.9 |
| | 5/8/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **228** | **8.5** | **1.9 J** | <6.9 |
| | 7/19/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **79.9 J** | **2.6 J** | **2.4** | <7.5 |
| | 1/24/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **1,170** | **73.6** | **3.6** | <7.5 |
| | 7/15/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **100 J** | **4.0 J** | **2.2** | <8.4 |
| | 1/23/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **403** | **15.2** | **2.0 J** | <8.4 |
| | 7/21/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **5,350** | **690** | **3.3** | <4.8 |
| | 1/21/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/7/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/19/2016 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/19/2016 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/18/2017 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/31/2017 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2/6/2018 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/31/2018 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2/12/2019 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/17/2019 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/30/2020 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **MW-30P** | 2/25/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **290** | **250** | NS | NS |
| | 6/15/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **4,900** | **360** | NS | NS |
| | 9/27/1993 | REG FF | <0.5 | **1.5** | **0.93** | <1 | <1 | <1 | <1 | <0.5 | **300** | **290** | NS | NS |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-30P cont.** | 12/9/1993 | REG | <0.5 | **1.3** | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **120** | **280** | NS | NS |
| | 3/14/1994 | REG FF | <0.5 | <1 | **0.91** | <1 | <1 | <1 | <1 | <0.5 | **150** | **250** | NS | NS |
| | 6/6/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **270** | **300** | NS | NS |
| | 9/12/1994 | REG FF | <0.5 | **1.2** | **1.0** | <1 | <1 | <1 | <1 | <0.5 | **200** | **250** | NS | NS |
| | 1/20/1995 | REG FF | <0.5 | **0.8** | **0.6** | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <7 | **280** | NS | NS |
| | 4/20/1995 | REG FF | <0.5 | **0.5** | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | **270** | NS | NS |
| | 7/10/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | **250** | NS | NS |
| | 10/24/1995 | REG FF | <0.5 | **0.7** | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | **250** | NS | NS |
| | 1/26/1996 | REG FF | <0.5 | **0.7** | **0.7** | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | **250** | NS | NS |
| | 4/16/1996 | REG FF | <0.5 | **0.6** | **0.7** | <0.5 | <0.7 | <0.5 | <0.5 | **0.9** | <30 | **240** | NS | NS |
| | 7/17/1996 | REG FF | <0.5 | **0.7** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **270** | NS | NS |
| | 10/23/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **240** | NS | NS |
| | 10/23/1996 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **290** | NS | NS |
| | | Removed from Monitoring Well Network First Quarter 2010 | | | | | | | | | | | | |
| **MW-31P** | 3/2/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **330** | <10 | NS | NS |
| | 3/2/1992 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **520** | <10 | NS | NS |
| | 6/2/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | | | NS | NS |
| | 6/3/1992 | REG FF | | | | | | | | | **550** | **30** | NS | NS |
| | 9/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 12/14/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1,100** | **25** | NS | NS |
| | 3/23/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **150** | <10 | NS | NS |
| | 7/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <0.5 | <0.5 | **140** | <10 | NS | NS |
| | 10/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **160** | <10 | NS | NS |
| | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **300** | <10 | NS | NS |
| | 3/14/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **400** | <10 | NS | NS |
| | 6/9/1994 | REG FF | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | **710** | **22** | NS | NS |
| | 9/13/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **170** | <10 | NS | NS |
| | 4/20/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **110** | **31** | NS | NS |
| | 7/13/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **30** | <5 | NS | NS |
| | 10/25/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **40** | <5 | NS | NS |
| | 10/25/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 1/25/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **40** | **6** | NS | NS |
| | 4/16/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | **1.0** | **40** | <5 | NS | NS |
| | 7/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/22/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **35** | <5 | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 2/25/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **40** | <5 | NS | NS |
| | 9/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/23/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | | Removed from sampling program; gauged only | | | | | | | | | | | | |
| **MW-36** | 3/10/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **170** | **140** | NS | NS |
| | 6/8/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **170** | **50** | NS | NS |
| | 9/19/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **190** | **19** | NS | NS |
| | 9/19/1992 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **230** | **20** | NS | NS |
| | 12/16/1992 | REG FF | | | | | | | | | <40 | <10 | NS | NS |
| | 12/17/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **460** | **74** | NS | NS |
| | 3/24/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **130** | **30** | NS | NS |
| | 7/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <0.5 | <0.5 | **210** | **15** | NS | NS |
| | 9/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **56** | <10 | NS | NS |
| | 12/8/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **850** | **27** | NS | NS |
| | | Decommissioned October 1997 | | | | | | | | | | | | |
| **MW-38** | 6/24/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **930** | **320** | NS | NS |
| | 6/24/1992 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **760** | **260** | NS | NS |
| | 9/19/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **100** | **12** | NS | NS |
| | 12/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **150** | **11** | NS | NS |
| | 3/15/1993 | REG | | | | | | | | | **1,400** | **38** | NS | NS |
| | 3/24/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **120** | **14** | NS | NS |
| | 7/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **150** | <10 | NS | NS |
| | 9/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **75** | <10 | NS | NS |
| | 9/29/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **120** | **13** | NS | NS |
| | 12/8/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **380** | <10 | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-38 cont.** | 6/8/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **490** | **13** | NS | NS |
| | 9/13/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **230** | **47** | NS | NS |
| | 1/17/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **130** | **6** | NS | NS |
| | 4/18/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **30** | <5 | NS | NS |
| | 7/10/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/24/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/24/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 1/25/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 4/16/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | **0.6** | <0.5 | **0.5** | <30 | <5 | NS | NS |
| | 7/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 7/17/1996 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/22/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/16/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/23/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/15/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **60** | **370** | NS | NS |
| | 9/13/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/19/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | <5 | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | <5 | NS | NS |
| | 10/17/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **34** | **2.2** | NS | NS |
| | 6/4/2002 | FS FF | <0.5 | **0.2** | <0.5 | **1.3** | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | <45 | <34 |
| | 9/23/2002 | FS | <0.5 | **0.1 J** | <0.5 | **0.81** | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | <10 | **4.8 B** |
| | 11/22/2002 | FS | <0.5 | <0.5 | <0.5 | **0.45** | <0.5 | <0.5 | <0.5 | <0.5 | <9.0 | **0.3** | **5.9 B** | <2.0 |
| | 1/30/2003 | FS | <0.5 | <0.5 | <0.5 | **0.69** | <0.5 | <0.5 | <0.5 | <0.5 | **4.2 B** | <5 | <1 | <2 |
| | 6/17/2003 | FS | <0.5 | <0.5 | <0.5 | **0.29 J** | <0.5 | <0.5 | <0.5 | <0.5 | **50 J** | **2.6 J** | **1.8** | **0.3 J** |
| | 9/8/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 12/16/2003 | FS | <0.1 | <0.1 | <0.1 | **0.6** | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 3/8/2004 | FS | <0.1 | <0.1 | <0.1 | **0.6** | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | **5.3 J** |
| | 6/7/2004 | FS | <0.1 | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <9.4 | <5.9 |
| | 8/10/2004 | FS | <0.1 | <0.1 | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 11/15/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 3/14/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 5/23/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | <9.3 | <9.4 |
| | 8/8/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | <9.3 | <9.4 |
| | 11/14/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | <9.3 | <9.4 |
| | 2/10/2006 | FS | <0.1 | <0.1 | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | <0.96 | <9.3 | <9.4 |
| | 5/19/2006 | FS | <0.1 | <0.1 | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | <0.96 | <9.3 | <9.4 |
| | 8/14/2006 | FS | <0.1 | <0.1 | <0.1 | **0.5** | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | **11.2 J** |
| | 10/4/2006 | FS | <0.1 | <0.1 | <0.1 | **0.6** | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 1/22/2007 | FS | <0.1 | <0.1 | <0.1 | **0.5** | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 4/23/2007 | FS | <0.1 | **0.1 J** | <0.1 | **0.9** | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 7/30/2007 | FS | <0.1 | **0.1 J** | <0.1 | **0.8** | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10 | <9.4 |
| | 11/6/2007 | FS | <0.1 | **0.1 J** | <0.1 | **0.5** | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10 | <9.4 |
| | 2/11/2008 | FS | <0.1 | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10.0 | <9.4 |
| | 5/5/2008 | FS | <0.1 | <0.1 | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10.0 | <9.4 |
| | 8/11/2008 | FS | <0.1 | **0.1 J** | <0.1 | **0.5** | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10.2 | <10.7 |
| | 10/20/2008 | FS | <0.1 | <0.1 | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.4 J** | <10.7 |
| | 2/3/2009 | FS | <0.1 | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.3 J** | <10.7 |
| | 5/4/2009 | FS | <0.1 | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.5 J** | <10.7 |
| | 7/27/2009 | FS | <0.1 | **0.1 J** | <0.1 | **0.5 J** | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.2 J** | **1.9 J** | <8.9 |
| | 11/11/2009 | FS | <0.1 | **0.1 J** | <0.1 | **0.5** | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **5.5** | **1.6 J** | <8.9 |
| | | | Removed from Monitoring Well Network First Quarter 2010 | | | | | | | | | | | |
| **MW-39** | 6/25/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **210** | **90** | NS | NS |
| | 9/18/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **350** | **86** | NS | NS |
| | 12/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **270** | **130** | NS | NS |
| | 3/15/1993 | REG | | | | | | | | | **1,800** | **48** | NS | NS |
| | 3/24/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **120** | **12** | NS | NS |
| | 7/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <0.5 | <0.5 | **95** | <10 | NS | NS |
| | 9/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **86** | <10 | NS | NS |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-39 cont.** | 12/8/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **830** | **23** | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **47** | <10 | NS | NS |
| | 6/8/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1,500** | **40** | NS | NS |
| | 9/13/1994 | REG FF | | | | | | | | | **45** | <10 | NS | NS |
| | 1/17/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <7 | **2** | NS | NS |
| | 1/17/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <7 | <2 | NS | NS |
| | 4/19/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 7/12/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **60** | <5 | NS | NS |
| | 10/25/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **30** | **28** | NS | NS |
| | 1/25/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 4/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | **0.8** | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 7/19/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/23/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **7** | NS | NS |
| | 9/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/17/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/24/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **5** | NS | NS |
| | 9/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **14** | NS | NS |
| | 3/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **7** | NS | NS |
| | 6/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/15/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/13/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **6.0** | NS | NS |
| | 12/19/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | <5 | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | <5 | NS | NS |
| | 10/17/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **33** | **1.6** | NS | NS |
| | 6/5/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <100 | <5 | <45 | <34 |
| | 6/5/2002 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <100 | <5 | <45 | <34 |
| | 9/23/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | **263** | <10 | **4.8 B** |
| | 11/22/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <9.0 | **0.5 B** | **4.1 B** | **2.2 B** |
| | 1/29/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | **1.7 B** | <2 |
| | 6/17/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **139** | <5 | **2.2** | **0.5 J** |
| | 9/8/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 12/12/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **2.0 J** | **19.5** | **22.5** |
| | 3/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 6/7/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <9.4 | <5.9 |
| | 8/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | **5.4 J** | <5.9 |
| | 11/15/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 3/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.050 | **0.23** | **1.9** | <0.0059 |
| | 5/23/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **1.2 J** | <9.3 | <9.4 |
| | 8/9/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **1.2 J** | <9.3 | <9.4 |
| | 11/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **1.5 J** | <9.3 | <9.4 |
| | 2/13/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | **1.6 J** | <9.3 | <9.4 |
| | 5/19/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | **1.2 J** | <9.3 | <9.4 |
| | 8/14/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.6 J** | <10 | <9.4 |
| | 10/4/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.9 J** | <10 | <9.4 |
| | 1/22/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.5 J** | <10 | <9.4 |
| | 4/23/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.1 J** | <10 | <9.4 |
| | 7/30/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.6 J** | <10 | <9.4 |
| | 11/6/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10 | <9.4 |
| | 2/11/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10.0 | <9.4 |
| | 5/8/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **0.84 J** | <10.0 | <9.4 |
| | 8/11/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **0.94 J** | <10.2 | <10.7 |
| | 10/20/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.0 J** | <10.7 |
| | 2/3/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.2 J** | **1.2 J** | <10.7 |
| | 5/4/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.6 J** | **1.4 J** | <10.7 |
| | 7/27/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **3.8 J** | **1.1 J** | <8.9 |
| | 11/12/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **3.9 J** | <0.95 | <8.9 |
| | | | Removed from sampling program; gauged only | | | | | | | | | | | |
| **MW-40** | 6/24/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **83,000** | **12,000** | NS | NS |
| | 9/18/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **130,000** | **25,000** | NS | NS |
| | 12/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **120,000** | **26,000** | NS | NS |
| | 3/15/1993 | REG | | | | | | | | | **84,000** | **25,000** | NS | NS |
| | 3/24/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **110,000** | **25,000** | NS | NS |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-40 cont.** | 7/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <0.5 | <0.5 | **99,000** | **25,000** | NS | NS |
| | 7/1/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <0.5 | <0.5 | **97,000** | **26,000** | NS | NS |
| | 9/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **110,000** | **27,000** | NS | NS |
| | 12/8/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **120,000** | **26,000** | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **79,000** | **24,000** | NS | NS |
| | 6/8/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **49,000** | **20,000** | NS | NS |
| | 9/13/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **78,000** | **19,000** | NS | NS |
| | 1/18/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **1,300** | **940** | NS | NS |
| | 4/19/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **870** | **990** | NS | NS |
| | 7/11/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **500** | **740** | NS | NS |
| | 7/11/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **480** | **680** | NS | NS |
| | 10/25/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **380** | **350** | NS | NS |
| | 1/25/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **250** | **310** | NS | NS |
| | 4/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | **0.9** | <0.5 | <0.5 | **210** | **220** | NS | NS |
| | 7/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **390** | **470** | NS | NS |
| | 10/22/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **260** | **370** | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **1,700** | **1,400** | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **100** | **360** | NS | NS |
| | 6/3/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **80** | **360** | NS | NS |
| | 9/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **200** | **140** | NS | NS |
| | 12/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **150** | **150** | NS | NS |
| | 3/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **110** | **140** | NS | NS |
| | 3/17/1998 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **100** | **140** | NS | NS |
| | 6/23/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **72** | NS | NS |
| | 9/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **52** | NS | NS |
| | 12/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **60** | **90** | NS | NS |
| | 3/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **60** | **100** | NS | NS |
| | 6/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **120** | NS | NS |
| | 9/15/1999 | REG FF | **0.73** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **7.0** | NS | NS |
| | 12/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **360** | **170** | NS | NS |
| | 3/15/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **1,800** | **4,900** | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **220** | **100** | NS | NS |
| | 9/13/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **1,200** | **3,600** | NS | NS |
| | 12/19/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | **60** | **180** | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | **36** | **150** | NS | NS |
| | 10/17/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **58** | **130** | NS | NS |
| | 6/7/2002 | FS FF | **0.18** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **9.8** | **63.9** | <45 | <34 |
| | 9/23/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **22 B** | **124** | <10 | **6.6 B** |
| | 11/25/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **9.9** | **28.6** | **3.7** | <2.0 |
| | 1/31/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **8.2 B** | **39.1** | **2.4** | <2 |
| | 6/17/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **58 J** | **82** | **2.0** | **0.6 J** |
| | 9/8/2003 | FS | <0.5 | <0.5 | <0.5 | | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **56.2** | <4.9 | <4.7 |
| | 12/11/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **7.4** | <4.9 | <4.7 |
| | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **21.5** | <4.9 | <4.7 |
| | 6/7/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **20.7** | <9.4 | <5.9 |
| | 8/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **33.3** | <4.7 | <5.9 |
| | 11/15/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **25.2** | <4.7 | <5.9 |
| | 3/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.050 | **31.2** | <0.0047 | **2.1** |
| | 5/24/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **44.8** | <9.3 | <9.4 |
| | 8/8/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **57.3** | <9.3 | <9.4 |
| | 11/14/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **27.9** | **10.2 J** | <9.4 |
| | 2/10/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | **27.0** | <9.3 | <9.4 |
| | 5/19/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | **21.8** | <9.3 | <9.4 |
| | 8/14/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **18.2** | <10 | <9.4 |
| | 10/3/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **14.6** | <10 | <9.4 |
| | 1/22/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **177** | <10 | <9.4 |
| | 4/23/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **21.9** | <10 | <9.4 |
| | 7/30/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **7.3** | <10 | <9.4 |
| | 11/5/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **16.2** | <10 | <9.4 |
| | 2/11/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **42.2** | <10.0 | <9.4 |
| | 5/5/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **61.6 J** | **219.0** | <10.0 | <9.4 |
| | 8/11/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **81.3 J** | **1,340** | <10.2 | <10.7 |
| | 10/20/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2,290** | **1.3 J** | <10.7 |
| | 2/3/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **212** | **3,510** | **1.2 J** | <10.7 |
| | 5/4/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **53.7 J** | **3,550** | **1.2 J** | <10.7 |
| | 7/27/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **221** | **5,820** | **1.3 J** | <8.9 |
| | 11/11/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **168 J** | **4,720** | **1.2 J** | <8.9 |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-40 cont.** | 2/10/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **75.2 J** | **4,610** | **1.3 J** | <8.9 |
| | 5/12/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **59.6 J** | **4,610** | **1.0 J** | <8.9 |
| | 5/12/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **4,600** | **0.96 J** | <8.9 |
| | 8/3/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **66.0 J** | **4,870** | **1.0 J** | <8.9 |
| | 8/3/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **4,880** | **0.99 J** | <8.9 |
| | 10/19/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **4,750** | <0.95 | <8.9 |
| | 2/15/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **70.1 J** | **4,840** | **1.2 J** | <8.9 |
| | 5/10/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **111 J** | **3,920** | **1.4 J** | <8.9 |
| | 8/2/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **80.0 J** | **3,360** | <0.95 | <6.9 |
| | 10/18/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **37.9 J** | **3,450** | **1.0 J** | <6.9 |
| | 2/8/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **38.2 J** | **4,360** | **1.5 J** | <6.9 |
| | 5/7/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **3,560** | **1.3 J** | <6.9 |
| | 7/17/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **48.5 J** | **3,960** | <0.40 | <7.5 |
| | 1/25/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **361** | **4,560** | **0.54 J** | <7.5 |
| | 7/16/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **129 J** | **4,590** | **1.4 J** | <8.4 |
| | 1/23/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **57.8 J** | **3,350** | **0.95 J** | <8.4 |
| | 7/17/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **108 J** | **310** | **0.83 J** | <4.8 |
| | 1/13/2015 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **1,540** | **859** | **1.4 J** | <4.8 |
| | | | Removed from Monitoring Well Network Second Half 2015 | | | | | | | | | | | |
| **MW-41** | 6/25/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1,300** | **1,400** | NS | NS |
| | 9/18/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **200,000** | **20,000** | NS | NS |
| | 12/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **180,000** | **15,000** | NS | NS |
| | 3/15/1993 | REG | | | | | | | | | **110,000** | **14,000** | NS | NS |
| | 3/24/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **190,000** | **18,000** | NS | NS |
| | 3/24/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **180,000** | **16,000** | NS | NS |
| | 7/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <0.5 | <0.5 | **200,000** | **16,000** | NS | NS |
| | 9/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **160,000** | **26,000** | NS | NS |
| | 12/8/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **120,000** | **17,000** | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **100,000** | **14,000** | NS | NS |
| | 6/8/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **98,000** | **15,000** | NS | NS |
| | 9/13/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **73,000** | **12,000** | NS | NS |
| | 1/18/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **9,200** | **3,000** | NS | NS |
| | 4/19/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **3,100** | **2,500** | NS | NS |
| | 7/11/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **7,800** | **3,700** | NS | NS |
| | 10/25/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **920** | **1,600** | NS | NS |
| | 1/25/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **680** | **1,700** | NS | NS |
| | 4/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | **0.9** | <0.7 | **1.5** | **0.7** | <0.5 | **610** | **1,400** | NS | NS |
| | 4/17/1996 | FD FF | <0.5 | <0.5 | <0.5 | **0.8** | <0.7 | **1.4** | **0.6** | <0.5 | **650** | **1,500** | NS | NS |
| | 7/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **820** | **1,300** | NS | NS |
| | 10/22/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **3,300** | **1,800** | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **24,000** | **8,900** | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **390** | **630** | NS | NS |
| | 9/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **400** | **450** | NS | NS |
| | 12/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **7,500** | **2,600** | NS | NS |
| | 3/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **680** | **270** | NS | NS |
| | 6/23/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **14,000** | **20,000** | NS | NS |
| | 9/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **370** | **190** | NS | NS |
| | 9/15/1998 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **400** | **200** | NS | NS |
| | 12/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **700** | **290** | NS | NS |
| | 3/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **560** | **360** | NS | NS |
| | 6/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **62** | **50** | NS | NS |
| | 12/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **34** | **320** | NS | NS |
| | 3/15/2000 | REG FF | **0.25** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **6,100** | **3,600** | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **60** | **1,500** | NS | NS |
| | 9/13/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **74** | **980** | NS | NS |
| | 12/19/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | **220** | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | **240** | **420** | NS | NS |
| | 10/17/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **64** | **96** | NS | NS |
| | 6/7/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **5,270** | **4,490** | <45 | <34 |
| | 9/23/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **4,810** | **740** | <10 | **4 B** |
| | 11/25/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **65.4** | **114** | **3.9** | <2.0 |
| | 1/30/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **63 B** | **189** | <1 | <2 |
| | 6/18/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **224** | **424** | **0.7** | **0.2 J** |
| | 9/8/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **456** | <4.9 | <4.7 |
| | 12/11/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **528** | <4.9 | <4.7 |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-41 cont.** | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **379** | <4.9 | <4.7 |
| | 6/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **59.5 J** | **612** | <9.4 | <5.9 |
| | 8/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **91.5 J** | **259** | <4.7 | <5.9 |
| | 11/15/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **52.9 J** | **516** | <4.7 | <5.9 |
| | 3/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **81.3** | **561** | **2.3** | **1.70** |
| | 5/23/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **288** | **819** | <9.3 | <9.4 |
| | 8/9/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **331** | **769** | <9.3 | <9.4 |
| | 11/14/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **107 J** | **783** | **12.0 J** | <9.4 |
| | 2/10/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **115 J** | **758** | <9.3 | <9.4 |
| | 5/19/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **204** | **680** | <9.3 | <9.4 |
| | 8/14/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **638** | <10 | <9.4 |
| | 10/3/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **151 J** | **800** | <10 | <9.4 |
| | 1/22/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **252** | <10 | <9.4 |
| | 4/23/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **286** | <10 | <9.4 |
| | 7/30/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **274** | <10 | <9.4 |
| | 11/5/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **52.3** | <10 | <9.4 |
| | 2/11/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **465** | <10.0 | <9.4 |
| | 5/5/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **939** | **8,500** | <10.0 | <9.4 |
| | 8/11/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **1,680** | **23,100** | <10.2 | <10.7 |
| | 10/20/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **1,520** | **17,900** | **1.3 J** | <10.7 |
| | 2/2/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **1,190** | **9,300** | <0.95 | <10.7 |
| | 5/4/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **812** | **8,320** | **1.2 J** | <10.7 |
| | 7/27/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **2,100** | **18,600** | **1.8 J** | <8.9 |
| | 11/11/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **2,580** | **17,000** | **1.7 J** | <8.9 |
| | 2/10/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **2,110** | **16,100** | **1.9 J** | <8.9 |
| | 5/12/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **1,650** | **15,200** | **1.5 J** | **9.4 J** |
| | 5/12/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | **1,240** | **12,900** | **1.1 J** | <8.9 |
| | 8/3/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **2,000** | **13,800** | **1.6 J** | <8.9 |
| | 8/3/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | **1,750** | **14,700** | **1.4 J** | <8.9 |
| | 10/19/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **6,930** | **12,300** | **3.2** | <8.9 |
| | 2/15/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **1,770** | **13,700** | **1.5 J** | <8.9 |
| | 5/10/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **1,650** | **13,300** | **1.6 J** | <8.9 |
| | 8/2/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **2,380** | **10,100** | **1.4 J** | <6.9 |
| | 10/18/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **2,290** | **10,900** | **1.4 J** | <6.9 |
| | 2/15/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **1,980** | **9,890** | **1.1 J** | <6.9 |
| | 5/7/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **1,540** | **8,850** | **1.1 J** | <6.9 |
| | 7/17/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **1,380** | **7,880** | **1.5 J** | <7.5 |
| | 1/25/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **42.2 J** | **4,380** | **1.6 J** | <7.5 |
| | 7/16/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **1,180** | **7,990** | **1.2 J** | <8.4 |
| | 1/23/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **3,760** | **6,110** | **2.2** | <8.4 |
| | 7/17/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **3,730** | **5,970** | **2.6** | <4.8 |
| | 1/13/2015 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **4,680** | **7,590** | **2.7** | <4.8 |
| | | | Removed from Monitoring Well Network Second Half 2015 | | | | | | | | | | | |
| **MW-50** | 2/17/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **132 J** | **18.9** | **2.3** | <8.9 |
| | 5/20/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **0.97 J** | **2.3** | <8.9 |
| | 5/20/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **2.4 J** | **2.0 J** | <8.9 |
| | 8/12/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.3 J** | **2.0** | <8.9 |
| | 10/27/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.3 J** | **2.2** | <8.9 |
| | 2/22/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **0.95 J** | **1.9 J** | <8.9 |
| | 5/17/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **0.85 J** | **1.8 J** | <8.9 |
| | 8/8/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | <0.44 | **1.8 J** | <6.9 |
| | 10/28/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **67.6 J** | **2.3 J** | **1.9 J** | <6.9 |
| | 2/16/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **1.9 J** | **2.4** | <6.9 |
| | 5/11/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **1.3 J** | **1.9 J** | <6.9 |
| | 7/23/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | <0.83 | **2.4** | <7.5 |
| | 1/29/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | <0.83 | **2.0 J** | <7.5 |
| | 7/16/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **2.1 J** | **2.4** | <8.4 |
| | 1/28/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **4.2 J** | **2.2** | <8.4 |
| | 7/22/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **358** | **17.7** | **2.4** | <4.8 |
| | 1/13/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/7/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/19/2016 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/19/2016 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/18/2017 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/31/2017 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2/6/2018 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 7/31/2018 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2/12/2019 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-50 cont.** | 7/17/2019 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/30/2020 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **MW-51** | 2/16/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **0.92 J** | **3.3** | <8.9 |
| | 5/17/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **3.2** | <8.9 |
| | 5/17/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | <0.84 | **3.3** | <8.9 |
| | 8/9/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.8** | <8.9 |
| | 10/25/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.4** | <8.9 |
| | 2/22/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **3.0** | <8.9 |
| | 5/17/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.4** | <8.9 |
| | 8/8/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **15.8 J** | <0.44 | **2.6** | <6.9 |
| | 10/21/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **2.2 J** | **2.6** | <6.9 |
| | 2/10/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **19.4 J** | **1.9 J** | **2.5** | <6.9 |
| | 5/9/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | <0.44 | **2.2** | <6.9 |
| | 7/20/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **1.9 J** | **2.2** | <7.5 |
| | 1/25/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | <0.83 | **2.8** | <7.5 |
| | 7/15/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | <0.83 | **1.9 J** | <8.4 |
| | 1/24/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **3.7 J** | **1.9 J** | <8.4 |
| | 7/17/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.4 | **4.1 J** | **2.9** | <4.8 |
| | 1/13/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | Removed from Monitoring Well Network Second Half 2015 | | | | | | | | | | | |
| **MW-52** | 2/16/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **23.2** | **3.9** | <8.9 |
| | 5/14/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **98.0** | **3.5** | <8.9 |
| | 5/14/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **90.9** | **3.2** | <8.9 |
| | 8/9/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **75.8 J** | **126** | **2.4** | <8.9 |
| | 8/9/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **150** | **2.4** | <8.9 |
| | 10/25/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **704** | **1.7 J** | <8.9 |
| | 2/22/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **53.3** | **2.4** | <8.9 |
| | 5/17/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **9.2** | **2.4** | <8.9 |
| | 8/4/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **340** | **1.5 J** | <6.9 |
| | 10/24/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **20.2 J** | **488** | **1.6 J** | <6.9 |
| | 2/9/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **44.1** | **2.0** | <6.9 |
| | 5/9/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **5.4** | **1.9 J** | <6.9 |
| | 7/20/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **6.3** | **1.8 J** | <7.5 |
| | 1/25/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **36.3** | **1.6 J** | <7.5 |
| | 7/15/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **308** | **1.4 J** | <8.4 |
| | 1/24/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **373** | **1.8 J** | <8.4 |
| | 7/17/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.4 | **216** | **1.9 J** | <4.8 |
| | 1/13/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | Removed from Monitoring Well Network Second Half 2015 | | | | | | | | | | | |
| **MW-53** | 2/16/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **207** | **2.4** | <8.9 |
| | 5/13/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **125** | **2.2** | <8.9 |
| | 5/13/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **96.7** | **2.2** | <8.9 |
| | 8/4/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **184** | **1.6 J** | <8.9 |
| | 8/4/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **954** | **2.2** | <8.9 |
| | 10/21/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **833** | **1.9 J** | <8.9 |
| | 2/22/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1,270** | **1.7 J** | <8.9 |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-53 cont.** | 5/10/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1,270** | **1.7 J** | <8.9 |
| | 8/4/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **17.1 J** | **1,280** | **1.5 J** | <6.9 |
| | 10/24/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **20.7 J** | **1,390** | **1.8 J** | <6.9 |
| | 2/15/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **1,300** | **2.0 J** | <6.9 |
| | 5/8/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **1,360** | **1.8 J** | <6.9 |
| | 7/19/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **1,340** | **1.8 J** | <7.5 |
| | 1/31/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **94.4** | **1.8 J** | <7.5 |
| | 7/15/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **21.9** | **1.5 J** | <8.4 |
| | 1/22/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **401** | **1.8 J** | <8.4 |
| | 7/15/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.4 | **14.2** | **1.7 J** | <4.8 |
| | 1/13/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | Removed from Monitoring Well Network Second Half 2015 | | | | | | | | | | | |
| **Intermediate** | | | | | | | | | | | | | | |
| **MW-23** | 3/5/1992 | REG FF | | | | | | | | | **150,000** | **33,000** | NS | NS |
| | 3/10/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **80** | **70** | NS | NS |
| | 4/22/1992 | REG FF | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <40 | **30** | NS | NS |
| | 6/9/1992 | REG FF | | | | | | | | | <40 | **50** | NS | NS |
| | 6/10/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **590** | **60** | NS | NS |
| | 9/19/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **50** | **28** | NS | NS |
| | 12/16/1992 | REG FF | | | | | | | | | <40 | **43** | NS | NS |
| | 12/17/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **79** | **46** | NS | NS |
| | 3/15/1993 | REG | | | | | | | | | **480** | **76** | NS | NS |
| | 3/24/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **480** | **130** | NS | NS |
| | 7/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **98** | **42** | NS | NS |
| | 9/28/1993 | REG | | | | | | | | | <40 | **51** | NS | NS |
| | 9/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | **48** | NS | NS |
| | 12/8/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **250** | **58** | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | **37** | NS | NS |
| | 6/8/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **190** | **58** | NS | NS |
| | 6/8/1994 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **190** | **56** | NS | NS |
| | 9/12/1994 | REG FF | | | | | | | | | **140** | **280** | NS | NS |
| | 9/13/1994 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | | | NS | NS |
| | 1/17/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **11** | **36** | NS | NS |
| | 4/21/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | **8** | NS | NS |
| | 4/21/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | **8** | NS | NS |
| | 7/12/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | **6** | NS | NS |
| | 10/26/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | **12** | NS | NS |
| | 1/26/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | **13** | NS | NS |
| | 1/26/1996 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | **13** | NS | NS |
| | 4/17/1996 | REG FF | <0.5 | <0.5 | **0.7** | <0.5 | <0.7 | **1.4** | **0.7** | <0.5 | <30 | **7** | NS | NS |
| | 7/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **11** | NS | NS |
| | 7/18/1996 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **10** | NS | NS |
| | 10/23/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **21** | NS | NS |
| | 2/26/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **21** | NS | NS |
| | 6/4/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **13** | NS | NS |
| | 9/18/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **16** | NS | NS |
| | 12/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **30** | NS | NS |
| | 12/17/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **30** | NS | NS |
| | 3/18/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **6** | NS | NS |
| | 6/24/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **5** | NS | NS |
| | 9/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **7** | NS | NS |
| | 3/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **120** | **710** | NS | NS |
| | 6/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **160** | **770** | NS | NS |
| | 9/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **480** | NS | NS |
| | 9/15/1999 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **490** | NS | NS |
| | 12/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **190** | NS | NS |
| | 3/14/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **280** | NS | NS |
| | 6/21/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **18** | NS | NS |
| | 9/13/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **160** | NS | NS |
| | 12/20/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | **60** | **210** | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **44** | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <50 J | **2.2** | NS | NS |
| | 6/5/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | **7.6** | <45 | <34 |
| | 9/20/2002 | FS | <0.5 | **0.41 J** | **0.17 J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **17.9 B** | **265** | <10 | **2.9 B** |
| | 11/22/2002 | FS | <0.5 | **0.33** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <9.0 | **256** | **6.1 B** | <2.0 |
| | 1/31/2003 | FS | <0.5 | **0.4 J** | **0.2 J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **4.9 B** | **283** | **3.4** | <2 |
| | 6/17/2003 | FS | <0.5 | **0.53** | **0.29 J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **40 J** | **263** | **2.2** | **0.3 J** |
| | 9/11/2003 | FS | <0.5 | **0.6 J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **267** | <4.9 | <4.7 |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-23 cont.** | 9/11/2003 | FD | <0.5 | **0.5 J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **275** | <4.9 | <4.7 |
| | 12/12/2003 | FS | <0.1 | <0.1 | **0.3 J** | **0.6** | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **324** | **5.2 J** | <4.7 |
| | 3/9/2004 | FS | <0.1 | **0.6** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **312** | <4.9 | <4.7 |
| | 6/8/2004 | FS | <0.1 | **0.5** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **253** | <9.4 | <5.9 |
| | 8/10/2004 | FS | <0.1 | **0.6** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **249** | <4.7 | <5.9 |
| | 11/19/2004 | FS | <0.1 | **0.5 J** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **301** | <4.7 | <5.9 |
| | 3/14/2005 | FS | <0.1 | **0.4 J** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **269** | <4.7 | <5.9 |
| | 5/23/2005 | FS | <0.1 | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **224** | <9.3 | <9.4 |
| | 8/9/2005 | FS | <0.1 | **0.5 J** | **0.5 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **279** | <9.3 | <9.4 |
| | 11/15/2005 | FS | <0.1 | **0.4 J** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **258** | <9.3 | <9.4 |
| | 2/13/2006 | FS | <0.1 | **0.2 J** | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | **212** | <9.3 | <9.4 |
| | 5/22/2006 | FS | <0.1 | **0.3 J** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | **226** | <9.3 | <9.4 |
| | 8/14/2006 | FS | <0.1 | **0.3 J** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **230** | <10 | <9.4 |
| | 10/4/2006 | FS | <0.1 | **0.3 J** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **243** | <10 | <9.4 |
| | 1/23/2007 | FS | <0.1 | **0.2** | **0.2** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **202** | <10 | <9.4 |
| | 4/24/2007 | FS | <0.1 | **0.2 J** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **222** | <10 | <9.4 |
| | 7/31/2007 | FS | <0.1 | **0.2 J** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **239** | <10 | <9.4 |
| | 11/7/2007 | FS | <0.1 | **0.2 J** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **195** | <10 | <9.4 |
| | 2/12/2008 | FS | <0.1 | **0.2 J** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **232** | <10.0 | <9.4 |
| | 5/7/2008 | FS | <0.1 | **0.2 J** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **290** | <10.0 | <9.4 |
| | 8/12/2008 | FS | <0.1 | **0.2 J** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **185** | <10.2 | <10.7 |
| | 10/21/2008 | FS | <0.1 | **0.2 J** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **251** | **1.8 J** | <10.7 |
| | 2/4/2009 | FS | <0.1 | **0.2 J** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **193** | **1.5 J** | <10.7 |
| | 5/6/2009 | FS | <0.1 | **0.2 J** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **220** | **1.6 J** | <10.7 |
| | 7/28/2009 | FS | <0.1 | **0.3 J** | **0.5 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **215** | **1.6 J** | <8.9 |
| | 11/12/2009 | FS | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **218** | **1.8 J** | <8.9 |
| | 2/17/2010 | FS | <0.1 | **0.2 J** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **182** | **1.3 J** | <8.9 |
| | 5/13/2010 | FS | <0.1 | **0.3 J** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **179** | **1.6 J** | <8.9 |
| | 5/13/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **176** | **1.5 J** | <8.9 |
| | 8/4/2010 | FS | <0.1 | **0.3 J** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **180** | **1.8 J** | <8.9 |
| | 8/4/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **183** | **2.1** | <8.9 |
| | 10/20/2010 | FS | <0.1 | **0.3 J** | **0.5 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **186** | **1.6 J** | <8.9 |
| | 2/16/2011 | FS | <0.1 | **0.5 J** | **0.5** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **251** | **2.0 J** | <8.9 |
| | 5/11/2011 | FS | <0.1 | **0.5 J** | **0.5 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **55.5 J** | **204** | **1.9 J** | <8.9 |
| | 8/4/2011 | FS | <0.1 | **0.5 J** | **0.5 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **26.4 J** | **185** | **1.4 J** | <6.9 |
| | 10/20/2011 | FS | <0.1 | **0.3 J** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **155** | **1.6 J** | <6.9 |
| | 2/9/2012 | FS | <0.1 | **0.1 J** | **0.1 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **81.4** | **1.6 J** | <6.9 |
| | 5/8/2012 | FS | <0.1 | **0.4 J** | **0.5 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **47.9 J** | **184** | **1.5 J** | <6.9 |
| | 7/19/2012 | FS | <0.1 | **0.4 J** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **151** | **1.6 J** | <7.5 |
| | 1/31/2013 | FS | <0.1 | **0.3 J** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **123** | **1.5 J** | <7.5 |
| | 7/15/2013 | FS | <0.1 | **0.4 J** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **105** | **1.7 J** | <8.4 |
| | 1/23/2014 | FS | <0.1 | **0.2 J** | **0.1 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **27.5** | **2.0** | <8.4 |
| | 7/17/2014 | FS | <0.1 | **0.3 J** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.4 | **81.0** | **1.7 J** | <4.8 |
| | 1/21/2015 | FS | <0.1 | **0.3 J** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.4 | **93.2** | **1.9 J** | <4.8 |
| | 7/7/2015 | FS | NA | NA | NA | NA | NA | NA | NA | NA | <33.4 | **139** | **1.5 J** | NA |
| | 1/21/2016 | FS | <0.1 | **0.1 J** | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **102** | **1.6 J** | NA |
| | 7/19/2016 | FS | NA | NA | NA | NA | NA | NA | NA | NA | **644** | **732** | **1.6 J** | NA |
| | 1/18/2017 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <74.7 | **113** | **1.7 J** | NA |
| | 7/31/2017 | FS | NA | NA | NA | NA | NA | NA | NA | NA | <80.5 | **16.0** | **1.8 J** | NA |
| | 2/6/2018 | FS | <0.1 | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <80.5 | **116** | **1.9 J** | NA |
| | 7/31/2018 | FS | NA | NA | NA | NA | NA | NA | NA | NA | <40.0 | **105** | **1.8 J** | NA |
| | 2/12/2019 | FS | <0.05 | <0.05 | **0.2 J** | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <40.0 | **68.8** | **1.6 J** | NA |
| | 7/17/2019** | FS | NA | NA | NA | NA | NA | NA | NA | NA | <40.0 | **1.3 J** | **1.8 J** | NA |
| | 1/30/2020** | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <41.2 | <3.1 | **2.3** | NA |
| **MW-24I** | 5/6/2008 | FS | <0.1 | **0.3 J** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **297** | <10.0 | <9.4 |
| | 8/14/2008 | FS | <0.1 | **0.2 J** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **333** | <10.2 | <10.7 |
| | 10/21/2008 | FS | <0.1 | **0.2 J** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **325** | **1.5 J** | <10.7 |
| | 2/5/2009 | FS | <0.1 | **0.2 J** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **291** | **1.3 J** | <10.7 |
| | 5/5/2009 | FS | <0.1 | **0.2 J** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **316** | **1.4 J** | <10.7 |
| | 7/29/2009 | FS | <0.1 | **0.1 J** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **312** | **1.4 J** | <8.9 |
| | 11/12/2009 | FS | <0.1 | **0.1 J** | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **292** | **1.4 J** | <8.9 |
| | 2/10/2010 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **285** | **1.5 J** | <8.9 |
| | 5/13/2010 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **281** | **1.5 J** | <8.9 |
| | 5/13/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **283** | **1.6 J** | <8.9 |
| | 8/5/2010 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **294** | **1.5 J** | <8.9 |
| | 8/5/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **280** | **1.4 J** | <8.9 |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-24I cont.** | 10/20/2010 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **262** | **1.7 J** | <8.9 |
| | 2/16/2011 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **287** | **1.7 J** | <8.9 |
| | 5/11/2011 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **294** | **1.9 J** | <8.9 |
| | 8/4/2011 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **15.7 J** | **263** | **1.3 J** | <6.9 |
| | 10/27/2011 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **26.1 J** | **268** | **1.7 J** | <6.9 |
| | 2/9/2012 | FS | <0.1 | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **651** | **1.6 J** | <6.9 |
| | 5/8/2012 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **303** | **1.7 J** | <6.9 |
| | 7/19/2012 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **356** | **1.5 J** | <7.5 |
| | 1/29/2013 | FS | <0.1 | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **371** | **1.3 J** | <7.5 |
| | 7/9/2013 | FS | <0.1 | **0.1 J** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **520** | **1.2 J** | <8.4 |
| | 1/23/2014 | FS | <0.1 | **0.1 J** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **484** | **1.4 J** | <8.4 |
| | 7/17//14 | FS | <0.1 | **0.1 J** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.4 | **488** | **1.5 J** | <4.8 |
| | 1/21/2015 | FS | <0.1 | **0.1 J** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.4 | **446** | **1.6 J** | <4.8 |
| | 7/7/2015 | FS | NA | NA | NA | NA | NA | NA | NA | NA | **35.3 J** | **1,150** | **1.4 J** | NA |
| | 1/21/2016 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **64.5 J** | **634** | **1.0 J** | NA |
| | 7/19/2016 | FS | NA | NA | NA | NA | NA | NA | NA | NA | **122 J** | **524** | **1.7 J** | NA |
| | 1/18/2017 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **113 J** | **409** | **1.7 J** | NA |
| | 7/31/2017 | FS | NA | NA | NA | NA | NA | NA | NA | NA | <80.5 | **162** | **1.4 J** | NA |
| | 2/6/2018 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <80.5 | **207** | **1.9 J** | NA |
| | 7/31/2018 | FS | NA | NA | NA | NA | NA | NA | NA | NA | <40.0 | **273** | **1.1 J** | NA |
| | 2/12/2019 | FS | <0.05 | <0.05 | **0.07 J** | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <40.0 | **647** | **1.3 J** | NA |
| | 7/17/2019** | FS | NA | NA | NA | NA | NA | NA | NA | NA | <40.0 | **101** | **1.5 J** | NA |
| | 1/30/2020** | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <41.2 | **39.9** | **1.4 J** | NA |
| **MW-25I** | 5/6/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **62.8 J** | **63.7** | <10.0 | <9.4 |
| | 8/14/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **34.9** | <10.2 | <10.7 |
| | 10/22/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **31.0** | **2.1** | <10.7 |
| | 2/5/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **22.5** | **2.3** | <10.7 |
| | 5/7/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **20.4** | **1.9 J** | <10.7 |
| | 7/30/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **23.3** | **1.9 J** | <8.9 |
| | 11/13/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **27.5** | **2.2** | **11.2 J** |
| | 2/10/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **12.9** | **1.9 J** | <8.9 |
| | 5/14/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **11.5** | **1.9 J** | <8.9 |
| | 5/14/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **7.7** | **1.9 J** | <8.9 |
| | 8/9/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **10.4** | **1.9 J** | <8.9 |
| | 10/21/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **3.8 J** | **1.7 J** | <8.9 |
| | 2/16/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **5.4** | **1.9 J** | <8.9 |
| | 5/17/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **9.6** | **1.9 J** | <8.9 |
| | 8/4/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **26.2 J** | **9.7** | **1.9 J** | <6.9 |
| | 10/24/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **42.5 J** | **12.3** | **1.9 J** | <6.9 |
| | 2/9/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **10.6** | **2.6** | <6.9 |
| | 5/9/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **10.2** | **2.0** | <6.9 |
| | 7/20/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **21.6** | **1.9 J** | <7.5 |
| | 1/25/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **28.3** | **2.4** | <7.5 |
| | 7/15/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **61.0** | **2.0** | <8.4 |
| | 1/24/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **172** | **2.4** | <8.4 |
| | 7/17/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.4 | **96.6** | **2.5** | <4.8 |
| | 1/14/2015 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.4 | **23.1** | **2.0 J** | <4.8 |
| | 7/7/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/21/2016 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.4 | **30.1** | NA | NA |
| | 7/19/2016 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/18/2017 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <74.7 | **113** | NA | NA |
| | 7/31/2017 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2/6/2018 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <80.5 | **46.1** | **2.0** | NA |
| | 7/31/2018 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2/12/2019 | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <40.0 | **37.9** | **2.7** | NA |
| | 7/17/2019 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/30/2020** | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <41.2 | <3.1 | **2.6** | NA |
| **MW-29P** | 3/2/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | **70** | NS | NS |
| | 6/2/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | **410** | NS | NS |
| | 9/16/1992 | REG | | | | | | | | | <40 | **76** | NS | NS |
| | 9/17/1992 | REG | <0.5 | <1 | **0.65** | <1 | <1 | <1 | <1 | <0.5 | <40 | **76** | NS | NS |
| | 12/13/1992 | REG | | | | | | | | | **130** | **200** | NS | NS |
| | 12/14/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | **190** | NS | NS |
| | 12/14/1992 | FD FF | | | | | | | | | <40 | **200** | NS | NS |
| | 12/30/1992 | REG | <0.5 | <1 | **0.9** | <1 | <1 | <1 | <1 | <0.5 | | | NS | NS |
| | 12/30/1992 | FD | <0.5 | <1 | **0.87** | <1 | <1 | <1 | <1 | <0.5 | | | NS | NS |
| | 3/23/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **55** | **280** | NS | NS |
| | 6/14/1993 | REG FF | <0.5 | <1 | **0.7** | <1 | <1 | <1 | <1 | <0.5 | **120** | **340** | NS | NS |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-29P cont.** | 9/27/1993 | REG FF | <0.5 | <1 | **0.55** | <1 | <1 | <1 | <1 | <0.5 | <40 | **260** | NS | NS |
| | 12/6/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **130** | **110** | NS | NS |
| | 12/6/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **81** | **110** | NS | NS |
| | 6/6/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **68** | **150** | NS | NS |
| | 4/20/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | **140** | NS | NS |
| | 4/16/1996 | REG FF | <0.5 | <0.5 | <0.5 | **0.6** | <0.7 | **0.8** | <0.5 | **0.9** | <30 | **99** | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **110** | NS | NS |
| | | | Removed from sampling program; gauged only | | | | | | | | | | | |
| **MW-34I** | 2/19/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **80** | **20** | NS | NS |
| | 6/3/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **60** | <10 | NS | NS |
| | 9/14/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | **33** | NS | NS |
| | 12/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 3/25/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 6/14/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 9/27/1993 | REG FF | <0.5 | <1 | **0.86** | <1 | <1 | <1 | **7.7** | <0.5 | <40 | <10 | NS | NS |
| | 9/27/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 12/7/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **48** | <10 | NS | NS |
| | 6/6/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **83** | <10 | NS | NS |
| | 9/14/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **100** | <10 | NS | NS |
| | 1/19/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **46** | **10** | NS | NS |
| | 4/18/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **170** | **12** | NS | NS |
| | 7/11/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/24/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 1/25/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 4/16/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | **0.5** | <30 | <5 | NS | NS |
| | 4/16/1996 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | **0.6** | <30 | <5 | NS | NS |
| | 7/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/22/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **59** | <5 | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **5** | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.5** | <0.5 | <30 | <5 | NS | NS |
| | 6/23/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/23/1998 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/15/1998 | REG FF | <0.5 | <0.5 | **0.74** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/15/1998 | FD FF | <0.5 | <0.5 | **0.51** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/16/1999 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **10** | NS | NS |
| | 6/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/14/2000 | REG FF | <0.5 | <0.5 | **0.57** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **6.0** | NS | NS |
| | 6/20/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **8.0** | NS | NS |
| | 9/12/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **52** | **16** | NS | NS |
| | 12/19/2000 | REG | <0.5 | <0.5 | **0.55** | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | **17** | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | **66** | **20** | NS | NS |
| | 10/16/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **71** | **25** | NS | NS |
| | 10/16/2001 | FD | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **110** | **30** | NS | NS |
| | 6/4/2002 | FS FF | <0.5 | <0.5 | **0.28** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **17.7** | **14.4** | <45 | <34 |
| | 9/23/2002 | FS | <.5 | **0.15 J** | **0.53** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **36.2 B** | **3.3 B** | <10 | **2.8 B** |
| | 11/22/2002 | FS | <0.5 | **0.15** | **0.35 J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **12.6 B** | **3.5 B** | **4.5 B** | <2.0 |
| | 1/31/2003 | FS | <0.5 | **0.12 J** | **0.46 J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **12.4 B** | **3.5 B** | **3.1** | <2 |
| | 6/17/2003 | FS | <0.5 | **0.12 J** | **0.5** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | **2.5** | <2 |
| | 9/8/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **2.9 J** | <4.9 | <4.7 |
| | 12/15/2003 | FS | <0.1 | **0.1 J** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **2.6 J** | <4.9 | <4.7 |
| | 3/8/2004 | FS | <0.1 | **0.1 J** | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **2.4 J** | <4.9 | <4.7 |
| | 6/7/2004 | FS | <0.1 | <0.1 | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **2.5 J** | <9.4 | <5.9 |
| | 8/10/2004 | FS | <0.1 | **0.1 J** | **0.5** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **2.7 J** | <4.7 | <5.9 |
| | 11/19/2004 | FS | <0.1 | **0.1 J** | **0.5** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **10.7** | <4.7 | <5.9 |
| | 3/14/2005 | FS | <0.1 | **0.1 J** | **0.6** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **2.3 J** | <4.7 | <5.9 |
| | 5/24/2005 | FS | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **3.4 J** | <9.3 | <9.4 |
| | 8/10/2005 | FS | <0.1 | <0.1 | **0.6** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **3.1 J** | <9.3 | <9.4 |
| | 11/15/2005 | FS | <0.1 | **0.1 J** | **0.6** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **3.5 J** | <9.3 | <9.4 |
| | 2/13/2006 | FS | <0.1 | <0.1 | **0.6** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | **3.1 J** | <9.3 | <9.4 |
| | 5/22/2006 | FS | <0.1 | <0.1 | **0.5** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | **3.3 J** | <9.3 | <9.4 |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-34I cont.** | 8/15/2006 | FS | <0.1 | <0.1 | **0.6** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **3.2 J** | <10 | <9.4 |
| | 10/4/2006 | FS | <0.1 | <0.1 | **0.7** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **3.4 J** | <10 | <9.4 |
| | 1/23/2007 | FS | <0.1 | <0.1 | **0.6** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **3.3 J** | <10 | <9.4 |
| | 4/24/2007 | FS | <0.1 | <0.1 | **0.7** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **3.3 J** | <10 | <9.4 |
| | 7/31/2007 | FS | <0.1 | <0.1 | **0.8** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **3.6 J** | <10 | <9.4 |
| | 11/6/2007 | FS | <0.1 | <0.1 | **0.7** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **3.5 J** | <10 | <9.4 |
| | 2/12/2008 | FS | <0.1 | <0.1 | **0.7** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **3.3 J** | <10.0 | <9.4 |
| | 5/6/2008 | FS | <0.1 | <0.1 | **0.8** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **3.2 J** | <10.0 | <9.4 |
| | 8/12/2008 | FS | <0.1 | <0.1 | **0.8** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **3.7 J** | <10.2 | <10.7 |
| | 10/21/2008 | FS | <0.1 | <0.1 | **0.7** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **3.8 J** | **2.2** | <10.7 |
| | 2/3/2009 | FS | <0.1 | <0.1 | **0.7** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **5.1** | **2.0 J** | <10.7 |
| | 5/5/2009 | FS | <0.1 | <0.1 | **0.8** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **3.6 J** | **2.0** | <10.7 |
| | 7/28/2009 | FS | <0.1 | <0.1 | **0.6** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **3.8 J** | **2.3** | <8.9 |
| | 11/11/2009 | FS | <0.1 | <0.1 | **0.6** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **4.0 J** | **2.0 J** | <8.9 |
| | 2/9/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **3.8 J** | **1.8 J** | <8.9 |
| | 5/12/2010 | FS | <0.1 | <0.1 | **0.5** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **5.4** | **2.0 J** | <8.9 |
| | 5/12/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **3.9 J** | **2.1** | <8.9 |
| | 8/4/2010 | FS | <0.1 | <0.1 | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **4.1 J** | **1.9 J** | <8.9 |
| | 10/20/2010 | FS | <0.1 | <0.1 | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **4.1 J** | **1.8 J** | <8.9 |
| | 2/15/2011 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **5.1** | **1.9 J** | <8.9 |
| | 5/12/2011 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **4.0 J** | **2.2** | <8.9 |
| | 8/3/2011 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **4.4 J** | **2.0 J** | <6.9 |
| | 10/18/2011 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **16.5 J** | **5.3** | **2.1** | <6.9 |
| | 2/8/2012 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **4.9 J** | **2.3** | <6.9 |
| | 5/7/2012 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **5.0** | **2.1** | <6.9 |
| | 7/19/2012 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **4.7 J** | **2.1** | <7.5 |
| | 1/28/2013 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **4.6 J** | **2.0** | <7.5 |
| | 7/9/2013 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **5.9** | **2.1** | <8.4 |
| | 1/22/2014 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **4.5 J** | **2.3** | <8.4 |
| | 7/15/2014 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.4 | **6.3** | **2.5** | <4.8 |
| | 1/21/2015 | FS | <0.1 | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.4 | **5.9** | **2.4** | <4.8 |
| | 7/7/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/20/2016 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | NA | NA | NA | NA |
| | 7/19/2016 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/18/2017 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | NA | NA | NA | NA |
| | 7/31/2017 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2/6/2018 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | NA | NA | NA | NA |
| | 7/31/2018 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2/12/2019 | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | NA | NA | NA | NA |
| | 7/17/2019 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/30/2020** | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | NA | NA | NA | NA |
| **MW-44I** | 5/13/2008 | FS | <0.1 | **0.2 J** | **0.6** | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | <52.2 | **205** | <10.0 | <9.4 |
| | 8/19/2008 | FS | <0.1 | **0.3 J** | **0.7** | <0.1 | **0.4 J** | <0.1 | <0.1 | <0.1 | <52.2 | **137** | <10.2 | <10.7 |
| | 10/27/2008 | FS | <0.1 | **0.3 J** | **0.7** | <0.1 | **0.5** | <0.1 | <0.1 | **0.1 J** | **487** | **4,550** | **1.2 J** | <10.7 |
| | 2/6/2009 | FS | <0.1 | **0.2 J** | **0.5** | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <52.2 | **2,200** | **1.4 J** | <10.7 |
| | 5/8/2009 | FS | <0.1 | **0.2 J** | **0.5** | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <52.2 | **1,990** | **1.4 J** | <10.7 |
| | 7/30/2009 | FS | <0.1 | **0.2 J** | **0.5 J** | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | <52.2 | **1,510** | **1.6 J** | <8.9 |
| | 11/17/2009 | FS | <0.1 | **0.1 J** | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **947** | **2.0** | <8.9 |
| | 2/18/2010 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **66.9 J** | **650** | **1.8 J** | <8.9 |
| | 5/18/2010 | FS | <0.1 | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **57.3 J** | **746** | **2.0 J** | <8.9 |
| | 5/18/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **477** | **2.0 J** | <8.9 |
| | 8/10/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **143 J** | **712** | **1.9 J** | <8.9 |
| | 8/10/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **378** | **1.9 J** | <8.9 |
| | 10/25/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **421** | **2.5** | <8.9 |
| | 2/23/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **338** | **2.1** | <8.9 |
| | 5/16/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **341** | **2.0** | <8.9 |
| | 8/11/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **31.4 J** | **350** | **1.9 J** | <6.9 |
| | 10/26/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **23.3 J** | **322** | **2.0 J** | <6.9 |
| | 2/14/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **137 J** | **396** | **2.0 J** | <6.9 |
| | 5/10/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **40.4 J** | **151** | **2.0 J** | <6.9 |
| | 7/23/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **109 J** | **268** | **2.1** | <7.5 |
| | 1/30/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **154** | **1.5 J** | <7.5 |
| | 7/18/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | **0.1 J** | <0.1 | <0.1 | <0.1 | **47.6 J** | **795** | **2.1** | <8.4 |
| | 1/28/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **102 J** | **191** | **1.7 J** | <8.4 |
| | 7/21/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.4 | **72.1** | **1.9 J** | <4.8 |
| | 1/14/2015 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.4 | **45.3** | **1.6 J** | <4.8 |
| | 7/7/2015 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **652** | **1,350** | **2.3** | NA |
| | 1/21/2016 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **36.2** | **1.9 J** | NA |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-44I cont.** | 7/19/2016 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <74.7 | **37.3** | **2.5** | NA |
| | 1/19/2017 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <74.7 | **41.7** | **2.0 J** | NA |
| | 7/31/2017 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <80.5 | **28.0** | **2.4** | NA |
| | 2/7/2018 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <80.5 | **51.8** | **2.4** | NA |
| | 7/31/2018 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **67.8 J** | **137** | **2.3** | NA |
| | 2/12/2019 | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <40.0 | **30.6** | **2.6** | NA |
| | 7/17/2019** | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <40.0 | **11.4 J** | **2.3** | NA |
| | 1/30/2020** | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <41.2 | **10.6** | **2.5** | NA |
| **MW-48I** | 5/8/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **93.7** | <10.0 | <9.4 |
| | 8/15/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **17.7** | <10.2 | <10.7 |
| | 10/23/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.8 J** | **2.6** | <10.7 |
| | 2/6/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.1 J** | **2.3** | <10.7 |
| | 5/7/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.0 J** | **2.7** | <10.7 |
| | 8/3/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.9 J** | **2.5** | <8.9 |
| | 11/18/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **9.7** | **2.5** | <8.9 |
| | 2/22/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.0 J** | **2.2** | <8.9 |
| | 5/19/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.7 J** | **2.1** | <8.9 |
| | 5/19/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **1.0 J** | **2.3** | <8.9 |
| | 8/11/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.3** | <8.9 |
| | 10/26/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **0.88 J** | **2.3** | <8.9 |
| | 2/24/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **12.2** | **2.4** | <8.9 |
| | 5/18/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.5** | <8.9 |
| | 8/9/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **26.8 J** | **0.59 J** | **2.4** | <6.9 |
| | 10/27/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **59.6 J** | <0.44 | **2.4** | <6.9 |
| | 2/16/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **0.66 J** | **2.3** | **7.3 J** |
| | 5/14/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **0.85 J** | **1.6 J** | <6.9 |
| | 7/24/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **1.0 J** | **2.4** | <7.5 |
| | 1/29/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **113 J** | **5.8** | **2.5** | <7.5 |
| | 7/17/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **1.9 J** | **2.9** | <8.4 |
| | 1/24/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **64.0 J** | **4.3 J** | **2.9** | <8.4 |
| | 7/22/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **107 J** | **4.3 J** | **3.6** | <4.8 |
| | 1/14/2015 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **52.8 J** | **5.8** | **3.9** | <4.8 |
| | 7/7/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/20/2016 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **33.5** | NA | NA |
| | 7/19/2016 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/19/2017 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <74.7 | **4.8 J** | NA | NA |
| | 7/31/2017 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2/6/2018 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <80.5 | **4.8 J** | **2.6** | NA |
| | 7/31/2018 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2/12/2019 | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <40.0 | **2.5 J** | **2.9** | NA |
| | 7/17/2019 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/30/2020** | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <41.2 | <3.1 | **2.3** | NA |
| **Deep** | | | | | | | | | | | | | | |
| **MW-2D** | 2/24/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **730** | **20** | NS | NS |
| | 6/8/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **40** | <10 | NS | NS |
| | 6/17/1992 | REG | | | | | | | | | **41** | <10 | NS | NS |
| | 9/16/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **65** | <10 | NS | NS |
| | 9/16/1992 | FD | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **84** | <10 | NS | NS |
| | 12/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **200** | <10 | NS | NS |
| | 3/23/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **100** | **16** | NS | NS |
| | 6/17/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 10/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **91** | <10 | NS | NS |
| | 12/6/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1,300** | **32** | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **91** | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **3.1 UJ** | **61** | NS | NS |
| | 6/6/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **11.1** | **6.7** | <45 | <34 |
| | 9/20/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **89.8 B** | **4.8 B** | <10 | **4.1 B** |
| | 11/25/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **22.1** | **54.5** | **4.6** | <2.0 |
| | 1/31/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **20.1 B** | **8.8 B** | **1.6** | <2 |
| | 6/18/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | **4.6 J** | **1.4** | **0.2 J** |
| | 9/10/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **51.5 J** | **7.9** | <4.9 | <4.7 |
| | 12/11/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **6.5** | <4.9 | <4.7 |
| | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **65.6 J** | **6.8** | <4.9 | <4.7 |
| | 6/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **6.5** | <9.4 | <5.9 |
| | 8/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **5.8** | <4.7 | <5.9 |
| | 8/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **5.8** | <4.7 | <5.9 |
| | 11/15/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **106 J** | **5.1** | <4.7 | <5.9 |
| | 3/14/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **4.0 J** | <4.7 | <5.9 |
| | 5/23/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **80.7 J** | **5.1** | <9.3 | <9.4 |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-2D cont.** | 8/8/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **127 J** | **4.6 J** | <9.3 | <9.4 |
| | 11/14/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **283** | **7.7** | <9.3 | <9.4 |
| | 2/10/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | **1.9 J** | <9.3 | <9.4 |
| | 5/19/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | **3.3 J** | <9.3 | <9.4 |
| | 8/11/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **542** | **3.9 J** | <10 | <9.4 |
| | 10/3/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **175 J** | **4.4 J** | <10 | <9.4 |
| | 1/22/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.2 J** | <10 | <9.4 |
| | 4/23/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.8 J** | <10 | <9.4 |
| | 7/30/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.5 J** | <10 | <9.4 |
| | 11/5/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.4 J** | <10 | <9.4 |
| | 2/11/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.2 J** | <10.0 | <9.4 |
| | 5/5/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.2 J** | <10.0 | <9.4 |
| | 8/11/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **57.3 J** | **2.0 J** | <10.2 | <10.7 |
| | 10/20/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **57.8 J** | **2.2 J** | **1.9 J** | <10.7 |
| | 2/2/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.3 J** | **1.8 J** | <10.7 |
| | 5/4/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.4 J** | **1.9 J** | <10.7 |
| | 7/27/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **490** | **16.7** | **2.2** | <8.9 |
| | 11/11/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **115 J** | **6.4** | **1.5 J** | <8.9 |
| | 2/9/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **237** | **9.6** | **1.5 J** | <8.9 |
| | 5/12/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **149 J** | **6.8** | **1.9 J** | <8.9 |
| | 5/12/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **2.9 J** | **1.6 J** | <8.9 |
| | 8/3/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **354** | **11.1** | **1.9 J** | <8.9 |
| | 8/3/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **3.5 J** | **1.7J** | <8.9 |
| | 10/19/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **265** | **10.6** | **2.0 J** | <8.9 |
| | 2/15/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **168 J** | **5.5** | **2.0 J** | <8.9 |
| | 5/10/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **59.1 J** | **3.4 J** | **2.2** | <8.9 |
| | 8/2/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **112 J** | **3.4 J** | **2.5** | <6.9 |
| | 10/18/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **123 J** | **3.3 J** | **2.3** | <6.9 |
| | 2/7/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **90.9 J** | **5.2** | **2.5** | <6.9 |
| | 5/7/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **716** | **20.4** | **3.1** | <6.9 |
| | 7/17/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **62.8 J** | **2.4 J** | **2.7** | <7.5 |
| | 1/25/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **115 J** | **3.8 J** | **3.6** | <7.5 |
| | 7/9/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **585** | **10.6** | **3.3** | <8.4 |
| | 1/22/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **52.2 J** | **1.3 J** | **3.0** | <8.4 |
| | 7/15/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **92.4 J** | **4.0 J** | **3.2** | <4.8 |
| | 1/13/2015 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **48.7J** | **1.4 J** | **3.3** | <4.8 |
| | 7/7/2015 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/20/2016 | FS | NA | NA | NA | NA | NA | NA | NA | NA | **82.6 J** | **15.1** | **3.0** | NA |
| | 7/19/2016 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/18/2017 | FS | NA | NA | NA | NA | NA | NA | NA | NA | **512** | **20.3** | **3.6** | NA |
| | 7/31/2017 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2/7/2018 | FS | NA | NA | NA | NA | NA | NA | NA | NA | **126 J** | **3.3 J** | **3.6** | NA |
| | 7/31/2018 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 2/13/2019 | FS | NA | NA | NA | NA | NA | NA | NA | NA | **285** | **19.7 J** | **4.3** | NA |
| | 7/17/2019 | NS | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1/30/2020** | FS | NA | NA | NA | NA | NA | NA | NA | NA | <41.2 | **5.3 J** | **3.5** | NA |
| **MW-6D** | 9/18/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **290** | **62** | NS | NS |
| | 12/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **270** | **88** | NS | NS |
| | 3/30/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **120** | **62** | NS | NS |
| | 7/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <0.5 | <0.5 | **700** | **32** | NS | NS |
| | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **720** | **67** | NS | NS |
| | 6/10/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **230** | **27** | NS | NS |
| | 4/24/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | **25** | NS | NS |
| | 4/19/1996 | REG FF | **0.5** | **1.3** | **0.6** | <0.5 | **4.0** | **0.6** | **1.1** | <0.5 | <30 | **24** | NS | NS |
| | 6/5/1997 | REG FF | **0.59** | <0.5 | <0.5 | <0.5 | **1.7** | <0.5 | <0.5 | <0.5 | <30 | **24** | NS | NS |
| | 6/25/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **16** | NS | NS |
| | 6/18/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | **0.58** | <0.5 | **0.75** | <0.5 | <30 | **16** | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **18** | NS | NS |
| | 6/22/2000 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **20** | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **21** | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **2.9 UJ** | **12** | NS | NS |
| | 6/11/2002 | FS FF | <0.5 | **0.13** | <0.5 | <0.5 | **0.33** | <0.5 | **0.19** | <0.5 | <100 | **10.7** | <45 | <34 |
| | 9/18/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.32 J** | <0.5 | **140** | **11.5** | **1.9 B** | <50 |
| | 11/20/2002 | FS | <0.5 | **0.63** | <0.5 | <0.5 | 1.2 | <0.5 | **0.64** | <0.5 | **93.5** | **4.8** | <1.0 | <2.0 |
| | 1/28/2003 | FS | <0.5 | **1.1** | **0.13 J** | <0.5 | **1.8** | <0.5 | **1.1** | <0.5 | **159** | **3.9 B** | **1.7 B** | <2 |
| | 6/20/2003 | FS | <0.5 | **1.5** | **0.23 J** | <0.5 | **2.8** | **0.16 J** | **1.5** | <0.5 | **39 J** | **2.1 J** | **1.8** | <2 |
| | 9/9/2003 | FS | <0.5 | **2 J** | <0.5 | <0.5 | **4 J** | <0.5 | **2 J** | <0.5 | <45.3 | **0.74 J** | <4.9 | <4.7 |
| | 12/9/2003 | FS | <0.1 | **1.9** | **0.3 J** | <0.1 | **4.3** | <0.1 | **2.2** | <0.1 | <45.3 | **0.83 J** | <4.9 | <4.7 |
| | 3/11/2004 | FS | <0.1 | **2.2** | **0.4 J** | <0.1 | **4.8** | <0.1 | **2.6** | <0.1 | <45.3 | **0.62 J** | <4.9 | <4.7 |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-6D cont.** | 6/9/2004 | FS | <0.1 | **2.6** | **0.4 J** | <0.1 | **5.9** | <0.1 | **3.2** | <0.1 | <49.5 | **1.4 J** | <9.4 | <5.9 |
| | 8/13/2004 | FS | <0.1 | **3.1** | **0.4 J** | <0.1 | **6.0** | <0.1 | **3.7** | <0.1 | <49.5 | **0.94 J** | <4.7 | <5.9 |
| | 11/17/2004 | FS | <0.1 | **3.5** | **0.5** | <0.1 | **6.2** | <0.1 | **4.3** | <0.1 | <49.5 | **1.7 J** | <4.7 | <5.9 |
| | 3/18/2005 | FS | <0.1 | **3.7** | **0.5 J** | <0.1 | **5.5** | <0.1 | **4.2** | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 5/26/2005 | FS | <0.1 | **3.6** | **0.5 J** | <0.1 | **5.1** | <0.1 | **3.9** | <0.1 | <37.8 | **1.9 J** | <9.3 | <9.4 |
| | 8/11/2005 | FS | <0.1 | **4.0** | **0.6** | <0.1 | **5.7** | <0.1 | **4.2** | <0.1 | <37.8 | **0.99 J** | <9.3 | <9.4 |
| | 11/17/2005 | FS | <0.1 | **4.1** | **0.6** | <0.1 | **5.3** | <0.1 | **4.4** | <0.1 | <37.8 | **0.97 J** | <9.3 | <9.4 |
| | 2/15/2006 | FS | <0.1 | **3.9** | **0.5** | <0.1 | **4.8** | <0.1 | **4.1** | <0.1 | <66.7 | **26.1** | <9.3 | <9.4 |
| | 5/24/2006 | FS | <0.1 | **2.9** | **0.3 J** | <0.1 | **4.2** | <0.1 | **3.7** | <0.1 | <66.7 | **53.5** | <9.3 | <9.4 |
| | 8/16/2006 | FS | <0.1 | **3.2** | **0.3** | <0.1 | **3.8** | <0.1 | **3.5** | <0.1 | <52.2 | **38.8** | <10 | <9.4 |
| | 10/6/2006 | FS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | | | Decommissioned October 2006 | | | | | | | | | | | |
| **MW-26P** | 3/3/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **40** | <10 | NS | NS |
| | 6/3/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **70** | <10 | NS | NS |
| | 6/3/1992 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **280** | **20** | NS | NS |
| | 6/17/1992 | REG | | | | | | | | | **1,300** | **43** | NS | NS |
| | 9/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **260** | **16** | NS | NS |
| | 12/17/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **140** | <10 | NS | NS |
| | 3/26/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **440** | **16** | NS | NS |
| | 6/17/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **55** | <10 | NS | NS |
| | 9/28/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **45** | <10 | NS | NS |
| | 12/10/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 3/14/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **320** | <10 | NS | NS |
| | 6/7/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **240** | **18** | NS | NS |
| | 9/12/1994 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **87** | <10 | NS | NS |
| | 1/20/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <7 | <2 | NS | NS |
| | 1/20/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <7 | <2 | NS | NS |
| | 4/21/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 7/13/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 4/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | **0.9** | <0.7 | **1.4** | **0.8** | <0.5 | <30 | <5 | NS | NS |
| | 7/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/23/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 2/26/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/5/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/18/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/18/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/24/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/14/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/20/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **100** | <5 | NS | NS |
| | 9/12/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/18/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | <5 | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | <5 | NS | NS |
| | | | Removed from sampling program; gauged only | | | | | | | | | | | |
| **MW-27P** | 2/25/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1,800** | **230** | NS | NS |
| | 3/14/1993 | REG | **1.3** | <1 | **0.63** | <1 | <1 | <1 | <1 | <0.5 | | | NS | NS |
| | 3/14/1993 | FD | <1 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | | | NS | NS |
| | 6/15/1993 | REG FF | <0.5 | <1 | **0.64** | <1 | <1 | <1 | <1 | <0.5 | **1,000** | **100** | NS | NS |
| | 9/27/1993 | REG FF | <0.5 | <1 | **0.6** | **2.3** | <1 | <1 | <1 | <0.5 | **290** | **64** | NS | NS |
| | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | **27** | NS | NS |
| | 3/14/1994 | REG FF | | | | | | | | | **81** | **24** | NS | NS |
| | 3/14/1994 | FD FF | | | | | | | | | **63** | **23** | NS | NS |
| | 6/6/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **97** | **18** | NS | NS |
| | 6/6/1994 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **130** | **20** | NS | NS |
| | 9/12/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **70** | <10 | NS | NS |
| | 9/12/1994 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **110** | **19** | NS | NS |
| | 4/20/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | **18** | NS | NS |
| | 4/20/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | **18** | NS | NS |
| | 7/12/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | **11** | NS | NS |
| | 10/25/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | **12** | NS | NS |
| | 1/26/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | **10** | NS | NS |
| | 4/16/1996 | REG FF | <0.5 | <0.5 | **0.9** | <0.5 | <0.7 | **0.8** | <0.5 | **1.0** | <30 | **10** | NS | NS |
| | 7/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-27P cont.** | 10/22/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **6** | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **8** | NS | NS |
| | 6/4/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **7** | NS | NS |
| | 6/4/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **7** | NS | NS |
| | 9/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **6** | NS | NS |
| | 12/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **6** | NS | NS |
| | 3/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **7** | NS | NS |
| | 6/23/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **5** | NS | NS |
| | 9/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | **0.88** | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **5** | NS | NS |
| | | | Removed from Monitoring Well Network First Quarter 2010 | | | | | | | | | | | |
| **MW-28P** | 3/2/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 6/2/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **230** | <10 | NS | NS |
| | 9/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **400** | <10 | NS | NS |
| | 3/15/1993 | REG | | | | | | | | | **75** | <10 | NS | NS |
| | 3/30/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **42** | <10 | NS | NS |
| | 3/30/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **46** | <10 | NS | NS |
| | 6/15/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 9/27/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 12/6/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 6/6/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **87** | <10 | NS | NS |
| | 9/13/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **56** | <10 | NS | NS |
| | 1/21/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **8** | <2 | NS | NS |
| | 1/21/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <7 | <2 | NS | NS |
| | 4/21/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 7/10/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 7/10/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/25/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 1/29/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 4/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | **0.8** | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 7/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/23/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 2/26/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/14/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/20/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/12/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/19/2000 | REG | **1.1** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | <5 | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | <5 | NS | NS |
| | 10/16/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **27** | **2.1** | NS | NS |
| | 6/5/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | <45 | <34 |
| | 9/17/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | <10 | <50 |
| | 11/19/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <9.0 | **0.9 B** | **4.2 B** | <2.0 |
| | 1/30/2003 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **4.0** | <5 | **1.7 B** | <2 |
| | 6/16/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | **2.0** | <2 |
| | 9/10/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 12/15/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 3/10/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 6/10/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <9.4 | <5.9 |
| | 8/12/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | **6.2 J** | <5.9 |
| | 11/22/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 3/17/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 5/27/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | <9.3 | <9.4 |
| | 8/12/2005 | FS | **0.1 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | <9.3 | <9.4 |
| | 11/18/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | <9.3 | <9.4 |
| | 2/17/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | **1.3 J** | <9.3 | <9.4 |
| | 5/25/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **0.37 J** | <10 | <9.4 |
| | 8/17/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 10/6/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **0.47 J** | <10 | <9.4 |
| | 1/24/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 4/25/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 8/1/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10 | <9.4 |
| | 11/7/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **13.4 J** | <9.4 |
| | 2/13/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10.0 | <9.4 |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-28P cont.** | 5/7/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10.0 | <9.4 |
| | 8/13/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.4 J** | <10.2 | <10.7 |
| | 10/22/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.8 J** | <10.7 |
| | 2/4/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.7 J** | <10.7 |
| | 5/6/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.2** | <10.7 |
| | 7/29/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.7 J** | <8.9 |
| | 11/13/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **1.5 J** | **2.1** | <8.9 |
| | 2/11/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.6 J** | <8.9 |
| | 5/14/2010 | FS/FF | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **171 J** | **6.6** | **2.1** | <8.9 |
| | 8/5/2010 | FS/FF | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.6 J** | <8.9 |
| | 10/21/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.3** | <8.9 |
| | 2/17/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.2** | <8.9 |
| | 5/12/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.9 J** | <8.9 |
| | 8/3/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | <0.44 | **1.7 J** | <6.9 |
| | 10/20/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | <0.44 | **1.9 J** | <6.9 |
| | 2/13/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **0.48 J** | **2.0 J** | <6.9 |
| | 5/9/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | <0.44 | **1.9 J** | <6.9 |
| | 7/18/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | **1.2 J** | **2.0** | <7.5 |
| | 1/24/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | <0.83 | **2.2** | <7.5 |
| | 7/18/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | <0.83 | **2.4** | <8.4 |
| | 1/27/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | <0.83 | **2.1** | <8.4 |
| | 7/16/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.4 | **1.5 J** | **2.1** | <4.8 |
| | 1/20/2015 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.4 | <0.83 | **2.0 J** | <4.8 |
| | | | Removed from Monitoring Well Network Second Half 2015 | | | | | | | | | | | |
| **MW-34D** | 2/21/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **140** | **20** | NS | NS |
| | 6/5/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 9/16/1992 | REG | | | | | | | | | <40 | <10 | NS | NS |
| | 9/17/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **43** | <10 | NS | NS |
| | 12/14/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **150** | **10** | NS | NS |
| | 12/15/1992 | REG | <0.5 | <1 | <0.5 | <1 | **7.8** | <1 | **1.1** | <0.5 | | | NS | NS |
| | 3/25/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **47** | <10 | NS | NS |
| | 6/14/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **57** | <10 | NS | NS |
| | 9/28/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 3/14/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 3/14/1994 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 6/6/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **46** | <10 | NS | NS |
| | 9/14/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **100** | <10 | NS | NS |
| | 1/19/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <7 | **8** | NS | NS |
| | 4/18/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 4/18/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **40** | <5 | NS | NS |
| | 7/11/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/24/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 1/25/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 1/25/1996 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 4/16/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 7/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/22/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **1.0** | <0.5 | <30 | <5 | NS | NS |
| | 12/16/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **1.1** | <0.5 | <30 | <5 | NS | NS |
| | 3/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/23/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **40** | <5 | NS | NS |
| | 9/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/14/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/20/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **8.0** | NS | NS |
| | 9/12/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **6.0** | NS | NS |
| | 12/19/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | **320** | **66** | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | **160** | **57** | NS | NS |
| | 10/16/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **94** | **26** | NS | NS |
| | 6/4/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | **10.3** | <45 | <34 |
| | 9/23/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **13.4 B** | **0.5 B** | **1.1 B** | **4.7 B** |
| | 11/22/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **10.4 B** | **0.3** | **4.7 B** | **3.3 B** |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-34D cont.** | 1/31/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **7.1 B** | <5 | **2.7** | <2 |
| | 6/17/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **54 J** | **4.2 J** | **2.0** | **0.2 J** |
| | 9/11/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 9/11/2003 | FD | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 12/15/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | **6.1 J** | <4.7 |
| | 3/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 6/7/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <9.4 | <5.9 |
| | 8/10/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 11/19/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 3/14/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 5/24/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | <9.3 | <9.4 |
| | 8/9/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | <9.3 | <9.4 |
| | 11/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | <0.96 | <9.3 | <9.4 |
| | 2/13/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | <0.96 | <9.3 | <9.4 |
| | 5/22/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | <0.96 | <9.3 | <9.4 |
| | 8/15/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 10/4/2006 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 1/23/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 4/24/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.36 | <10 | <9.4 |
| | 7/31/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **0.88 J** | <10 | <9.4 |
| | 11/6/2007 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10 | <9.4 |
| | 2/12/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10.0 | <9.4 |
| | 5/6/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10.0 | <9.4 |
| | 8/12/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | <10.2 | <10.7 |
| | 10/21/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.7 J** | <10.7 |
| | 2/3/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.8 J** | <10.7 |
| | 5/5/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.8 J** | <10.7 |
| | 7/28/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.9 J** | <8.9 |
| | 11/11/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.0** | <8.9 |
| | 2/9/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.7 J** | <8.9 |
| | 5/13/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **2.0 J** | **2.0 J** | <8.9 |
| | 5/13/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | <0.84 | **2.0** | <8.9 |
| | 8/4/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.4 J** | <8.9 |
| | 10/20/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.0** | <8.9 |
| | 2/15/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **1.7 J** | <8.9 |
| | 5/12/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | <0.84 | **2.0 J** | <8.9 |
| | 8/3/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **27.5 J** | <0.44 | **1.8 J** | <6.9 |
| | 10/18/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **85.3 J** | **3.1 J** | **2.0** | <6.9 |
| | 2/8/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | **0.57 J** | **1.9 J** | <6.9 |
| | 5/7/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <14.1 | <0.44 | **1.8 J** | <6.9 |
| | 7/19/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | <0.83 | **1.9 J** | <7.5 |
| | 1/28/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.3 | <0.83 | **1.5 J** | <7.5 |
| | 7/9/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | <0.83 | **1.6 J** | <8.4 |
| | 1/22/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | <0.83 | **1.8 J** | <8.4 |
| | 7/15/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.4 | **2.1 J** | **2.1** | <4.8 |
| | 1/13/2015 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <33.4 | **3.1 J** | **1.8 J** | <4.8 |
| | | | Removed from Monitoring Well Network Second Half 2015 | | | | | | | | | | | |
| **MW-44D** | 5/13/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | **0.5** | <0.1 | <0.1 | <0.1 | <52.2 | **12.2** | **13.3 J** | **17.2 J** |
| | 8/19/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | **0.4 J** | <0.1 | <0.1 | <0.1 | <52.2 | **7.4** | <10.2 | <10.7 |
| | 10/27/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | <52.2 | **8.6** | **7.4** | <10.7 |
| | 2/6/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <52.2 | **6.2** | **8.2** | <10.7 |
| | 5/8/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **499** | **17.7** | **8.5** | <10.7 |
| | 7/30/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **558** | **16.7** | **9.1** | <8.9 |
| | 11/17/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **123 J** | **10.4** | **9.2** | <8.9 |
| | 2/18/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **469** | **18.0** | **7.9** | <8.9 |
| | 5/18/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **1,350** | **32.0** | **9.1** | <8.9 |
| | 5/18/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **8.4** | **8.8** | <8.9 |
| | 8/10/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **248** | **10.1** | **8.2** | <8.9 |
| | 8/10/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **3.7 J** | **8.8** | <8.9 |
| | 10/25/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **692** | **20.5** | **7.4** | <8.9 |
| | 2/23/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **171 J** | **5.8** | **9.3** | <8.9 |
| | 5/16/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **1,200** | **29.0** | **10.1** | <8.9 |
| | 8/11/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **340** | **10.5** | **8.7** | **7.1 J** |
| | 10/26/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **992** | **22.2** | **9.6** | <6.9 |
| | 2/14/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **531** | **21.8** | **8.4** | <6.9 |
| | 5/10/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **633** | **28.2** | **8.0** | <6.9 |
| | 7/23/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **261** | **13.6** | **7.5** | <7.5 |
| | 1/30/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **237** | **9.1** | **9.2** | <7.5 |
| | 7/18/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **2.9 J** | **9.0** | <8.4 |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-44D cont.** | 1/28/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **3.5 J** | **8.8** | <8.4 |
| | 7/21/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **82.6 J** | **7.4** | **9.6** | <4.8 |
| | 1/14/2015 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **72.4 J** | **4.7 J** | **8.0** | **5.1 J** |
| | 7/7/2015 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **25,300** | **489** | **12.0** | NA |
| | 1/21/2016 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **5,090** | **111** | **8.1** | NA |
| | 7/19/2016 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **1,100** | **23.9** | **6.8** | NA |
| | 1/19/2017 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <74.7 | **4.0 J** | **7.5** | NA |
| | 7/31/2017 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **579** | **21.4** | **7.9** | NA |
| | 2/7/2018 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **103 J** | **9.3** | **9.0** | NA |
| | 7/31/2018 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **98.7 J** | **3.4 J** | **9.0** | NA |
| | 2/12/2019 | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | **995** | **25.8** | **9.5** | NA |
| | 7/17/2019** | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <40.0 | <1.1 | **8.4** | NA |
| | 1/30/2020** | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | <41.2 | <3.1 | **9.6** | NA |
| **MW-48D** | 5/8/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **78.2 J** | **133** | **12.0 J** | <9.4 |
| | 8/15/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **147** | <10.2 | <10.7 |
| | 10/24/2008 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **217** | **67.2** | **4.2** | <10.7 |
| | 2/6/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **166 J** | **52.6** | **4.5** | <10.7 |
| | 5/7/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **398** | **41.6** | **7.2** | <10.7 |
| | 8/3/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **112 J** | **82.6** | **5.8** | <8.9 |
| | 11/19/2009 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **141 J** | **79.3** | **5.0** | <8.9 |
| | 2/19/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **72.1** | **3.9** | <8.9 |
| | 5/19/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **335** | **65.8** | **3.6** | <8.9 |
| | 5/19/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **60.6** | **3.9** | <8.9 |
| | 8/11/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **268** | **41.4** | **3.8** | <8.9 |
| | 8/11/2010 | FS/FF | -- | -- | -- | -- | -- | -- | -- | -- | <52.2 | **37.7** | **4.4** | <8.9 |
| | 10/26/2010 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **73.5 J** | **212** | **4.8** | <8.9 |
| | 2/24/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **16.3** | **4.3** | <8.9 |
| | 5/18/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **26.3** | **6.2** | <8.9 |
| | 8/9/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **35.5 J** | **46.7** | **5.1** | <6.9 |
| | 10/27/2011 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **42.3 J** | **49.7** | **5.0** | <6.9 |
| | 2/16/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **43.3 J** | **50.7** | **4.2** | <6.9 |
| | 5/15/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **53.5 J** | **54.6** | **4.4** | <6.9 |
| | 7/24/2012 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **56.1 J** | **776** | **5.7** | <7.5 |
| | 1/29/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **44.6 J** | **653** | **7.2** | <7.5 |
| | 7/17/2013 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <43.0 | **770** | **7.2** | <8.4 |
| | 1/24/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **102 J** | **803** | **7.5** | <8.4 |
| | 7/22/2014 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **119 J** | **830** | **6.8** | <4.8 |
| | 1/14/2015 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **1,480** | **258** | **5.6** | <4.8 |
| | 7/7/2015 | FS | NA | NA | NA | NA | NA | NA | NA | NA | **516** | **679** | **6.9** | NA |
| | 1/20/2016 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **1,110** | **437** | **5.8** | NA |
| | 7/19/2016 | FS | NA | NA | NA | NA | NA | NA | NA | NA | **744** | **1,100** | **8.5** | NA |
| | 1/19/2017 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **1,990** | **726** | **6.1** | NA |
| | 7/31/2017 | FS | NA | NA | NA | NA | NA | NA | NA | NA | **479** | **476** | **5.9** | NA |
| | 2/6/2018 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **242** | **612** | **7.6** | NA |
| | 7/31/2018 | FS | NA | NA | NA | NA | NA | NA | NA | NA | **228** | **539** | **7.9** | NA |
| | 2/12/2019 | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | **653** | **518** | **8.0** | NA |
| | 7/17/2019** | FS | NA | NA | NA | NA | NA | NA | NA | NA | **66.9 J** | **512** | **7.2** | NA |
| | 1/30/2020** | FS | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.08 | **58.4 J** | **539** | **7.9** | NA |
| **Unknown Depth** | | | | | | | | | | | | | | |
| **MW-22P** | 3/3/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **90** | **10** | NS | NS |
| | 6/1/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **40** | <10 | NS | NS |
| | 9/14/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **57** | <10 | NS | NS |
| | 12/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **46** | <10 | NS | NS |
| | 12/16/1992 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **48** | <10 | NS | NS |
| | 3/22/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **42** | <10 | NS | NS |
| | 9/30/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **56** | <10 | NS | NS |
| | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 12/9/1993 | FD | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 3/14/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **77** | <10 | NS | NS |
| | 6/7/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **73** | <10 | NS | NS |
| | 9/12/1994 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | <10 | NS | NS |
| | 1/20/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <7 | <2 | NS | NS |
| | 4/22/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 7/13/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **40** | <5 | NS | NS |
| | 10/26/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/26/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 1/29/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 4/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | **0.7** | <30 | <5 | NS | NS |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-22P cont.** | 7/19/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/23/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | | | Removed from Monitoring Well Network First Quarter 2010 | | | | | | | | | | | |
| **MW-32P** | 2/24/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **110** | **10** | NS | NS |
| | 6/4/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **190** | **40** | NS | NS |
| | 9/16/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **55** | **11** | NS | NS |
| | 12/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **290** | **170** | NS | NS |
| | 3/22/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **140** | <10 | NS | NS |
| | 6/21/1993 | REG FF | <0.5 | <1 | **0.82** | <1 | <1 | <1 | <1 | <0.5 | **83** | **12** | NS | NS |
| | 9/30/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **270** | **16** | NS | NS |
| | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **480** | **18** | NS | NS |
| | 12/9/1993 | FD | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **660** | **22** | NS | NS |
| | 6/9/1994 | REG FF | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | **330** | **29** | NS | NS |
| | 4/19/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **110** | **13** | NS | NS |
| | 4/19/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | **12** | NS | NS |
| | 4/16/1995 | REG FF | <0.5 | <0.5 | **0.6** | <0.5 | <0.7 | <0.5 | <0.5 | **1.0** | <30 | **12** | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **10** | NS | NS |
| | 6/23/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **33** | **10** | NS | NS |
| | 6/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **12** | NS | NS |
| | 6/20/2000 | REG FF | <0.5 | <0.5 | **0.66** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **13** | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **11** | NS | NS |
| | 10/17/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **34** | **12** | NS | NS |
| | 6/4/2002 | FS FF | <0.5 | **0.12** | **0.55** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **12.8** | **10.1** | <45 | <34 |
| | 9/17/2002 | FS FF | <0.5 | <0.5 | **0.55** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **9.8 B** | **10.5** | <10 | **3.7 B** |
| | 11/19/2002 | FS FF | <0.5 | <0.5 | **0.34** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **13.4 B** | **12.2** | **5.2 B** | <2.0 |
| | 1/30/2003 | FS | <0.5 | <0.5 | **0.4** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **14.8** | **11.9** | **2.2** | <2 |
| | 6/16/2003 | FS | <0.5 | <0.5 | **0.44 J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | **0.04 J** | <2 |
| | 9/10/2003 | FS | <0.5 | <0.5 | **0.6 J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **10.7** | <4.9 | <4.7 |
| | 12/16/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **10.4** | <4.9 | <4.7 |
| | 3/10/2004 | FS | <0.1 | <0.1 | **0.5 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **12.6** | <4.9 | <4.7 |
| | 6/10/2004 | FS | <0.1 | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **11.8** | <9.4 | <5.9 |
| | 8/12/2004 | FS | <0.1 | <0.1 | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **10.7** | <4.7 | <5.9 |
| | 11/22/2004 | FS | <0.1 | <0.1 | **0.2 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **9.1** | <4.7 | <5.9 |
| | 5/27/2005 | FS | <0.1 | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <37.8 | **7.0** | <9.3 | <9.4 |
| | 2/17/2006 | FS | <0.1 | <0.1 | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <66.7 | **14.8** | <9.3 | <9.4 |
| | 5/25/2006 | FS | <0.1 | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **6.3** | <10 | <9.4 |
| | 8/17/2006 | FS | <0.1 | <0.1 | **0.4 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **8.4** | <10 | <9.4 |
| | 10/6/2006 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 1/24/2007 | FS | <0.1 | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **6.3** | <10 | <9.4 |
| | 4/25/2007 | FS | <0.1 | <0.1 | **0.3 J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <52.2 | **6.1** | <10 | <9.4 |
| | 7/30/2007 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 11/7/2007 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 2/13/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 5/7/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 8/13/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 10/20/2008 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 2/4/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 5/6/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 7/29/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 11/11/2009 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | | | Removed from sampling program; gauged only | | | | | | | | | | | |
| **MW-33P** | 3/2/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **370** | **50** | NS | NS |
| | 6/2/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **160** | **60** | NS | NS |
| | 9/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | **28** | NS | NS |
| | 12/14/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **43** | **35** | NS | NS |
| | 3/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **180** | **16** | NS | NS |
| | 6/15/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | **36** | NS | NS |
| | 9/30/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | **38** | NS | NS |
| | 9/30/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | **1.7** | <0.5 | <40 | **38** | NS | NS |
| | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <40 | **42** | NS | NS |
| | 3/16/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **41** | **42** | NS | NS |
| | 6/8/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **91** | **53** | NS | NS |
| | 9/14/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **60** | **39** | NS | NS |
| | | | Removed from sampling program; gauged only | | | | | | | | | | | |
| **MW-35P** | 3/6/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **80** | **130** | NS | NS |
| | 6/5/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **100** | **30** | NS | NS |
| | 9/17/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **390** | **26** | NS | NS |
| | 12/17/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | | **63** | **60** | NS | NS |

**Table 10**
**Historical Concentrations of Targeted VOCs and Metals**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ROD/MCL/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **MW-35P cont.** | 12/17/1992 | FD FF | <0.5 | <1 | **0.56** | <1 | <1 | <1 | <1 | <0.5 | **57** | **70** | NS | NS |
| | 3/30/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **79** | **160** | NS | NS |
| | 6/18/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **91** | **250** | NS | NS |
| | 10/2/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **330** | **24** | NS | NS |
| | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **510** | **44** | NS | NS |
| | 6/9/1994 | REG FF | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | **93** | <10 | NS | NS |
| | 10/26/1995 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | **0.53** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/17/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **41** | **4.0** | NS | NS |
| | | | Removed from Monitoring Well Network First Quarter 2010 | | | | | | | | | | | |

**Notes:**

Data and information prior to June 2002 were supplied to Stantec by IT Corporation. Stantec accepts no responsibility for the accuracy of these data.

All results are reported in micrograms per liter (µg/L) unless otherwise noted.

* = Prior to September 1999, most results appeared to be reported in milligrams per liter (mg/L). These results have been converted to micrograms per liter (µg/L) to be consistent with subsequent sampling data.

** = Non detections reported to the Method Detection Limit (MDL)

ROD/MCL/RG = Record of Decision/Maximum Contaminant Level/Remedial Goal

REG/FS = primary sample/field sample

FF = field filtered

NS = not sampled

NA = not analyzed for this constituent

< = not detected above the reporting limit

J = estimated value

B = Value is less than the contract required detection limit (CRDL), but greater than or equal to the instrument detection limit (IDL).

D = Organic constituent is identified in an analysis at a secondary dilution factor.

E = Organic constituent value reported exceeds the linear calibration range for that compound.

UJ = reporting limit is estimated

Bolded values are detected above the method detection limit.

Outlined values exceed the ROD/MCL/RG.

Wells MW-26P, MW-27P, and MW-33P previously identified as shallow to intermediate interval wells.

Wells MW-14D and MW-29P previously identified as deep interval wells.

**Table 11**
**Historical pH Field Measurements**
**Purity Oil Sales Superfund Site, Malaga, California**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Oct. 2001 | June 2002 | Sept. 2002 | Nov. 2002 | Jan. 2003 | June 2003 | Sept. 2003 | Dec. 2003 | Mar. 2004 | June 2004 | Aug. 2004 | Nov. 2004 | Mar. 2005 | May 2005 | Aug. 2005 | Nov. 2005 | Feb. 2006 | May 2006 | Aug. 2006 | Oct. 2006 | Jan. 2007 | Apr. 2007 | July/ Aug. 2007 | Nov. 2007 | Feb. 2008 | May. 2008 | Aug. 2008 | Oct. 2008 | Feb. 2009 | May 2009 | July/ Aug. 2009 | Nov. 2009 | Feb. 2010 | May 2010 | Aug. 2010 | Oct. 2010 | Feb. 2011 | May 2011 | Aug. 2011 | Oct. 2011 | Feb. 2012 | May 2012 | July 2012 | Jan. 2013 | July 2013 | Jan. 2014 | July 2014 | Jan. 2015 | July 2015 | Jan. 2016 | July 2016 | Jan. 2017 | July 2017 | Jan. 2018 | July 2018 | Feb 2019 | July 2019 | Jan 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Extraction Wells (shallow)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EW-1 | 6.18 | 6.47 | 6.90 | 6.60 | 7.37 | 6.98 | 7.42 | 6.98 | 6.86 | 7.15 | 7.29 | 6.99 | 6.77 | 6.53 | 6.63 | 6.66 | 6.78 | 6.77 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| EW-2 | 6.12 | 7.09 | 7.53 | 7.02 | 7.53 | 7.30 | 7.00 | 7.45 | 7.04 | 7.16 | 7.37 | 7.22 | 7.06 | 7.32 | 7.16 | 7.05 | 7.06 | 7.20 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Shallow Wells** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MW-2S | 6.65 | 6.80 | 6.81 | 6.23 | 6.63 | 6.42 | 7.45 | 6.86 | 6.53 | 7.38 | 6.97 | 6.65 | 6.54 | 6.56 | 7.22 | 6.78 | 6.51 | 6.49 | 6.90 | 7.02 | 6.68 | 6.66 | 6.91 | 6.75 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-3 | 6.11 | 6.65 | 6.83 | 6.74 | 7.49 | dual water / We | | NA | NA | NA | NA | | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-5D | 6.35 | 7.01 | 7.14 | 6.97 | 7.16 | 6.84 | 7.78 | 7.12 | 7.62 | 7.34 | 7.06 | 7.27 | 7.18 | 7.54 | 7.24 | 7.13 | 7.08 | 7.16 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-5S | NA | 6.54 | 6.82 | 6.67 | 6.71 | 6.59 | 7.54 | 6.74 | 7.20 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-6S | 6.14 | 6.57 | 6.61 | 6.53 | 6.66 | 6.21 | 7.05 | 6.56 | 7.12 | 6.76 | 6.54 | 6.69 | 6.66 | 6.95 | 6.56 | 6.62 | 6.66 | 6.65 | 6.69 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-7S | 6.25 | 6.72 | 6.81 | 6.78 | 6.84 | 6.59 | 7.25 | 6.94 | 7.11 | 7.30 | 6.71 | 7.03 | 7.25 | 7.46 | 6.85 | 6.80 | 6.89 | 6.89 | 6.91 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-8 | 6.10 | 6.68 | 6.71 | 6.62 | 6.70 | 6.45 | 7.13 | 6.74 | 6.76 | 6.81 | 6.61 | 6.68 | 6.53 | 6.92 | 6.63 | 6.62 | 6.57 | 6.67 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-16 | 6.37 | 6.83 | 6.84 | 6.83 | 6.93 | 6.82 | 7.66 | 6.90 | 7.09 | 6.61 | 6.32 | 6.62 | 6.59 | 6.53 | 6.44 | 6.59 | **6.44** | 6.51 | 6.55 | **6.28** | 6.48 | 6.72 | NS | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-42 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7.36 | 7.27 | 7.09 | 7.08 | 7.21 | 6.88 | 7.14 | 7.11 | 7.08 | 7.40 | 7.03 | 7.24 | 7.41 | 7.47 | 7.17 | 8.14 | 7.35 | 7.09 | 7.80 | 7.35 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-43 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7.09 | 7.31 | 7.04 | 6.91 | 7.09 | 6.52 | 6.92 | 6.99 | 6.73 | 6.84 | 6.74 | 7.20 | 7.27 | 7.93 | 7.56 | 7.17 | 7.27 | 6.89 | 6.94 | 7.55 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-44S | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 6.88 | 7.02 | 7.04 | 6.59 | 7.08 | 6.30 | 6.79 | 6.87 | 6.96 | 6.86 | 6.54 | 6.99 | 7.34 | 7.28 | 7.34 | 7.20 | 7.02 | 6.72 | 6.76 | 6.85 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-45 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | **11.44** | 8.68 | 7.38 | 7.01 | 6.68 | 6.14 | 6.71 | 6.59 | **6.29** | 6.76 | 7.00 | 7.38 | 7.40 | NA | 7.79 | **8.63** | **8.76** | **8.84** | **9.00** | 8.09 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-46 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 6.89 | 7.19 | 6.93 | 6.42 | 6.61 | 6.16 | 6.62 | 6.69 | 6.49 | 7.20 | 6.75 | 7.30 | 7.43 | **7.11** | 7.27 | 7.27 | 7.55 | 7.13 | 7.26 | 7.16 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-47 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7.35 | 7.54 | 7.20 | 7.15 | 7.48 | 6.94 | 7.16 | 7.16 | 7.10 | 7.54 | 7.17 | 7.43 | 7.32 | NA | 7.75 | 7.65 | 7.81 | 7.22 | 7.41 | 7.40 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-48S | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7.34 | 7.77 | 7.66 | 7.26 | 7.27 | 6.80 | 7.33 | 7.27 | 7.74 | 7.06 | 6.98 | 7.62 | 7.53 | NA | 7.79 | 7.92 | 7.68 | 7.37 | 7.39 | 7.39 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-49 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7.07 | 7.46 | 7.17 | 7.09 | 7.34 | 7.26 | 7.06 | 7.14 | 7.04 | 7.13 | 6.76 | 7.15 | 7.27 | 7.48 | 7.56 | 7.23 | 7.49 | 7.31 | 7.69 | 7.83 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-54 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7.74 | 7.21 | 7.18 | 7.07 | 7.65 | 8.28 | 7.75 | 7.67 | 7.98 | 7.87 | 7.46 | 7.61 | 7.52 | NA | 7.70 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| PT-3A | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7.23 | 7.59 | NA | **8.24** | 7.38 | 7.41 | 6.83 | 7.05 | 7.28 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Shallow to Intermediate** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MW-7I | NA | 7.11 | 7.20 | 6.91 | 7.09 | 6.85 | 7.54 | 7.28 | 7.39 | 7.61 | 6.96 | 7.34 | 7.38 | 7.61 | 7.36 | 7.16 | 7.28 | 7.16 | 7.33 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-9 | 6.28 | 6.86 | 7.00 | 6.52 | 7.05 | 6.69 | 7.63 | 7.26 | 7.15 | 6.98 | 6.73 | 7.22 | 7.19 | 7.25 | 7.52 | 7.08 | 6.65 | 6.95 | 7.17 | 6.91 | 7.19 | 7.16 | 7.81 | 6.91 | 6.84 | 6.66 | 7.15 | 6.74 | 6.61 | 6.84 | 7.06 | 7.18 | 7.24 | 7.08 | 7.28 | 7.17 | 7.33 | 7.27 | NA | **7.11** | 7.54 | 7.23 | 7.14 | 7.04 | 7.05 | 8.35 | 7.69 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-11SP | 6.53 | 7.16 | 7.09 | 6.67 | 6.96 | 6.91 | 7.66 | 7.37 | 7.04 | 6.51 | 6.84 | 7.23 | 7.31 | 7.31 | 7.27 | 7.04 | 7.01 | 7.05 | 7.30 | 8.36 | 7.39 | 7.25 | 8.05 | 6.99 | 7.21 | 6.96 | 7.37 | 7.18 | 7.14 | 7.28 | 7.12 | 7.19 | 7.26 | 7.12 | 7.05 | 7.18 | 7.35 | 7.39 | NA | 7.76 | 7.62 | 7.56 | 7.15 | 7.01 | 7.59 | 6.34 | 7.60 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-11IP | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7.26 | 7.08 | 7.07 | 7.02 | 7.31 | 7.28 | NA | 7.81 | 7.62 | 7.58 | 7.10 | 7.02 | 7.40 | 6.98 | 7.54 | 7.49 | 7.17 | NA | 7.35 | 6.94 | **7.02** | 7.60 | 6.98 | 7.22 | 7.05 | 7.59 |
| MW-13 | 6.66 | 7.56 | 7.37 | 6.99 | 7.19 | 6.96 | 7.94 | 7.50 | 7.47 | 7.15 | 7.03 | 7.43 | 7.47 | 7.49 | 7.62 | 7.21 | 7.09 | NA | 7.27 | 7.33 | 7.26 | 7.45 | 7.41 | 7.34 | 7.44 | 7.24 | 7.82 | 7.29 | 7.26 | 7.21 | 6.97 | 7.26 | 7.36 | 7.17 | 7.38 | 7.54 | 7.58 | 7.62 | NA | 7.37 | 8.52 | 7.93 | 7.34 | 7.88 | 7.88 | 7.81 | 7.80 | 7.50 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-20 | 7.19 | **7.95** | 7.61 | 7.43 | 7.63 | 7.31 | **8.54** | **8.01** | **7.75** | **7.91** | 9.06* | **7.88** | **7.84** | 7.80 | **7.80** | 7.00 | 7.57 | **8.05** | 7.85 | 7.71 | **7.87** | **7.86** | 7.91 | **7.98** | **7.80** | 7.79 | 7.76 | 7.80 | 7.82 | 7.76 | 7.56 | 7.67 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-21 | 6.64 | 7.37 | 7.04 | 7.04 | 7.11 | 6.97 | 7.93 | 7.31 | 7.21 | 7.26 | 10.44* | 7.36 | 7.41 | 7.28 | 7.34 | 7.24 | 7.24 | 7.32 | 7.55 | 6.92 | 7.24 | 7.29 | 7.21 | 7.34 | 7.19 | 7.29 | 7.01 | 6.99 | 7.20 | 7.09 | 6.90 | 6.97 | 7.07 | 7.33 | 6.72 | 6.65 | 7.12 | 7.27 | 7.54 | 7.38 | 7.25 | 7.28 | 6.75 | 7.16 | 7.31 | 7.60 | 7.73 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-38 | 6.75 | 7.18 | 6.93 | 6.94 | 6.71 | 6.98 | 7.33 | 7.06 | 6.86 | 6.92 | 6.99 | 6.98 | 7.06 | 7.03 | 7.37 | 7.04 | 6.99 | 7.05 | 7.32 | 7.28 | 7.33 | 7.21 | 7.89 | 7.32 | 7.37 | 7.43 | 7.21 | 7.32 | 7.21 | 7.22 | 7.19 | 7.22 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-39 | 6.04 | 6.82 | 6.67 | 6.69 | 6.65 | 6.63 | 6.95 | 6.93 | 6.98 | 6.65 | 7.15 | 6.84 | 6.87 | 6.68 | 6.88 | 6.93 | 6.90 | 6.86 | 7.06 | 7.13 | 6.86 | 6.80 | 7.82 | 6.67 | 6.71 | 6.97 | 7.31 | 7.25 | 7.11 | 7.02 | 7.24 | 7.01 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-40 | **5.45** | 6.55 | 6.35 | 6.40 | 6.31 | 6.26 | 7.08 | 6.65 | **6.41** | **6.25** | 6.93 | 6.64 | 6.67 | 6.87 | 6.76 | 6.62 | 6.64 | 6.78 | 6.92 | 7.10 | 6.83 | 6.85 | 7.78 | 6.89 | 6.99 | 6.62 | **6.05** | **6.31** | **6.09** | **6.47** | **5.73** | **5.92** | **6.24** | 6.32 | **5.54** | **5.17** | **6.22** | **6.39** | 8.74 | 7.97 | **6.09** | **6.07** | 6.79 | **5.71** | **5.65** | **5.63** | **6.01** | 6.60 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-41 | 5.92 | **6.08** | **5.91** | **6.13** | **5.90** | **5.67** | **6.59** | **6.35** | 6.62 | 6.32 | 7.68 | **6.15** | **6.29** | **6.45** | **6.25** | **6.07** | 6.55 | **6.19** | **6.50** | 6.97 | 6.41 | **6.45** | 7.17 | **6.55** | **6.52** | **6.46** | 6.14 | 6.34 | 6.42 | 6.57 | 6.15 | 6.27 | 6.47 | 6.64 | 6.26 | 5.95 | 6.61 | 6.75 | 8.19 | 7.76 | 6.72 | 6.47 | **6.34** | 6.22 | 6.35 | 6.38 | 6.43 | **6.59** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-50 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7.39 | 7.22 | 7.13 | 7.28 | 7.39 | 7.46 | NA | 7.39 | 7.78 | 7.69 | 7.00 | 7.51 | 7.48 | 6.83 | 7.65 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-51 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7.56 | 7.30 | 7.52 | 7.34 | 7.57 | 7.49 | 7.43 | 7.27 | 7.90 | 7.78 | 7.61 | 7.62 | 7.69 | 8.16 | 7.80 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-52 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7.63 | 7.54 | 7.28 | 7.16 | 7.49 | 7.43 | 7.77 | 7.13 | 7.72 | 7.50 | 7.25 | 7.33 | 7.45 | 7.57 | 7.61 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-53 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7.37 | 7.47 | 7.38 | 7.39 | 7.50 | 7.45 | 7.63 | 7.17 | 7.70 | 7.63 | 7.40 | 7.43 | 7.36 | 7.52 | 7.59 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Intermediate Wells** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MW-23 | 6.70 | 7.60 | 7.34 | 7.26 | 7.36 | 7.04 | 8.08 | 7.57 | 7.38 | 7.40 | 9.47* | 7.45 | 7.45 | 7.28 | 7.34 | 7.34 | 6.94 | 7.21 | 7.28 | 7.25 | 7.35 | 7.45 | 7.47 | 7.51 | 7.38 | 7.54 | 8.01 | 7.44 | 7.51 | 7.50 | 7.31 | 7.37 | 7.44 | 7.44 | 7.36 | 7.30 | 7.49 | 7.67 | 7.51 | 7.34 | 7.72 | 7.15 | 7.45 | 7.49 | 7.57 | 7.63 | 7.01 | 7.65 | 7.11 | **6.85** | **6.73** | 7.15 | 7.14 | **7.06** | 7.52 | 7.32 | **7.01** | **7.07** |
| MW-24I | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7.67 | 7.72 | 7.43 | 7.44 | 7.54 | 7.22 | 7.39 | 7.47 | 7.74 | 7.54 | 7.33 | 7.47 | 7.56 | 7.55 | 7.15 | 7.84 | 7.24 | 7.42 | 7.42 | 7.48 | 6.97 | 7.55 | 7.66 | 7.53 | 7.44 | 7.41 | 7.22 | 7.31 | 7.68 | **6.88** | 7.23 | 7.35 | 7.16 |
| MW-25I | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7.51 | 7.95 | 7.54 | 7.56 | 7.54 | 7.40 | 7.32 | 7.57 | 7.70 | 7.42 | 7.52 | 7.56 | 7.45 | 7.52 | 7.24 | 7.96 | 7.79 | 7.55 | 7.55 | 7.68 | 7.65 | 7.33 | 7.84 | NA | **7.60** | NA | 7.40 | NA | 7.85 | NA | 7.49 | NA | 7.64 |
| MW-34I | 6.66 | 7.54 | 7.27 | 7.27 | 7.40 | 7.23 | 7.54 | 7.55 | 7.36 | 7.31 | **7.76** | 7.46 | 7.43 | 7.73 | 7.72 | 7.37 | 7.37 | 7.67 | 7.54 | 7.55 | 7.33 | 7.43 | **8.34** | 7.56 | 7.45 | 7.42 | 7.40 | 7.14 | 7.51 | 7.40 | 7.25 | 7.40 | 7.45 | 7.53 | 7.44 | 7.42 | 7.45 | 7.64 | 7.53 | 7.27 | 7.82 | 7.68 | 7.43 | 7.49 | 7.59 | 7.62 | 7.53 | 7.69 | NA | 7.43 | NA | 7.13 | NA | 7.66 | NA | 7.20 | NA | 7.39 |
| MW-44I | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7.13 | 7.69 | 7.15 | 6.98 | 7.28 | 7.01 | 7.17 | 7.24 | 7.16 | 7.59 | 7.11 | 7.36 | 7.64 | 7.25 | 7.17 | 7.57 | 7.33 | 6.99 | 8.03 | 7.09 | 6.48 | 7.20 | 7.16 | **6.98** | 7.04 | 7.12 | **6.85** | 7.18 | 7.77 | 7.47 | **7.14** | 7.15 | 7.67 |
| MW-48I | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7.91 | 7.80 | 7.90 | 7.56 | 7.69 | 7.23 | 7.58 | 7.61 | **8.02** | 7.59 | 7.51 | 7.62 | 7.67 | NA | 7.57 | 7.02 | 7.98 | 7.73 | 7.97 | 7.91 | **8.84** | 7.92 | 8.14 | NA | **7.60** | NA | 7.36 | NA | 8.03 | NA | 7.44 | NA | 7.99 |
| **Deep Wells** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MW-2D | 6.94 | 7.09 | 7.45 | 7.35 | 7.15 | 6.83 | 7.86 | 7.46 | 6.82 | 7.70 | 7.50 | 7.28 | 7.40 | 7.36 | 7.55 | 7.54 | 7.49 | 7.44 | 7.65 | 7.70 | 7.66 | 7.69 | 7.86 | 7.70 | 7.17 | 7.74 | 7.64 | 7.73 | 7.83 | 7.61 | 7.86 | 7.42 | 7.59 | 7.56 | 7.49 | 7.29 | 7.60 | 7.34 | 8.20 | 7.65 | 7.83 | 7.99 | 7.69 | 7.79 | 8.00 | 8.01 | 8.00 | 7.94 | NA | 7.09 | NA | 7.25 | NA | 8.31 | NA | **8.04** | NA | 8.02 |
| MW-6D | 6.64 | 7.20 | **8.13** | **7.86** | **7.80** | 7.45 | 8.44 | 7.67 | 7.18 | 7.71 | 7.37 | 7.64 | 7.52 | **7.90** | 7.74 | **7.69** | **7.74** | 7.82 | **7.95** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-28P | **7.56** | 7.61 | 7.58 | 7.41 | 7.21 | 7.36 | 8.20 | 7.55 | 7.42 | 7.02 | 7.13 | 7.51 | 7.37 | 7.65 | 7.55 | 7.46 | 7.44 | 7.40 | 7.42 | **8.40** | 7.45 | 7.59 | 7.57 | 7.58 | 7.53 | 7.58 | 7.55 | 7.56 | 7.54 | 7.55 | 7.43 | 7.50 | 7.55 | 7.45 | 7.47 | 7.41 | 7.54 | 7.80 | **8.75** | 7.30 | 8.00 | 7.77 | 7.58 | 7.60 | 7.70 | NA | 7.39 | 7.72 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-34D | 6.79 | 7.56 | 7.25 | 7.29 | 7.48 | 7.23 | 8.05 | 7.62 | 7.35 | 7.40 | 7.65 | 7.55 | 7.43 | 7.76 | 7.51 | 7.43 | 7.39 | 7.71 | 7.61 | 7.76 | 7.40 | 7.54 | 8.06 | 7.63 | 7.48 | 7.53 | 7.52 | 7.54 | 7.67 | 7.51 | 7.38 | 7.48 | 7.52 | 7.48 | 7.62 | 7.50 | 7.50 | 7.67 | 7.72 | 7.46 | 7.91 | 7.73 | 7.45 | 7.54 | 7.63 | 7.41 | 7.55 | 7.65 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MW-44D | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 8.03 | **8.83** | **8.05** | 8.00 | 8.08 | **8.03** | **7.87** | **7.92** | 7.92 | **7.84** | **7.97** | 8.52 | 8.17 | NA | 7.72 | **8.63** | 8.31 | 7.94 | 8.19 | **8.19** | 7.78 | **8.33** | **8.27** | **7.89** | **7.60** | **7.56** | **7.80** | **7.39** | **8.71** | 7.53 | 7.90 | **7.70** | **8.19** |
| MW-48D | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 7.92 | 8.07 | 7.62 | **8.85** | **8.41** | 7.19 | 7.42 | 7.10 | 7.62 | 7.43 | 7.36 | **8.89** | **8.78** | NA | 7.92 | 7.77 | 7.90 | 7.54 | 7.65 | 7.66 | 7.41 | 7.57 | 7.39 | 7.59 | 7.32 | 7.34 | 7.11 | 7.15 | 7.61 | **7.55** | 7.36 | 7.30 | 7.85 |
| **Unknown Depth** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MW-32P | 7.38 | 7.56 | 7.50 | 7.31 | 7.11 | **7.55** | 8.14 | 7.51 | 7.22 | 6.76 | 7.13 | 7.49 | NA | 7.71 | NA | NA | 7.42 | 7.39 | 7.40 | NA | 7.47 | 7.54 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
NA = Not Available
Bold = Maximum and minimum pH values per sampling event
* Questionable value due to possible instrument malfunction.
As of First Quarter 2010, the following wells were removed from the sampling program: MW-2S, MW-10, MW-16, MW-19, MW-22P, MW-25, MW-34S, MW-35P, and MW-38.

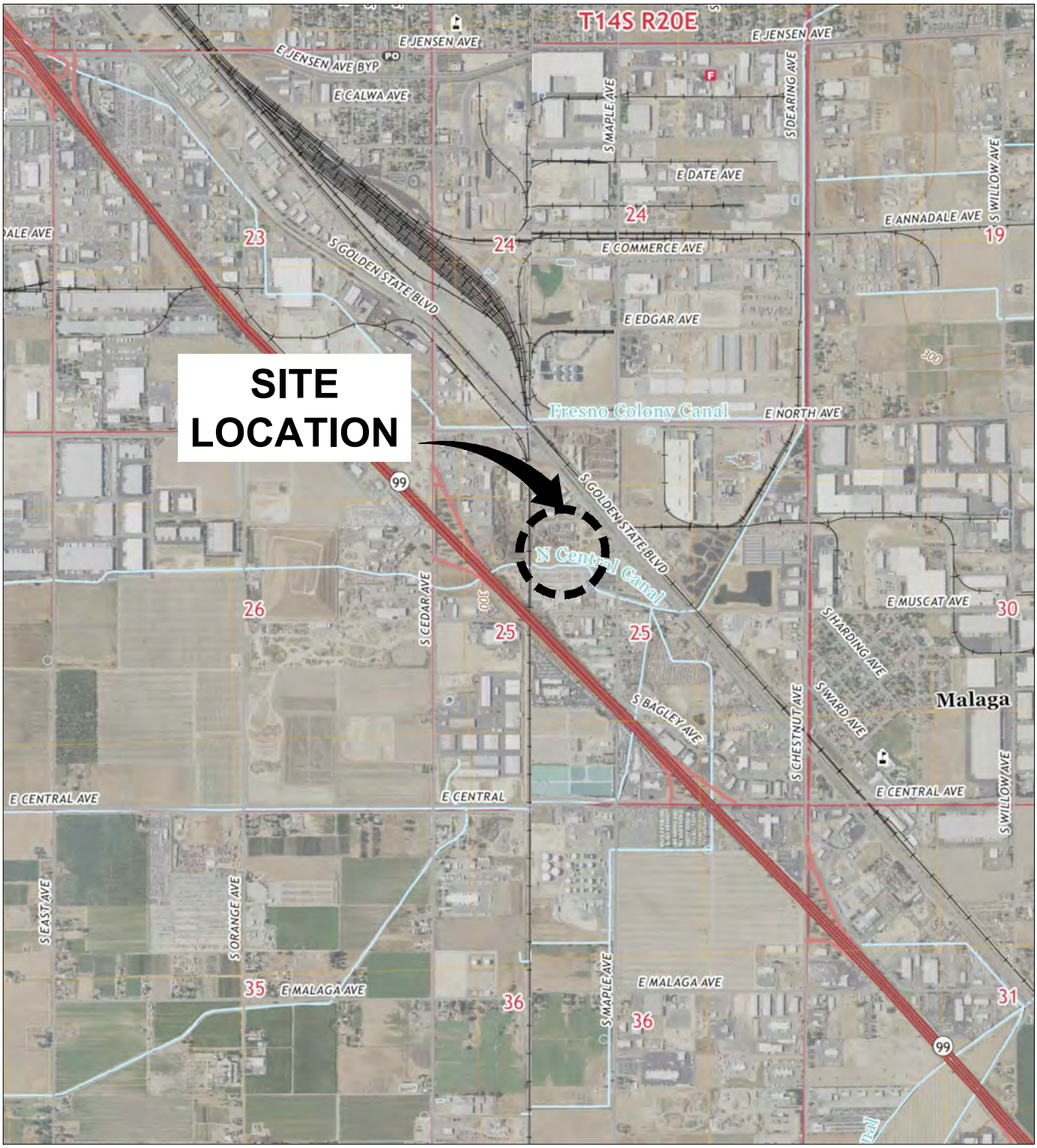
**Table 12**
**Monitored Natural Attenuation Parameters**
**Groundwater Monitoring Wells**
**First Half 2020**

ARCADIS Design & Consultancy for natural and built assets

| Well ID | Date Sampled | Total Alkalinity, pH 4.5 (mg/L) | Sulfate (mg/L) | Nitrate (mg/L) | Chloride (mg/L) | Total Organic Carbon (mg/L) | $CO_2$ by Headspace (µg/L) | Methane (µg/L) | Ethane (µg/L) | Ethene (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| **Shallow** | | | | | | | | | | |
| | 1/30/2020 | | | | None Sampled | | | | | |
| **Shallow to Intermediate** | | | | | | | | | | |
| **MW-11SP/IP** | 1/30/2020 | 145 | 82.8 | 3.8 | 16.4 | <0.500 | 8,600 J | <3.0 | <1.0 | <1.0 |
| **Intermediate** | | | | | | | | | | |
| **MW-23** | 1/30/2020 | 169 | 34.9 | 2.9 | 14 | <0.500 | 9,300 J | 4.4 J | <1.0 | <1.0 |
| **MW-24I** | 1/30/2020 | 288 | 49.5 | 5.6 | 16.8 | <0.500 | 12,000 | <3.0 | <1.0 | <1.0 |
| **MW-25I** | 1/30/2020 | 166 | 22.1 | 3.6 | 9.4 | <0.500 | 5,200 J | <3.0 | <1.0 | <1.0 |
| **MW-44I** | 1/30/2020 | 80.5 | 9.6 | 1.3 | 3.8 | <0.500 | 3,700 J | <3.0 | <1.0 | <1.0 |
| **DUP1** | 1/30/2020 | 80.1 | 9.0 | 1.3 | 3.7 | <0.500 | 4,900 J | <3.0 | <1.0 | <1.0 |
| **MW-48I** | 1/30/2020 | 169.0 | 16.4 | 3.3 | 10.5 | <0.500 | 5,300 J | <3.0 | <1.0 | <1.0 |
| **Deep** | | | | | | | | | | |
| **MW-2D** | 1/30/2020 | 75.3 | 4.8 J | 0.76 | 6.1 | <0.500 | <2,600 | <3.0 | <1.0 | <1.0 |
| **MW-44D** | 1/30/2020 | 102 | 7.9 | 1.6 | 2.8 | <0.500 | <2,600 | <3.0 | <1.0 | <1.0 |
| **MW-48D** | 1/30/2020 | 142 | 6.6 | <0.250 | 3.9 | <0.500 | 5,400 J | 1,000 | <1.0 UJ | <1.0 UJ |

**Notes:**
J = estimated values between the Method Detection Limit (MDL) and Limit of Quantification (LOQ)
UJ = The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
-- = Not analyzed
µg/L = micrograms per liter
mg/L = milligrams per liter
$CO_2$ = carbon dioxide

# FIGURES




REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., FRESNO SOUTH AND MALAGA, CALIFORNIA, 2018 COORDINATE DATUM (IF GEOFERENCED).

N

0 2,000' 4,000'

APPROXIMATE SCALE : 1 in. = 2,000 ft.

PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

## SITE LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE 1

CITY:(NOVI, MI) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(D. LAY) PM:(H. FETT) TM:(K. BRIGGS) LYR:(Opt)ON=*;OFF=*REF*
C:\BIM\OneDrive - ARCADIS\BIM 360 Docs\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\PURITY OIL SALES SUPERFUND SITE\2020\30006271\01-DWG\POSSS Fig 1 SLM.dwg LAYOUT: 1 SAVED: 4/8/2020 12:20 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE:
ARCADIS.CTB PLOTTED: 4/8/2020 2:45 PM BY: LOVING, JEFF

CITY: IRVINE, CA DIV/GROUP: ENVCAD DB: J. HARRIS, E. MURESAN LD: EMURESAN PIC: M. FLEISCHNER PM: A. HOOK TM: G. RAYMOND
C:\BIM\OneDrive - ARCADIS\BIM 360 Docs\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\PURITY OIL SALES SUPERFUND SITE\2020\300062710\1-DWG\POSSS Fig 2 WLM.dwg LAYOUT: 2 SAVED: 4/8/2020 12:20 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE:
PLTFULL.CTB PLOTTED: 4/8/2020 12:35 PM BY: LOVING, JEFF

MW-36
SOUTH CEDAR AVE
MW-38
SANTA FE FRESNO INTERMODEL SERVICE
SPT CO.
GOLDEN STATE FRONTAGE
RAILROAD (TYPICAL)
SOUTH MAPLE AVE.
WILBUR ELLIS
SEE DETAIL 1 (THIS SHEET)
FRESNO COLONY CANAL
EAST NORTH AVE.
SUNBELT
MW-34S
MW-34I
MW-34D
MW-33P
MW-32P
GENERAL CRANE SERVICE
MW-31P
SIERRA NEVADA TRAILERS
SIERRA WEST EXPRESS
MASTER HALCO
MW-29P
GOLDEN STATE FRONTAGE
MW-53
FRESNO PAVING CO.
GOLDEN STATE BOULEVARD
MW-39
PRODUCERS COTTON OIL CO.
NATIONAL WATER WORKS
TNT REDDAWAY TRUCKLINE
WATER RECYCLE & RECOVERY
MW-28P
NELSON SIGN SERVICE
MW-40
MW-26P
MW-41
SOUTH CEDAR AVE
SYSCO TRANSPORTATION
SEE DETAIL 4 (THIS SHEET)
WEST COAST WASTE
WHOLESALE EQUIPMENT OF FRESNO
BUILDING OUTLINE (TYPICAL)
STATE HIGHWAY 99
MW-23
MW-24
FRESNO T-T WELDING
MW-52
MW-25
MW-25I
MW-24I
MW-51
MW-19
MID CAL SERVICES
BRUNO'S RECYCLING
MW-12
MW-47
FORMER TALL TREES MOBILE HOME PARK
FORMER GOLDEN STATE MKT.
MW-21*
MW-11 SP/IP
MW-17
MW-18
MW-15
MW-9
MW-10
MW-45
MW-44S
MW-44I
MW-44D
MW-43
MW-20
MW-50
MW-16
MW-49
MW-14S/14D
MW-46
PT-3A
MW-7S/MW-7I
MW-6S
MW-6D
MW-48I
MW-8
MW-5S/5D
MW-48D
MW-48S
MW-42
MW-3
SOUTH MAPLE AVE.
GOLDEN STATE FRONTAGE
MW-13
CENTRAL
MW-4
COLONIAL VAN STORAGE
BURLINGTON NORTHERN RAILROAD
SEE DETAIL 2 (THIS SHEET)
SEE DETAIL 3 (THIS SHEET)
iPULL-u-PULL AUTO PARTS
MW-54
MW-2S
MW-2D
CARBONIC SALES & SERVICES

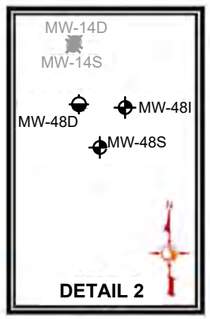
**NOTES:**

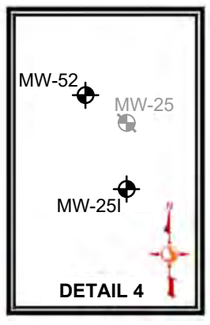
1. BASE MAP PROVIDED BY STANTEC, DATED 1/5/2012, AT A SCALE OF 1=350'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. MW-21 WELL WAS PERMANENTLY DAMAGED.

**LEGEND**

- PROPERTY LINE
- RAILROAD TRACKS
- MONITORING WELL (SHALLOW TO INTERMEDIATE INTERVAL)
- MONITORING WELL (DEEP INTERVAL)
- SHALLOW MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- DEEP MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- PRODUCTION WELL (REMOVED FROM MONITORING NETWORK)
- MONITORING WELL (DECOMMISSONED)
- MONITORING WELL (BURIED OR LOST)
- * WELL PERMANENTLY DAMAGED

N






0 320' 640'

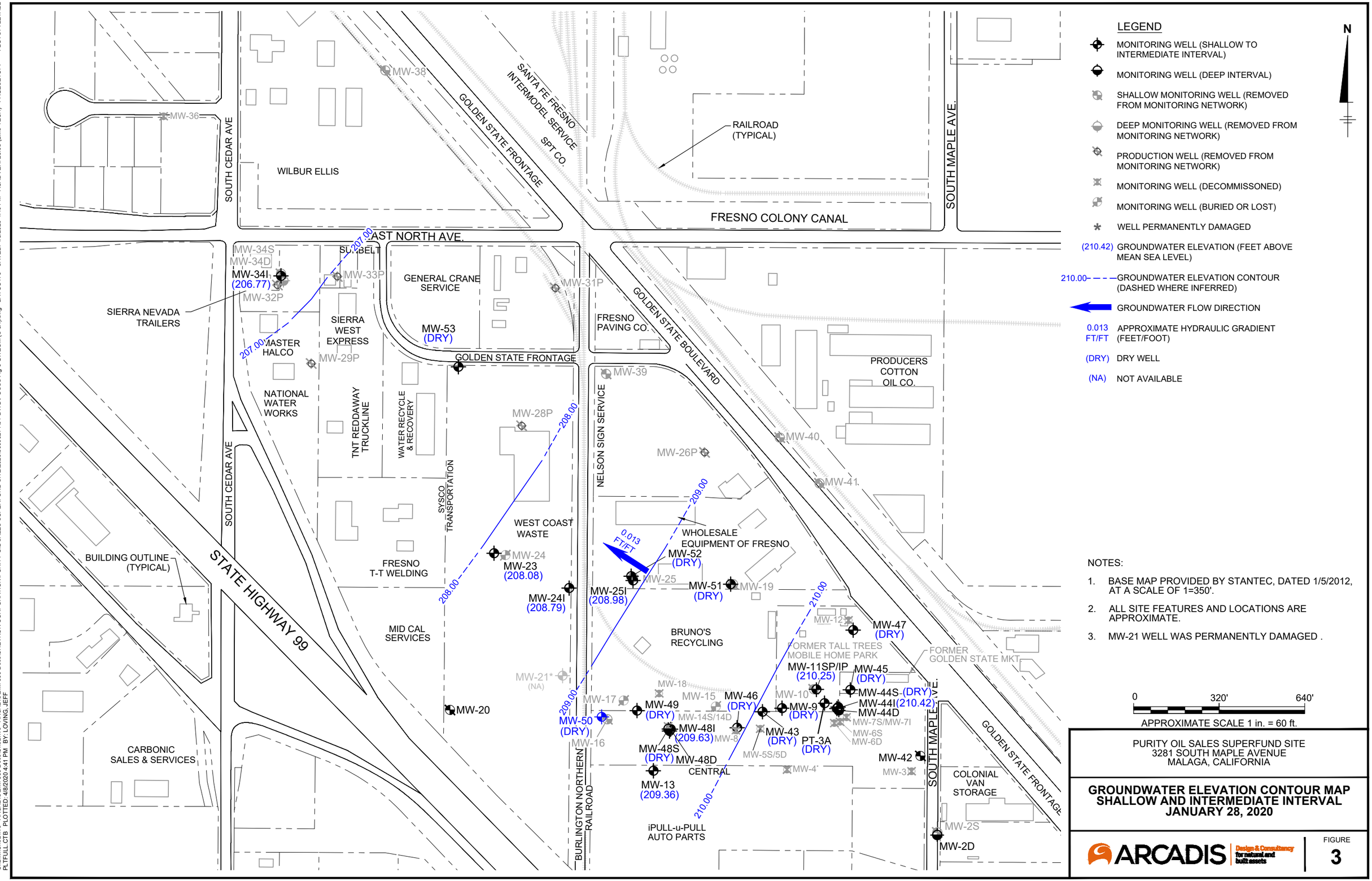
APPROXIMATE SCALE 1 in. = 320 ft.

PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

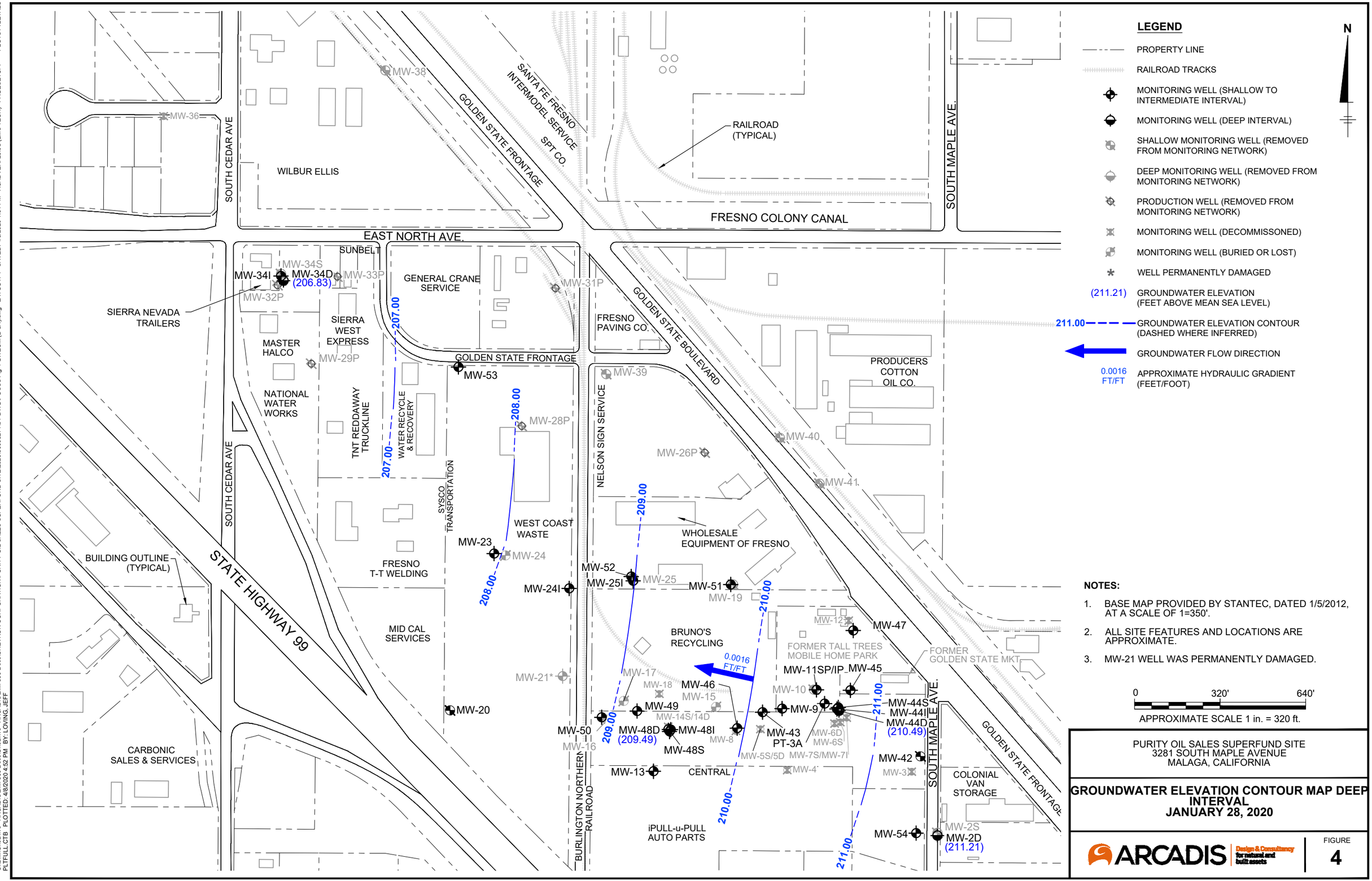
# WELL LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE 2




CITY: IRVINE, CA DIV/GROUP: ENVCAD DB: J. HARRIS, E. MURESAN LD: EMURESAN PIC: M. FLEISCHNER PM: A. HOOK TM: G. RAYMOND
C:\BIM\OneDrive - ARCADIS\BIM 360 Docs\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\PURITY OIL SALES SUPERFUND SITE\2020\300062710\1-DWG\POSSS Fig 3 GWECM (S & I).dwg LAYOUT: 3 SAVED: 4/8/2020 4:40 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABL
PLTFULL.CTB PLOTTED: 4/8/2020 4:41 PM BY: LOVING, JEFF




**NOTES:**

1. BASE MAP PROVIDED BY STANTEC, DATED 1/5/2012, AT A SCALE OF 1=350'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. MW-21 WELL WAS PERMANENTLY DAMAGED.

0 320' 640'

APPROXIMATE SCALE 1 in. = 320 ft.

PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

# GROUNDWATER ELEVATION CONTOUR MAP DEEP INTERVAL JANUARY 28, 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE 4

CITY: IRVINE, CA DIV/GROUP: ENVCAD DB: J. HARRIS, E. MURESAN LD: EMURESAN PIC: M. FLEISCHNER PM: A. HOOK TM: G. RAYMOND
C:\BIM\OneDrive - ARCADIS\BIM 360 Docs\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\PURITY OIL SALES SUPERFUND SITE\2020\300062710\1-DWG\POSSS Fig 4 GWECM (D & I).dwg LAYOUT: 4 SAVED: 4/8/2020 1:54 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABL
PLTFULL.CTB PLOTTED: 4/8/2020 4:52 PM BY: LOVING, JEFF

CITY: IRVINE, CA DIV/GROUP: ENVCAD DB: J. HARRIS, E. MURESAN LD: EMURESAN PIC: M. FLEISCHNER PM: A. HOOK TM: G. RAYMOND
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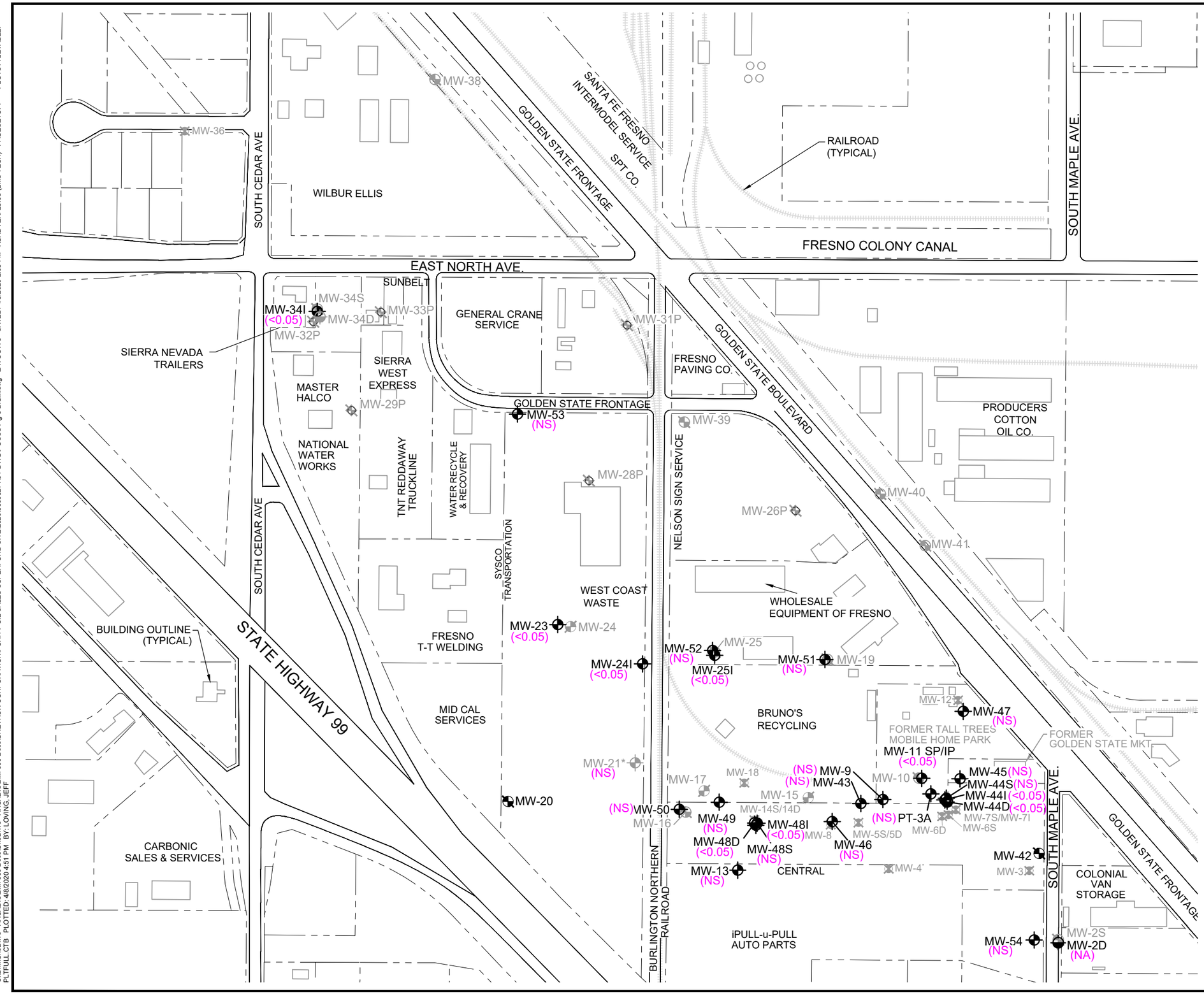



## LEGEND

- PROPERTY LINE
- RAILROAD TRACKS
- MONITORING WELL (SHALLOW TO INTERMEDIATE INTERVAL)
- MONITORING WELL (DEEP INTERVAL)
- SHALLOW MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- DEEP MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- PRODUCTION WELL (REMOVED FROM MONITORING NETWORK)
- MONITORING WELL (DECOMMISSIONED)
- MONITORING WELL (BURIED OR LOST)
- * WELL PERMANENTLY DAMAGED
- (<0.05) BENZENE CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
- (<0.05) NOT DETECTED AT OR ABOVE THE METHOD DETECTION LIMIT
- (NS) NOT SAMPLED
- (NA) NOT ANALYSED

N

**NOTES:**

1. BASE MAP PROVIDED BY STANTEC, DATED 1/5/2012, AT A SCALE OF 1=350'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. MW-21 WELL WAS PERMANENTLY DAMAGED.

0 320' 640'

APPROXIMATE SCALE 1 in. = 320 ft.

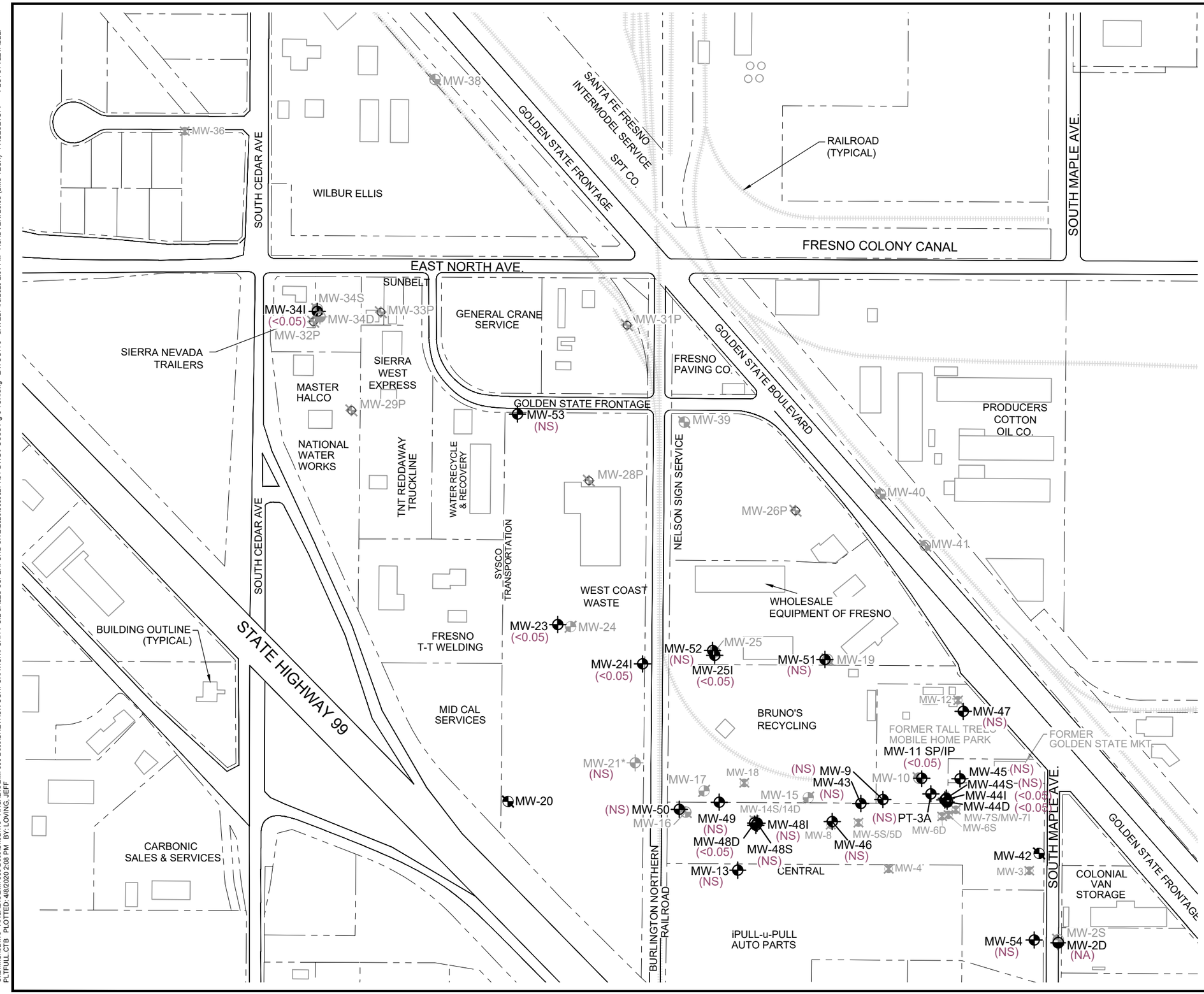
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

# BENZENE IN GROUNDWATER JANUARY 30, 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE 5

CITY: IRVINE, CA DIV/GROUP: ENVCAD DB: J. HARRIS, E. MURESAN LD: EMURESAN PIC: M. FLEISCHNER PM: A. HOOK TM: G. RAYMOND
C:\BIM\OneDrive - ARCADIS\BIM 360 Docs\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\PURITY OIL SALES SUPERFUND SITE\2020\300062710\1-DWG\POSSS Fig 6 TCH.dwg LAYOUT: 6 SAVED: 4/8/2020 2:01 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 4/8/2020 2:08 PM BY: LOVING, JEFF




## LEGEND

- PROPERTY LINE
- RAILROAD TRACKS
- MONITORING WELL (SHALLOW TO INTERMEDIATE INTERVAL)
- MONITORING WELL (DEEP INTERVAL)
- SHALLOW MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- DEEP MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- PRODUCTION WELL (REMOVED FROM MONITORING NETWORK)
- MONITORING WELL (DECOMMISSONED)
- MONITORING WELL (BURIED OR LOST)
- * WELL PERMANENTLY DAMAGED
- TCE TRICHLOROETHENE
- (<0.05) TCE CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
- (<0.05) NOT DETECTED AT OR ABOVE THE METHOD DETECTION LIMIT
- (NS) NOT SAMPLED
- (NA) NOT ANALYZED

N

**NOTES:**

1. BASE MAP PROVIDED BY STANTEC, DATED 1/5/2012, AT A SCALE OF 1=350'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. MW-21 WELL WAS PERMANENTLY DAMAGED.

0 320' 640'

APPROXIMATE SCALE 1 in. = 320 ft.

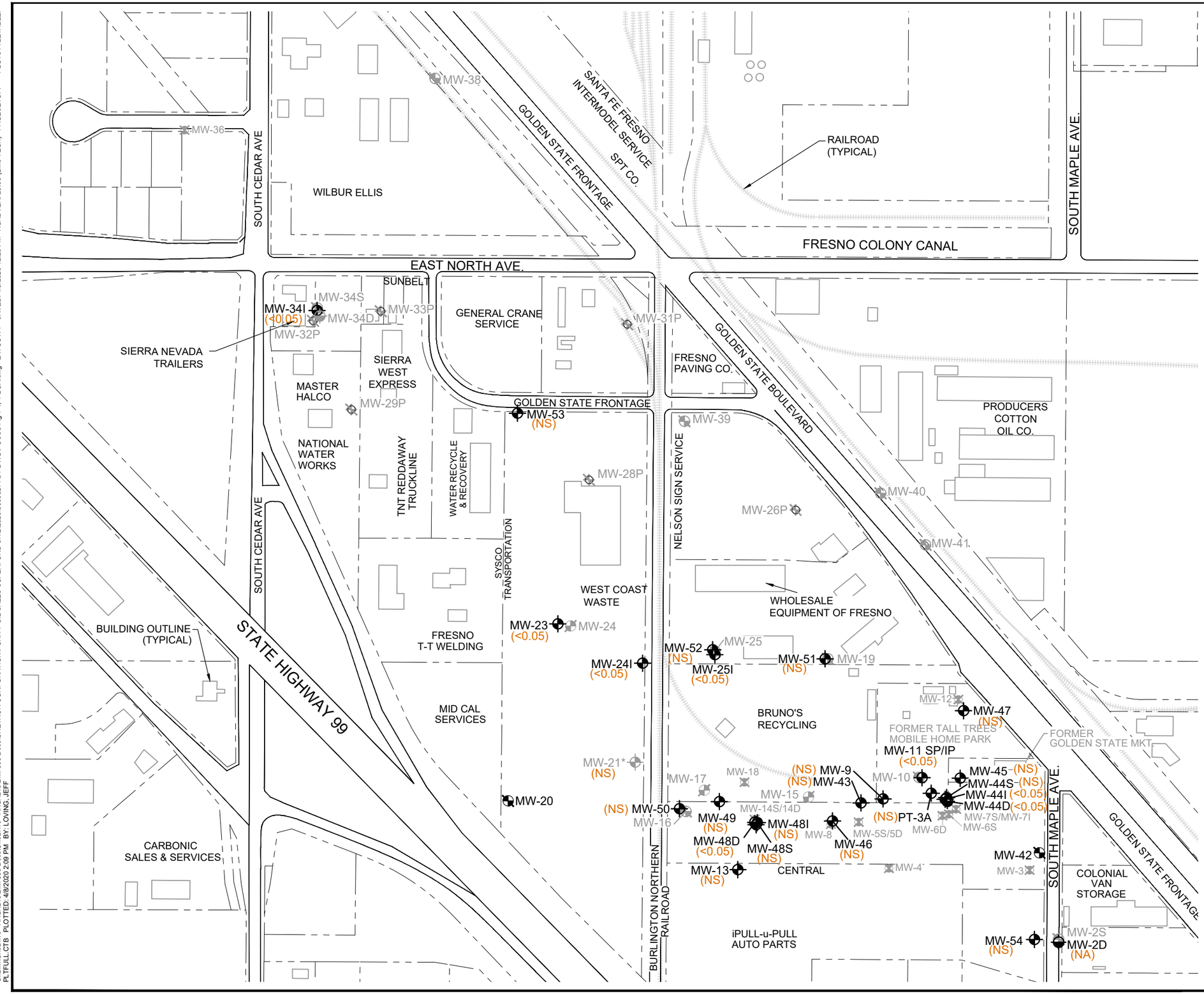
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

# TRICHLOROETHENE IN GROUNDWATER JANUARY 30, 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE 6

CITY: IRVINE, CA DIV/GROUP: ENVCAD DB: J. HARRIS, E. MURESAN LD: EMURESAN PIC: M. FLEISCHNER PM: A. HOOK TM: G. RAYMOND
C:\BIM\OneDrive - ARCADIS\BIM 360 Docs\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\PURITY OIL SALES SUPERFUND SITE\2020\30006271\01-DWG\POSSS Fig 7 1, 1-DCA.dwg LAYOUT: 7 SAVED: 4/8/2020 12:20 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 4/8/2020 2:09 PM BY: LOVING, JEFF




## LEGEND

- PROPERTY LINE
- RAILROAD TRACKS
- MONITORING WELL (SHALLOW TO INTERMEDIATE INTERVAL)
- MONITORING WELL (DEEP INTERVAL)
- SHALLOW MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- DEEP MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- PRODUCTION WELL (REMOVED FROM MONITORING NETWORK)
- MONITORING WELL (DECOMMISSONED)
- MONITORING WELL (BURIED OR LOST)
- WELL PERMANENTLY DAMAGED
- (<0.05) 1,1-DICHLOROETHANE CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
- (<0.05) NOT DETECTED AT OR ABOVE THE METHOD DETECTION LIMIT
- (NS) NOT SAMPLED
- (NA) NOT ANALYZED

N

**NOTES:**

1. BASE MAP PROVIDED BY STANTEC, DATED 1/5/2012, AT A SCALE OF 1=350'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. MW-21 WELL WAS PERMANENTLY DAMAGED.

0 320' 640'

APPROXIMATE SCALE 1 in. = 320 ft.

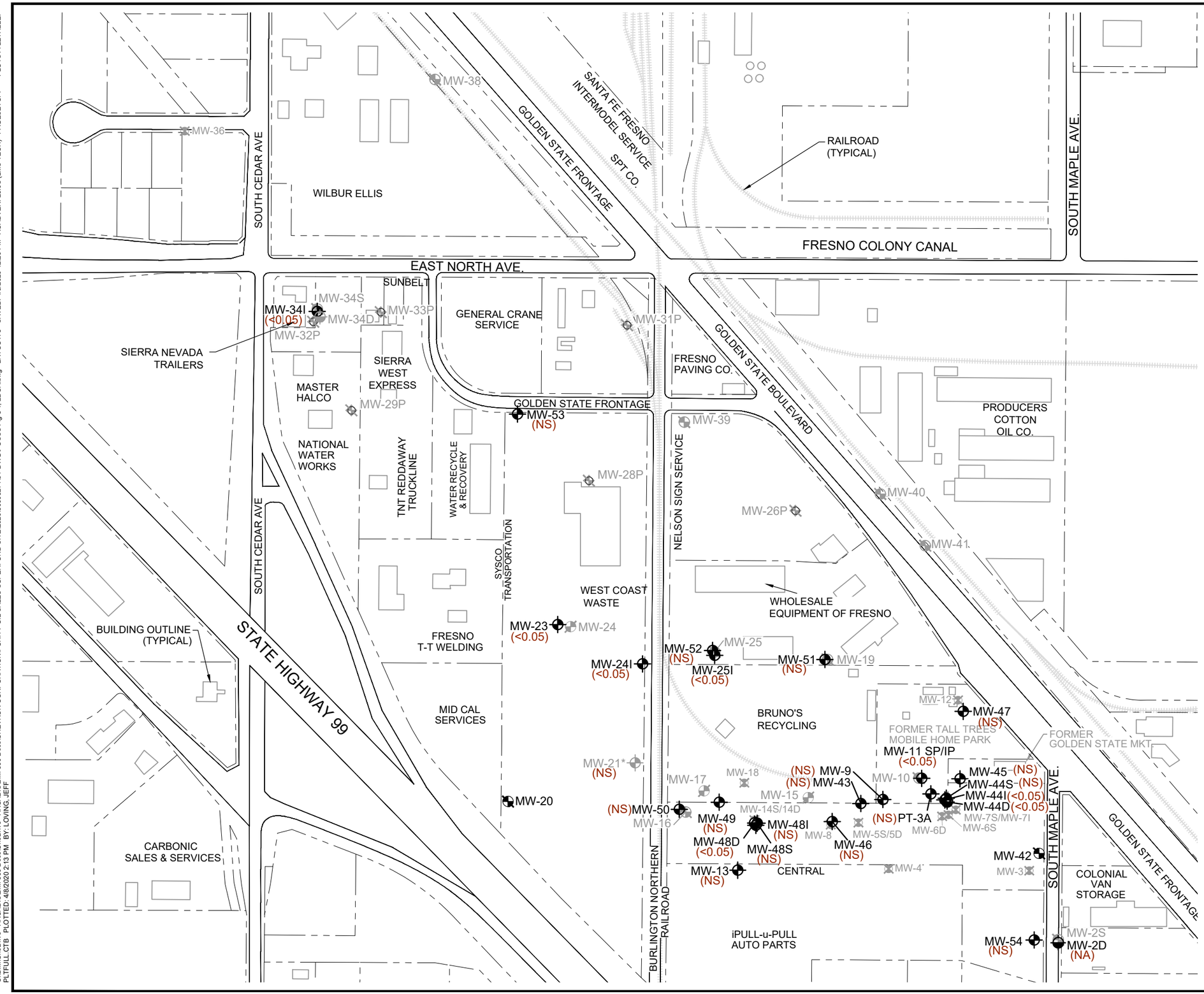
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

# 1,1-DICHLOROETHANE IN GROUNDWATER JANUARY 30, 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE 7

CITY: IRVINE, CA DIV/GROUP: ENVCAD DB: J. HARRIS, E. MURESAN LD: EMURESAN PIC: M. FLEISCHNER PM: A. HOOK TM: G. RAYMOND
C:\BIM\OneDrive - ARCADIS\BIM 360 Docs\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\PURITY OIL SALES SUPERFUND SITE\2020\30006271\01-DWG\POSSS Fig 8 1, 2DCA.dwg LAYOUT: 8 SAVED: 4/8/2020 12:20 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 4/8/2020 2:13 PM BY: LOVING, JEFF




## LEGEND

- PROPERTY LINE
- RAILROAD TRACKS
- MONITORING WELL (SHALLOW TO INTERMEDIATE INTERVAL)
- MONITORING WELL (DEEP INTERVAL)
- SHALLOW MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- DEEP MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- PRODUCTION WELL (REMOVED FROM MONITORING NETWORK)
- MONITORING WELL (DECOMMISSONED)
- MONITORING WELL (BURIED OR LOST)
- * WELL PERMANENTLY DAMAGED
- (<0.05) 1,2-DICHLOROETHANE CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
- (<0.05) NOT DETECTED AT OR ABOVE THE METHOD DETECTION LIMIT
- (NS) NOT SAMPLED
- (NA) NOT ANALYZED

N

**NOTES:**

1. BASE MAP PROVIDED BY STANTEC, DATED 1/5/2012, AT A SCALE OF 1=350'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. MW-21 WELL WAS PERMANENTLY DAMAGED.

0 320' 640'

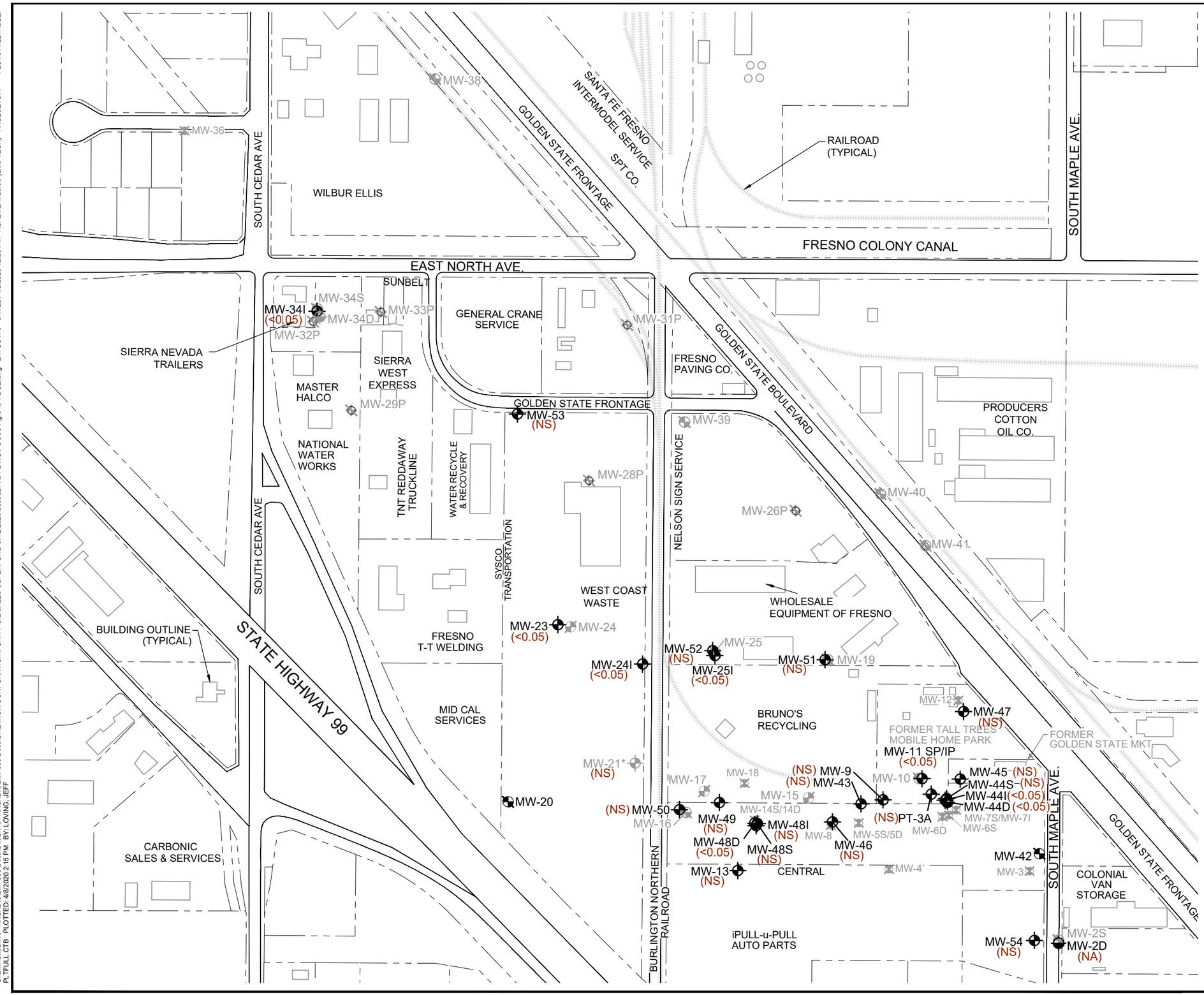
APPROXIMATE SCALE 1 in. = 320 ft.

PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

# 1,2-DICHLOROETHANE IN GROUNDWATER JANUARY 30, 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE 8




## LEGEND

- PROPERTY LINE
- RAILROAD TRACKS
- MONITORING WELL (SHALLOW TO INTERMEDIATE INTERVAL)
- MONITORING WELL (DEEP INTERVAL)
- SHALLOW MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- DEEP MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- PRODUCTION WELL (REMOVED FROM MONITORING NETWORK)
- MONITORING WELL (DECOMMISSONED)
- MONITORING WELL (BURIED OR LOST)
- * WELL PERMANENTLY DAMAGED
- (<0.05) 1,1-DICHLOROETHENE CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
- (<0.05) NOT DETECTED AT OR ABOVE THE METHOD DETECTION LIMIT
- (NS) NOT SAMPLED
- (NA) NOT ANALYZED

N

**NOTES:**

1. BASE MAP PROVIDED BY STANTEC, DATED 1/5/2012, AT A SCALE OF 1=350'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. MW-21 WELL WAS PERMANENTLY DAMAGED.

0 320' 640'

APPROXIMATE SCALE 1 in. = 320 ft.

PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

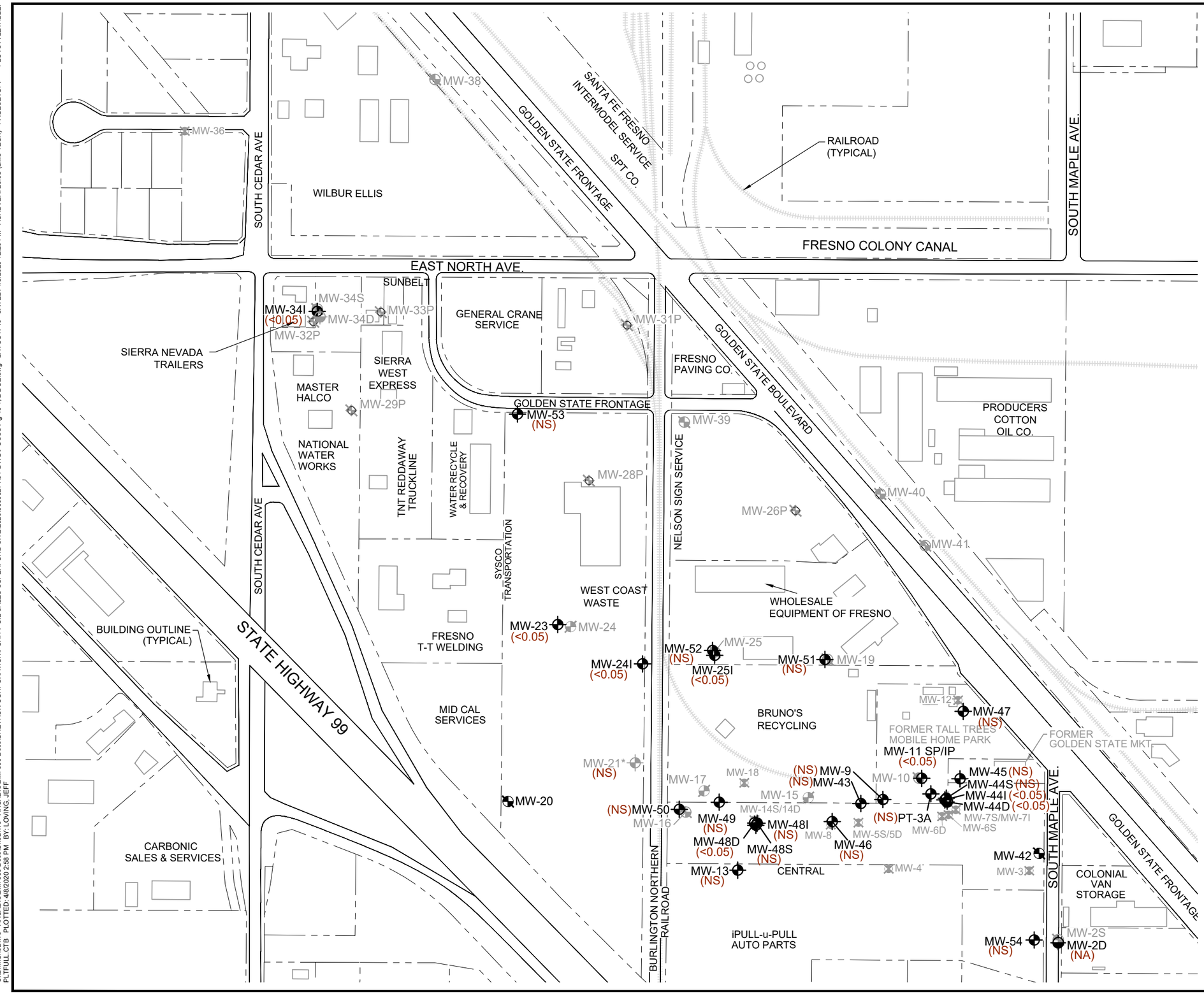
# 1,1-DICHLOROETHENE IN GROUNDWATER JANUARY 30, 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE 9

CITY: IRVINE, CA DIV/GROUP: ENVCAD DB: J. HARRIS, E. MURESAN LD: EMURESAN PIC: M. FLEISCHNER PM: A. HOOK TM: G. RAYMOND
C:\BIM\OneDrive - ARCADIS\BIM 360 Docs\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\PURITY OIL SALES SUPERFUND SITE\2020\30006271\01-DWG\POSSS Fig 9 1, 1 DCE.dwg LAYOUT: 9 SAVED: 4/8/2020 12:20 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 4/8/2020 2:15 PM BY: LOVING, JEFF

CITY: IRVINE, CA DIV/GROUP: ENVCAD DB: J. HARRIS, E. MURESAN LD: EMURESAN PIC: M. FLEISCHNER PM: A. HOOK TM: G. RAYMOND
C:\BIM\OneDrive - ARCADIS\BIM 360 Docs\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\PURITY OIL SALES SUPERFUND SITE\2020\30006271\01-DWG\POSSS Fig 10 1_2 DCE.dwg LAYOUT: 10 SAVED: 4/8/2020 12:20 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 4/8/2020 2:58 PM BY: LOVING, JEFF




## LEGEND

- PROPERTY LINE
- RAILROAD TRACKS
- MONITORING WELL (SHALLOW TO INTERMEDIATE INTERVAL)
- MONITORING WELL (DEEP INTERVAL)
- SHALLOW MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- DEEP MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- PRODUCTION WELL (REMOVED FROM MONITORING NETWORK)
- MONITORING WELL (DECOMMISSONED)
- MONITORING WELL (BURIED OR LOST)
- * WELL PERMANENTLY DAMAGED
- (<0.05) CIS- 1,2 DICHLOROETHENE CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
- (<0.05) NOT DETECTED AT OR ABOVE THE METHOD DETECTION LIMIT
- (NS) NOT SAMPLED
- (NA) NOT ANALYZED

N

**NOTES:**

1. BASE MAP PROVIDED BY STANTEC, DATED 1/5/2012, AT A SCALE OF 1=350'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. MW-21 WELL WAS PERMANENTLY DAMAGED.

0 320' 640'

APPROXIMATE SCALE 1 in. = 320 ft.

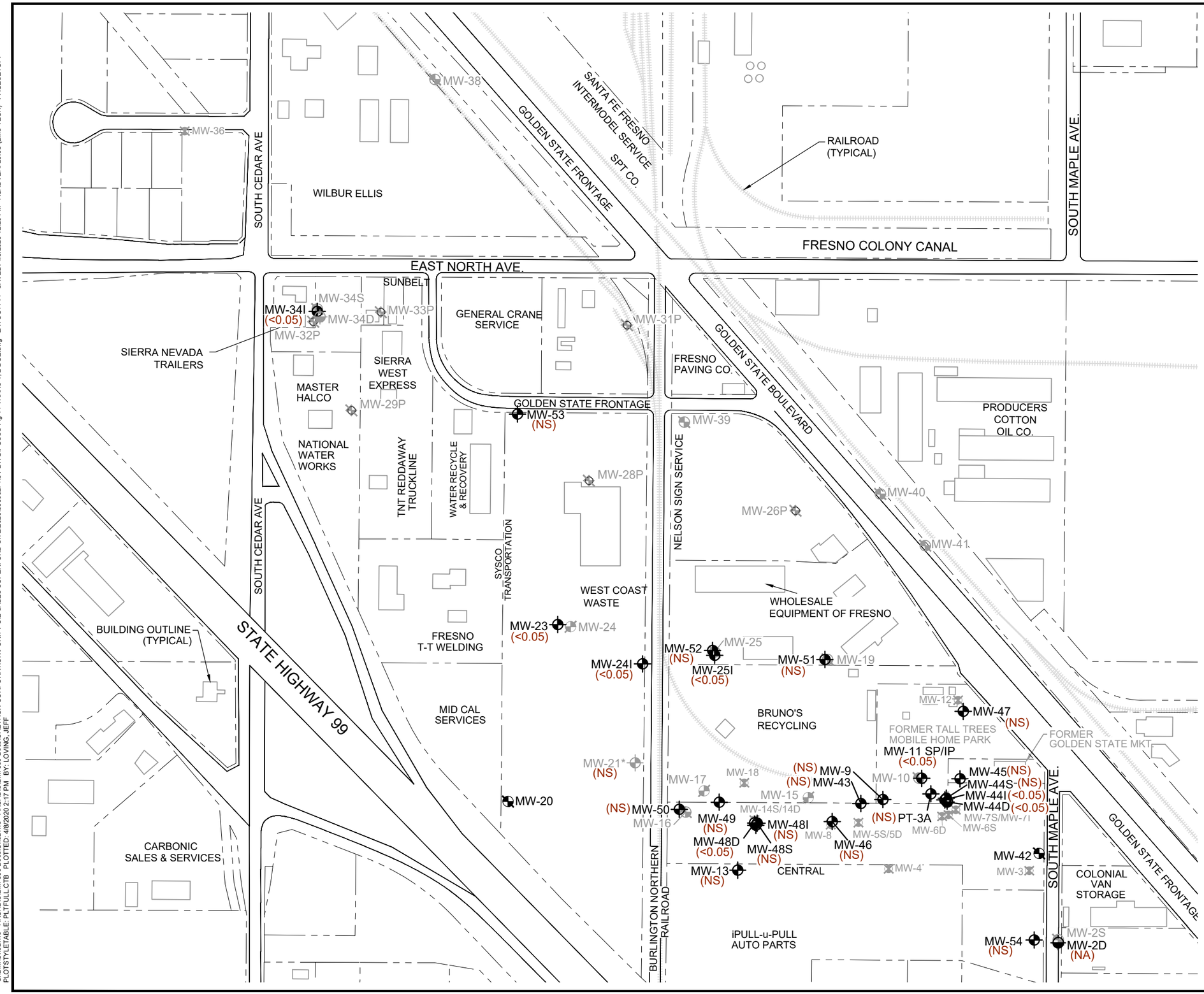
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

# CIS- 1,2-DICHLOROETHENE IN GROUNDWATER JANUARY 30, 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE 10

CITY: IRVINE, CA DIV/GROUP: ENVCAD DB: J. HARRIS, E. MURESAN LD: EMURESAN PIC: M. FLEISCHNER PM: A. HOOK TM: G. RAYMOND
C:\BIM\OneDrive - ARCADIS\BIM 360 Docs\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\PURITY OIL SALES SUPERFUND SITE\2020\30006271\01-DWG\POSSS Fig 11 TRANS 1, 2 DCE.dwg LAYOUT: 11 SAVED: 4/8/2020 12:20 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ----
PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 4/8/2020 2:17 PM BY: LOVING, JEFF




## LEGEND

- PROPERTY LINE
- RAILROAD TRACKS
- MONITORING WELL (SHALLOW TO INTERMEDIATE INTERVAL)
- MONITORING WELL (DEEP INTERVAL)
- SHALLOW MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- DEEP MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- PRODUCTION WELL (REMOVED FROM MONITORING NETWORK)
- MONITORING WELL (DECOMMISSONED)
- MONITORING WELL (BURIED OR LOST)
- * WELL PERMANENTLY DAMAGED
- (<0.05) TRANS 1,2 DICHLOROETHENE CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
- (<0.05) NOT DETECTED AT OR ABOVE THE METHOD DETECTION LIMIT
- (NS) NOT SAMPLED
- (NA) NOT ANALYZED

N

**NOTES:**

1. BASE MAP PROVIDED BY STANTEC, DATED 1/5/2012, AT A SCALE OF 1=350'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. MW-21 WELL WAS PERMANENTLY DAMAGED.

0 320' 640'

APPROXIMATE SCALE 1 in. = 320 ft.

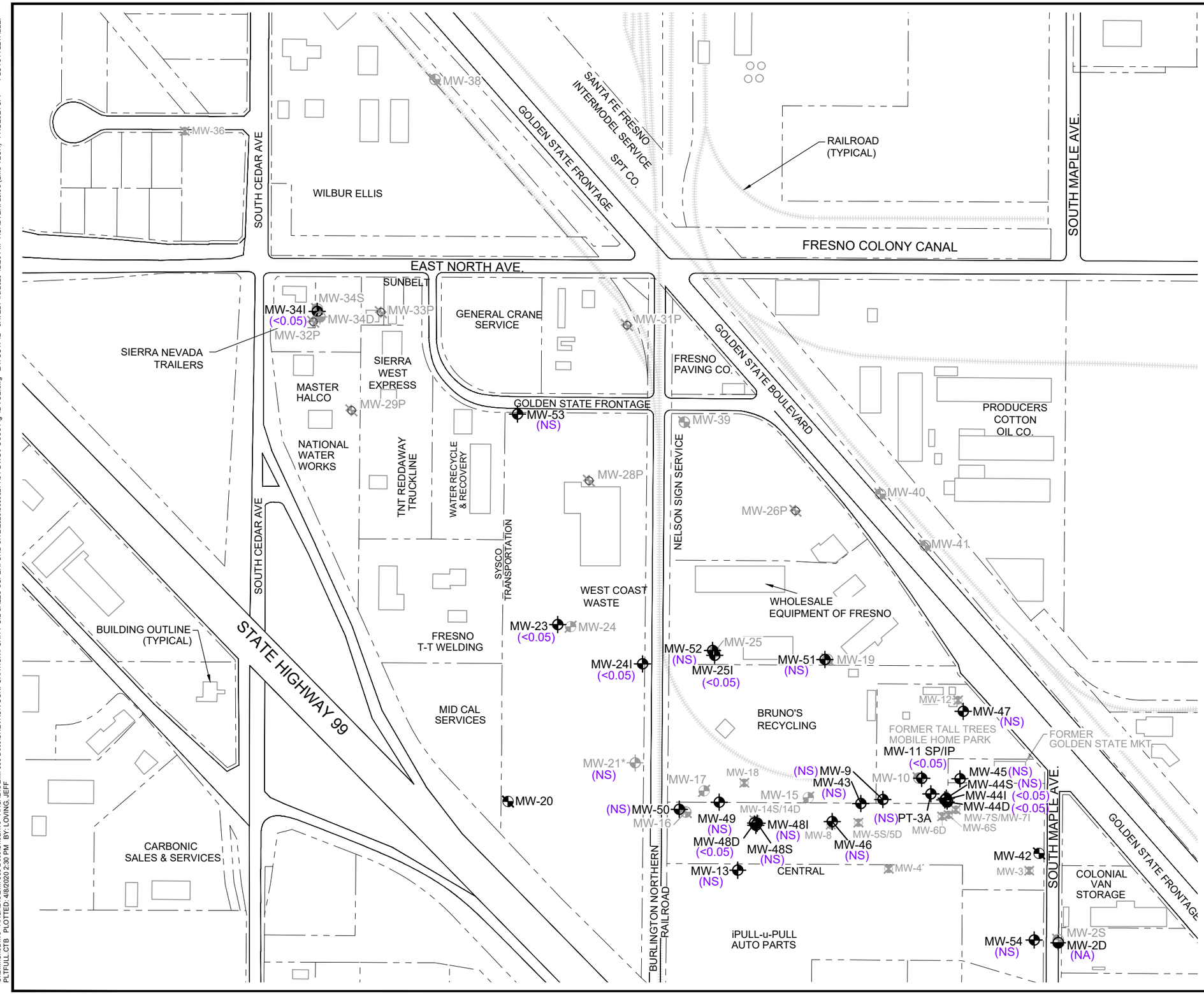
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

# TRANS- 1,2-DICHLOROETHENE IN GROUNDWATER JANUARY 30, 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE 11

CITY: IRVINE, CA DIV/GROUP: ENVCAD DB: J. HARRIS, E. MURESAN LD: EMURESAN PIC: M. FLEISCHNER PM: A. HOOK TM: G. RAYMOND
C:\BIM\OneDrive - ARCADIS\BIM 360 Docs\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\PURITY OIL SALES SUPERFUND SITE\2020\300062710\1-DWG\POSSS Fig 12 VCE.dwg LAYOUT: 12 SAVED: 4/8/2020 12:20 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 4/8/2020 2:30 PM BY: LOVING, JEFF




## LEGEND

- PROPERTY LINE
- RAILROAD TRACKS
- MONITORING WELL (SHALLOW TO INTERMEDIATE INTERVAL)
- MONITORING WELL (DEEP INTERVAL)
- SHALLOW MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- DEEP MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- PRODUCTION WELL (REMOVED FROM MONITORING NETWORK)
- MONITORING WELL (DECOMMISSONED)
- MONITORING WELL (BURIED OR LOST)
- * WELL PERMANENTLY DAMAGED
- (<0.05) VINYL CHLORIDE CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
- (<0.05) NOT DETECTED AT OR ABOVE THE METHOD DETECTION LIMIT
- (NS) NOT SAMPLED
- (NA) NOT ANALYZED

N

**NOTES:**

1. BASE MAP PROVIDED BY STANTEC, DATED 1/5/2012, AT A SCALE OF 1=350'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. MW-21 WELL WAS PERMANENTLY DAMAGED.

0 320' 640'

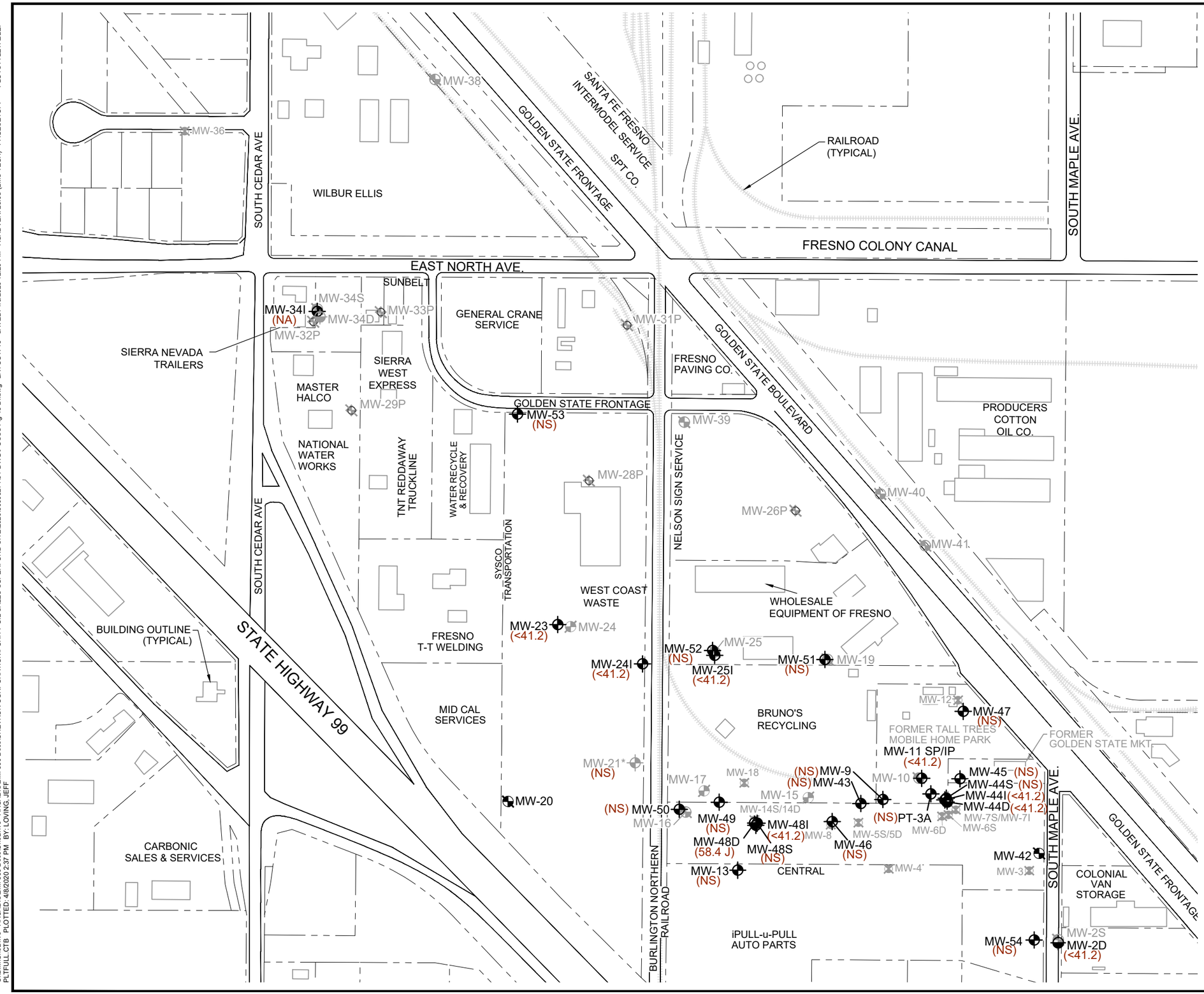
APPROXIMATE SCALE 1 in. = 320 ft.

PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

# VINYL CHLORIDE IN GROUNDWATER JANUARY 30, 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE 12




## LEGEND

- PROPERTY LINE
- RAILROAD TRACKS
- MONITORING WELL (SHALLOW TO INTERMEDIATE INTERVAL)
- MONITORING WELL (DEEP INTERVAL)
- SHALLOW MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- DEEP MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- PRODUCTION WELL (REMOVED FROM MONITORING NETWORK)
- MONITORING WELL (DECOMMISSIONED)
- MONITORING WELL (BURIED OR LOST)
- * WELL PERMANENTLY DAMAGED
- (58.4 J) DISSOLVED IRON CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
- (<41.2) NOT DETECTED AT OR ABOVE THE METHOD DETECTION LIMIT
- J ESTIMATED VALUES BETWEEN THE METHOD DETECTION LIMIT (MDL) AND LIMIT OF QUANTIFICATION (LOQ)
- (NS) NOT SAMPLED
- (NA) NOT ANALYZED

N

**NOTES:**

1. BASE MAP PROVIDED BY STANTEC, DATED 1/5/2012, AT A SCALE OF 1=350'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. MW-21 WELL WAS PERMANENTLY DAMAGED.

0 320' 640'

APPROXIMATE SCALE 1 in. = 320 ft.

PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

# DISSOLVED IRON IN GROUNDWATER JANUARY 30, 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE 13

CITY: IRVINE, CA DIV/GROUP: ENVCAD DB: J. HARRIS, E. MURESAN LD: EMURESAN PIC: M. FLEISCHNER PM: A. HOOK TM: G. RAYMOND
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CITY: IRVINE, CA DIV/GROUP: ENVCAD DB: J. HARRIS, E. MURESAN LD: EMURESAN PIC: M. FLEISCHNER PM: A. HOOK TM: G. RAYMOND
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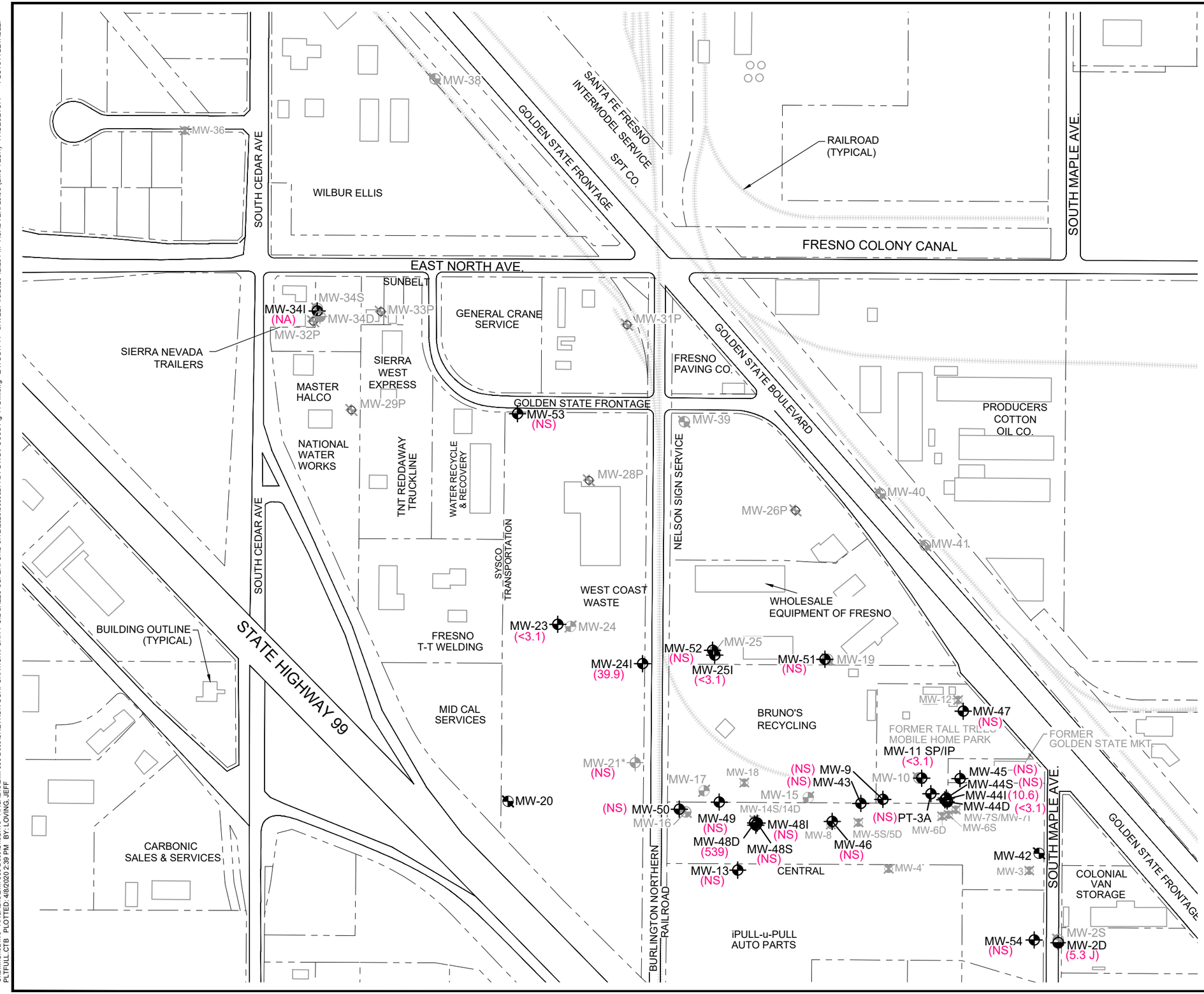


## LEGEND

- PROPERTY LINE
- RAILROAD TRACKS
- MONITORING WELL (SHALLOW TO INTERMEDIATE INTERVAL)
- MONITORING WELL (DEEP INTERVAL)
- SHALLOW MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- DEEP MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- PRODUCTION WELL (REMOVED FROM MONITORING NETWORK)
- MONITORING WELL (DECOMMISSONED)
- MONITORING WELL (BURIED OR LOST)
- * WELL PERMANENTLY DAMAGED
- (539) DISSOLVED MANGANESE CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
- (<3.1) NOT DETECTED AT OR ABOVE THE METHOD DETECTION LIMIT
- (5.3 J) ESTIMATED VALUES BETWEEN THE METHOD DETECTION LIMIT (MDL) AND LIMIT OF QUANTIFICATION (LOQ)
- (NS) NOT SAMPLED
- (NA) NOT ANALYZED

N

**NOTES:**

1. BASE MAP PROVIDED BY STANTEC, DATED 1/5/2012, AT A SCALE OF 1=350'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. MW-21 WELL WAS PERMANENTLY DAMAGED.

0 320' 640'

APPROXIMATE SCALE 1 in. = 320 ft.

PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

# DISSOLVED MANGANESE IN GROUNDWATER JANUARY 30, 2020

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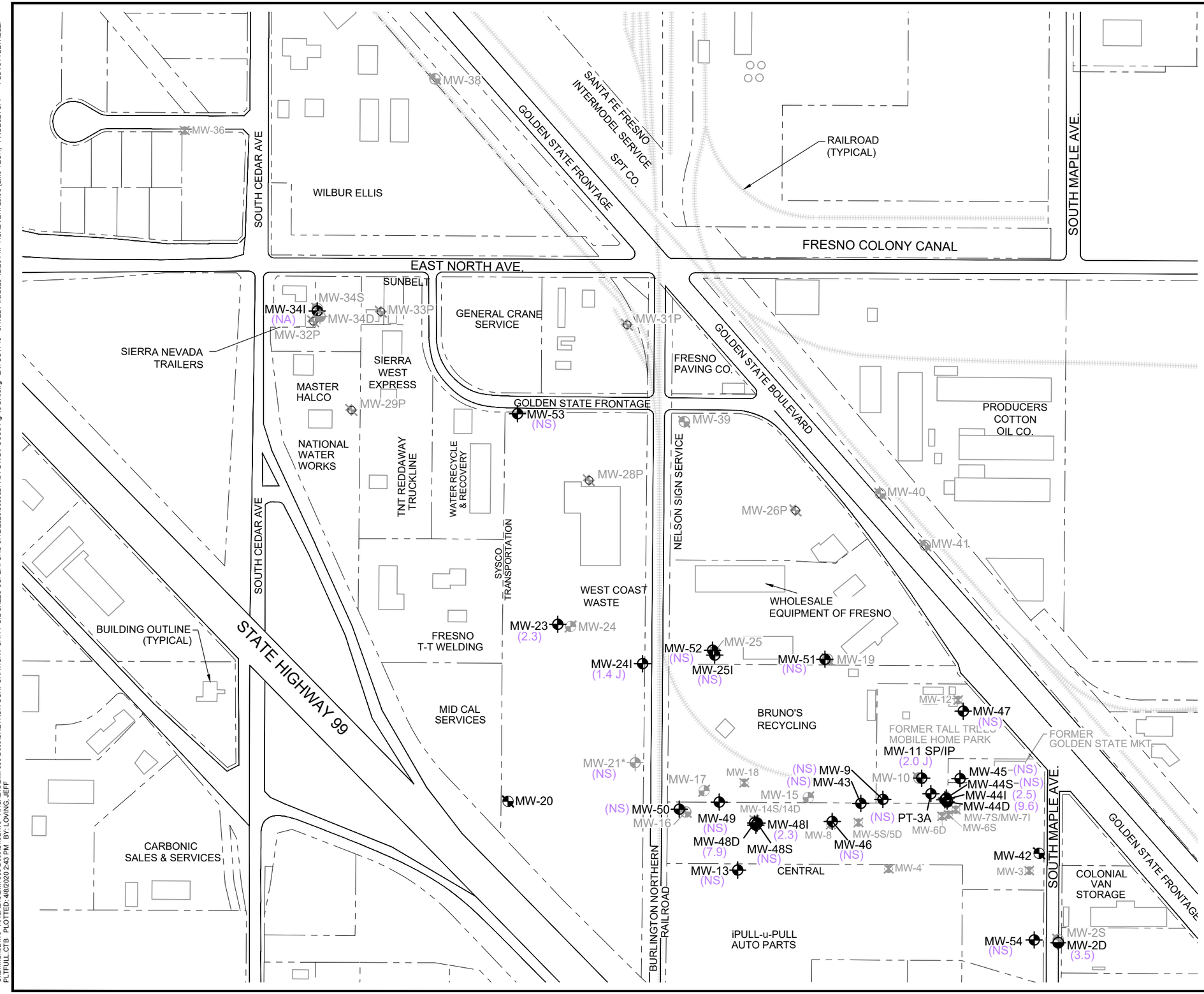
FIGURE 14

CITY: IRVINE, CA DIV/GROUP: ENVCAD DB: J. HARRIS, E. MURESAN LD: EMURESAN PIC: M. FLEISCHNER PM: A. HOOK TM: G. RAYMOND
C:\BIM\OneDrive - ARCADIS\BIM 360 Docs\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\PURITY OIL SALES SUPERFUND SITE\2020\30006271\01-DWG\POSSS Fig 15 DA.dwg LAYOUT: 15 SAVED: 4/8/2020 12:20 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 4/8/2020 2:43 PM BY: LOVING, JEFF




## LEGEND

- PROPERTY LINE
- RAILROAD TRACKS
- MONITORING WELL (SHALLOW TO INTERMEDIATE INTERVAL)
- MONITORING WELL (DEEP INTERVAL)
- SHALLOW MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- DEEP MONITORING WELL (REMOVED FROM MONITORING NETWORK)
- PRODUCTION WELL (REMOVED FROM MONITORING NETWORK)
- MONITORING WELL (DECOMMISSONED)
- MONITORING WELL (BURIED OR LOST)
- * WELL PERMANENTLY DAMAGED
- (9.6) DISSOLVED ARSENIC CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
- (2.0J) NOT DETECTED AT OR ABOVE THE METHOD DETECTION LIMIT
- (J) ESTIMATED VALUES BETWEEN THE METHOD DETECTION LIMIT (MDL) AND LIMIT OF QUANTIFICATION (LOQ)
- (NS) NOT SAMPLED
- (NA) NOT ANALYZED

N

**NOTES:**

1. BASE MAP PROVIDED BY STANTEC, DATED 1/5/2012, AT A SCALE OF 1=350'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. MW-21 WELL WAS PERMANENTLY DAMAGED.

0 320' 640'

APPROXIMATE SCALE 1 in. = 320 ft.

PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

# DISSOLVED ARSENIC IN GROUNDWATER JANUARY 30, 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE 15

# APPENDIX A

## Agency Correspondence

**Nathan Blomgren**
Project Manager
Superfund & Specialty Portfolios

**Chevron Environmental Management Company**
6101 Bollinger Canyon Rd
San Ramon, CA 94583
Tel: (925) 790-3914
Fax: (925) 790-6772
nathan.blomgren@chevron.com

August 10, 2012

Ms. Lily Tavassoli
Remedial Project Manager
U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street, Mail Code SFD-7-2
San Francisco, CA 94105

Subject: Purity Oil Sales Superfund Site, Proposed Modifications to the Current Groundwater Monitoring Program.

Dear Ms. Tavassoli:

The purpose of this letter is to detail proposed modifications to the current groundwater monitoring program in place at the Purity Oil Sales Superfund Site (Site), Operable Unit 1 (OU-1). The groundwater monitoring program proposed here is in general accordance with the groundwater performance monitoring program described in the Draft Remedial Design/Remedial Action Work Plan (RD/RAWP) submitted to the United States Environmental Protection Agency (USEPA) by ARCADIS U.S., Inc. (ARCADIS), on behalf of Chevron Environmental Management Company (CEMC), on May 2, 2012. The Draft RD/RAWP is currently under USEPA review.

This groundwater monitoring program has been developed to meet the following monitored natural attenuation (MNA) performance monitoring objectives program for OU-1 groundwater:

1. Verify that concentrations of each contaminant of concern (COC) and other constituents currently exceeding the respective cleanup goal (CUG) identified in the Record of Decision (ROD) decline with time at a rate such that CUGs will be achieved for groundwater beneath the Site within reasonable timeframes.

2. Verify lateral and vertical migration of constituents at concentrations greater than groundwater CUGs does not extend beyond the current area of impact. This objective will be assessed by utilizing existing monitoring wells downgradient and vertically below the dissolved-phase groundwater plume that have historically demonstrated concentrations in groundwater less than groundwater CUGs.

3. Monitor hydrologic and biogeochemical conditions in site groundwater over time to identify any changes in groundwater flow direction, groundwater elevation, or MNA parameters that might affect the protectiveness of the selected remedy.

The proposed monitoring program (Table 1; Figure 1) is intended to replace the current, USEPA approved, monitoring program and comprises 26 monitoring wells, selected from the 39 monitoring wells currently monitored at the Site. Given the long history of COC concentrations below reporting limits, declining trends at locations where COCs are present, and the relatively slow groundwater velocity at the Site, annual and semi-annual sampling is sufficient to provide information on temporal changes to the plume, should they occur. The annual and semi-annual sampling events are proposed to occur during the first and third quarters of each year, respectively.

Thirteen monitoring wells are proposed to be removed from the current groundwater monitoring program at the site, as summarized in Table 1. Those wells selected for removal that are not privately owned wells will be destroyed properly (seven monitoring wells). Seven of the 13 monitoring wells proposed for removal from the monitoring program are monitored for water levels only under the current program and ongoing collection of water level data will not provide additional information to significantly enhance the understanding of hydrologic conditions at the Site in the area of remaining impacts. The remaining six of 13 monitoring wells proposed for removal from the monitoring program have demonstrated concentrations of COCs below CUGs for at least two years. At five of these locations, other, upgradient, monitoring wells, are included in the proposed monitoring program to serve as sentinel monitoring wells, while background geochemical data obtained at the final well proposed for removal, MW-42, is provided by monitoring at other upgradient locations.

***Groundwater Monitoring Parameters***

Groundwater field parameters and analytical samples will be collected to evaluate changes in plume geochemistry, concentrations of target constituents with an associated CUG and hydraulic parameters. The proposed groundwater monitoring program is outlined in Table 1. The monitoring parameters have been grouped to monitor constituents with an associated CUG and MNA parameters with the analytes and analytical methods for each group described in Table 2. Depth to groundwater measurements and groundwater samples will be collected in accordance with the Field Sampling Plan and Quality Assurance Project Plan (FSP/QAPP) and the FSP/QAPP Addendum (provided in Appendix D of the RD/RAWP, which is currently under USEPA review). Groundwater samples will be collected using low-flow techniques and field parameters (pH, conductivity, dissolved oxygen, oxidation-reduction potential, turbidity, and temperature) will be measured using a flow through cell and multi-parameter water quality meter, or equivalent. Samples collected for analytical analysis will be submitted to a California-certified laboratory.

***Groundwater Monitoring Frequency***

The frequency of monitoring will be adequate to detect, in a timely manner, the potential changes in site conditions. Flexibility for adjusting monitoring frequency over the life of the remedy is also necessary. It may be appropriate to decrease monitoring frequency once it has been determined that natural attenuation is progressing as expected. In contrast, the monitoring frequency may need to be increased if unexpected conditions are observed. The initial sampling frequency, outlined in Table 1 for each monitoring location, provides a thorough and responsive period to evaluate concentration changes while effectively monitoring the stability of groundwater conditions and confirming that contaminant migration to un-impacted areas is not occurring. The possible need to increase the sampling frequency for a given COC at a monitoring location is described in the MNA system performance monitoring decision logic (RD/RAWP Figure 13). Water levels will be gauged at all monitoring locations listed in Table 1 on a semi-annual basis.

Groundwater monitoring reports will be submitted annually during the first quarter of each year to document groundwater data collection efforts, provide constituent concentration results for the period, include analyses of concentration trends and propose changes in monitoring frequency, as appropriate. Changes in frequency that require execution prior to distribution of the annual monitoring report will be proposed for USEPA approval in accordance with the decision logic presented in Figure 13 of the RD/RAWP and summarized in the annual monitoring reports.

It is proposed, that if approved, the current monitoring program will be discontinued immediately and the modified groundwater monitoring program described herein will begin in the first quarter of 2013, with no samples collected during the fourth quarter of 2012. Groundwater analytical data from samples collected during the first and third quarters of 2013 will be made available to the USEPA in advance of the annual report. The first proposed annual groundwater monitoring report will be submitted to the USEPA in the first quarter of 2014.

Sincerely,

Nate Blomgren
Project Manager

cc: Patrick Wooliever, Tetra Tech
Quentin Moore, ARCADIS
Dorota Runyan, Stantec
Michael Hurd, SAIC

Attachments:
Table 1: Proposed Groundwater Monitoring Program
Table 2: Proposed Analytical Program
Figure 1: Proposed Groundwater Monitoring Program

**Table 1**
**Proposed Groundwater Monitoring Program**
Purity Oil Sales Superfund Site
Malaga, Fresno County, California
OU-1 Remedial Design and Remedial Action Work Plan

| Monitoring Well | Monitoring Zone | Location Relative to Groundwater Plume | Analytical Suite [3] | | | | | | Depth to Water [4] |
|---|---|---|---|---|---|---|---|---|---|
| | | | Volatile Organic Compounds | | Arsenic | Iron | Manganese | MNA Parameters | |
| | | Sampling Frequency [5] | Semi-annual | Annual | Semi-annual | Semi-annual | Semi-annual | Annual | Semi-annual |
| MW-2D | deep | Upgradient | | x | | | | x | x |
| MW-9 | shallow to intermediate | Source Area | | x | X | X | x | x [7] | x |
| MW-11SP | shallow to intermediate | Source Area | x | | | | | x | x |
| MW-11IP | shallow to intermediate | Source Area | x | | | | | x | x |
| MW-13 | shallow to intermediate | Cross-gradient | | x | X | x | X | x | x |
| MW-20 [1] | shallow to intermediate | Downgradient/Crossgradient | To be Abandoned | | | | | | |
| MW-21 | shallow to intermediate | Downgradient | | x | | | | | x |
| MW-23 | intermediate | Downgradient/Plume Fringe | | x | X | X | x | x | x |
| MW-24I | intermediate | Cross-gradient/Plume Fringe | | x | X | X | x | x | x |
| MW-25I | intermediate | Cross-gradient | | x | | | | x | x |
| MW-26P [1] | deep | Cross-gradient | To be Removed from the Monitoring Program [6] | | | | | | |
| MW-28P | deep | Downgradient/Crossgradient | To be Removed from the Monitoring Program [6] | | | | | | |
| MW-29P [1] | intermediate | Downgradient | To be Removed from the Monitoring Program [6] | | | | | | |
| MW-31P [1] | shallow to intermediate | Downgradient/Crossgradient | To be Removed from the Monitoring Program [6] | | | | | | |
| MW-32P [1] | unknown depth | Downgradient | To be Removed from the Monitoring Program [6] | | | | | | |
| MW-33P [1] | unknown depth | Downgradient | To be Removed from the Monitoring Program [6] | | | | | | |
| MW-34I [1] | intermediate | Downgradient | To be Abandoned | | | | | | |
| MW-34D [1] | deep | Downgradient | To be Abandoned | | | | | | |
| MW-39 [1] | shallow to intermediate | Cross-gradient | To be Abandoned | | | | | | |
| MW-40 [1,2] | shallow to intermediate | Cross-gradient | To be Abandoned | | | | | | |
| MW-41 [1,2] | shallow to intermediate | Cross-gradient | To be Abandoned | | | | | | |
| MW-42 | shallow | Upgradient/Plume | To be Abandoned | | | | | | |
| MW-43 | shallow | Source Area | x | | X | X | x | x [7] | x |
| MW-44S | shallow | Source Area | x | | X | x | x | x [7] | x |
| MW-44I | intermediate | Source Area | x | | X | X | x | x [7] | x |
| MW-44D | deep | Source Area | x | | X | x | X | x [7] | x |
| MW-45 | shallow | Source Area | x | | x | X | X | x | x |
| MW-46 | shallow | Source Area | | x | X | X | x | x [7] | x |
| MW-47 | shallow | Cross-gradient | | x | | | | | x |
| MW-48S | shallow | Down-gradient | | x | | | | x [7] | x |
| MW-48I | intermediate | Plume Fringe | | x | | | | x [7] | x |
| MW-48D | deep | Plume Fringe | | x | X | x | x | x | x |
| MW-49 | shallow | Plume Fringe | | x | | | | x [7] | x |
| MW-50 | shallow to intermediate | Plume Fringe | | x | | | | | x |
| MW-51 | shallow to intermediate | Cross-gradient | | x | | | | | x |
| MW-52 | shallow to intermediate | Cross-gradient | | x | X | X | x | x | x |
| MW-53 | shallow to intermediate | Downgradient | | x | X | X | x | x | x |
| MW-54 | shallow | Upgradient | | x | | | | x | x |
| PT-3A | shallow | Source Area | x | | x | x | x | x | x |

Notes:
MNA = Monitored Natural Attenuation

[1] These monitoring wells do not provide additional water level or concentration data beyond those already included in the monitoring program and will no longer be actively monitored.

[2] These monitoring wells are located off-site in an area of elevated manganese concentrations in groundwater, unrelated to Site operations and are therefore excluded from the monitoring program.

[3] The analytical suite and sampling methods for volatile organic compounds, iron, manganese, arsenic and MNA parameters are described in Table 2.

[4] All active monitoring wells in the sampling program will be gauged for depth to water on a semi-annual basis regardless of sampling frequency.

[5] The annual and semiannual events will occur during the first and third quarters of each year, respectively.

[6] These monitoring wells cannot be abandoned as they are private production wells

[7] Annual samples collected at these locations serve a dual purpose: 1.) monitoring for iron and/or manganese concentrations in groundwater at sentinel well locations and 2.) to provide standard MNA parameters information.

**Table 2**
**Proposed Analytical Program**
Purity Oil Sales Superfund Site
Malaga, Fresno County, California
OU-1 Remedial Design and Remedial Action Work Plan

| Analyte | Recommended Method [1] |
|---|---|
| ***COCs/Constituents with a CUG*** | |
| Arsenic | USEPA 6020 |
| Dissolved Iron | USEPA 6010B |
| Dissolved Manganese | USEPA 6010B |
| VOCs | USEPA 8260 |
| | |
| ***MNA Parameters*** | |
| Total Alkalinity | SM 2320B |
| Sulfate | USEPA 300.0 |
| Nitrate | USEPA 300.0 |
| Chloride | USEPA 300.0 |
| Dissolved Iron [2] | USEPA 6010B |
| Dissolved Manganese [2] | USEPA 6010B |
| Total Organic Carbon | SM20 5310C |
| Carbon Dioxide | USEPA 8015 MOD |
| Methane | USEPA 8015B MOD |
| Ethane | USEPA 8015B MOD |
| Ethene | USEPA 8015B MOD |

COC = Contaminant of Concern
ROD = Record of Decision
CUG = Clean-up Goal
VOCs = Volatile Organic Compounds
MNA = Monitored Natural Attenuation

[1] An equivalent method, performed by a certified laboratory may be substituted

[2] Analysis of dissolved iron and manganese should be completed only once per monitoring event, and does not need to be duplicated if included as both a COC and MNA Parameter.

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION IX**
**75 Hawthorne Street**
**San Francisco, CA 94105**

***Via email***

June 12, 2015

Mr. Nathan Blomgren, P.G.
Project Manager
Superfund and Specialty Portfolios
Chevron Environmental Management Company
6101 Bollinger Canyon Road
San Ramon, California 94583-5177

Subject: **Proposed Changes to Current OU-1 Groundwater Monitoring Program**
**OU-1 Remedial Design and Remedial Action Work Plan**
**Purity Oil Sales Superfund Site Malaga, Fresno County, California**

Dear Mr. Blomgren:

The U.S. Environmental Protection Agency (EPA) has reviewed the Proposed Modifications to the Groundwater Monitoring Program dated August 10, 2012 with consideration of the most recent contaminant concentration and groundwater level data from the First-Half 2015 Semi-Annual Ground Water Monitoring Report for Operable Unit 1 (OU-1) at the Purity Oil Sales Superfund Site (Purity).

The groundwater monitoring program was developed to meet the monitored natural attenuation (MNA) performance monitoring objectives program for OU-1 groundwater; specifically:

- Verify that concentrations of each contaminant of concern (COC) and other constituents currently exceeding the respective cleanup goal (CUG) identified in the Record of Decision (ROD) decline with time at a rate such that CUGs will be achieved for groundwater beneath the Site within reasonable timeframes.

- Verify that lateral and vertical migration of COCs and other constituents at concentrations greater than groundwater CUGs does not extend beyond the current area of impact.

EPA has summarized its comments on the proposed changes to the groundwater monitoring program in the attached table. If you have any questions or comments, please contact me at (415) 972-3177 or bowlin.patricia@epa.gov.

Sincerely,

/S/ Patricia Bowlin
Remedial Project Manager

cc: (via email)

Lisa Pederson, Chevron
Christine Parent, DTSC
Dale Harvey, RWQCB
Dorota Runyan, Stantec
Steve Strait, Stantec
Jo Ellen Strait, Stantec
Ralph Carson, Stantec
Patrick Wooliever, Tetra Tech
Victor Early, Tetra Tech

**EPA COMMENTS**
**PROPOSED CHANGES TO THE OU-1 GROUNDWATER MONITORING PROGRAM**
**PURITY OIL SALES SUPERFUND SITE**

Mr. Nate Blomgren
June 12, 2015

| Number | Location | Comment |
|---|---|---|
| **COMMENTS** | | |
| 1. | -- | Several of the groundwater wells originally proposed to remain in the OU-1 groundwater monitoring program have since gone dry. Based on the latest water level and monitoring data, the following wells should remain in the monitoring program to provide adequate data collection and coverage:<br>• MW-2D<br>• MW-11IP<br>• MW-13<br>• MW-21<br>• MW-23<br>• MW-24I<br>• MW-25I<br>• MW-34I<br>• MW-44I<br>• MW-44D<br>• MW-48I<br>• MW-48D<br>• MW-50<br>• MW-54<br>Additionally, with the current drought conditions, and resulting anticipated loss of additional viable groundwater monitoring wells, the groundwater monitoring program should be evaluated for adequacy and effectiveness over the next 12 months, 3 years and 10 years. |

| Number | Location | Comment |
|---|---|---|
| 2. | -- | The analytical suite and sampling frequency for the wells in Table 1 proposed to be part of the groundwater monitoring program are acceptable with the following comments:<br>• MW-34I has had intermittent concentrations of 1,2 DCA near the cleanup goal in the recent past and is located downgradient of the site. MW-34I should be sampled annually for volatile organic compounds (VOC).<br>• MW-54 and MW-2D are upgradient of the site and should be sampled annually for metals (which are naturally occurring) instead of VOCs, along with the MNA parameters.<br>• Wells proposed for sampling for either arsenic, iron, or manganese should be sampled for all three metals at once as their occurrence is related to the same mechanism.<br>• The wells that are no longer sampled should remain in a secured condition. |
| 3. | -- | Based on the declining groundwater level regionally and at the site, there is no longer a viable well in the shallowest water-bearing portion of the source zone. Consequently a new well should be installed in the area of MW-44S, with a screen interval elevation of approximately 190 to 210 feet mean sea level (MSL). |
| 4. | -- | The proposed changes to the monitoring program should be published in a revised groundwater sampling and analysis plan for Purity Oil Sales. |

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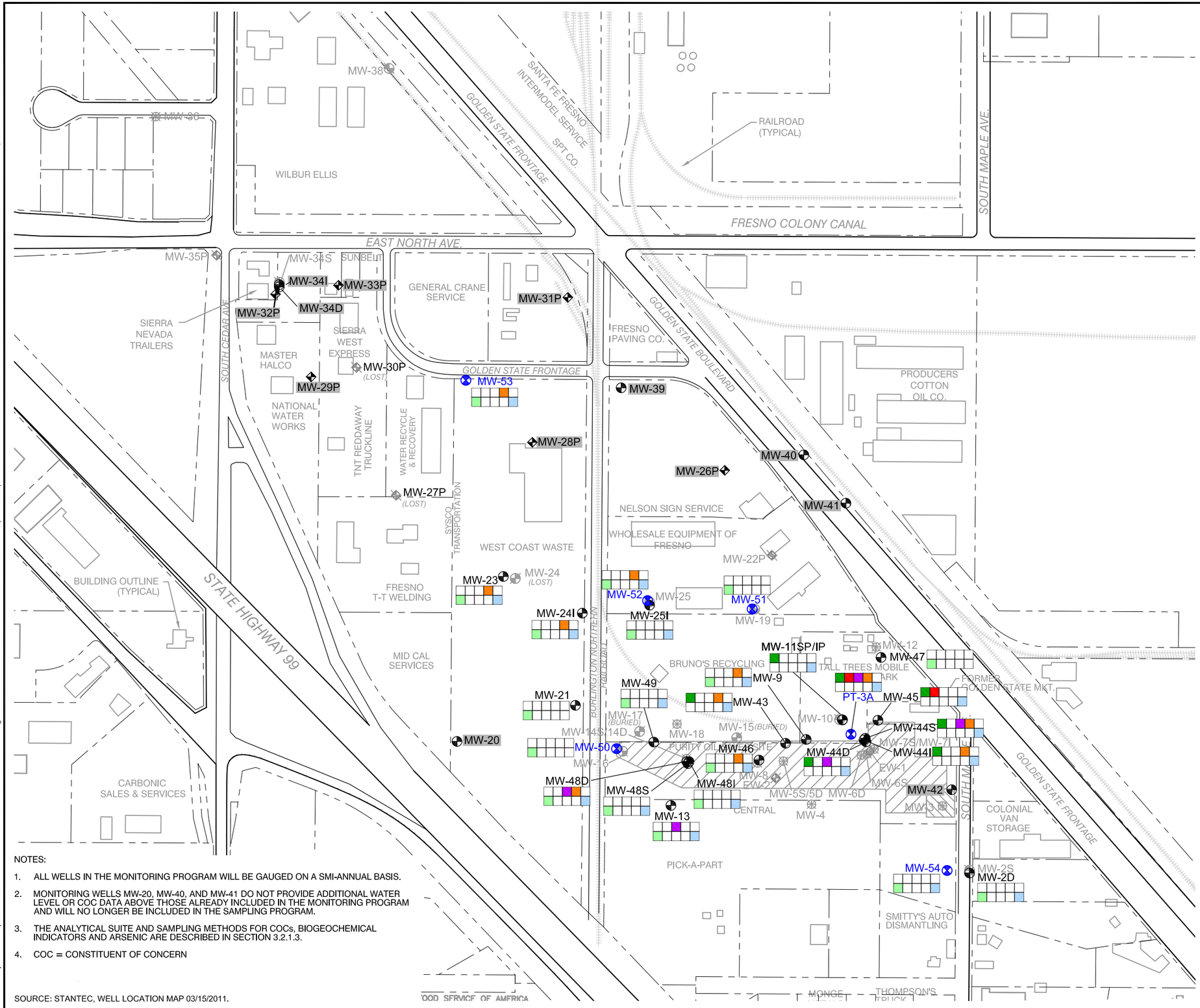
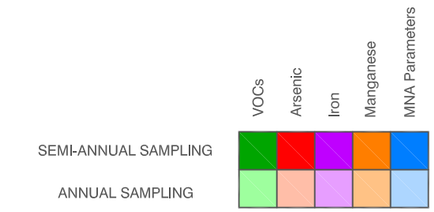



LEGEND

- MONITORING WELL
- MONITORING WELL (INSTALLED 12/2009)
- MONITORING WELL (BURIED OR LOST)
- MONITORING WELL (REMOVED FROM FROM MONITORING NETWORK)
- MONITORING WELL (DECOMMISSIONED)
- INACTIVE PRODUCTION WELL
- PRODUCTION WELL (REMOVED FROM MONITORING NETWORK)
- EXTRACTION WELL (DECOMMISSIONED)
- MW-40 WELL TO BE REMOVED FROM THE PROGRAM OR ABANDONED
- EXTENT OF ENGINEERED CAP USING GCL/GDL
- EXTENT OF ENGINEERED CAP USING PVC LINER
- PROPERTY LINE
- RAILROAD TRACKS

SAMPLE COLLECTION FREQUENCY LEGEND

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GRAPHIC SCALE

NOTES:

1. ALL WELLS IN THE MONITORING PROGRAM WILL BE GAUGED ON A SMI-ANNUAL BASIS.
2. MONITORING WELLS MW-20, MW-40, AND MW-41 DO NOT PROVIDE ADDITIONAL WATER LEVEL OR COC DATA ABOVE THOSE ALREADY INCLUDED IN THE MONITORING PROGRAM AND WILL NO LONGER BE INCLUDED IN THE SAMPLING PROGRAM.
3. THE ANALYTICAL SUITE AND SAMPLING METHODS FOR COCs, BIOGEOCHEMICAL INDICATORS AND ARSENIC ARE DESCRIBED IN SECTION 3.2.1.3.
4. COC = CONSTITUENT OF CONCERN

SOURCE: STANTEC, WELL LOCATION MAP 03/15/2011.

PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

# PROPOSED GROUNDWATER MONITORING PROGRAM

ARCADIS

FIGURE 1

# APPENDIX B

## Sampling and Analysis Plan

# REVISED SAMPLING AND ANALYSIS PLAN
# PURITY OIL SALES SUPERFUND SITE
# OPERABLE UNIT 1

## 3281 SOUTH MAPLE AVENUE
## MALAGA, CALIFORNIA

# REVISED SAMPLING AND ANALYSIS PLAN

## PURITY OIL SALES SUPERFUND SITE
## OPERABLE UNIT 1
## 3281 SOUTH MAPLE AVENUE
## MALAGA, CALIFORNIA

**SECOR PN: 24CH.67005.00**

**Prepared For:**
Chevron

May 2005

**Prepared By:**
SECOR International Incorporated
3475 W. Shaw Ave., Suite 104
Fresno, CA 93711

**Revised Sampling and Analysis Plan**
**Purity Oil Sales Superfund Site**
**Operable Unit 1**

**3281 South Maple Avenue**
**Malaga, California**

The material and data in this report were prepared under the supervision and direction of the undersigned. This report was prepared consistent with current and generally accepted geologic and environmental consulting principles and practices that are within the limitations provided herein.

SECOR International Incorporated

Tom Peet
Project Manager

Steven Strait, P.G., C.E.G., C.HG.
Principal Hydrogeologist

## TABLE OF CONTENTS

**TABLE OF CONTENTS** ..... II

**ABBREVIATIONS AND ACRONYMS** ..... VII

**INTRODUCTION** ..... X

**FIELD SAMPLING PLAN** ..... XI

**1. PROJECT BACKGROUND** ..... 1

1.1 SITE HISTORY AND CONTAMINANTS ..... 1
*1.1.1 Site Hydrogeology* ..... 1
*1.1.2 Land and Resource Use* ..... 2
1.2 SUMMARY OF EXISTING SITE DATA ..... 2
1.3 SITE-SPECIFIC DEFINITION OF PROBLEM ..... 3

**2. PROJECT ORGANIZATION AND RESPONSIBILITIES** ..... 4

2.1 PROJECT MANAGER/PRINCIPAL HYDROGEOLOGIST ..... 4
2.2 PEER (QA/QC) REVIEWER ..... 4
2.3 TECHNICAL MANAGER/PROJECT GEOLOGIST ..... 4
2.4 PRINCIPAL CHEMICAL ENGINEER ..... 4
2.5 HEALTH AND SAFETY OFFICER ..... 4
2.6 DATABASE MANAGER ..... 5

**3. PROJECT SCOPE AND OBJECTIVES** ..... 6

3.1 SCOPE OF WORK ..... 6
3.2 APPLICABLE REGULATIONS/STANDARDS ..... 7
3.3 PROJECT SCHEDULE ..... 7

**4. NON-MEASUREMENT DATA ACQUISITION** ..... 9

4.1 OPTICAL TELEVIEWING ..... 9
4.2 GEOPHYSICAL LOGGING ..... 9

**5. FIELD ACTIVITIES** ..... 10

5.1 HEALTH AND SAFETY, AND PERMITTING ..... 10
5.2 CONE PENETROMETER TESTING ..... 10
*5.2.1 CPT Boring Locations* ..... 10
*5.2.2 Rationale/Design* ..... 10
*5.2.3 CPT Equipment/Procedures* ..... 11
*5.2.4 Laboratory Analysis* ..... 11
5.3 ADDITIONAL GROUNDWATER MONITORING WELLS ..... 12
*5.3.1 Rationale/Design* ..... 12
*5.3.2 Drilling Methods and Equipment* ..... 12
*5.3.3 Soil Sample Collection: Field and Laboratory Analysis* ..... 13
*5.3.4 Additional Groundwater Monitoring Well Installation* ..... 14
*5.3.5 Materials* ..... 15
*5.3.6 Logs and Well Installation Diagrams* ..... 16
5.4 QED DEDICATED MICROPURGE PUMP INSTALLATION ..... 17
5.5 QUARTERLY GROUNDWATER MONITORING AND SAMPLING ..... 17
*5.5.1 Water Level Measurement* ..... 17

*5.5.2 Determine Free Product Presence ..... 18*
*5.5.3 Field Measurement Procedures and Criteria ..... 18*
*5.5.4 Purging ..... 18*
*5.5.5 Sampling Methods for Groundwater ..... 19*
*5.5.6 Sample Handling Methods for Groundwater - Filtration ..... 19*
*5.5.7 Field Quality Control Sampling Procedures ..... 20*
*5.5.8 Decontamination Procedures ..... 21*
5.6 TREATABILITY TESTING SAMPLE COLLECTION AND ANALYSIS ..... 21
*5.6.1 Soil Sample Collection ..... 21*
*5.6.2 Groundwater Sample Collection ..... 22*
*5.6.3 Field/Treatability Laboratory Quality Control Sampling Procedures ..... 23*
*5.6.4 Decontamination Procedures ..... 24*
*5.6.5 Sample Analysis ..... 24*

**6. FIELD OPERATIONS DOCUMENTATION ..... 25**

6.1 DAILY QUALITY CONTROL REPORTS ..... 25
6.2 FIELD LOGBOOK ..... 25
6.3 FIELD SAMPLING SHEET ..... 26
6.4 PHOTOGRAPHIC RECORDS ..... 27
6.5 SAMPLE DOCUMENTATION ..... 27
*6.5.1 Sample Numbering System ..... 27*
*6.5.2 Sample Labels and/or Tags ..... 27*
*6.5.3 Chain-of-Custody Records ..... 27*
6.6 FIELD ANALYTICAL RECORDS ..... 28
6.7 DATA MANAGEMENT AND RETENTION ..... 28

**7. SAMPLE HANDLING ..... 29**

**8. INVESTIGATION DERIVED WASTES ..... 30**

8.1 SOIL CUTTINGS AND SOLID MATERIALS ..... 30
8.2 LIQUID WASTES ..... 30

**9. FIELD ASSESSMENT / THREE-PHASE INSPECTION PROCEDURES ..... 31**

9.1 CONTRACTOR QUALITY CONTROL ..... 31
9.2 SAMPLING APPARATUS AND FIELD INSTRUMENTATION CHECKLIST ..... 31

**10. NONCONFORMANCE / CORRECTIVE ACTION ..... 32**

**QUALITY ASSURANCE PROJECT PLAN ..... XXXIII**

**11. PROJECT LABORATORY ORGANIZATION AND RESPONSIBILITIES ..... 34**

11.1 LABORATORY DIRECTOR ..... 34
11.2 QUALITY ASSURANCE OFFICER ..... 34
11.3 ENVIRONMENTAL HEALTH AND SAFETY OFFICER ..... 34
11.4 TECHNICAL DIRECTORS ..... 34
11.5 ANALYSTS ..... 35
11.6 DATA PACKAGE/REPORTING SPECIALISTS ..... 35
11.7 PROJECT MANAGER ..... 35
11.8 SAMPLE MANAGEMENT DEPARTMENT PERSONNEL ..... 35
11.9 INFORMATION TECHNOLOGY ..... 35

**12. DATA ASSESSMENT ORGANIZATION AND RESPONSIBILITIES ..... 36**

12.1 QUALITY ASSURANCE ORGANIZATION ..... 37
12.2 CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY ..... 37
12.3 USEPA MANAGEMENT ..... 38

**13. DATA QUALITY OBJECTIVES ..... 39**

13.1 DATA QUALITY OBJECTIVES ..... 39
*13.1.1 Step 1 – State the Problem ..... 40*
*13.1.2 Step 2 – Identify the Decision ..... 40*
*13.1.3 Step 3 – Identify the Inputs to the Decision ..... 41*
*13.1.4 Step 4 - Define the Boundaries of the Study ..... 41*
*13.1.5 Step 5 – Develop a Decision Rule ..... 41*
*13.1.6 Step 6 - Specify Tolerable Limits on Decision Errors ..... 41*
*13.1.7 Step 7 – Optimize the Design for Obtaining Data ..... 42*
13.2 DATA MEASUREMENT OBJECTIVES ..... 42
*13.2.1 Quality Assurance Guidance ..... 42*
*13.2.2 Precision, Accuracy, Representativeness, Completeness, and Comparability Criteria ..... 43*
*13.2.3 Field Measurements ..... 44*
*13.2.4 Laboratory Analyses ..... 44*
13.3 SPECIAL TRAINING REQUIREMENTS ..... 46
13.4 DOCUMENTATION AND RECORDS ..... 46

**14. SAMPLE RECEIPT, HANDLING, CUSTODY, AND HOLDING TIME REQUIREMENTS ..... 47**

14.1 SAMPLING KIT PREPARATION ..... 47
14.2 VERIFICATION / DOCUMENTATION OF COOLER RECEIPT CONDITION ..... 47
14.3 CORRECTIVE ACTION FOR INCOMING SAMPLES ..... 48

**15. ANALYTICAL PROCEDURES ..... 50**

15.1 PREVENTIVE MAINTENANCE ..... 50
*15.1.1 Equipment Maintenance ..... 50*
*15.1.2 Documentation ..... 50*
*15.1.3 Contingency Plan for Emergencies ..... 50*
15.2 CALIBRATION PROCEDURES AND FREQUENCY ..... 51
*15.2.1 Gas Chromatograph / Mass Spectrometer Calibration Procedures ..... 51*
*15.2.2 ICP/Atomic Absorption Spectrophotometer Calibration Procedures ..... 52*
15.3 LABORATORY QC PROCEDURES ..... 53
*15.3.1 Analytical Sequence QC ..... 53*
*15.3.2 Batch/Matrix-Specific/Performance-Based QC ..... 54*
15.4 PERFORMANCE AND SYSTEM AUDITS ..... 57
*15.4.1 Performance Audits ..... 57*
*15.4.2 Systems Audits ..... 57*
15.5 NONCONFORMANCE/CORRECTIVE ACTIONS ..... 58

**16. DATA REDUCTION / CALCULATION OF DATA QUALITY INDICATORS ..... 59**

16.1 LABORATORY DATA REDUCTION ..... 59
16.2 LABORATORY DATA VERIFICATION ..... 59
16.3 ANALYTICAL REPORT REVIEW ..... 59
16.4 PRECISION ..... 59
16.5 ACCURACY ..... 60
16.6 SAMPLE QUANTITATION / REPORTING LIMITS (LIMIT OF DETECTION) ..... 61

*16.6.1 Method Detection Limits* ..... *61*
*16.6.2 Method Reporting Limits* ..... *61*
16.7 COMPLETENESS ..... 61

**17. LABORATORY OPERATIONS DOCUMENTATION ..... 62**

17.1 SAMPLE MANAGEMENT RECORDS ..... 62
17.2 DATA REPORTING PROCEDURES ..... 62
*17.2.1 Data Package Format and Contents* ..... *62*
*17.2.2 Electronic Data Deliverables* ..... *62*
17.3 DATA MANAGEMENT PROCEDURES ..... 62
*17.3.1 Laboratory Turnaround Time* ..... *62*
*17.3.2 Data Archival/Retention Requirements* ..... *62*

**18. CHEMICAL DATA REVIEW ..... 63**

18.1 VALIDATION AND VERIFICATION METHODS ..... 63
18.2 RECONCILIATION WITH USER REQUIREMENTS ..... 63
*18.2.1 Data Evaluation* ..... *63*
*18.2.2 Data Reduction and Tabulation* ..... *63*

**REFERENCES ..... 64**

**TABLES**

1. QED Low-flow Pump Installation Information
2. List of Existing Site Wells
3. Analyses and Corresponding Sampling Containers – Groundwater Matrix
4. Reporting Limits and Method Detection Limits
5. Summary of Containers, Preservation, and Holding Times
6. BFB and DFTTP Key Ions and Abundance Criteria
7. Relative Response Factor Criteria for Initial and Continuing Calibration of Volatile Organic Compounds
8. Levels of Quality Control and Deliverables: GC/MS
9. Levels of Quality Control and Deliverables: Cations (ICP/GFAA/CVAA)

**FIGURES**

1. Well Location Map
2. Project Organization Chart
3. Project Schedule
4. CPT Location Site Map
5. Bottle Order Form
6. Corrective Action Report (CAR)
7. Data Handling and Reporting

**APPENDICES**

Appendix A Historical Tabulation of VOCs, Iron, and Manganese and Historical Groundwater Measurements and Elevations
Appendix B Standard Operating Procedures (SOPs)
Appendix C Standard Forms

Appendix D Lancaster Laboratories, Inc., Lancaster, Pennsylvania Laboratory Organization
Appendix E *Dehalococcoides* Technical Memorandum SiREM Technical Note 1.1

## ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| ASTM | American Society for Testing and Materials |
| ATSF | Atchison, Topeka, and Santa Fe Railroad Company |
| bgs | Below ground surface |
| BOF | Bottle Order Form |
| CCB | Continuing Calibration Blank |
| CCV | Continuing Calibration Verification |
| CCVS | Continuing Calibration Verification Standard |
| Chevron | Wholly-owned subsidiaries of Chevron Corporation, including Chevron U.S.A. Inc. and Chevron Environmental Management Company |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| COC | Constituents of Concern |
| CPT | Cone Penetrometer Testing |
| CQC | Contractor Quality Control |
| CVAA | Cold Vapor Atomic Absorption |
| DO | Dissolved Oxygen |
| DOT | Department of Transportation |
| DQO | Data Quality Objective |
| EC | Electrical Conductivity |
| EDD | Electronic Data Deliverables |
| EH&S | Environmental Health and Safety |
| FID | Fresno Irrigation District |
| FSP | Field Sampling Plan |
| ft/day | Feet Per Day |
| GC | Gas Chromatography or Gas Chromatograph |
| GC/MS | Gas Chromatography/Mass Spectrometry or Gas Chromatograph/Mass Spectrometer |
| GFAA | Graphite Furnace Atomic Absorption |
| HASP | Health and Safety Plan |
| HDPE | High Density Polyethylene |
| HPLC | High Performance Liquid Chromatography |
| ICAR | Investigation and Corrective Action Report |
| ICB | Initial Calibration Blank |
| ICVS | Initial Calibration Verification Standard |
| ID | Identification |
| IDW | Investigation Derived Wastes |

| | |
|---|---|
| IEL | Induction Electric Log |
| IT | Information Technology |
| LCS | Laboratory Control Sample |
| LCSD | Laboratory Control Sample Duplicate |
| LIMS | Laboratory Information Management System |
| LOQ | Laboratory Quantitation Limit |
| MCL | Maximum Contaminant Level |
| MDL | Method Detection Limit |
| mL | Milliliter |
| MNA | Monitored Natural Attenuation |
| MRL | Method Reporting Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| msl | Mean sea level |
| OPTV | Optical Televiewing |
| ORP | Oxidation-Reduction Potential |
| OSHA | Occupational Safety and Health Act |
| OU | Operable Unit |
| PAH | Polyaromatic Hydrocarbon |
| PARCC | Precision, Accuracy, Representativeness, Completeness, Comparability |
| PID | Photoionization Detector |
| PPE | Personal Protective Equipment |
| PRP | Potentially Responsible Party |
| PVC | Polyvinyl Chloride |
| QA | Quality Assurance |
| QAO | Quality Assurance Officer |
| QAPP | Quality Assurance Project Plan |
| QC | Quality Control |
| QCR | Daily Quality Control Report |
| RAO | Remedial Action Objectives |
| RBCs | Risk Based Concentrations |
| RG | Remediation Goal |
| RI | Remedial Investigation |
| ROD | Record of Decision |
| RPD | Relative Percent Difference |
| RSD | Relative Standard Deviation |

| | |
|---|---|
| RRF | Relative Response Factor |
| RWQCB | Regional Water Quality Control Board |
| SAP | Sampling and Analysis Plan |
| SECOR | Secor International Incorporated |
| SI | Site Investigation |
| SOP | Standard Operating Procedure |
| SSC | Side-Scan Camera Video |
| TOC | Total Organic Carbon |
| USA | Underground Services Alert |
| USCS | Unified Soil Classification System |
| USEPA | United States Environmental Protection Agency |
| VOC | Volatile Organic Compound |

# INTRODUCTION

On behalf of Chevron, SECOR International Incorporated (SECOR) has prepared this Sampling and Analysis Plan (SAP) for Purity Oil Sales Superfund Site Operable Unit 1 (OU-1) located at 3281 South Maple Avenue in Malaga, California (Site). The SAP is comprised of a Field Sampling Plan (FSP), and a Quality Assurance Project Plan (QAPP). The FSP and QAPP are described as follows:

- The FSP provides detailed information on the specifications and procedures to be followed during soil boring investigations, groundwater investigations, installation of groundwater monitoring wells, slug tests, installation of dedicated well pumps, collection of soil and groundwater samples, and the collection of field measurements for the OU-1 study area at the Site.

- The QAPP defines the chemical quality control (QC) program, data acquisition procedures and criteria, and oversight assessment protocols that are to be used for the OU-1 study area at the Site.

# FIELD SAMPLING PLAN

# 1. PROJECT BACKGROUND

This Field Sampling Plan (FSP) was developed to describe the methods by which field data would be collected and analyzed for Groundwater Operable Unit 1 (OU-1) of the Purity Oil Sales Superfund project. The FSP provides the project scope, boring and drilling procedures, and soil and groundwater sampling procedures, including quarterly groundwater monitoring, for the duration of this project.

## 1.1 Site History and Contaminants

The Purity Oil Sales Superfund Site (Site) is a former used oil-recycling facility located at 3281 South Maple Avenue in Malaga, California (Figure 1). The Site is located approximately 1 mile south of Fresno, California. Between 1934 and 1975, several different owners recycled used motor oil at this Site (SETC, 1996). The waste oil came from businesses such as service stations, car dealers, truck stops, electrical transformer yards, municipalities, school districts, and the military. The used motor oil, acidic sludges, and clay- and oil-containing filter cake from the recycling process were disposed of in unlined soil pits. In 1973, a Fresno County Superior Court Order was issued to the facility to empty and backfill the pits. The pits were filled with soil and construction debris in 1975 (SETC, 1996). The western part of the site consisted of unlined sumps and sludge pits. A fire at the Site in 1976 destroyed the main warehouse building and adjacent equipment. After the fire, the area was partially regraded. Seven large steel tanks were all that remained of the processing equipment until the tanks were removed in October 1990. Purity Oil Sales was included on the National Priority List in September 1983 based upon soils, groundwater, and air quality investigations conducted by the U.S. Environmental Protection Agency (USEPA), Department of Health Services, and the Regional Water Quality Control Board (RWQCB). USEPA is addressing remediation of the Site with the designation of two Operable Units: OU-1 Groundwater; and OU-2 Soil Remediation.

### *1.1.1 Site Hydrogeology*

The Site is located in the San Joaquin River basin and consists of unconsolidated floodplain and alluvial deposits formed by the San Joaquin and Kings Rivers. The soils at the site are described as poorly graded sands and silty sands to depths of 170 feet below ground surface (bgs). A partially lithified silt layer is encountered at a depth of 10 to 20 feet bgs over most of the Site. Three water-bearing intervals have been described, and these are labeled shallow, intermediate, and deep. They are part of the interbedded regional water table aquifer. The current hydrogeological site conceptual model assumes two primary water-bearing intervals impacted by contamination from Site sources: the shallow interval, approximately 55 to 75 feet bgs; and the intermediate, approximately 80 to 100 feet bgs. The interval characterized as the deep interval, groundwater at depths greater than 100 feet bgs, does not appear to be impacted by Site contamination. The recent aquifer testing indicates that even though the aquifer contains identifiable intervals, these intervals may act as one hydrostratigraphic unit. The silt separating the intervals only impedes downward migration of containments, but does not stop the migration. This conclusion is supported by the ongoing water level and water quality monitoring results.

A summary of the hydrogeologic system is as follows:

- Groundwater is encountered at a depth ranging from 55 to 60 feet bgs across the Site.
- Based on hydraulic testing performed at the Site, the hydraulic conductivity ranges from 0.44 to 270 ft/day with a geometric mean hydraulic conductivity of 11 ft/day.
- The hydraulic gradient for the Site is approximately 0.0025 and the groundwater flow direction is to the northwest.

- Based on the mean hydraulic conductivity of 11 ft/day, a hydraulic gradient of 0.0025, and an effective porosity of 0.20, the average horizontal groundwater velocity is 50 ft/year.

- No drinking water wells are located within one mile downgradient of the site. Any production wells in the area are no longer in use, with the exception of irrigation production well #35p, near the corner of Cedar and North Avenues, which operates periodically. A private production well that may also be used for potable water, identified as "Well X" in the Harding and Lawson Remedial Investigation Document (Harding and Lawson, 1986), is located approximately 350 feet upgradient of the Purity Oil Site on property designated as Cal-Sandblasting, formerly Vangas Propane Company.

Based on results of the quarterly groundwater monitoring, the primary site contaminants include volatile organic compounds (VOCs), iron, and manganese. Soils at the site contain high levels of lead, polyaromatic hydrocarbons (PAHs), and several organic compounds. The buried waste contains benzene, toluene, PAHs, methylene chloride, phthalates, acetone, other solvents, lead, and various metals. Soil contamination extends from the surface to groundwater.

### *1.1.2 Land and Resource Use*

The Purity Oil Sales site is located in a zone that is designated for heavy industrial use in accordance with the Fresno County General Plan. Most of the land in the vicinity of the Purity Oil Sales site is used for industrial or agricultural purposes. Some residences were located immediately north and south of the eastern portion of the property. Residences of the Tall Trees Trailer Park, bordering the property, have been relocated in conjunction with the soils operable unit remedial action.

The industrial activity in the area includes agricultural support industries, heavy equipment rentals, repair shops, a former cotton oil facility, scrap yards, several trucking yards, and various light industries. Directly adjacent to the Purity Oil Sales site are two junk yards; the Burlington Northern Railroad (formerly the Atchison, Topeka, and Santa Fe Railroad Company) right-of-way; the Golden State Market; and a trucking company.

The area is crossed by the North Central and Central Canals that are operated and maintained by the Fresno Irrigation District (FID). The North Central Canal flows westward along the southern edge of the Purity Oil Sales property and cuts across the southwestern corner. Part of the North Central Canal adjacent to the site will be placed inside concrete pipe. Oats, cotton, fruit, and grapes are grown approximately one mile west and southwest of the site. During the summer, the crops are irrigated with water from the North Central Canal.

## 1.2 Summary of Existing Site Data

Water quality is being monitored for VOCs, iron, and manganese. Numerous VOCs have been detected at the Site. The targeted Record of Decision (ROD) compounds include: benzene; 1,1-dichloroethane (1,1-DCA); 1,2-dichloroethane (1,2-DCA); 1,1-dichloroethene (1,1-DCE); cis-1,2-dichloroethene (cis-1,2-DCE); trans-1,2-dichloroethene (trans-1,2-DCE); trichloroethene (TCE); and vinyl chloride (VC). Of the 29 wells sampled in November 2004, groundwater samples from only six wells (EW-1, MW-6S, MW-6D, MW-7S, MW-8, and MW-10) contained VOCs above the Maximum Contaminant Level (MCL) and ROD remediation goals (RGs). The highest concentration of total VOCs in the groundwater is located at the southern portion of the former Tall Trees Property and the adjacent corner of the Purity Oil Property near well MW-10.

Groundwater monitoring has been conducted at the Site since 1982, however, the earliest available chemical analytical data in the current database are from 1991. A table of historical water level measurements and elevations for the Site, including the environmental consulting firm that collected the data, is presented as Appendix A. The wells with the consistent VOC

detections are isolated in the “shallow” and “shallow to intermediate” intervals. Only infrequent and sporadic detections are reported for the deeper wells. In addition, the majority of the detections are trace concentrations at or near their respective MCLs. Nine wells show historical trends that may indicate reductive dechlorination of PCE, TCE, and 1,1,1-trichloroethane (1,1,1-TCA). The farthest downgradient well is MW-25 (Figure 1), and the VOC plume appears to have migrated as far as this well. However, groundwater analytical data from well MW-25 suggest that the VOC plume has stabilized and may have receded. Iron and manganese are the only inorganic chemicals of concern listed in the ROD. These naturally occurring constituents were detected in many wells. The ROD has set secondary MCLs of 300 and 50 μg/L, respectively, for these compounds. The distribution of the elevated concentrations of iron and manganese is similar to the observed VOC trends. A historical tabulation of VOCs, iron, and manganese are presented in Appendix A.

In October 2003, Chevron presented USEPA the document entitled *OU-1 Improvement Evaluation, Purity Oil Superfund Site* (SECOR, 2003). The report provides a detailed analysis of an extensive 2003 field investigation undertaken by Chevron and provides recommendations for improvement to the OU-1 remedy in response to the findings presented in USEPA’s 5-year report on the Site (USEPA, 2001). The field investigation included two phases of cone penetrometer testing and HydroPunch groundwater sampling; optical televiewing and geophysical logging of existing groundwater monitoring wells that would support such activities; and hydraulic testing of the existing extraction wells. A complete discussion of the findings and conclusions can be found in the OU-1 Improvement Evaluation.

## 1.3 Site-Specific Definition of Problem

The ROD for OU-1 for the Purity Oil Sales site was signed in September 1989. The primary human health threat posed by contaminants relative to OU-1 is the use of contaminated groundwater by downgradient residents. The primary groundwater contaminants are VOCs, iron, and manganese. As a result of the Remedial Investigation (RI), Remedial Action Objectives (RAOs) were developed to assess remedial alternatives for the site. Two of the three components of the RAO have been completed which include: 1) removing of the seven tanks and their contents, and 2) providing an alternative water supply to affected private well owners. The remaining component of the RAO involves extraction, treatment, and disposal of groundwater in conjunction with quarterly groundwater monitoring.

The concentrations of VOCs identified in the groundwater are in low part per billion ranges. At these concentrations, pump and treat systems are extremely inefficient due to diffusion limitations. As a result, the timeframe to reach groundwater cleanup goals using pump and treat technologies is not well defined and will not reduce cleanup timeframes. Therefore natural attenuation will achieve groundwater cleanup goals in a shorter timeframe once the OU-2 remedy is completed.

The existing groundwater monitoring program was not designed using a Data Quality Objective (DQO) approach to demonstrate that natural attenuation is occurring. Therefore, the groundwater monitoring program has been redesigned with specific DQOs in mind. These DQOs include providing data to demonstrate that natural attenuation is occurring, to verify mass reduction of VOCs in the natural attenuation zone, to verify the plume is stable and shrinking, to monitor background conditions, and to provide data to evaluate if contingencies need to be evaluated. Data from the groundwater monitoring program wells will be used to determine when the cleanup goals have been reached or if contingencies need to be evaluated.

## 2. PROJECT ORGANIZATION AND RESPONSIBILITIES

The project organization, responsibilities of key personnel, and position requirements are defined below. The project organization chart for OU-1 is presented in Figure 2.

### 2.1 Project Manager/Principal Hydrogeologist

Mr. Steve Strait is the Project Manager/ Principal Hydrogeologist for OU-1 at the former Purity Oil site. He is responsible for establishing, and compliance with, project schedules and budgets, resource management, and issuance of reports on time. Mr. Strait will assure that the necessary resources are available for completion of the project, and will approve the selection of project teams. Mr. Strait, a California-certified hydrogeologist, will also be the principal hydrogeologist for the project.

### 2.2 Peer (QA/QC) Reviewer

Mr. Craig Skiera is the technical reviewer for the project, reports to the project through SECOR International Incorporated (SECOR) and Chevron, and is organizationally independent of the project management. The Peer Reviewer is responsible for providing a quality assurance/quality control (QA/QC) and technical review of the documents (e.g. quarterly groundwater monitoring reports) from the project.

### 2.3 Technical Manager/Project Geologist

Mr. Frank Gegunde is the Technical Manager and Project Geologist for OU-1. As Technical Manager, he is responsible for the oversight and execution of activities. The Technical Manager is responsible for scheduling and overseeing the work of field personnel and subcontractors. He will also assist the Project Manager in selecting teams and subcontractors. The Technical Manager has the authority for QC related issues.

Mr. Gegunde will also serve as the Project Geologist and will be responsible for the technical oversight of the field activities and all subcontractors including the inventory and quality control of equipment and materials. He will ensure that each subcontractor performs effective inventory and control for its quality affecting equipment and materials. Control of field measurements and test equipment will include preventive maintenance and calibration. The Project Geologist is also responsible for: 1) sample shipment to laboratories; 2) inspection of sample containers prior to use; 3) supervision of sample collection activities; 4) preparation of chain-of-custody documentation; 5) verification of sample preservation; and 6) proper tracking of sample coolers by shipping agent.

### 2.4 Principal Chemical Engineer

Mr. Dan Oberle is the Principal Chemical Engineer for the project and reports to the Project Manager. He is responsible as the point-of-contact to Chevron on environmental chemistry issues and has authority for QC related issues. The Principal Chemical Engineer will be responsible for ensuring that the sample collection is in accordance with this Sampling and Analysis Plan.

### 2.5 Health and Safety Officer

Mr. Phil Platcow, a Certified Industrial Hygienist, will be the Health and Safety Officer for the project and reports to the Project Manager. Mr. Platcow is responsible for ensuring that all health and safety requirements are met at the site, and that work is conducted in a safe manner by both SECOR personnel and the subcontractors.

## 2.6 Database Manager

Ms. JoEllen Strait, the Database Manager for OU-1 related data, reports to the Technical Manager and is responsible for database management for project related environmental data. The Database Manager is responsible for: 1) supervising the transmission of hard copy and electronic data from the field and laboratory; 2) verifying that the information is complete and consistent with the hard copy; 3) receiving and logging analytical data packages from the laboratory; and 4) maintaining the electronic database for the project.

A Purity Oil Sales project database for compilation of all Site related data including OU-1 groundwater data and OU-2 soils data is maintained through SECOR's Lansing, Michigan office. The Lansing database is the main repository for data used in the compilation of the OU-1 Improvement Evaluation.

# 3. PROJECT SCOPE AND OBJECTIVES

## 3.1 Scope of Work

At meetings in September and October 2002, monitored natural attenuation (MNA) was presented as a remedial alternative for groundwater at the Site. A proposal was submitted to the USEPA on behalf of Chevron in October 2002 entitled *Proposal for Hydrogeologic Site Characterization and Assessing Monitored Natural Attenuation in the Groundwater Purity Oil Site, Malaga, CA* (Proposal). The Proposal was part of a comprehensive proposal for OU-1 and OU-2 to address all pending issues at the Site. The Proposal outlined site assessment and natural attenuation evaluation that would be conducted by SECOR to evaluate the MNA process. As discussed in the Proposal, MNA feasibility would be assessed using *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater* (USEPA/600/R-98/128)(Protocol).

During the October 2002 meeting, data was presented regarding natural attenuation. In addition, steps then being taken (e.g. MicroPurge groundwater sampling and analyzing for certain MNA parameters) to assess the effectiveness of MNA were discussed. The Proposal described the steps necessary to evaluate MNA for the site. A summary of the tasks proposed to assess MNA at the Site follows:

- Develop a current Conceptual Hydrogeologic Model
- Continue quarterly MicroPurge groundwater sampling and quarterly reports including specific MNA parameters as discussed in the Proposal
- Extract, treat, and discharge from wells EW-1 and EW-2
- Evaluate Monitored Natural Attenuation
- Evaluate the extent of the contaminant plume
- Install new monitoring wells for monitored natural attenuation
- Propose a revised monitoring well network
- Develop contingency measures for monitored natural attenuation
- Prepare a report on monitored natural attenuation feasibility

Specific detailed work plans were developed for relevant tasks as they are formalized based on discussions between the USEPA, Chevron, and SECOR.

In October 2003, Chevron presented USEPA the document entitled *OU-1 Improvement Evaluation, Purity Oil Superfund Site* (SECOR, 2003), which reported on the progress, findings, and conclusions derived from the activities discussed in the Proposal. The report provides a detailed analysis of the extensive 2003 field investigation undertaken by Chevron and provides recommendations for improvement to the OU-1 remedy in response to the findings presented in USEPA's 5-year report on the Site (USEPA, 2001). The field investigation included two phases of cone penetrometer testing and HydroPunch groundwater sampling; optical televiewing and geophysical logging of existing groundwater monitoring wells that would support such activities; and hydraulic testing of the existing extraction wells. A complete discussion of the findings and conclusions can be found in the OU-1 Improvement Evaluation report.

Quarterly groundwater monitoring of viable existing monitoring wells is being conducted to assist in monitoring plume migration or recession, to collect MNA parameters, and to evaluate the effectiveness of the groundwater extraction/treatment system. All accessible monitoring wells that support such activities are equipped with dedicated QED Well Wizard® bladder (squeeze-type) pumps that incorporate MicroPurge® (minimal-drawdown) sampling methods. Table 1 summarizes the current well locations and general design specifications designated for QED low-flow pump installation.

Associated with the groundwater monitoring is the groundwater extraction from wells EW-1 and EW-2, and the subsequent groundwater treatment and discharge to the FID canal. Well locations are shown on Figure 1.

Depending on analytical results from ongoing quarterly groundwater monitoring and sampling events and changing hydrological conditions at the Site, additional wells may be necessary to meet the monitoring objectives. In addition, wells and piezometers that are no longer viable or needed will be abandoned upon approval by the USEPA, which was granted in an April 8, 2005 letter addressed to Bob Mihalovich from Rose Marie Caraway.

Consistent with agreements reached between USEPA, Chevron, and SECOR as part of a focused study of alternatives to improve the OU-1 remedy, bench-scale treatability testing will be conducted to obtain data to evaluate remediation time-frames associated with the "enhanced MNA" and "enhanced pump and treat" improvement alternatives. Data obtained from the bench-scale studies will be used to select an improvement alternative for future evaluation in a field pilot study.

## 3.2 Applicable Regulations/Standards

SECOR will be gathering additional data to assist in the further definition of the current groundwater plume under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund). MNA investigations and field sampling will be conducted under protocol approved by the USEPA and the Revised Supplemental Quality Assurance Project Plan (QAPP) submitted within this Sampling and Analysis Plan (SAP).

## 3.3 Project Schedule

The scope of work was initiated in May 2002 with the development of a site-specific health and safety plan for the groundwater extraction and treatment system and the 2nd Quarter 2002 groundwater monitoring event. A groundwater monitoring well inventory and evaluation was completed by June 1, 2002. Quarterly groundwater monitoring has been conducted commencing in June 2002 and continues through the present time. QED low-flow bladder pumps were installed in 25 of the on- and off-site monitoring wells during the week of September 9, 2002. Monthly Progress Reports to the USEPA are prepared and due by the end of the first full week of each month. Groundwater monitoring reports are due approximately one month following receipt of all the analytical results from the laboratory. Commencement of the MNA investigation began upon USEPA approval of the Proposal. A detailed project schedule is presented as Figure 3. This schedule will be updated to include future tasks in addendums to this SAP.

At the present time SECOR samples viable monitoring wells, on site and off site, every quarter for all ROD constituents of concern and any other analytes deemed potentially useful, such as MNA parameters. Any future on- or off-site monitoring well installations not discussed in the SAP/QAPP, or deviation from this monitoring and sampling regimen as proposed in the OU-1 Improvement Evaluation will be agreed to by the USEPA, Chevron, and SECOR. SECOR will also continue to operate the groundwater treatment system on site throughout the MNA investigation period as discussed in the Proposal and subsequent work plans and correspondence. Any deviation from the operation of the groundwater treatment system as

proposed in the OU-1 Improvement Evaluation will be agreed to by the USEPA, Chevron, and SECOR.

# 4. NON-MEASUREMENT DATA ACQUISITION

A well reconnaissance survey has been conducted on the 45 groundwater monitoring and former water supply wells on and off the Site, and the two on-site groundwater extraction wells. Some of these wells are dry, are covered with scrap metal, or contain broken equipment. The condition of these wells and any future monitoring and extraction wells will be continually evaluated. Further examination of the existing well conditions was conducted using optical televiewer and geophysical logging technology during the MNA investigation as discussed in the OU-1 Improvement Evaluation submitted to the USEPA in October 2003. If wells that are unusable, or become unusable, are necessary for the groundwater monitoring program, steps will be taken to assess what needs to be done to repair, abandon, or replace these wells.

## 4.1 Optical Televiewing

All existing wells that would support groundwater monitoring activities were surveyed downhole using optical televiewing (OPTV) side-scan camera video technology (SSC). A view of the well will be generated and a VHS tape was produced that was used to assess the downhole condition of each well, to evaluate the screened interval, and to assess other well construction details.

## 4.2 Geophysical Logging

To further assess the lithological and hydrogeologic conditions at each well, either a gamma ray log and/or an induction log was generated, depending on the type of well casing that is used in a particular well.

- The Induction Electric Log (IEL) measures conductivity from high frequency alternating currents that are induced into the formation. IEL is most accurate for medium to low resistivity values and produces its best results in medium to high porosity formations. The IEL can only be used in boreholes containing polyvinyl chloride (PVC) casing.

- Gamma ray logs measure the naturally occurring gamma emissions from the formation surrounding the borehole. These emissions are electromagnetic radiations that are released by nuclei of an unstable element decaying to a more stable state. Because the gamma ray log is a passive measurement of naturally occurring radioactive elements, and is lithologically dependant, it is an excellent correlation log. Gamma ray logs can be run in open boreholes or in wells cased containing PVC or steel casing.

Geophysical logs were correlated between wells to assess the continuity of stratigraphic horizons. The well casing type was identified during the OPTV SSC. The geophysical logs were then used along with the SSC to reevaluate the placement of the QED MicroPurge pump location. The geophysical logs were compared and integrated with previous logs (e.g. Remedial Investigation Report [CH2M Hill, 1988]) to assess the hydrogeologic conditions. In addition, reports and data generated by previous consultants were reviewed for background information on the well installation. The results of the OPTV and geophysical logging investigation are included in the OU-1 Improvement Evaluation.

# 5. FIELD ACTIVITIES

The following sections describe the pre-field and field activities to be conducted in connection with cone penetrometer testing, installation of on-site groundwater monitoring wells, low-flow pump installation, quarterly groundwater monitoring, treatability sample collection and well abandonment. Detailed procedures for various tasks conducted during standard well installation and groundwater monitoring are provided in Appendix B. Unanticipated changes in field conditions may require modifications to the standard operating procedures (SOPs). Any modifications to the SOPs will be documented and approved by the Site's Project Manager and Technical Manager. Examples of standard forms to be used during these operations are included in Appendix C.

## 5.1 Health and Safety, and Permitting

Prior to commencing fieldwork, a Site health and safety plan and appropriate addendums will be reviewed that fulfill the requirements of the Cal-Occupational Safety and Health Act (OSHA) Hazard Communications Standard (8 CCR 5194) for the use of SECOR employees. The health and safety plan will be on-site at all times. SECOR subcontractors will prepare and carry their own health and safety plan(s). In addition to the preparation of a site health and safety plan, all required well installation permits would be obtained from the proper regulatory agencies.

Before beginning drilling and cone penetrometer testing activities, SECOR will mark the proposed boring locations, notify Underground Service Alert (USA) at least 48 hours prior to drilling date, contract a private utility locator to clear proposed boring locations of potential subsurface obstructions, and refer to any historical Site plans.

## 5.2 Cone Penetrometer Testing

Cone penetrometer testing (CPT) is a technique used to obtain lithologic data where minimal impact is desired. Computer generated CPT logs are plotted in the field, providing a graphical log of subsurface soil lithology. CPT test data reports of two phases of CPT investigations completed as described in the MNA Proposal are included in the OU-1 Improvement Evaluation as Appendices D and E. All CPT testing is performed in accordance with American Society of Testing and Materials (ASTM) Method D 5778-95 (Reapproved 2000).

The CPT is performed inside of a grout collar installed at the ground surface. The grout collar allows the CPT contractor to backfill the boring as the steel rods are retracted from the hole. Continuous grouting prevents cross-contamination of water-bearing zones that can occur through an open borehole. The boring is backfilled to surface grade. A concrete or asphalt patch is placed over the borehole where applicable.

### *5.2.1 CPT Boring Locations*

CPT borings completed during the previous two phases of investigations were advanced at locations as presented in the OU-1 Improvement Evaluation report dated October 2003. The previous CPT boring locations are also shown on Figure 4. Locations of borings for any additional CPT investigations to further assess conditions at the Site will be discussed in specific work plans written as needed. Specific detailed work plans will be developed for relevant tasks as they are formalized based on discussions between the USEPA, Chevron and SECOR.

### *5.2.2 Rationale/Design*

The CPT test method determines the resistance to penetration of a conical pointed penetrometer as it is advanced into subsurface soils at a slow, steady rate. This test method uses an electric friction cone penetrometer. This test method is also used to assess the frictional resistance of a cylindrical sleeve located behind the conical point as it is advanced. The CPT test method will be

used to assess pore pressure while pushing the piezocone penetrometer. Pore pressure dissipation, after a push, can also be monitored to obtain soil compressibility and permeability.

### *5.2.3 CPT Equipment/Procedures*

The CPT test method uses an instrumented, cone-tipped probe to measure various geologic, geotechnical, and hydrologic parameters, such as soil-bearing resistance on the cone tip, soil frictional resistance along a cylindrical friction sleeve, probe inclination, and pore-water pressure. The CPT method consists of advancing a cone-tipped cylindrical probe (1.7 inches in diameter) into the ground while simultaneously measuring resistance to the penetration. The CPT method determines soil lithology by comparing the force (cone bearing pressure) required to advance the probe (Qt) to the friction ration (Rf) (Rf equals sleeve friction [Fs] divided by the probe tip load, times the penetration pore pressure [Ud]). The probe, attached to steel push rod segments, is forced into the ground using a truck-mounted hydraulic press. The probe is advanced while measurements are continuously recorded and relayed directly to an on-board computer. Lithologic and hydrologic data are printed out as the probe advances. Upon withdrawal of the probe, the resultant boring will be abandoned to the surface using cement bentonite grout.

#### 5.2.3.1 Groundwater Sampling

A well-known example of the direct push technology for water sampling is the Hydropunch®. Hydropunch samples will be collected by placing a disposable steel tip on the end of a 2-inch-diameter rod containing 5 feet of disposable 1-inch diameter slotted PVC casing. The sampling rods will be pushed to the desire depths using the CPT truck. Depth discreet samples will be obtained by retracting the rods approximately 4 feet, exposing the screen at the desired sampling interval. Samples will be collected by lowering a stainless steel or disposable Teflon bailer inside the steel rods and recovering groundwater. Groundwater will be poured from the bailer into laboratory-supplied containers. Groundwater samples collected for dissolved metals analyses will be filtered by the Chevron-specified contract laboratory. Groundwater samples collected for total metals analyses and all other analyses will not be field filtered. The water samples will be labeled, placed on ice, and delivered to the laboratory along with the appropriate chain-of-custody documentation. The inside and outside of the 2-inch diameter steel rods and the stainless steel bailer will be steam cleaned between sampling events to prevent cross-contaminating groundwater samples.

#### 5.2.3.2 Soil Sampling

Soil samples will be collected at the CPT locations using a retractable sampler equipped with two 1.25-inch by 6-inch brass sleeves. Soil sampling will be conducted by advancing the sampler to the top of the desired sampling depth. The CPT operator subsequently retracts the rods approximately 12 inches, exposing the brass sleeves in the borehole. The sampler will then be driven into the native soil. Upon retraction, soil designated for VOC analysis will be withdrawn from the sleeves using EnCore® sampling technology. Samples will be placed in an ice-filled cooler for transportation to a Chevron-specified contract laboratory. Samples collected for metals analysis will be retained and shipped in brass sleeves or 4- to 8-ounce glass jars provided by the laboratory.

### *5.2.4 Laboratory Analysis*

Groundwater samples will be analyzed using the following procedures:

- VOCs using USEPA Method 8260B.
- Total and dissolved arsenic, iron, manganese, and selenium using USEPA Method 6010B/7000.
- Nitrate, sulfate, chloride using USEPA Method E300.0.
- Alkalinity using USEPA Method 310.1.

- Ferrous iron ($Fe^{2+}$) using USEPA Method 3500-Fe D Modified.
- Total organic carbon (TOC) using USEPA Method 415.1 or SW9060.
- Methane, ethane, and ethene, using USEPA Method 8015B modified or RSK-175.
- Carbon dioxide using USEPA Method 8000B or headspace Method 8015B.
- Field measurements will also be collected at the time of sampling for dissolved oxygen (DO), oxidation-reduction potential (ORP), pH, electrical conductivity (EC), temperature, salinity and turbidity.

A 72-hour turn around time may be requested for the groundwater VOC analysis so the results may be used to assess additional CPT boring requirements and locations. A standard turn around time will be request on all other analytes (3 to 4 weeks).

Soil samples from the saturated zone will be analyzed for VOCs using USEPA Method 5035/8260B, for arsenic, iron, manganese, and selenium by USEPA Method 6010/7000; and TOC by USEPA Method SW9060B (Modified) on a standard turn around time.

## 5.3 Additional Groundwater Monitoring Wells

Design and installation of additional monitoring wells that may become necessary will be discussed in the following sections. The purpose of any new wells will be to monitor the nature and extent of groundwater contamination in the shallow, intermediate and deep zones, and to further assess the hydrogeologic characteristics of the Site. Additional evaluation and compliance monitoring wells may be required for monitoring of MNA. Quarterly groundwater monitoring of all Site wells is currently being conducted to monitor impacted groundwater and to evaluate the effectiveness of the existing groundwater extraction/treatment system (Figure 1).

### *5.3.1 Rationale/Design*

If additional wells are required, they will be designed to augment the current monitoring well network and to further assess the hydrogeologic characteristics of the Site. Some existing wells may not be properly screened to monitor the nature and extent of groundwater contamination and background water quality in the shallow, intermediate and deep water-bearing zones, or are damaged.

#### 5.3.1.1 Additional Groundwater Monitoring Well Locations

Locations and placement of any additional groundwater monitoring wells will be based on lithological and chemical analytical data collected during the previous phases of CPT investigations as discussed in the OU-1 Improvement Evaluation. Prior to installation of additional monitoring wells, a detailed work plan will be developed and submitted to the USEPA for comments and approval. Approval of the work plan by USEPA is a prerequisite to obtaining any necessary permits for well installation.

### *5.3.2 Drilling Methods and Equipment*

The following sections describe the procedures to be used in soil borings advanced for the construction of additional monitoring wells.

#### 5.3.2.1 Borehole Diameter and Depth

The borehole diameter of the groundwater monitoring well will be approximately 10 to 12 inches in diameter. The depth of the soil borings will be between 60 and 150 feet bgs, dependant upon the completion of the boring as a single well or clustered well pairs.

#### 5.3.2.2 Borehole Advancement

The advancement of the soil borings will be completed using an air rotary casing hammer drilling rig or a hollow stem auger drilling rig. To reduce the possibility of refusal during drilling, any proposed on-site well locations will be excavated by backhoe to a depth of approximately 10 to 15 feet bgs and backfilled with clean sand. The advancement of the soil borings will be completed in accordance with the regulatory permitting agency(s), or a variance from the soil boring requirements will be requested according to respective agency protocols. Drilling procedures are described in the SOP (Appendix B).

#### 5.3.2.3 Conductor Casing – Boring Phase

To minimize the potential for cross-contamination between contaminated and uncontaminated soil horizons during drilling, steel conductor casing will be set to the depth of the bottom of the contaminated zone as determined by field screening methods. The conductor casing will be placed in cement/bentonite grout and allowed to set before drilling resumes. To avoid potential damage to the monitoring well and to minimize disturbance to the substrate, the conductor casing will remain in place. Leaving the conductor in place will also reduce the potential for contact of "waste material" with the cement/bentonite grout and the PVC monitoring well casing. Conductor casing installation methods are described in the SOPs (Appendix B).

#### 5.3.2.4 Decontamination Procedures

All equipment used during drilling activities will be properly cleaned with a pressure washer using an alconox solution or the equivalent, or high-pressure hot-water washed (steam-cleaned) prior to being placed down the borehole. Decontamination procedures are described in the SOP in Appendix B.

### *5.3.3 Soil Sample Collection: Field and Laboratory Analysis*

Soil samples will be collected using an 18-inch California-modified split spoon sampler fitted with 2-inch diameter by 6-inch long brass tubes. During soil boring advancement, soil samples will be collected at 5-foot intervals above first-encountered groundwater, at obvious changes in lithology, and at the capillary fringe. Below first-encountered groundwater, the soil boring will be continuously cored. Upon retraction, soil designated for VOC analysis will be withdrawn from the sleeves using EnCore® sampling technology. Samples will be placed in an ice-filled cooler for transportation to a Chevron-specified contract laboratory. Samples collected for metals analysis will be retained and shipped in brass sleeves or 4- to 8-ounce glass jars provided by the laboratory. Soil samples will be field screened for the presence of VOCs using a photoionization detector (PID).

#### 5.3.3.1 Lithologic Logging

The soil samples will be examined using visual and manual methods for parameters to be included on the soil boring log, which will contain the following information:

- Borehole number and location
- Sample depth
- Sediment color
- Sediment grain size
- Relative percentage of grain sizes
- Descriptive comments
- Estimated moisture content
- Depth where groundwater is first encountered and stabilized
- Variations in drilling rates and rig behavior
- Field geologist printed name and signature

Soil samples will be logged by a SECOR geologist according to the Unified Soil Classification System (USCS), and examined using visual and manual methods for parameters including odor, staining, color, grain size, and moisture content. A California-registered geologist will review, sign, and stamp the lithologic logs. Detailed lithologic logging procedures are provided in the SOP in Appendix B.

### *5.3.4 Additional Groundwater Monitoring Well Installation*

If required, additional groundwater monitoring wells will be installed for supplementary groundwater quality data to assist with further hydrogeologic characterization of the Site or to upgrade the groundwater monitoring program. Two types of groundwater monitoring wells are proposed for installation: single well and clustered well pairs. The single well will consist of a 4-inch-diameter PVC casing constructed within a single borehole. Clustered wells will consist of a shallow interval well and an intermediate interval well installed in separate boreholes adjacent to each other. Each well will consist of a 4-inch-diameter PVC casing. The single well and clustered well installations are described in further detail in the following sections. Groundwater samples for chemical analyses will be collected after wells have been installed and developed.

The shallow permeable interval of the water-bearing zone is anticipated at approximately 55 to 80 feet bgs. The intermediate interval is anticipated to be between 80 and 100 feet bgs. Based on the CPT investigations to date, no impacted groundwater has been encountered in the deep interval (> 100 feet bgs). Soil samples will be collected within an 18-inch California-modified split spoon sampler, lined with 2-inch by 6-inch brass sleeves. Soil samples will be collected every 5 feet until the upper permeable zone of the water-bearing unit is encountered, with the exception of the first 10 to 15 feet of sand backfill. Once groundwater has been encountered, the soil boring will be continuously cored to the desired well depth. The California-registered geologist overseeing and reviewing the boring operation will base screen intervals in the monitoring wells on lithologic log data from the previous CPT borings and the field logs of soil profiles established during boring and sampling. Soils will be lithologically logged using the USCS under the supervision of a California-registered geologist.

#### 5.3.4.1 Screen and Well Casing Placement

Flush-threaded schedule 40 PVC screen with 0.01-inch slots will be used for each of the wells. Well screen placement will be determined after review of CPT boring results and well sampling results at or near the proposed groundwater monitoring well locations. The screen placement for the shallow single monitoring wells will generally be set across a 5-foot interval of the shallow permeable zone (55 to 75 feet bgs). Monitoring wells placed near the top of the shallow saturated permeable zone may be installed with 10-foot long screens to allow for anticipated future water level decline. Clustered well pairs will generally have 5-foot screen intervals placed within the shallow permeable zone and within the intermediate permeable zone. The remaining portion of the wells will be completed with 4-inch-diameter schedule 40 PVC flush-threaded conductor casing. There will be 3-foot, cased, silt traps placed below the screened intervals. A typical well construction diagram form is included in Appendix C.

#### 5.3.4.2 Filter Pack Placement

A filter pack of Lonestar #2/12 sand or equivalent will be placed in the annular space adjacent to the well screens and will be installed to approximately 2 feet above the top of the well screens.

#### 5.3.4.3 Bentonite Seal

Between the filter pack and the cement/bentonite grout, 3 to 5 feet of bentonite pellets will be placed above the filter pack.

#### 5.3.4.4 Cement/Bentonite Grout Placement

Placed above the bentonite seal will be a 5% to 10% bentonite-cement grout mixture to ground surface, using a tremie pipe to ensure proper placement of grout material.

#### 5.3.4.5 Concrete/Gravel Pad Placement

The wellheads will be completed at ground surface with locking well caps and traffic-rated bolt-down well vaults. Each vault will be installed slightly above the surrounding surface grade and finished with a concrete apron to provide positive drainage away from the wellhead. If additional monitoring wells are needed onsite and the impermeable cover construction for OU-2 has not been completed, the monitoring well casing will be temporarily capped with a 4-inch schedule 40 PVC cap that can be removed for groundwater monitoring. There will be sufficient stickup of the well casing to accommodate subsequent lifts in the grade of the OU-2 cover.

#### 5.3.4.6 Well Identification

Once the well construction is complete, the well will be permanently labeled showing the well identification.

#### 5.3.4.7 Well Development

After allowing the wellhead concrete apron and grout to cure for at least 48 hours, the total well depth and depth to water at each well will be measured using a water level indicator calibrated to within 0.01 foot. SECOR will also check for the potential presence of separate phase hydrocarbons (free product) in each well using an interface probe capable of detecting free product thicknesses to 1 millimeter. The wells will be developed by alternately swabbing and surging each well using a surge block and removing approximately 8 to 10 casing volumes of groundwater water from each well by pumping and/or bailing, which will remove sediment from around the well and enhance hydraulic communication with the surrounding formation. Concurrently, the water removed will be monitored for parameters such as pH, temperature, EC, DO, salinity, ORP, and turbidity. Once parameters have stabilized (three consecutive readings varying less than 10%) and the well produces little to no visible sediment (turbidity is less than 50 NTU), well development activities will be terminated. Detailed procedures for monitoring well development are provided in the SOP (Appendix B).

#### 5.3.4.8 Well Survey

A California-licensed land surveyor will survey the wellheads for top of casing elevation with respect to mean sea level (msl), and for lateral position with respect to a known survey datum. The wellhead elevations will be measured to the nearest 0.01 foot using 1954 USGS Datum, County of Fresno Benchmark TBM 3194, and northings and eastings to the nearest 0.1 foot using the State Plane Coordinate System. The wellhead elevation will be compared to depth to groundwater measurements to calculate groundwater elevations above msl as well as the groundwater flow direction and gradient.

#### 5.3.4.9 Slug Tests

Slug tests may be performed in new monitoring wells to provide estimates of transmissivity and hydraulic conductivity of the saturated screen interval. The slug tests will be conducted by creating a near instantaneous change in fluid level in a well by inserting or removing a PVC cylindrical slug. As the water level in the well returns to static, the hydraulic response is measured using a pressure transducer and recorded on a datalogger. Data retrieved from the slug tests will be analyzed using methods described by Bouwer and Rice (1976), Bouwer (1989), and Bulter (1997). A slug test may be performed on other Site wells as needed. Detailed procedures for conducting slug tests are provided in the SOP (Appendix B).

### *5.3.5 Materials*

The following sections discuss the material to be used in the construction of monitoring wells.

#### 5.3.5.1 Casing/Screening/Centralizers

Following soil boring advancement to the desired depth, a monitoring well will be constructed in the boring. Flush threaded, 4-inch-diameter schedule 40 PVC well screen with 0.01-inch slots, 3-foot schedule 40 PVC silt trap, and a schedule 40 PVC threaded end cap will be placed in the borings. The wells will be completed to ground surface with 4-inch-diameter, blank, schedule 40 PVC casing. Stainless steel centralizers will be attached to the casing of the wells at 20-foot intervals.

Schedule 40 PVC material has been chosen for the casing material because of its versatility and resistance to constituents of concern (COC) at the Site. PVC is generally resistant to most acids, bases, salts, aliphatic solutions, oxidants, and halogens. Based on results from historic groundwater sampling events, concentrations in the groundwater of COCs that could potentially affect PVC are not sufficient to cause damage to the PVC material. The PVC casing is not anticipated to come in direct contact with the "waste material" at the Site as it will be grouted and enclosed within a steel conductor casing through the zone containing any potential waste material.

#### 5.3.5.2 Filter Pack, Bentonite Seal, Cement/Bentonite Grout

A filter pack of Lonestar #2/12 sand or equivalent will be placed in the annular space adjacent to the well screens and will be installed to approximately 2 feet above the top of the well screens. Three to five feet of bentonite pellets will be placed above the sand, followed by a 5% to 10% bentonite-cement mixture to ground surface. A tremie pipe will be used to ensure proper placement of grout material.

#### 5.3.5.3 Surface Completion

The wellheads will be completed at ground surface with locking well caps and traffic-rated bolt-down well vaults. Each vault will be installed slightly above the surrounding surface grade and finished with a concrete apron to provide positive drainage away from the wellhead.

#### 5.3.5.4 Water Source

Water necessary for equipment decontamination is available on-Site. The water source is the Malaga County Water District potable water supply.

#### 5.3.5.5 Delivery, Storage, and Handling of Materials

Materials required for the drilling and installation of monitoring wells will arrive on-Site with the drilling company contracted to complete the work. All materials used to build the well (PVC casing, PVC screen, sand pack, bentonite, cement/grout mixture) will be contained within their original packing until ready for use.

### *5.3.6 Logs and Well Installation Diagrams*

Soil samples will be logged by a SECOR geologist, working under the supervision of a California-registered geologist, using the USCS. The soil samples will be examined using visual and manual methods for parameters including odor, staining, color, grain size, and moisture content which will be documented on the soil boring log. Contained within the soil boring log are well completion details. Copies of a typical soil boring log and a typical well construction diagram are provided in Appendix C.

#### 5.3.6.1 Development Records

In addition to the volume of water being removed, groundwater parameters such as pH, temperature, EC, DO, salinity, ORP, and turbidity will be monitored and recorded during development activities. A copy of a well development record is provided in Appendix C.

#### 5.3.6.2 Decommission / Abandonment Records

Once wells are no longer necessary, the wells will be properly decommissioned/abandoned according to the California Well Standards (Bulletin 74-90, 1991) and with requirements of well destruction detailed on permits issued by the permitting agency. Well abandonment procedures are provided in the SOP (Appendix B).

#### 5.3.6.3 Photographs

Photographic records will be taken during field activities and of each location where field activities are conducted. The photographs will be logged into the field logbook or stored digitally on floppy disks or CDs and contain the following information:

- Time, date, location, and weather conditions
- Photograph description, including orientation of photographs
- Name of photographer
- A map providing location of the photograph

## 5.4 QED Dedicated MicroPurge Pump Installation

SECOR performed a well survey of the existing monitoring wells in May 2002 to assess the viability of installation of QED low-flow bladder pumps. SECOR also conducted groundwater sampling and monitoring during the first and second weeks of June 2002 (2nd Quarter 2002). Based on data gathered during these two activities SECOR, along with QED engineers, developed specifications for the installation of the bladder pumps in all of the practical monitoring wells (Table 1).

All accessible monitoring wells were equipped with dedicated QED Well Wizard® bladder (squeeze-type) pumps that incorporate MicroPurge® (minimal-drawdown) sampling methods. Each bladder pump was positioned with its inlet located within the saturated screened interval of the well and the pumping rate was pre-tested to allow stabilized drawdown to be maintained during sampling. The dedicated downwell equipment, including bladder pumps, Teflon-lined PE tubing, and well seals are designed to achieve optimum sampling conditions with minimal drawdown of the static water level. New monitoring wells will be equipped with dedicated QED Well Wizard® bladder pumps. Bladder pump installation and low-flow purging and sampling SOPs are included in Appendix B.

## 5.5 Quarterly Groundwater Monitoring and Sampling

The following sections describe routine groundwater monitoring and sampling procedures designed to assure quality data acquisition, the collection of representative samples, and minimal sample contamination. Quarterly groundwater monitoring and sampling is currently being performed at the Site. Any changes to this regimen based on the OU-1 Improvement Evaluation will be addressed through a specific detailed work plan and formalized based on discussions between USEPA, Chevron, and SECOR. A summary of well depths, casing diameters, and screen intervals for existing monitoring wells that may be sampled are provided in Table 2. Groundwater monitoring and sampling procedures are provided in the SOP (Appendix B).

### *5.5.1 Water Level Measurement*

If wellheads are accessible, all wells will be sounded for depth to water from top of casing and total well depth prior to purging. An electronic sounder, accurate to the nearest ±0.01 feet, will be used to measure depth to water in each well. When using an electronic sounder, the probe will be lowered down the casing to the top of the water column, and the graduated markings on the

probe tape will be used to measure the depth to water from the surveyed point on the rim of the top of the casing. Total well depth will be sounded from the surveyed top of casing measuring point by lowering the weighted probe to the bottom of the well. Depth to water and total well depth measurements will be recorded to the nearest 0.01 feet.

Water level sounding equipment will be decontaminated before and after use in each well. Water levels will be measured in wells in an order of least amount of known contamination to the highest known contamination.

### *5.5.2 Determine Free Product Presence*

The potential presence of separate phase hydrocarbons (free product) in each well will be conducted using an interface probe capable of detecting free product thickness to 0.01 feet.

### *5.5.3 Field Measurement Procedures and Criteria*

Field measurement data collected during groundwater monitoring and sampling activities will include depth to water, total depth of well, purge volumes, and water quality parameters for monitoring and sampling stabilization (i.e. temperature, pH, and EC). Additional water quality parameters that will be monitored include DO, ORP, salinity, and turbidity.

Depth to water and total well depth measurements will be recorded to the nearest 0.01 foot. Casing volumes will be calculated based on total well depth, standing water level, and casing diameter. Purged groundwater will be collected into a graduated bucket to record the purge volume.

Stable water quality parameter (temperature, pH, and EC) measurements indicate that a representative sampling is obtainable. Water quality is considered stable if, for three consecutive readings:

- Temperature range is no more than $\pm 1°C$
- pH varies by no more than 0.2 pH units
- EC readings are within 10% of the average

The water in which measurements are to be taken will not be used to fill sample bottles.

### *5.5.4 Purging*

All accessible monitoring wells were equipped with low-flow QED Well Wizard® or similar style bladder (squeeze-type) sampling pumps. Purging and sampling from these wells will follow the SOP for MicroPurge low-flow techniques contained in Appendix B.

If the monitoring well is not equipped with a dedicated bladder-type pump, a minimum of three casing volumes of water will be purged using a Grundfos 2-inch submersible pump or the equivalent. A totalizing flow meter will be used or water will be collected into a graduated bucket to record the purge volume. Casing volumes will be calculated based on total well depth, standing water level, and casing diameter. One casing volume will be calculated as:

$$V=pd^2h/77.01$$

or

$$V=d^2h/24.52$$

where:

V is the volume of one well casing of water ($1ft^3$ = 7.48 gallons)
P is 3.14 (unitless)
d is the inner diameter of the well casing (inches)
h is the total depth of water in the well (feet)

If the well casing volume is known, water quality field parameter measurements will be taken before the start of purging, in the middle of purging and at the end of purging each casing volume.

If the well casing volume is not known, water quality field parameter measurements will be taken every 2.5 minutes after flow starts. If water quality parameters are not stable after 30 minutes, purging will cease, which will be noted in the logbook, and groundwater samples will be taken. The depth to water, water quality measurements and purge volumes will be entered on the Groundwater Sample Field Data Sheet. A copy of the Groundwater Sample Field Data Sheet is provided in Appendix C.

If a well dewaters during purging and three casing volumes are not purged, that well will be allowed to recharge up to 80% of the static water column and dewatered once more. After water levels have recharged to 80% of the static water column, groundwater samples will be collected.

### *5.5.5 Sampling Methods for Groundwater*

Prior to sampling each well, the water level in the well will be measured as described in Section 5.5.1 and the well purged as described in Section 5.5.4. Groundwater sampling procedures are provided in Appendix B.

At each sampling location, all bottles designated for a particular analysis (i.e., VOCs) will be filled sequentially before bottles designated for the next analysis are filled (i.e., Semi-VOCs). If a duplicate sample is to be collected at this location, all bottles designated for a particular analysis for both sample identification numbers will be filled sequentially before bottles for another analysis are filled. Groundwater samples will be transferred from the dedicated well sampling tubing or disposable Teflon® bailer directly into the appropriate sample containers with preservative, if required, chilled and processed for shipment to the laboratory. When transferring samples, care will be taken not to touch the dedicated sample tubing or disposable Teflon bailer to the sample container.

### *5.5.6 Sample Handling Methods for Groundwater - Filtration*

Samples collected for metals analysis using dedicated QED Well Wizard® pumps and low-flow sampling methods will not be filtered.

Samples designated for metals analysis collected from wells not equipped with QED pumps will be filtered. A 0.45-micron filter will be used to remove larger particles that have been entrained in the water sample. Samples collected with a new unused disposable pressurizable bailer will be filtered by threading a 0.45-micron acrylic filter on the end of the bailer and a small hand pump will be connected to the top of the bailer. The water will then be pressurized and forced through the disposable filter into the appropriate sample container. For samples collected from productions wells using the owner's modified system, a sample dedicated Teflon tube will be attached to the tap closest to the wellhead. The filter will be attached to the outlet of the Teflon tube. A clean, unused filter will be used for each filtered sample collected. Groundwater samples will be transferred from the filter directly into the appropriate sample containers to which preservative has been added and processed for shipment to the laboratory. When transferring samples, care will be taken not to touch the filter to the sample container. After the filtered sample has been collected, the Teflon tube and filter will be removed and an unfiltered sample will be collected. A sample number appended with an "F1" will represent a sample filtered with a 0.45-micron filter.

#### 5.5.6.1 Sample Containers and Preservation Techniques

Each groundwater sample will be collected and placed in the appropriate type, size, and properly preserved container prepared by a California state-certified laboratory. All sample containers containing preservatives will be labeled by the laboratory before sampling. Containers will not be re-used. Requested analyses, container description, and preservation methods appropriate for various types of analyses are listed in Table 3. The requested analyses will include the following:

- Dissolved Arsenic (As) using USEPA Method 6010B or 7060A
- Dissolved Selenium (Se) using USEPA Method 6010B or 7740A
- Dissolved Iron (Fe) using USEPA Method 6010B
- Dissolved Manganese (Mn) using USEPA Method 6010B
- VOCs using USEPA Method 8260B
- Nitrate, sulfate, and chloride using USEPA Method E300.0
- Alkalinity using USEPA Method 310.1
- Ferrous iron ($Fe^{2+}$) using USEPA Method 3500-Fe D Modified
- TOC using USEPA Method 415.1 or SW9060
- Methane, ethane and ethene using USEPA Method 8015B modified or RSK-175
- Carbon dioxide using USEPA Method 8000B or headspace Method 8015B

### *5.5.7 Field Quality Control Sampling Procedures*

Equipment rinsate, trip blanks, and select duplicate samples will be collected during the sampling activities.

#### 5.5.7.1 Equipment Rinsate Blank

Equipment rinsate blanks will be collected to evaluate field sampling and decontamination procedures by pouring high-performance-liquid-chromatography (HPLC) –grade, organic-free (for organics) or deionized water (for inorganics) over the decontaminated sampling equipment. One equipment rinsate blank will be collected per matrix each day that sampling equipment is decontaminated in the field. Equipment rinsate blanks will be obtained by passing water through or over the decontaminated sampling devices used that day. If disposable tubing is used, at least one of the rinsate blanks per sampling event will be collected by pumping water through the disposable tubing prior to using the tubing for sample collection. The rinsate blanks that are collected will be analyzed for VOCs.

The equipment rinsate blank will be preserved, packaged, and sealed for shipment to the laboratory. A separate sample number and station number will be assigned to each sample, and it will be submitted blind to the laboratory.

#### 5.5.7.2 Trip Blank

Trip blanks will be prepared to evaluate if the shipping and handling procedures are introducing contaminants into the samples, and if cross contamination in the form of VOC migration has occurred between the collected samples. Trip blanks will be prepared and analyzed for VOCs. A minimum of one trip blank will be submitted to the laboratory for analysis with every shipment of samples for VOC analysis. Trip blanks are 40 milliliter (mL) vials that have been filled with HPLC grade water and shipped with the empty sampling containers to the site prior to sampling. The sealed trip blanks are not opened in the field and are shipped to the laboratory in the same cooler with the samples collected for volatile analyses.

The trip blanks will be preserved, packaged, and sealed for shipment to the laboratory. A separate sample number and station number will be assigned to each sample, and it will be submitted blind to the laboratory.

#### 5.5.7.3 Duplicate Samples

Duplicate water samples will be collected at locations where previous sampling events have detected the highest levels of contamination at the site at these locations. When collecting duplicate water samples, bottles with the two different sample identification numbers will alternate in the filling sequence. Bottles for one type of analysis will be filled before bottles for the next analysis are filled. VOCs bottles will always be filled first.

The duplicate samples will be preserved, packaged, and sealed for shipment to the laboratory. A separate sample number and station number will be assigned to each sample, and it will be submitted blind to the laboratory.

### *5.5.8 Decontamination Procedures*

All equipment used during Site activities will be properly decontaminated before and after each use. Equipment will be steam cleaned with high pressure hot water and/or washed with non-phosphate detergent and rinsed with deionized, distilled, or fresh water. One-time use disposable equipment will not be decontaminated, but will be packaged for appropriate disposal. The disposal of decontamination fluids will be handled in the manner described in Section 8.0 Investigation Derived Wastes (IDW). The following decontamination steps will be followed in the order described below:

- Non-phosphate detergent and tap water wash, using brush if necessary
- Water rinse
- Deionized/distilled water rinse

Equipment will be decontaminated in a pre-designated area on pallets or plastic sheeting, and clean bulky equipment will be stored on plastic sheeting in uncontaminated areas. Cleaned, small equipment will be stored in plastic bags. Materials to be stored more than a few hours will also be covered. Decontamination procedures are outlined in the SOPs (Appendix B) will be followed.

## 5.6 Treatability Testing Sample Collection and Analysis

### *5.6.1 Soil Sample Collection*

For purposes of the Treatability Study to be conducted as part of the focused evaluation of alternatives to improve the OU-1 remedy, soil samples will be collected using an 18-inch California-modified split spoon sampler fitted with 2-inch diameter by 6-inch long brass tubes. During soil boring advancement, soil samples will not be collected above first-encountered groundwater. Below first-encountered groundwater, the soil boring will be continuously cored. Soil samples collected for potential chemical analysis will be sealed with Teflon®tape, capped or placed in 1-quart wide mouth high density polypropylene (HDPE) bottles and placed in an ice-filled cooler for transportation to SECOR's laboratory. Soil samples will be field screened for the presence of VOCs using a PID.

Samples taken for the Treatability Study will be collected in the saturated zone from 55 to 75 feet below ground surface.

#### 5.6.1.1 Lithologic Logging

The soil samples will be examined using visual and manual methods for parameters to be included on the soil boring log, which will contain the following information:

- Borehole number and location
- Sample depth
- Sediment color
- Sediment grain size
- Relative percentage of grain sizes
- Descriptive comments
- Estimated moisture content
- Depth where groundwater is first encountered and stabilized
- Variations in drilling rates and rig behavior
- Field geologist printed name and signature

Soil samples will be logged by a SECOR geologist according to the USCS, and examined using visual and manual methods for parameters including odor, staining, color, grain size, and moisture content. A California-registered geologist will review and stamp the lithologic logs. Detailed lithologic logging procedures are provided in the SOP in Appendix B.

### 5.6.2 Groundwater Sample Collection

Groundwater sample requirements for the Treatability Study will consist of five gallons of groundwater. The three gallons of groundwater will be collected from within the area of contamination, while the other two gallons of groundwater are to be collected outside the zone of contamination. In addition, one liter of groundwater will be collected from within the area of contamination for *Dehalococcoides* screening.

Three gallons of groundwater will be collected from MW-6S to be used in the testing as contaminated groundwater, and two gallons of groundwater will be collected from EW-2 for use in the testing as unimpacted groundwater. Additionally, one liter of groundwater will be collected from MW-6S for *Dehalococcoides* screening. The following sections describe routine groundwater monitoring and sampling procedures designed to assure quality data acquisition, the collection of representative samples, and minimal sample contamination. Groundwater monitoring and sampling procedures are provided in the SOP (Appendix B).

#### 5.6.2.1 Water Level Measurement

Prior to water sampling, wells MW-6 and EW-2 will be sounded for depth to water from top of casing and total well depth prior to purging. An electronic sounder, accurate to the nearest $\pm$0.01 feet, will be used to measure depth to water in each well. When using an electronic sounder, the probe will be lowered down the casing to the top of the water column, and the graduated markings on the probe tape will be used to measure the depth to water from the surveyed point on the rim of the top of the casing. Total well depth will be sounded from the surveyed top of casing by lowering the weighted probe to the bottom of the well. Depth to water and total well depth measurements will be recorded to the nearest 0.01 foot.

Water level sounding equipment will be decontaminated before and after use in each well. Water levels will be measured in wells in an order of least amount of known contamination to the highest known contamination.

#### 5.6.2.2 Determine Free Product Presence

The potential presence of separate phase hydrocarbons (free product) in each well will be conducted using an interface probe capable of detecting free product thickness to 0.01 foot.

#### 5.6.2.3 Field measurement Procedures and Criteria

See Section 5.5.3 for field measurement procedures and criteria.

#### 5.6.2.4 Purging

See Section 5.5.4 for purging procedures

#### 5.6.2.5 Sampling Methods for Groundwater

See Section 5.5.5 for sampling methods for groundwater.

#### 5.6.2.6 Sample Handling Method for Groundwater – Filtration

See Section 5.5.6 for sample handling methods for groundwater.

#### 5.6.2.7 Sample Containers and Preservation Techniques

Groundwater samples will be collected using dedicated Well Wizard® pumps and low-flow sampling method or from a bailer and decanted into an appropriate type and size container prepared by a California state-certified laboratory, except for the sample collected for Dehalococcoides screening. All sample containers containing preservatives must be labeled by the laboratory before sampling. Containers will not be re-used. Containers and preservation methods appropriate for various types of analyses include the following:

- TOC Analysis – Samples to be analyzed for TOC will be placed in 250 mL amber glass bottles, preserved with $H_2SO_4$ to pH 2 and chilled to $4^0$C.

- Dissolved Metals (iron, manganese, and arsenic) – Samples to be analyzed for dissolved metals will be placed in unpreserved 500 mL-liter HDPE bottles, preserved with $HNO_3$ to pH 2 and chilled to $4^0$C.

- *Dehalococcoides* – Samples to be screened for d*ehalococcoides* bacteria will be collected in 1-liter, wide-mouth, HDPE bottles.

- Sulfates – Samples to be analyzed for sulfates will be collected in unpreserved 500 mL HDPE bottles and chilled to $4^0$C.

### *5.6.3 Field/Treatability Laboratory Quality Control Sampling Procedures*

Equipment rinsate, trip blanks, and select duplicate samples will be collected during the sampling activities.

#### 5.6.3.1 Equipment Rinsate Blank

See Section 5.5.7.1 for equipment rinsate blank procedures.

#### 5.6.3.2 Trip Blank

See Section 5.5.7.2 for trip blank procedures

#### 5.6.3.3 Duplicate Samples

VOC analyses will be conducted in SECOR's treatability laboratory to obtain real-time data. Duplicate VOC analyses will be conducted in the treatability laboratory for five percent of the

samples. Additionally, duplicates of at least five percent of the treatability laboratory VOC analyses will be sent to an off-site laboratory for comparative analysis. Duplicate VOC samples will be sent in at the start, mid-point and finish of the bench-scale test to confirm the trend analysis. Duplicate testing will be performed on one in every ten samples for the remaining parameters (arsenic, iron, manganese, TOC and sulfates).

### *5.6.4 Decontamination Procedures*

See Section 5.5.8 for decontamination procedures.

### *5.6.5 Sample Analysis*

#### 5.6.5.1 Groundwater Sample Analysis

Groundwater samples will be analyzed using the following procedures:

**Laboratory Analyses:**

- *Dehalococcoides* (SiREM Technical Note 1.1- Appendix E);
- pH using hand-held probe (SECOR Treatability Lab);
- ORP using hand-held probe (SECOR Treatability Lab);
- VOCs using USEPA Method 3810 (Modified) Headspace Screening (SECOR Treatability Lab);
- VOCs using USEPA Method 8260B (Lancaster Laboratories);
- TOC using USEPA Method 415.1(Lancaster Laboratories);
- Sulfates using USEPA Method E300.0 (Lancaster Laboratories);
- Arsenic using USEPA Method 6010B/7000 (Lancaster Laboratories);
- Dissolved iron using USEPA Method 6010B/7000 (Lancaster Laboratories); and
- Dissolved manganese using USEPA Method 6010B/7000 (Lancaster Laboratories).

**Field Measurements** (collected at the time of sampling):

- DO using QED Model FC5000T In-Line Flow Cell;
- ORP using QED Model FC5000T In-Line Flow Cell;
- pH using QED Model FC5000T In-Line Flow Cell;
- EC using QED Model FC5000T In-Line Flow Cell;
- Temperature using QED Model FC5000T In-Line Flow Cell;
- Dissolved iron ($Fe^{2+}$) using HACH Iron AccuVac® Kit; and
- Dissolved manganese ($Mn^{2+}$) using HACH Manganese Mn-5 Kit.

#### 5.6.5.2 Soil Sample Analysis

Soil samples will be analyzed using the following procedures:

- pH using hand-held probe (SECOR Treatability Lab);
- ORP using hand-held probe (SECOR Treatability Lab);
- TOC using USEPA Method SW9060B (Modified) (Lancaster Laboratories); and
- VOCs using USEPA Method 3810 (Modified) Headspace Screening (SECOR Treatability Lab).

# 6. FIELD OPERATIONS DOCUMENTATION

Field operations documentation includes the field logbook, groundwater field sampling sheets, soil boring logs, well installation diagrams, sample collection forms, chain-of-custody records, and photographs. The aforementioned documents record such details as where, when, how, and from whom any vital project information was obtained. Documentation should be complete and accurate enough to permit reconstruction of field activities.

## 6.1 Daily Quality Control Reports

Daily quality control reports (QCRs) will be completed after all field instruments have been calibrated, maintenance checks conducted, and equipment decontaminated. QCRs will contain a summary of activities conducted for the contractor quality control (CQC) phases for the project. Details of CQC phases are described in Section 9.1.

## 6.2 Field Logbook

A separate logbook for each project will be maintained. Logbooks are bound with consecutively numbered pages. Each page will contain an individual entry which will include the date and time (military time) of logbook entry. All entries will be legible, written in black ink, and signed by the individual making the entry. Factual and objective language will be used.

At a minimum, the following information will be recorded in the field logbook during the collection of each sample:

- Time of arrival at and departure from the site
- Other personnel on site
- Team members and their responsibilities
- Changes in personnel and responsibilities with reasons for the changes
- Summary of meetings or discussions with any potentially responsible parties (PRPs), representatives of PRPs, or federal, state, or other regulatory agencies
- Deviations from sampling plan, site health and safety plan, and SAP procedures
- Level of safety protection used each day, including changes in level of safety protection
- Calibration readings for any instrument used and instrument model and serial number
- Instrument readings for monitoring safety and health
- Sample shipping arrangements (i.e., Federal Express air bill number) and recipient laboratories
- Sample location and description
- Site sketch showing sample location and measured distances
- Sampler's name(s)
- Date and time of sample collection
- Designation of sample as composite or grab
- Type of sample (soil, sediment, or water)
- Type of sampling equipment used
- Field instrument readings
- Field observations and details related to analysis or integrity of samples (i.e., weather conditions, noticeable odors, colors, etc.)
- Preliminary sample descriptions
- Sample preservation
- Lot numbers of the sample containers, sample identification numbers and explanatory code, chain-of-custody form numbers, and custody seal numbers
- Photographs taken

## 6.3 Field Sampling Sheet

A field sampling sheet will be completed for each well sampled. Information collected will be entered into the project database. Each field sampling sheet will contain information for a single sample, and will be consecutively numbered, dated, and signed. Each sample will be assigned an index number that is unique to the project database. This number will appear on each field sampling sheet and will constitute the page number in the collected sample logbook. All entries will be made in indelible black ink with corrections consisting of line-out deletions that are initialed and dated. There will be no blank spaces on the form. If no information was collected a single line or "NA" will be inserted. Field sampling sheets will contain the following data:

- Project name and number
- Sample number / Well identification (ID) / Sample location
- Date (yyyymmdd)
- Time sample collected
- Sampler's name
- Sample matrix
    - SO soil
    - GW groundwater
    - WT trip blank water
    - WH equipment rinse water
- Depth start of sample (for soil samples)
- Depth end of sample (for soil samples)
- Units of sample depth
- Groundwater level prior to purging
- Groundwater level before sampling
- Well depth and diameter
- Purged volume
- Sample type
    - NS normal sample
    - FS field duplicate
    - T trip blank
    - R equipment rinse blank
- Sample method
    - SP submersible pump
    - CC core sampler
    - BP bladder pump
    - DF diffusion sampler
    - CS composite sample
    - G grab
- QC Information (rinse blank ID, trip blank ID, and duplicate sample ID)
- Volume of each sample container and preservatives
- Laboratory analyses requested
- Observable water conditions (i.e. color, odor, clarity) (for groundwater samples)
- Equipment used
- Groundwater parameter measurements (pH, temperature, EC, salinity, DO, ORP, turbidity)
- Comments
- Well location sketch

In addition, the technician will enter the sample onto the chain-of-custody record and daily field activity logbook. A copy of a groundwater field sampling sheet is provided in Appendix C.

## 6.4 Photographic Records

Photographic records will be taken during field activities and of each location where field activities are conducted. The photographs will be logged into the field logbook and contain the following information:

- Time, date, location, and weather conditions.
- Photograph description, including the photograph orientation.
- Name of photographer.
- A map providing the location of the photograph.

## 6.5 Sample Documentation

Each sample collected will be documented using a field sampling sheet, chain-of custody record, and field logbook. The sample numbering system, sample labeling, and chain-of custody records are described in the following sections.

### *6.5.1 Sample Numbering System*

Each sample will be identified with the well location and a number corresponding to the current consecutive quarterly monitoring event. For example, the well location MW-6S being sampled during the 4th Quarter of 2003 groundwater sampling and monitoring event will have the sample identification number MW-6S-47, representing the 47th consecutive quarter of sampling. Off-schedule (non-quarterly events) of sampling of monitoring wells will be assigned identification numbers with the well location and the date of sample collection. For example, given the well location MW-6S and the sample date of July 19, 2004, the sample identification number would be MW-6S-190704.

### *6.5.2 Sample Labels and/or Tags*

Sample containers will be clearly and properly labeled with indelible ink on water-resistant adhesive labels containing the following information:

- Client
- Project number
- Location/sample ID
- Date collected
- Time collected
- Collected by
- Preservative(s)

In addition to the sample labels, a dated and signed custody seal will be placed over the sample bottle cap after sample has been collected. A copy of the sample label is included in Appendix C.

### *6.5.3 Chain-of-Custody Records*

The chain-of-custody is initiated by the sampling technician, and is updated each time a sample is collected and each time a set of samples is passed from one individual to another. The samples must never be left unsecured and they are the responsibility of the individual into whose custody they have been remanded. A Chain-of-Custody Record will be completed for each group of samples collected at a given location on a given day. Additional information included on the chain-of-custody is as follows:

- Project name and number
- Chain-of-custody serial number
- Sample number

- Sampler's/recorder's signature
- Date and time of collection
- Collection location
- Sample type
- Analyses requested
- Inclusive dates of possession
- Name of laboratory/laboratory personnel receiving sample
- Laboratory sample number
- Date of sample receipt
- Address of analytical laboratory

A copy of a chain-of-custody is provided in Appendix C.

## 6.6 Field Analytical Records

All field analytical records will be collected and entered into the field logbook and onto groundwater field sampling sheets during field activities. Field analytical records will document data such as water quality parameters (temperature, pH, specific EC, DO, ORP, salinity, and turbidity) used as indicators that a representative sample is obtainable.

## 6.7 Data Management and Retention

All field activities will be documented in the field logbook and as described within the abovementioned field documentation sections and SOPs provided in Appendix B. Laboratory analytical data and field data will be entered into the electronic database for the project, which will be maintained by the project database manager. The project quality control officer will ensure all field activities will be properly documented.

# 7. SAMPLE HANDLING

Slight variations from this protocol may occur to facilitate any Chevron-specified laboratory shipping and handling requests, however basic QA/QC integrity will be maintained.

After the sample has been collected, and prior to packaging the sample, a self-adhesive custody seal will be placed across the lid of each groundwater sample. For VOC samples, the seal will be wrapped around the cap. The shipping containers in which samples are stored will be sealed with self-adhesive custody seals any time they are not in an individual's possession or view before shipping. All custody seals will be signed and dated. Samples will be packaged so that the potential for shipping damage is minimized. Samples will be separated and placed into coolers according to laboratory destination. Samples being shipped to a laboratory will be packaged in the following process:

- Check caps and mark volume level on bottle with indelible ink.
- Place custody seal across the lid of each sample and secure with clear tape.
- Place bubble wrap or equivalent material in the bottom of cooler.
- Wrap sample containers in bubble wrap or equivalent and individually bag sample containers within heavy duty sealed plastic bags. Sample numbers will be written on the outside of the bags with indelible ink.
- If samples are to be chilled, place sample containers in cooler with double bagged ice between and on top of the sample containers to maintain a temperature of approximately 4°C. The drain plug of the cooler will be sealed with fiberglass tape to prevent melting ice from leaking. The cooler will be lined with a plastic bag to contain the samples and ice to further prevent the leaking of the cooler contents.
- Place Chain-of-Custody Record and other documentation in a waterproof plastic bag and affix it to the inside lid of the cooler.
- Securely tape shut cooler with fiberglass strapping tape and affix a signed and dated custody seal.

As the packaging process described above is being conducted, a shipping container checklist will be completed to ensure the proper handling of samples. A copy of the shipping container checklist is provided in Appendix C. Detailed procedures for the shipment of water, sediment, or soil samples are provided in Appendix B.

# 8. INVESTIGATION DERIVED WASTES

Both liquid and solid waste will be produced during the duration of this project.

## 8.1 Soil Cuttings and Solid Materials

Soil cuttings from drilling activities will be stored on-site and covered with plastic pending chemical analysis. The cuttings will be sampled and analyzed for profiling purposes. Analysis will consist of VOCs by USEPA Method 8260B and arsenic, selenium, iron and manganese by USEPA Method 6010B/7000. The soil cuttings will be characterized and spread on the Site within the low-permeability cover footprint prior to completing the cover. The cuttings will be integrated into the cover material. If the OU-2 low-permeability cover has been completed at the time of boring, then soil cuttings from drilling activities will be stored on-site within a properly labeled, plastic lined, and covered Department of Transportation (DOT) approved soil bin pending transportation and disposal. The cuttings will be sampled and analyzed for profiling to determine the proper means of disposal. The cuttings will be scheduled to be transported for disposal once the soil cuttings have been profiled.

Used personnel protection equipment (PPE) and disposable equipment will be double bagged and placed in a municipal refuse dumpster on-Site. These wastes are not considered hazardous and may be sent to a municipal landfill. Any PPE and disposable equipment that is to be disposed of which can still be reused will be rendered inoperable before disposal in the refuse dumpster.

## 8.2 Liquid Wastes

Liquid wastes, including decontamination fluids and purge water, will be disposed of via the existing OU-1 groundwater treatment remediation system if it is operational. If the groundwater treatment remediation system is not in operation, liquid wastes will be stored on-site in properly labeled DOT drums or in existing on-site storage tanks pending transportation and disposal. The liquid wastes will be sampled and analyzed for profiling to determine the proper means of disposal. The liquid wastes will be scheduled to be transported for disposal once the liquid wastes have been profiled.

# 9. FIELD ASSESSMENT / THREE-PHASE INSPECTION PROCEDURES

The following sections describe the CQC process and field and sampling equipment to be used during the project.

## 9.1 Contractor Quality Control

Contractor Quality Control phases (preparatory, initial, and follow-up) will be documented within the daily QCR. CQC phases are performed for each definable aspect of the project that is separate and distinct from other tasks and has separate control requirements. CQC phases will be conducted by the project Technical Manager. The Technical Manager for this project will be the individual who will be providing oversight of field activities and all subcontractors; keeping inventory, decontaminating, maintaining, and calibrating equipment; checking the integrity of materials; and ensuring proper field documentation and health and safety procedures during all phases of the project.

## 9.2 Sampling Apparatus and Field Instrumentation Checklist

Field activities to be conducted for this project include CPT borings, groundwater monitoring well advancement and installation, QED low-flow pump installations, and groundwater monitoring and sampling activities. Prior to the commencement of each activity, all equipment and materials will be decontaminated (if applicable), calibrated (if applicable), and inspected for integrity. All sampling apparatus used during CPT, groundwater monitoring well boring advancement, and groundwater monitoring activities are described within each of their respective sections within this FSP and SOPs provided in Appendix B. A field instrumentation checklist for each of the above mentioned tasks is provided in Appendix C.

## 10. NONCONFORMANCE / CORRECTIVE ACTION

Performance and system review for all aspects of this work will follow the standard inspection protocol. For the laboratory analysis, pre-sampling communication among the Project Manager, the Project Chemist, the Technical Manager, and the laboratory personnel will be conducted.

The integrity, quality, and usability of field and laboratory data generated will be assessed and documented as prescribed in this FSP and QAPP. Data quality will be assessed, prior to data use, to establish usability for the data's intended purpose and to promote continuous improvement in data collection efforts by identifying major or recurring sources of error. Chemical data quality assessment will include data review, verification of contract compliance, verification of DQO attainment, and determination of data usability. Specific criteria, procedures, and responsibilities are prescribed in the QAPP.

In the event discrepancies, such as improper sampling procedures, improper instrument calibration procedures, incomplete or improper sample preservation, and problems with samples upon receipt at the laboratory are discovered, the following actions will be taken by the QA/QC reviewer and the Technical Manager:

- Review the sample data generated in the field which, at a minimum, will include review of possible transcription errors and transmittal errors; QC data; detection limits; instrument calibration; and accuracy of sampling records such as groundwater data sheets.

- Review the pertinent SOPs to assess which components may have lead to errors of commission or omission. Amend or adjust SOPs to avoid future incidences.

- Document the cause and result of the discrepancies to eliminate suspect or ambiguous interpretations of potentially erroneous data.

- Communicate the existence, cause, result and remedy for the discrepancies through the Project Organization (Figure 2).

# QUALITY ASSURANCE PROJECT PLAN

# 11. PROJECT LABORATORY ORGANIZATION AND RESPONSIBILITIES

This QAPP supports the Site investigation (SI) for Operable Unit 1 (OU-1) of the Purity Oil Sales Site. This QAPP was prepared following USEPA QA/R-5 guidance for preparing QAPPs (USEPA 1998). This section covers project management activities including the project organization, background and purpose, project description, quality objectives and criteria, special training, and documentation and records.

Organizational responsibilities for this investigation are described in this section and the lines of authority are shown on a QAPP organization chart (Appendix D). SECOR will provide the necessary technical staff to perform sampling and reporting aspects of the project. SECOR will also contract for subcontractor services including drilling and analytical services, and procurement of equipment, materials and supplies, when necessary. Lancaster Laboratories, Inc. will provide laboratory services. Other subcontractor support such as drillers or alternate laboratories have not been contracted. Chevron and the USEPA Region 9 maintain oversight responsibilities. The duties and responsibilities described below pertain to laboratory operations and corporate management.

## 11.1 Laboratory Director

The Laboratory Director is responsible for the overall management of the laboratory. He or she provides leadership and support for the QA Program, reviews and approves changes in laboratory staff, and maintains a strong line of communication with internal department managers and external project managers. He or she also reviews and approves the QA Manual, reviews and approves SOPs, and provides support for business development by identifying and developing new markets through continuing support of the management of existing client activities.

## 11.2 Quality Assurance Officer

The Quality Assurance Officer (QAO) reports directly to the laboratory director and is responsible for implementing the QA Program. The QAO performs his or her duties independently from the laboratory operations. He or she oversees the execution of QC procedures and techniques to ensure that the laboratory achieves established standards of quality, and performs this duty without outside (e.g. managerial) influence. The QAO is also responsible for evaluating data quality and maintaining records to demonstrate compliance with established QA programs. He or she (or a designee) administers inter-laboratory QA efforts, reviews performance evaluation results, monitors corrective actions taken, maintains the laboratory's certifications and approvals, and prepares QA reports for management. He or she is also responsible for updating the laboratory QA Manual and conducting QA/QC training for all personnel.

## 11.3 Environmental Health and Safety Officer

The Environmental Health and Safety (EH&S) Officer is responsible for the administration of the laboratory health and safety policies. This includes the formulation and implementation of safety policies, supervision of new employee safety training, review of accidents, incidents, and prevention plans, and conducting department safety inspections. The EH&S Officer is also designated as the Chemical Hygiene Officer.

## 11.4 Technical Directors

The Technical Directors, herein called Technical Managers throughout the rest of this document, are responsible for organizing and directing the technical activities within their assigned area. They are involved in daily laboratory operations and are responsible for verifying that laboratory QC and analytical procedures are being followed as specified for each project. The technical managers (or designee) are responsible for the review of data for accuracy, completeness, and chemical interpretation. They also advise the laboratory director of progress, needs, and potential problems

associated with their areas of control. The Technical Managers (or designee) routinely perform the final data review of analytical data.

## 11.5 Analysts

The analysts perform analyses according to the specified procedures and perform routine instrument maintenance. They are responsible for reporting any non-conformances and out-of-control incidents associated with the analyses to the appropriate Technical Manager or QAO. Analysts peer review other's work within the same group.

## 11.6 Data Package/Reporting Specialists

Data Package/Reporting Specialists are assigned to each analytical area of the laboratory. These specialists are responsible for organizing and maintaining all documents associated with sample analyses in their assigned areas. They assemble the data into modular data packages by sample batch. All modular data packages are then sent to a central data deliverables department where they are assembled into a single data package. The data package specialists assigned to the central area are responsible for the completeness and final assembly of the data package. QC responsibilities include checking the data package for completeness and including method non-conformances in the case narrative and in the data package cover letter. The centralized Data Deliverables Department is also responsible for Electronic Data Deliverables (EDD) generation and review.

## 11.7 Project Manager

The Project Manager is assigned to each client to act as a project liaison between the client and the laboratory. The Project Manager is responsible for understanding and communicating client requirements to the laboratory personnel. After sample receipt, the Project Manager compares the project-specific sample information from the Chain of Custody with the Bottle Order Form (BOF). The Project Manager provides a single point of contact to the client to facilitate in implementing the client's requests and needs. QC responsibilities include assisting the client with incorporating project-specific QC requirements into the overall analytical plan and communicating these requirements to the laboratory.

## 11.8 Sample Management Department Personnel

The Sample Management Department Personnel are responsible for the proper preparation, shipment, and receipt of sampling kits. When the samples are received into the laboratory, the department personnel are responsible for checking and documenting the chain-of-custody by checking sample descriptions, labels, and parameters requested against the Chain-of-Custody Record. If any discrepancies are noted, they inform the laboratory Project Manager, who coordinates resolution with clients. The Sample Entry Staff logs the project-specific sample information into the Laboratory Information Management System (LIMS). The staff is also responsible for storing samples in the proper environment before and after the samples are released to the Analysts and assists with sample disposal.

## 11.9 Information Technology

Information Technology (IT) staff are responsible for the administration of the LIMS and other necessary support services. Other functions of the IT staff include laboratory network maintenance, education of analytical staff in the use of scientific software, custom software development and implementation, data back-up, archival, and integrity operations.

## 12. DATA ASSESSMENT ORGANIZATION AND RESPONSIBILITIES

Chevron has contracted with SECOR to perform investigations and evaluations. Chevron reports technical matters discovered through the SIs to the USEPA Region 9 Remedial Project Manager. USEPA management is not further discussed in this QAPP. The SECOR Project Manager for SIs is Mr. Steve Strait. The OU-1 Technical Manager for the SI field work is Mr. Frank Gegunde. Mr. Gegunde, as OU-1 Technical Manager, will be responsible for directing field sampling activities. Mr. Strait is also a SECOR Principal Hydrogeologist. The QA Officer, Mr. Craig Skiera, will oversee project designated quality assurance activities. Mr. Robert Mihalovich is the Chevron Environmental Project Manager and SECOR point of contact for any matters concerning the SIs. Ms. Rose Marie Caraway is the Region 9 Remedial Project Manager and is responsible for dispersal of General Assistance Program funding for costs associated with this project.

Mr. Strait, as OU-1 Project Manager, is responsible for the overall management and coordination of the following activities:

- Maintaining project communications with Chevron and the USEPA
- Preparing routine status reports and billings to Chevron
- Supervising production and scheduling technical and QA review of project deliverables
- Providing contracting authority and oversight of subcontractors and vendors
- Coordinating with the laboratory regarding the analytical, data validation, and QA issues
- Reviewing analytical results and deliverables from subcontractors
- Tracking planned versus actual progress
- Managing changes in this SAP, the Health and Safety Plan (HASP), and/or other project documents
- Scheduling personnel and material resources
- Implementing field aspects of the investigation, including this SAP
- Implementing corrective actions resulting from staff observations, QA/QC surveillances, and/or QA audits
- Providing oversight of data management and report preparation

Mr. Gegunde, as OU-1 Technical Manager, is responsible for the following:

- Planning and supervising a field planning activities
- Managing the field sampling team and subcontractors providing sampling and analytical support
- Scheduling and conducting all field work
- Scheduling and notifying the laboratory of scheduled sample shipments
- Collecting equipment, field logbooks and confirming required sample bottles and preservatives
- Managing proper chain-of-custody and sample shipment to the laboratory
- Conducting or overseeing sampling in accordance with procedures detailed in this SAP for completeness

- Identifying problems at the field team level, with contractors and site visitors, resolving differences in conjunction with the QA staff, implementing and documenting corrective action procedures at the field team level, and communicating between the field team and SECOR management

The roles and responsibilities of other field team members will be to assist the Technical Manager with sampling activities, sample handling, and overall documentation.

## 12.1 Quality Assurance Organization

The QA program is implemented by Mr. Craig Skiera. Mr. Skiera acts independently of the project staff and reports directly to the SECOR corporate management. The QA officer has the authority to objectively review projects and identify problems, and the authority to use corporate resources, as necessary, to resolve any quality-related problems. Mr. Skiera may assign additional QA staff as needed. The QA officer is responsible for the following:

- Reviewing and approving this SAP, FSP and other project plans
- Implementing the project QA program
- QA oversight of the project
- Reviewing QA sections in project reports, as applicable
- Reviewing QA/QC (i.e. SOPs) applicable to this project
- Auditing selected activities, as necessary
- Initiating, reviewing, and following-up on response actions, as necessary
- Consulting with the SECOR Corporate management, as needed, on appropriate QA/QC measures and corrective actions
- Conducting internal system audits to check on the use of appropriate QA/QC measures, if applicable
- Arranging performance audits of measurement activities, as necessary
- Providing written reports on QA/QC activity

## 12.2 Chevron

Mr. Robert Mihalovich, as Environmental Project Manager, is the point of contact for SECOR and maintains fiduciary responsibility for Chevron. Mr. Mihalovich approves the work performed under this SAP and any contract variances requested by SECOR due to site conditions or other changes. Mr. Mihalovich advises Chevron of the data, and observations and interpretations. The Environmental Department Manager is responsible for the following:

- Tracking work assignment budgets
- Reviewing work plans
- Providing incremental funding
- Maintaining communication with the USEPA Region 9 Remedial Project Manager
- Communication with the other USEPA Officers, the State of California, the County of Fresno and the Cities of Fresno and Malaga

## 12.3 USEPA Management

The USEPA Region 9 Remedial Project Manager, Ms. Rose Marie Caraway will be responsible for USEPA oversight. The Remedial Project Manager is responsible for:

- Reviewing project plans
- Providing oversight of field efforts
- Facilitating and maintaining communication with project stakeholders and others, where applicable
- Scheduling USEPA personnel and material resources
- Providing oversight of USEPA personnel responsible for project tasks

# 13. DATA QUALITY OBJECTIVES

This section provides internal means for control and review so that environmentally-related measurements and data collected by SECOR are of known quality. Data Quality Objectives and Data Measurement Objectives are described in Section 13.1 and Section 13.2, respectively.

## 13.1 Data Quality Objectives

The objective of OU-1 is to monitor the nature and extent of groundwater contamination in the shallow, intermediate and deep zones, to assess the hydrogeologic characteristics of the Site, and evaluate remedial alternatives for the Site. Associated with the groundwater monitoring is the groundwater extraction from wells EW-1 and EW-2, and the subsequent groundwater treatment and discharge to the FID canal. Groundwater monitoring of viable existing and future monitoring wells will be conducted to assist in monitoring plume migration, to evaluate the effectiveness of the groundwater extraction/treatment system, and evaluate MNA.

The DQO process is a series of planning steps based on the scientific method that are designed to ensure that the type, quantity, and quality of environmental data used in decision-making are appropriate for the intended purpose. The USEPA has issued guidelines to help data users develop site-specific DQOs (USEPA 1994c). The DQO process is intended to:

- Clarify the study objective
- Define the most appropriate type of data to collect
- Determine the most appropriate conditions from which to collect the data
- Specify acceptable levels of decision errors that will be used as the basis for establishing the quantity and quality of data needed to support the design

The goal of the DQO process is to “help assure that data of sufficient quality are obtained to support remedial response decisions, reduce overall costs of data sampling and analysis activities, and accelerate project planning and implementation.” The DQO process specifies project decisions, the data quality required to support those decisions, specific data types needed, data collection requirements, and analytical techniques necessary to generate the specified data quality. The process also ensures that the resources required to generate the data are justified. The DQO process consists of seven steps of which the output from each step influences the choices that will be made later in the process. These steps include:

- Step 1: State the problem
- Step 2: Identify the decision
- Step 3: Identify the inputs to the decision
- Step 4: Define the study boundaries
- Step 5: Develop a decision rule
- Step 6: Specify tolerable limits on decision errors
- Step 7: Optimize the design for obtaining data

During the first six steps of the process, the planning team develops decision performance criteria (i.e., DQOs) that will be used to develop the data collection design. The final step of the process involves optimizing the data collection design based on the DQOs. A brief discussion of these steps and their application to this project is provided below.

### *13.1.1 Step 1 – State the Problem*

The purpose of this step is to describe the problem to be studied so that the focus of the study will be unambiguous. The Site is a former used oil-recycling facility. Between 1934 and 1975, several different owners recycled used motor oil at this Site. The waste oil came from businesses such as service stations, car dealers, truck stops, electrical transformer yards, municipalities, school districts, and the military. The used motor oil, acidic sludges, and clay- and oil-containing filter cake from the recycling process were disposed of in unlined soil pits. Purity Oil Sales was included on the National Priority List in September 1983 based upon soils, groundwater, and air quality investigations conducted by the USEPA, Department of Health Services, and the RWQCB. USEPA is addressing remediation of the Site with the designation of two Operable Units: OU-1 Groundwater; and OU-2 Soil Remediation.

Organic and inorganic contaminants have been documented in the sediment and groundwater that suggest risk to human health and the environment. A sampling and analysis program is proposed to: 1) confirm the presence of, and characterize the nature and spatial extent of organic and inorganic chemical contamination in soil and groundwater; 2) use these data to support a decision to implement a remedial investigation; or 3) support no further action for assessing these potential human health and ecological risks, if present.

The OU-1 planning team includes Mr. Robert Mihalovich (Chevron), Mr. Steve Strait (SECOR), and Mr. Frank Gegunde (SECOR). Resources available for SIs include files from the U.S. Army Corps of Engineers, County of Fresno, City of Fresno, California RWQCB – Central Valley Region and Chevron files.

### *13.1.2 Step 2 – Identify the Decision*

This step identifies what questions this study will attempt to resolve and what actions may result. The decision will be based on the action levels stipulated in the ROD, the current consent decree, and/or subsequent modifications agreed to by the USEPA, Chevron, and SECOR prior to implementation. The principal study questions are divided by media and include the following:

- Are contaminants present in the soil above risk-based action levels?
- Are contaminants present in the water above risk-based action levels?
- Have a sufficient number of samples been analyzed to adequately determine the concentrations of contaminants?

The following resolutions to the questions and possible actions have been identified:

- Further Action (i.e., further investigation, remedial action, immediate response action)
- No Further Action. Individual concentration(s) cumulative concentration(s) below criteria

Individual concentration(s)/cumulative concentration(s) above criteria:

- Further Action (i.e., further investigation)
- No Further Action

### *13.1.3 Step 3 – Identify the Inputs to the Decision*

The purpose of this step is to identify the information that needs to be obtained and the measurements that need to be taken to resolve the decision statement. Based on the study questions of the SI, the following information is required:

- Chemical concentrations in affected media i.e., (VOCs, arsenic, selenium, iron and manganese concentrations present in soil and groundwater, where applicable)
- Risk-based concentrations (RBCs); i.e., values to determine whether or not contaminant concentrations pose unacceptable risk

Depending on the analytical results from the on-going quarterly groundwater monitoring and sampling events and changing geologic and hydrogeologic conditions at the Site, inputs to the decision may require periodic modification. Any modifications will be agreed to by the USEPA, Chevron, and SECOR prior to implementation. Modifications may include such items as: assessment of past, current, and future data for potential MNA feasibility; locating any future monitoring or extraction wells; conducting enhanced reductive dechlorination in source areas; and/or, optimization of the current or future groundwater treatment systems.

### *13.1.4 Step 4 - Define the Boundaries of the Study*

This step defines the spatial and temporal boundaries of the study. The horizontal spatial boundaries of the study are provided in Figure 1. The vertical spatial boundaries are from the air/surface water interface to the ambiguously defined bottom of the "deep zone/deep interval" (approximately 150 feet below ground surface). This study focuses on current conditions, but historical data has been used to develop sampling strategies. Therefore, temporal boundaries include the time frame from when potential source activities began (circa 1934) to this day. The data used for decision-making, however, will be from the most recent (November 2004) sampling events conducted by SECOR although the existing contaminants may have been deposited at any time since the beginning of potential source activities. The data populations needed for decision-making for this study include the chemical concentrations (including both detected and non-detected values) for all the media sampled and analyzed. Constraints that could potentially interfere with data collection are inaccessible sampling locations.

### *13.1.5 Step 5 – Develop a Decision Rule*

The purpose of this step is to define the parameters of interest, specify the action levels, and integrate previous DQO outputs into a single statement that describes a logical basis for choosing among alternative actions. The parameters of interest are the concentrations and locations of constituents identified in the separate media that pose significant adverse risk. Measured concentrations should estimate the true values of the constituents at a specific location and may be used on an individual or cumulative basis. The action levels will be developed using RBCs as inputs.

### *13.1.6 Step 6 - Specify Tolerable Limits on Decision Errors*

Decision maker's tolerable limits on decision errors, which are used to establish performance goals for the data collection design, are specified in this step. Decision makers are interested in knowing the true value of the constituent concentrations. Since analytical data can only estimate these values, decisions that are based on measurement data could be in error (decision error). There are two reasons why the decision maker may not know the true value of the constituent concentration, these are:

1. Concentrations may vary over time and space. Limited sampling may miss some features of this natural variation because it is usually impossible or impractical to measure every point of a population. *Sampling design error* occurs when the sampling

design is unable to capture the complete extent of natural variability that exists in the true state of the environment.

2. Analytical methods and instruments are never absolutely perfect, hence a measurement can only estimate the true value of an environmental sample. *Measurement error* refers to a combination of random and systematic errors that inevitably arise during the various steps to the measurement process.

The combination of sampling design and measurement error is the total study error. Since it is impossible to completely eliminate total study error, basing decisions on sample concentrations may lead to a decision error. The probability of decision error is controlled by adopting a scientific approach in which the data are used to select between one condition (the null hypothesis) and another (the alternative hypothesis). The null hypothesis is presumed to be true in the absence of evidence to the contrary. For this project the null hypothesis is that the true values of the constituents are below the action levels. The alternative hypothesis is that the true values of the constituents are above the action levels.

A false positive or "Type I" decision error refers to the type of error made when the null hypothesis is rejected when it is true and a false negative or "Type II" decision error refers to the type of error made when the null hypothesis is accepted when it is false. For this project, a Type I decision error would result in deciding that the site was contaminated above action levels ("dirty") when it is not and a Type II decision error would result in deciding that the site was not contaminated above action levels ("clean") when it is. For example, if the action level for a constituent is 1 microgram per Liter (µg/L), the reported concentration is 0.9 µg/L, and the true value is 1.1 µg/L, a Type II error could easily be made by not applying any decision error limits. For this project, a Type II error is less acceptable (worse case) than a Type I error because a Type II error could result in ecological and/or human harm whereas, a Type I error could result in spending additional funding for further investigating a "clean" site.

The closer the reported concentration is to the action level, the higher the probability that an incorrect decision will be made and, therefore, there is a "gray region" surrounding the action level. For this project, there is no "gray area" and the tolerable decision error is ± 10 percent.

#### *13.1.7 Step 7 – Optimize the Design for Obtaining Data*

This step identifies a resource-effective data collection design for generating data that are expected to satisfy the DQOs. This design was developed based on historical data, communication with knowledgeable people familiar with the site, and preliminary geophysical work. The characterization program is phased, with this project being an on-going site investigation.

### 13.2 Data Measurement Objectives

All soil and water samples will be analyzed for VOCs, arsenic, selenium, iron, and manganese. Groundwater samples will be sampled for MNA parameters. Groundwater may also be analyzed for several other field measurements. Every reasonable attempt will be made to obtain a complete set of usable field measurements and analytical data. If a measurement cannot be obtained or is unusable for any reason, the effect of the missing data will be evaluated by the QA officer. This evaluation will be reported to Chevron and the USEPA with a proposed corrective action, if necessary.

#### *13.2.1 Quality Assurance Guidance*

The field QA program has been designed in accordance with USEPA's Guidance for the Data Quality Objectives Process (1994), and the U.S. Army Corps of Engineers Technical Project Planning Process (1998).

### *13.2.2 Precision, Accuracy, Representativeness, Completeness, and Comparability Criteria*

Precision, accuracy, representativeness, completeness, and comparability (PARCC) parameters are indicators of data quality. PARCC goals are established for the site characterization to aid in assessing data quality. The following paragraphs define these PARCC parameters in conjunction with this project.

**Precision** of a measurement is an expression of mutual agreement among individual measurements of the same property taken under prescribed similar conditions. Precision is quantitative and most often expressed in terms of relative percent difference (RPD). Precision of the laboratory analyses will be assessed by comparing original and duplicate results, where applicable. The RPD will be calculated for each pair of applicable duplicate analyses using the following equation:

$$RPD = (S-D/((S+D)/2))\times 100$$

Where S = First sample value (original value)
D = Second sample value (duplicate value)

Precision of reported results is a function of inherent field-related variability plus laboratory analytical variability depending on the type of QC sample. Data may be evaluated for precision using the following types of samples (in order of priority): field duplicates, laboratory duplicates, laboratory control sample/laboratory control sample duplicates (LCS/LCSDs), or MS/MSDs, whichever are analyzed. The acceptable RPD limits for duplicate measurements are listed in Table 4 and are in accordance with the laboratory-specific limits, methodology, National Functional Guidelines for Inorganic Data Review (USEPA 1994a), or USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (USEPA 1994b), whichever are applicable.

**Accuracy** is the degree of agreement of a measurement with an accepted reference or true value and is a measure of the bias in a system. Accuracy is quantitative and usually expressed as the percent recovery (%R) of a sample result. %R is calculated as follows:

$$\%R = SSR - SR / SA \times 100$$

Where SSR = Spiked Sample Result
SR = Sample Result
SA = Spike Added

It is desirable that the reported concentration equals the actual concentration present in the sample. Data may be evaluated for accuracy using (in order of priority) either LCS/LCSDs, MS/MSDs, and/or surrogates. The acceptable %R limits are in accordance with the laboratory-specific limits, methodology, USEPA National Functional Guidelines for Inorganic Data Review (USEPA 1994a), or USEPA National Functional Guidelines for Organic Data Review (USEPA 1994b), whichever are applicable.

**Representativeness** expresses the degree to which sample data accurately and precisely represent:

- the characteristic being measured
- parameter variations at a sampling point, and/or
- an environmental condition

Representativeness is a qualitative and quantitative parameter that is most concerned with the proper sampling design and the absence of cross-contamination of samples. Acceptable representativeness will be achieved through: 1) careful, informed selection of sampling sites; 2) selection of testing parameters and methods that adequately define and characterize the extent of possible contamination and meet the required parameter reporting limits; 3) proper gathering and handling of samples to avoid interferences and prevent contamination and loss; and 4) collection of a sufficient number of samples to allow characterization. The representativeness will be assessed qualitatively by reviewing the sampling and analytical procedures and quantitatively by reviewing the blank samples. If an analyte is detected in a method, preparation, or rinsate blank, any associated positive result less than five times (10 times for common laboratory contaminants) may be considered a false positive. Holding times will also be evaluated to determine if analytical results may be representative of sample concentrations.

**Completeness** is a measure of the amount of usable data obtained from a measurement system compared to the amount that was expected to be obtained under correct normal conditions. Usability will be determined by evaluation of the PARCC parameters excluding completeness. Those data that are validated or evaluated and are not considered estimated or are qualified as estimated or non-detect are considered usable. Rejected data are not considered usable. A completeness goal of 90 percent is projected. Completeness is calculated using the following equation:

$$\text{Percent Complete (\%C)} = (Do/Dp) \times 100$$

Where Do= Data obtained and useable
Dp= Data Planned

**Comparability** is a qualitative parameter. Consistency in the acquisition, handling, and analysis of samples is necessary for comparing results. Data developed under this investigation will be collected and analyzed using standard USEPA analytical methods and QC to ensure comparability of results with other analyses performed in a similar manner.

### *13.2.3 Field Measurements*

Field measurements will be collected for soil and water during this investigation. Soil measurements will include soil pH and PID readings. Water measurements (i.e. water quality parameters) will include pH, temperature, EC, turbidity, DO, Eh (or ORP), and salinity.

### *13.2.4 Laboratory Analyses*

Analytical methods, reporting limits, holding times and preservatives, and QC analyses are discussed below.

#### 13.2.4.1 Analytical Methods

Analytical methods for soil and water samples are presented in the next two sections. Volume requirements are presented in Table 5.

#### 13.2.4.2 Soil Samples

Soil samples collected under this SAP will be analyzed for all of the following:

- VOCs using USEPA Method 8260B
- Arsenic (As) using USEPA Method 6010B or 7060A
- Selenium (Se) using USEPA Method 6010B or 7740A
- Iron (Fe) using USEPA Method 6010B

- Manganese (Mn) using USEPA Method 6010B
- TOC using USEPA Method 9060B modified

#### 13.2.4.3 Water Samples

Water samples (including duplicate samples) collected under this SAP will be analyzed for all of the following:

- Dissolved Arsenic (As) using USEPA Method 6010B or 7060A
- Dissolved Selenium (Se) using USEPA Method 6010B or 7740A
- Dissolved Iron (Fe) using USEPA Method 6010B
- Dissolved Manganese (Mn) using USEPA Method 6010B
- VOCs using USEPA Method 8260B or Methods 8010B/8020A
- Nitrate, sulfate, chloride, and using USEPA Method E300.0
- Alkalinity using USEPA Method 310.1
- Ferrous iron ($Fe^{2+}$) using USEPA Method 3500-Fe D Modified
- TOC using USEPA Method 415.1
- Methane, ethane, and ethene using USEPA Method 8015B modified or RSK-175
- Carbon dioxide using USEPA Method 8000B or headspace Method 8015B
- Equipment rinsate blank samples collected under this SAP will be analyzed for VOCs using USEPA Method 8260B
- Trip blank samples will be analyzed for VOCs using USEPA Method 8260B

#### 13.2.4.4 Laboratories

Lancaster Laboratories, Inc., of Lancaster, Pennsylvania is the laboratory responsible for chemical analyses of the samples. The physical address is:

Lancaster Laboratories, Inc.
2425 New Holland Pike
Lancaster, PA 17605

Phone: 717-656-2308
Fax: 717-656-2681

#### 13.2.4.5 Reporting Limits

The reporting limits provided in Table 4 are the minimum levels that the laboratory will report analytical results without a qualifier when an analyte is detected. The laboratory can typically detect analytes, but not accurately quantitate, at concentrations lower than the reporting limits; in this case, when a positive detection is less than the reporting limit but above the minimum detection limit, the value may be reported and qualified as an estimated concentration (J-flagged). To minimize the effects of interferences, the laboratory may modify the extraction and/or analytical methods and/or readjust the instruments. Any modifications will be documented by the laboratory in comments on the certified analytical report.

#### 13.2.4.6 Holding Times and Preservatives

Holding times are storage times allowed between sample collection and sample extraction or analysis (depending on whether the holding time is an extraction or analytical holding time) when the designated preservation and storage techniques are employed. Holding times for each analytical method and preservatives for each sample are provided in Table 5.

#### 13.2.4.7 Quality Control Analyses

To provide an external check of the quality of the field procedures and laboratory analyses, three types of QC samples (duplicate samples, equipment rinsate blanks, and trip blanks) will be collected and analyzed. Triple volume will also be collected at a rate of 5 percent for MS/MSD analyses. Blank samples will be analyzed to check for cross-contamination during sample shipment (trip) and/or equipment decontamination (rinsate). Duplicate samples will provide a check for sampling and analytical error.

In addition to the external QA/QC controls, internal QC procedures are maintained by the laboratory. Internal QC samples will include laboratory blanks (i.e., method blanks, preparation blanks), laboratory duplicates, MS/MSDs, and LCS/LCSDs.

### 13.3 Special Training Requirements

Special training required for this investigation will be the 40-hour and 8-hour OSHA HAZWOPER Standard, 29 CFR 1910.120 health and safety training.

### 13.4 Documentation and Records

The laboratories will submit analytical data reports to SECOR. Each data report will contain a case narrative that briefly describes the number of samples, the analyses, and any analytical difficulties or QA/QC issues associated with the submitted samples. The data report will also include signed chain-of-custody forms, cooler receipt forms, analytical data, a QC package, and raw data. An electronic copy of the data will also be provided by the laboratories to SECOR. This electronic copy is detailed in the subcontract with each laboratory.

Project records, including reports, field data, analytical data, audit reports, and any other records applicable to the project will be maintained in the project file. The official project record will be maintained in SECOR's Fresno office. The physical address is:

SECOR International Incorporated
3475 W. Shaw Ave., Suite 104
Fresno, CA 93711

Phone: (559) 271-2650
FAX: (559) 271-5108

# 14. SAMPLE RECEIPT, HANDLING, CUSTODY, AND HOLDING TIME REQUIREMENTS

The quality of analytical results is highly dependent upon the quality of the procedures used to collect, preserve and store samples. Sampling guidelines described in 40 CFR 136 and USEPA SW-846 will be followed where applicable. Sample handling factors that must be taken into account to insure accurate, defensible analytical results include:

- Amount of sample taken
- Type of container used
- Type of sample preservation
- Sample storage time
- Proper custodial documentation

Sample collection and handling procedures that are carried out by project field personnel are presented in the field sampling plan. The laboratory supplies certified-clean containers and shipping coolers to the field sampling crew before sampling begins. The field sampling crew is responsible for placing the field samples in the appropriate container, and shipping the samples to the laboratory in accordance with the field sampling plan. The laboratory uses the sample preservation, container, and holding time recommendations published in a number of documents. The primary documents of reference are: USEPA SW-846, Third Edition, Update III for hazardous waste samples, and USEPA 600/4-79-020 and *Standard Methods for the Examination of Water and Wastewater, 18th Edition* for water and wastewater samples. Sample container requirements, preservation, and holding times are summarized in Table 5.

## 14.1 Sampling Kit Preparation

Sampling kits to be used by the field personnel are prepared by the laboratory following instructions indicated on the BOF as shown in Figure 5. The laboratory Project Manager completes the BOF after initial contact with the client or project team. Sample containers may be shipped directly to the field site or other location as directed by the Technical Manager.

Containers for use in collecting and retaining environmental samples are stored on a rotated inventory basis. The containers are stored in the boxes in which they are shipped to the laboratory until space on the container storage shelves becomes available. At this time the bottles are rotated on to the shelves for easy inspection and access. The shelves are kept relatively dust-free in a climate-controlled area maintained by the bottles room personnel. Sample containers are shipped to the client or sampling site at the request of the client. Prior to shipping, preservatives may be added to the sample container if requested on the BOF. The type of preservative used is indicated on the sample container. The containers are typically shipped via a commercial carrier and are packed in a clean, sturdy plastic shipping cooler containing appropriate packing materials (i.e. styrofoam, plastic bubbles, etc) and ice if necessary. The cooler also contains a Chain-of-Custody Form, which will specify which analyses will be performed.

## 14.2 Verification / Documentation of Cooler Receipt Condition

All samples submitted to the laboratory are delivered to the laboratory's sample receiving area and are received by the Sample Unpackers. Verification of sample integrity by the Sample Unpacker includes the following activities:

- Assessment of custody seal presence/absence, location and signature

- Temperature of sample containers upon receipt
- Chain of custody documents properly used (entries in ink, signature present, etc.)
- Sample containers checked for integrity (broken, leaking, etc.)
- Sample is clearly marked and dated (sample container labels complete with required information)
- Appropriate containers (size, type) are received for the requested analyses
- Sample container labels agree with the chain of custody entries (identification, required analyses, etc.)

All samples received are entered into the LIMS with the following information: client name, project code, analytical parameter requested, and a laboratory reference number. The laboratory reference number is a sequential number, which is assigned by the LIMS and is unique to that sample. An Acknowledgement of the sample entry information is printed from the LIMS, reviewed by the project manager and filed with the client paperwork. Samples are processed through the laboratory using the laboratory reference number. . Analysis orders are transmitted to laboratory personnel by means of a Work List report generated by LIMS. The information will include:

- Laboratory reference number
- Client name
- Numbers of samples
- Parameters to be tested
- Matrix
- Date received
- Holding time expiration date
- Required turnaround time

Sample Management Department Personnel place the samples in temporary storage pending preservation checks. Storage areas are locked, and access is limited to authorized laboratory personnel only. All storage areas are temperature-controlled at 4 ± 2°C and monitored; temperatures are monitored using an automated system, printouts are maintained of the recorded temperatures. Prior to moving the samples to long term storage, Sample Management Department Personnel perform the following:

- Assessment of proper sample preservation (if inadequate, corrective action is employed)
- Homogenization of soil samples

Sample Management Department Personnel then place the samples in the appropriate long term storage areas. Samples for volatile analyses are stored separately in a dedicated refrigerator. These areas are secured and monitored for temperature as noted above. The location of each sample is recorded in the LIMS.

## 14.3 Corrective Action for Incoming Samples

If any anomalies or discrepancies are observed during the initial assessment, Sample Management Department Personnel will contact the Project Manager, detailing the non-conformance. At this time, the laboratory Project Manager will contact the client or his representative for resolution. Documentation is made using entry forms and project management

logs (Figure 6). Change forms are issued, when necessary, if the sample information or requested analyses needs to be changed and communicated to the laboratory personnel.

## 15.1 Preventive Maintenance

### *15.1.1 Equipment Maintenance*

Preventative maintenance is a crucial element of the Quality Assurance program. Critical instruments (e.g. Gas Chromatography/Mass Spectrometry [GC/MS] systems, atomic absorption spectrometers, analytical balances, gas and liquid chromatographs, etc.) will be maintained under commercial service contracts or by qualified analysts. All instruments will be operated and maintained according to the instrument manufacturer's recommendations. All routine and special maintenance activities pertaining to the instruments will be recorded in instrument maintenance logbooks. The maintenance logbooks contain extensive information about the instruments used at the laboratory.

The preventive maintenance schedules are to be based primarily on manufacturer guidance, recommendations in the literature, and the experience of the analysts and supervisors. Trends and excursions from accepted limits for QC sample results are monitored to determine if there is an instrument malfunction, and in such cases preventive maintenance is provided on an as-needed basis. Some preventive maintenance measures will be performed as an integral part of each procedure (e.g., changing the injection port septum in Gas Chromatographs [GCs]). However, common sense and familiarity of the analyst with the performance of each instrument will dictate whether the preventive maintenance schedule needs to be accelerated or decelerated for that instrument.

### *15.1.2 Documentation*

Instrument maintenance logbooks are maintained in the laboratory at all times. The logbook contains a complete history of past maintenance, both routine and non-routine. The nature of work performed, the date, and the signature of the person who performed the work are recorded in the logbook. Instrument downtime is minimized by keeping adequate supplies of all expendable items, where "expendable", means an expected lifetime of less than 1 year. A list of these items includes gas tanks, gas line filters, syringes, septa, GC columns and packing, ferrules, printer paper and ribbons, pump oil, jet separators, and MS filaments.

### *15.1.3 Contingency Plan for Emergencies*

Conditions of the laboratory equipment and instrumentation can have a marked effect on the accuracy and precision of analysis. In order to ensure timely production of data and prevent/address potential malfunctions, Lancaster Laboratories schedules routine preventive maintenance of instruments based on manufacture's recommendations. Maintenance of the laboratory instruments is the responsibility of the technical group using the equipment in conjunction with the in-house Equipment Maintenance Group. All preventive maintenance, as well as maintenance performed as corrective action, is recorded in instrument logs. Equipment/Instrumentation is assigned unique designations to allow tracking of the piece of equipment within the laboratory documentation. This allows the laboratory to substantiate the instrument condition during the time it was used for testing.

Critical spare parts are kept in supply at the laboratory by the Equipment Maintenance Group. Most items not kept in stock at the laboratory are available through overnight delivery from the manufacturer. In addition, Lancaster Labs maintains multiple numbers of most of the critical instruments used in the laboratory operations. A recent equipment inventory may be found in the *Environmental Quality Policy Manual.* Because Lancaster Laboratories Inc. are a large laboratory with redundant capacity, the problems of instrumentation downtime are minimized.

## 15.2 Calibration Procedures and Frequency

All equipment and instruments used at the laboratory shall be operated, maintained, and calibrated according to the manufacturer's guidelines and recommendations, as well as to criteria set forth in the applicable analytical methodology. Operation and calibration of equipment are performed by personnel who have been properly trained in these procedures. Documentation of calibration information is maintained in appropriate reference files. General calibration procedures are described below. Specific calibration procedures are described in detail in the SOP for that method.

### *15.2.1 Gas Chromatograph / Mass Spectrometer Calibration Procedures*

#### 15.2.1.1 Mass Calibration

The mass spectrometer is calibrated using FC-43 (PFTBA) as a mass calibration standard using the specifications documented in the instrument manual. The accuracy of the mass calibration is calculated by the computer and stored for future recall. Documentation of the calibration is maintained by the laboratory.

#### 15.2.1.2 Tuning Verification

Each day before the analysis of samples, and every 12 hours thereafter, the mass spectrometer is to be checked for proper tuning using USEPA-specified compounds as reference materials. Decafluorotriphenylphosphine (DFTPP) and bromofluorobenzene (BFB) are used to ensure that performance criteria listed in Table 6 are met. If the acceptance criteria are not met, the mass spectrometer is re-calibrated as specified in Section 15.2.1.1.

#### 15.2.1.3 Initial Calibration

An initial calibration curve is established for the GC/MS target compounds using a minimum of five concentration levels. The compounds are analyzed in single injections over the concentration ranges for the purpose of establishing the curve.

The acceptance criteria for the five-point calibration curve and continuing calibration for volatiles is listed in Table 7. Calculations for relative response factor (RRF) and percent relative standard deviation (%RSD) are performed as shown below:

$$RRF = \frac{(A_s)(C_{is})}{(A_{is})(C_s)}$$

Where:

$A_s$ = Area of analyte
$A_{is}$ = Area of internal standard
$C_{is}$ = Concentration of internal standard
$C_s$ = Concentration of analyte

If the RSD is less than 15 percent, the RRF of the compound can be assumed to be invariant, and the average RRF can be used for calculations of sample concentration. If the RSD is greater than 15 percent, calculations of sample concentration must be made from the calibration curve using first or higher order regression fit of the initial calibration standards. The data system calculates the best fitting curve using linear regression. A minimum correlation coefficient of 0.99 must be met in all cases.

The validity of the calibration curve must be validated by the analysis of a second source. The second source check standard must be obtained from another vendor, or it must be from another lot number. This standard may serve as the continuing calibrations, volatiles LCS, or an individual

check standard. All parameters in the second source check standard must be recovered within the established control limits. If any parameter exceeds the limits, then a new calibration curve must be established. All sample results for a target analyte can only be reported from valid initial calibrations.

#### 15.2.1.4 Continuing Calibration

Continuing calibration is checked every 12 hours. The initial calibration is evaluated using continuing calibration verification (CCV) standards alternated throughout the run at three concentration levels. These CCVs will be alternated between every 12hr clock (e.g. CCV1, first 12hr clock; CCV2, second 12hr clock; CCV3, etc). The minimum relative response factors must be equal to or greater than the values listed in Table 7, and the percent difference (%D) must be equal to or less than the values listed in Table 7. If any of the criteria in Table 7 are exceeded, the analyst must check instrument conditions and/or reestablish a new initial calibration curve. However, sample data associated with an unacceptable CCV may be reported as qualified data if the following condition is met: If the acceptance criteria are exceeded high and there are associated samples that contain non-detects, then those non-detects may be reported. Otherwise, the samples affected by the unacceptable CCV shall be re-analyzed. The calculation for % D is illustrated below.

$$\%D = \frac{RRF_c - \overline{RRF}}{\overline{RRF}} \, x\, 100$$

Where:

$\overline{RRF}$ = Average RRF from the initial calibration
$RRF_c$ = Current RRF from the daily continuing calibration standard

#### 15.2.1.5 Sensitivity

The instrument sensitivity is monitored daily by evaluation of the instrument response to the calibration standards. The electron multiplier voltage is adjusted appropriately if needed. The integrated areas of the internal standards spiked into each sample are used to monitor the instrument sensitivity for each sample analyzed.

### *15.2.2 ICP/Atomic Absorption Spectrophotometer Calibration Procedures*

The ICP is calibrated for the metal(s) of interest by the analysis of a blank and a calibration standard of known concentration. Results are calculated from the curve drawn between the blank and the standard. Before samples are analyzed, the validity of the curve is verified by analyzing an initial calibration verification standard (ICVS), which is a separate source from the initial calibration. For atomic absorption by cold vapor (CVAA) or graphite furnace (GFAA), a blank and five concentrations are used for initial calibration. The correlation coefficient of the resulting linear regression must be at least 0.995.

Each instrument is calibrated at the beginning of each day. For, CVAA and GFAA, the concentration of the calibration standards is chosen to cover the working range of the instrument. Linear range studies are performed for ICP to establish the linear range of the instrument to be applied to sample analysis. Subsequently, all sample measurements are made within this range. An ICVS is analyzed to verify initial calibration. This must be 90 to 110 percent recovered for the initial calibration to be considered valid. A laboratory check standard or continuing calibration check standard is also analyzed every 10 samples to verify continuing instrument calibration. An alternate calibration check standard is also analyzed after the first daily check standard to evaluate the calibration. Analytes in the continuing calibration standards must be recovered within ±10 percent of the true value for ICP and ±20 percent for CVAA and GFAA.

## 15.3 Laboratory QC Procedures

The specific types, frequencies, and processes for quality control sample analysis are described in detail in method specific, standard operating procedures. The following sample types and frequencies have been adopted for each method and a definition of each type of QC sample is provided below. In addition, a number of other quality control processes, which may impact analytical results, are also described below.

### *15.3.1 Analytical Sequence QC*

The basic unit for analytical quality control is the analytical batch. The definition that is adopted for the analytical batch is listed below. The overriding principle for describing an analytical batch is that all samples in a batch, both field samples and quality control samples, are to be handled exactly the same way, and all of the data from each analysis is to be processed in exactly the same manner. The minimum laboratory requirements of an analytical batch are:

1. The number of field samples in a batch is not to exceed 20 samples.
2. All field samples in a batch are of the same matrix.
3. The QC samples which are to be processed with each batch include:
    a) Method Blank (a.k.a. Laboratory Reagent Blank)
       Function: Determination of laboratory contamination
    b) Laboratory Control Sample (a.k.a. Laboratory Fortified Blank)
       Function: Assessment of method performance
    c) Matrix Spiked Sample (a.k.a. Laboratory Fortified Sample Matrix)
       Function: Assessment of sample matrix problems or effects
       **Note:** A sample identified as a field blank, equipment blank, or trip blank will not be used for a matrix spiked sample.
    d) Matrix Spiked Duplicate or Sample Duplicate (a.k.a. Laboratory Duplicate)
       Function: Assessment of batch precision
       **Note:** A sample identified as a field blank, equipment blank, or trip blank will not be used for a matrix spiked duplicate or sample duplicate.
4. The time frame for a sample that can be associated with a particular batch is not to exceed a 24 hour period. "Open batches" extending over more than a 24 hour period are not allowed.
5. The QC samples are to be analyzed in conjunction with the associated field samples that they are prepared with. However, for tests which have a separate sample preparation step that defines a batch (i.e. separate digestion or extraction), the QC samples need only be analyzed once even if multiple instrument sequences are required to analyze all of the samples in a batch (i.e. for reruns or dilutions).

#### 15.3.1.1 Calibration Standards

Calibration standards are solutions of known concentration prepared from primary standard solutions, which are, in turn, prepared from stock standard materials. Calibration standards are used to calibrate the instrument response with respect to analyte concentration. Standards are analyzed in accordance with the requirements stated in the particular method being used.

#### 15.3.1.2 Initial Calibration Verification Standards

The ICVS is an independently prepared or second source standard obtained from another vendor or manufacturer, which is analyzed without previously going through the sample preparation procedure. Analysis of the ICVS is used to verify the standard calibration curve prior to sample analysis. The ICVS may also serve as the LCS (if no sample preparation is needed) or as the continuing calibration standards.

**Corrective Actions.** The recoveries of the ICVS standard are compared with the method, or in-house, laboratory acceptance criteria. If the criteria are exceeded, the cause of the problem is identified. Corrective action is performed, and the system is re-calibrated. The check standard is then reanalyzed to demonstrate that the corrective action has been successful. Affected samples are reanalyzed as necessary.

#### 15.3.1.3 Continuing Calibration Verification Standards

Continuing calibration verification standards (CCVS) are standards that are analyzed in varying concentrations in order to verify that the calibration of the analytical system is still acceptable. The frequency of CCVS analysis is either once every ten samples, or as indicated in Section 15.2.

**Corrective Action.** The percent recoveries of the CCVS, or the percent difference calculated between the true and expected value must meet the acceptance criteria established in the method or laboratory SOP. If the criteria are not met, a new calibration curve must be established.

#### 15.3.1.4 Internal Standards

In GC/MS analyses, or GC analyses where specified, the instrument's response to specific internal standards is monitored to provide additional assurance of control. The internal standard responses must meet the acceptance criteria for area and retention time established by the method, or the analytical system is deemed out of control. A system that is out of control is brought back into control by:

- Checking the quality of the internal standards and reanalyzing the sample
- Performing instrument maintenance, as appropriate
- Recalibrating the system

### *15.3.2 Batch/Matrix-Specific/Performance-Based QC*

#### 15.3.2.1 Method Blank (a.k.a. Laboratory Reagent Blank)

A method blank is an analyte-free matrix, usually ASTM Type II water or Ottawa sand, to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank shall be carried through the complete sample preparation and analytical procedure. Method blanks are analyzed at a rate of one per analytical batch or at least one per 20 samples. The method blank is analyzed to demonstrate that the analytical system itself is not contaminated with the analyte(s) being measured.

**Corrective Actions.** Corrective action must be taken if either of the two conditions listed below are not met:

- If all of the sample results are less than the project specific or laboratory method reporting limit, and the method blank is also less than the reporting limit, the method blank is acceptable.

- If any sample result is reported at or above the project specific or laboratory method reporting limit, the method blank must be less than 10x the sample concentration or the laboratory method detection limit (MDL) whichever is greater. Otherwise the sample result is flagged with the appropriate data qualifying code.

All method blank results greater than the reporting limits will either require re-extraction/re-analysis of the entire analytical batch, or must be noted in the cover letter and the sample results qualified as appropriate.

#### 15.3.2.2 Calibration Blanks

Calibration Blanks are prepared along with calibration standards in order to create a calibration curve and consist of either analyte-free water or solvent. Calibration Blanks also provide the zero point of the calibration curve. Initial Calibration Blanks (ICBs) and Continuing Calibration Blanks (CCBs) are analyzed to verify the zero point of the analytical system.

The frequency of ICBs is once per calibration and CCBs once every ten samples or as specified in the analytical method or laboratory SOP. These calibration blanks are usually associated with inorganic method analyses only.

**Corrective Actions.** Target analytes should not be detected in calibration blanks at concentrations greater than the method reporting limit.

#### 15.3.2.3 Surrogate Spike Compounds

For organic analyses, each standard, sample, and blank are spiked with one or more "surrogate" compounds prior to preparatory operations such as purging or extraction. These surrogate standards are chosen to have properties similar to sample analytes of interest, but are most likely absent from the native sample. This procedure is used to evaluate the efficiency of the analytical procedure in recovering the true amount of a known compound.

**Corrective Actions.** The surrogate results are compared with the true values spiked into the sample matrix prior to sample preparation and analysis. Recoveries should meet the upper and lower control limits specified by the laboratory for each compound. If control limits are exceeded, the following sequence of actions is taken:

a) The raw data and calculations are checked to ensure that there are no errors.

b) Internal standards and surrogate spiking solutions are checked for degradation, contamination, or solvent evaporation.

c) Instrument performance is checked.

d) If a, b, and c fail to reveal the cause of the non-compliant surrogate recoveries, the sample is re-purged or re-extracted and analyzed.

e) If the measures listed above fail to correct the problem for laboratory blank surrogate recoveries, the analytical system is considered out of control, and the instrument must be examined for mechanical faults and re-calibrated.

f) If the measures listed above fail to correct the problem for field sample surrogate recoveries, the deficiency is considered to be due to sample matrix interferences, and not because of any procedural or analytical problems in the laboratory. The surrogate spike recoveries and the sample data from both analyses are reported and are qualified in the case narrative.

#### 15.3.2.4 Laboratory Control Sample (a.k.a. Laboratory Fortified Blank)

A LCS consists of a clean matrix, usually ASTM Type II water or Ottawa sand, to which a known amount of each target analyte(s) is added. The LCS can also be a reference standard purchased commercially. It is processed and analyzed like field samples in each analytical batch. It is used to monitor the performance of the entire analytical system.

**Corrective Actions.** The recoveries of the laboratory control sample must meet the laboratory or project specific acceptance criteria established for each method. If the acceptance criteria are not met, investigation must be conducted to identify and correct the problem. Re-calibration is performed, if indicated, by the results of the investigation. Re-extraction and/or reanalysis of the laboratory control samples and all affected samples must be done if necessary.

#### 15.3.2.5 Matrix Spiked Sample (a.k.a. Laboratory Fortified Sample Matrix)

To evaluate the effect of the sample matrix on the analytical methodology, a separate aliquot of sample is spiked with a standard mix of compounds specified in each standard operating procedure for organic analyses. For inorganic analyses, the spiking solution contains each analyte of interest. The matrix spiked sample is analyzed at a frequency of one per batch or one per 20 samples, whichever is more frequent. The percent recovery of each spiked compound is calculated.

**Corrective Actions.** The observed percent recoveries of the matrix spiked sample are used to evaluate bias due to interference or matrix effects. If the percent recovery results exceed the control limits as specified for each spiking compound, the sample may not be reanalyzed. Poor recovery in matrix spiked samples does not necessarily represent an “out of control” system. It is possible that unavoidable interferences and matrix effects from the sample itself preclude efficient recoveries. Re-extraction and/or re-analysis is performed only if the LCS recovery results are unacceptable. If an unacceptable matrix spike recovery is attributed to matrix effects, a comment is added to the data.

For samples with interfering matrices, a special analytical technique called the method of standard addition may have to be employed. This is usually done in the analysis of metals where there are interferences which vary with the concentration of the analyte. It consists of adding known incremental amounts of the target analytes to equal aliquots of the sample, and establishing a curve from the responses. The native sample concentration is then calculated from the curve.

#### 15.3.2.6 Matrix Spiked Duplicate or Sample Duplicate (a.k.a. Laboratory Duplicate)

Duplicates are additional replicates of samples that are subjected to the same preparation and analytical steps as the other samples in the batch. Depending on the method of analysis, either a matrix spiked sample and sample duplicate or matrix spiked sample and matrix spiked duplicate are analyzed at a frequency of one per batch, or one per 20 samples, whichever is more frequent. The RPD between the duplicate sample analyses or MS/MSD is a measure of the precision for a given method and analytical batch.

If a client requests a MS/MSD to be processed with their samples and provides adequate sample volume to do so, that MS/MSD will be used for the analytical batch. Whenever possible, the laboratory will randomly select samples for processing the MS/MSD. When insufficient sample is received from the client(s) to perform the necessary duplicate sample analyses or MS/MSD on any sample in the analytical batch as prescribed in the method, a duplicate LCS will be extracted and analyzed to assess the precision of the method.

**Corrective Actions**. If the RPD exceeds the control limit for a given parameter, the QC is evaluated in relation to other QC on the batch and comments applied to the data.

#### 15.3.2.7 Interference Check Samples

To verify interferent and background correction factors in ICP analyses, Interference Check Samples are analyzed at the beginning and end of each analytical run, or at least twice per 8-hour working shift, whichever is more frequent, before initial calibration verification is performed. The Interference Check Samples consist of two solutions, one containing the interferents and the other containing the

analytes of interest mixed with the interferents. Both solutions are analyzed consecutively, starting with the one containing the interferents only, for all wavelengths used for each analyte reported by ICP.

**Corrective Actions.** Results of the analysis of the solution containing both analytes and interferents must be within ±20 percent of the true value. If these criteria are not met, the analysis is terminated, the problem is corrected, the instrument is recalibrated, and the samples analyzed since the last good Interference Check Samples are reanalyzed.

#### 15.3.2.8 Post Digestion Spikes

Post digestion spikes are samples prepared for metals analyses that have an analyte(s) added to the sample extract, after digestion, to determine if matrix effects may be a factor in the results. The spike addition should be added at a concentration near the midpoint of the calibration. A post digestion spike is analyzed with each batch of samples. Recovery criteria and corrective actions are specified for each method.

## 15.4 Performance and System Audits

To demonstrate and ensure its compliance with the quality assurance program, the laboratory participates in internal system audits, as well as audits or surveillances from external sources. The laboratory QAO, or designee, acts as the point of contact and coordinates both internal and external systems audits. Performance audits are also conducted by analyzing performance evaluation samples. The results of all performance audits are reported to management and the staff by the QAO. The QAO also coordinates investigations and corrective actions to address any deficiencies identified during the performance audit process.

### *15.4.1 Performance Audits*

The laboratory will participate in periodic performance evaluation programs including Water Supply/Water Pollution studies and soil studies for hazardous waste.

The results of all performance audits are reported to management and the staff by the QAO, or designee. The performance test provider also sends a copy of the final results directly to the California State agency. The QAO or designee coordinates any investigations and corrective actions on any unacceptable results obtained for a particular study. A copy of the final corrective action report outlining the specific corrective action taken to correct the problem is sent to appropriate state agencies.

### *15.4.2 Systems Audits*

#### 15.4.2.1 Internal Systems Audits

Internal Systems Audits shall be conducted of individual technical and support areas of the lab at least once a year by the QA Department Staff. The audits will be designed to assess the laboratory's adherence to the Quality Assurance Plan and to analytical method protocols. Therefore, they cover all phases of the laboratory operation from sample receiving to report/data package processing. The QA Department Staff also reserves the right to perform unannounced observational audits at any time.

All findings will be verbally discussed with the laboratory supervisory and management staff at the conclusion of the audit, and then the findings are to be documented in a report and a copy sent to management of the audited department as well as senior management. Responses and follow-up corrective action to the audit findings shall be the responsibility of the relevant supervisors. Implementation of corrective action is monitored by the QA Department.

#### 15.4.2.2 External Systems Audits and Certifications

External systems audits are routinely performed by California and other the states and agencies with whom the laboratory is certified. The QA Department Staff shall act as the point of contact and coordination between the auditing group and the laboratory, and is responsible for documenting the visit and responding to any deficiencies identified during the audit process. The QA Department Staff report the conclusions of the audit in a formal report to the regulatory agency which is also circulated internally to senior management and to the affected department management.

## 15.5 Nonconformance/Corrective Actions

The laboratory will maintain a Corrective Action System that ensures the proper documentation and dispositions of conditions requiring corrective action. The system also ensures that the proper corrective action is implemented to prevent recurrence of the condition. The Corrective Action System applies to all situations that impact data quality. These situations include, but are not limited to, non-compliant quality control criteria being reported, statistical out-of-control events, deviations from normally expected results, suspect data, deviations from the standard operating procedure, and special sample handling requirements.

The procedure consists of documenting the condition requiring corrective action on an Investigation and Corrective Action Report (ICAR) and implementing corrective action based on the results of the investigation performed to determine the cause of the condition (Figure 6). The laboratory shall have an SOP devoted to describing this procedure.

When a condition requiring corrective action arises, the ICAR will be initiated. The initiator describes the condition requiring corrective action. An investigation is conducted to determine the cause of the condition. Corrective action is then recommended by the analyst based on the results of the investigation. The ICAR is reviewed by the Technical Manager and the QA Department Staff who either approves the recommended corrective action or indicates the appropriate corrective action. Where applicable, the appropriate Project Manager is promptly notified of any problems in order to inform the client and to proceed with any action they may want to initiate. The QA Department Staff have the responsibility of following up and making sure that the corrective action is implemented.

# 16. DATA REDUCTION / CALCULATION OF DATA QUALITY INDICATORS

The laboratory shall report the analytical data produced in its laboratories to the client via a certified analytical report. This report will include a transmittal letter, a case narrative, client project information, specific test results, quality control data, chain of custody information, and any other project-specific support documentation that may be requested. A Data Handling and Reporting flow chart is included as Figure 7. The following procedures describe our data reduction, verification, and reporting procedures.

## 16.1 Laboratory Data Reduction

Data reduction refers to all activities that convert analytical values from the raw data into final sample concentrations of each target analyte. Data reduction is performed by the analyst and is done either manually or by a data system that has been programmed to carry out the calculations specific to the method.

During data reduction, laboratory logs will be checked to make sure all sample concentrations have been corrected for the sample size and any dilutions performed. Chromatographic printouts are reviewed to check for faulty integrations from improperly drawn baselines and other apparent causes. Computer file identifications will be verified for accuracy and consistency with the corresponding laboratory log entries. All computer and hard copy documentation identifies the analyst who was responsible for the analysis and data reduction. Computer file names and resultant instrument printouts are coded with the method used and analysis date. The analyst initials and dates all hard copy documentation containing manual entries.

## 16.2 Laboratory Data Verification

The analyst and a second analyst trained in data verification/auditing are responsible for verifying data integrity. The analyst has the initial responsibility for reviewing instrument conditions and calibration integrity and for verifying accuracy of raw data entries and calculations. Relevant LIMS summaries and extraction and analytical logs will be checked as part of verifying data integrity. The analyst is also responsible for making sure that all acceptance criteria for the analysis were met. All data are reviewed against the acceptance criteria specified by the appropriate method SOP. If deficiencies are found, the analyst has the responsibility for correcting these as soon as they are identified, and before the data are submitted for internal review. All these responsibilities for verifying data integrity are eventually shared by the designated verifier. During data review and reporting, data qualifiers and/or comments may be added to aid the data user in evaluating the data.

## 16.3 Analytical Report Review

Before analytical reports are submitted to the client, they are to be subjected to review by a trained report reviewer from each technical department. Data packages are assembled within each technical group and reviewed by designated personnel for client and method compliance. The package is then submitted to the Data Deliverable Department. The data deliverables personnel then assemble the individual department reports into one complete data package. Prior to release to the client, designated staff review the package for content and technical compliance. A percentage of the data packages are randomly audited by the QA department.

## 16.4 Precision

Precision is a measure of the mutual agreement among individual measurements of the same parameters under prescribed similar conditions. It is a measure of the variability, or random error, in sampling, sample handling, and in laboratory analysis. The precision of an analytical method is calculated as the standard deviation of the percent recoveries calculated as described above in

determining the accuracy of the method, and then expressed as percent relative standard deviation (RSD) of the recoveries.

The standard deviation(S) is calculated as:

$$S = \left[ \frac{\sum (X_i - X)^2}{N - 1} \right]^{1/2}$$

where:

Xi = The individual recovery values
X = Arithmetic average of the recovery values
N = Number of determinations

Percent relative standard deviation (%RSD) is then calculated as:

$$\%RSD = \frac{S}{X} x100$$

where S and X are defined above.

Method precision may also be calculated as the relative percent difference (RPD) between duplicate values. The RPD is calculated as follows:

$$RPD = \frac{D_1 - D_2}{(D_1 + D_2)} x200$$

where:

D1 = First sample value
D2 = Second sample value (duplicate)

## 16.5 Accuracy

Accuracy is a measure of the closeness of an individual measurement (or an average of multiple measurements) to the true or expected value. The average percent recovery of laboratory control samples is used to evaluate the accuracy of an analysis. This average is calculated from historical data or from replicate determinations, which are done initially to evaluate the accuracy and precision of the analytical method. In addition, laboratory fortified (i.e. matrix spiked) samples are also measured; this indicates the accuracy or bias in the actual sample matrix.

The percent recovery (%R) is calculated as:

$$\%R = \frac{Amount\ Recovered}{True\ Value} x\ 100$$

The average percent recovery $(\overline{\%R})$ is calculated as:

$$\overline{\%R} = \frac{\sum Ri}{N}$$

where:

Ri = The individual recovery values
N = Number of determinations

If a measurement process produces results whose mean is not the true or expected value, the process is said to be biased. Bias is the systematic error either inherent in a method of analysis (e.g., extraction efficiencies) or caused by an artifact of the measurement system (e.g., contamination). The laboratory is expected to use several quality control measures to reduce analytical bias, including systematic analysis of method blanks, laboratory control samples and independent calibration verification standards. Because bias can be positive or negative, and because several types of bias can occur simultaneously, only the net, or total, bias can be evaluated in a measurement.

## 16.6 Sample Quantitation / Reporting Limits (Limit of Detection)

### *16.6.1 Method Detection Limits*

The Method Detection Limit (MDL) is the minimum concentration above zero of a target that can be measured and reported with 99 percent confidence. MDLs can be calculated for either organic or inorganic analyses. MDLs are re-evaluated annually or more frequently at the Laboratory Director's discretion. To calculate the MDL, seven replicates of a standard solution are spiked into an interference free matrix (i.e. reagent water or Ottawa sand) and carried the entire analytical process including any sample preparation steps. The following steps used to calculate the MDL are based on the procedure outlined in 40 CFR Part 136, Appendix B:

1. A standard solution containing all of the target analyte(s) is prepared which will yield a final concentration 2 to 5 times the expected MDL.

2. An aliquot of the standard solution is added to a minimum of seven, separate portions of the interference free matrix and prepared for analysis according to the analytical method.

3. Each of the seven samples is analyzed.

4. The standard deviation for the seven measurements is calculated.

5. The calculated MDL is equal to the standard deviation times the appropriate Student's t-factor for seven replicates (t = 3.143).

6. The reported MDL may be set at a default value that is slightly higher than the calculated MDL to ensure that all instruments can achieve the MDL and to minimize changes to client data from year to year.

### *16.6.2 Method Reporting Limits*

The Method Reporting Limits (MRLs) or Laboratory Quantitation Limits (LOQs) is defined as the level above which quantitative results may be obtained with a specified degree of accuracy. The Lancaster Laboratories policy is to typically set the LOQ at a value at least 3x the MDL. The MRL or LOQ is typically equal to the lowest standard used for calibration.

## 16.7 Completeness

Completeness is a measure of the amount of valid data that is obtained, compared to the amount that is expected. For the purposes of this plan, completeness is calculated by dividing the number of samples having valid data by the total number of samples in the project, expressed as a percentage. The laboratory objective for completeness is 95% for aqueous samples and 90% for soil samples.

# 17. LABORATORY OPERATIONS DOCUMENTATION

## 17.1 Sample Management Records

Each sample is assigned a unique laboratory code by the LIMS upon sample log-in. All references and data associated with the sample include the unique identifier. All samples are referenced to the unique laboratory-specific number on the LIMS work list report. Analytical batches for each method are created by each analyst. The size of each analytical batch depends on the daily laboratory capacity and the number of quality control samples that must be analyzed with each batch. Analytical batches typically do not exceed 20 field samples.

All analytical sample results are either manually entered or uploaded into the LIMS for processing to the final report. Instrumental analyses have data printouts that are maintained by the departments. Manually generated data are entered into logbooks designed for the specific analysis. All sample data can be linked to the associated QC through use of batch number codes.

## 17.2 Data Reporting Procedures

### *17.2.1 Data Package Format and Contents*

The Laboratory will provide USEPA DQO Level IV data deliverables. Data package deliverables for each analytical fraction category (for example, organics by GC/MS) are presented in Tables 8 and 9. The data package forms used to summarize the data are similar in format and content to the USEPA Contract Laboratory Program forms. Appropriate qualifiers will be used.

### *17.2.2 Electronic Data Deliverables*

EDD generation must be a process, performed by the laboratory that converts the electronic data (Edata) from an output file of the laboratory instrument control system to a final export file used by the project. The laboratory must be capable of converting this information into a customized product compatible with the consultant and data user's database management requirements.

## 17.3 Data Management Procedures

### *17.3.1 Laboratory Turnaround Time*

Turnaround time for this work will be 28 Calendar days.

### *17.3.2 Data Archival/Retention Requirements*

Hard copies of all documents are to be stored by the laboratory for at least 10 years. These include the final reports sent to the client, chain-of-custody records and associated sample receipt documentation logs, extraction logs, standard and reagent preparation logs, analytical logs, data system printouts, corrective action reports, data review documentation, and instrument maintenance logs. Hard copies of final reports and department files are indexed and accessed by the reference numbers. Hard copies of all other documents, which are batch-specific (i.e. QC data), are to be indexed by dates. Electronic records are stored for at least 5 years, longer storage is dependent on the media and software limitations.

Laboratory results will be evaluated, and may be validated by the QAO for compliance with project objectives. The practices of data validation and evaluation are discussed in Sections 18.1 and 18.2, respectively.

## 18.1 Validation and Verification Methods

One hundred percent of the data reported by Lancaster Laboratories, Inc. will be evaluated for completeness and usefulness, including qualified data and other obvious data quality issues. Historical SI data is not currently planned for validation; however, raw data from the laboratory will be collected so that future data users can validate this data as needed and deem this data sufficient or insufficient for a human health or ecological risk assessment.

## 18.2 Reconciliation with User Requirements

### 18.2.1 Data Evaluation

Up to 10 percent of the analytical data from Lancaster Laboratories, Inc. will be evaluated for compliance with PARCC parameter criteria. After validation and evaluation, SECOR will advise Lancaster Laboratories, Inc. if and which data are usable for their intended purposes. During data evaluation, analytical data will not be qualified.

### 18.2.2 Data Reduction and Tabulation

Sample data will be in placed in a database maintained by SECOR and provided to Chevron in reports.

## REFERENCES


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Smith Environmental Technologies Corporation. 1996. Final (100%) Design Report, Purity Oil Sales Site, Operable Unit Two (OU-2). May.

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# TABLES

# Table 1
## QED Low-flow Pump Installation Information
## Purity Oil Sales Superfund Site
## Malaga, California

| Well ID | Casing Diameter (in) | Surveyed *TOC Elevation (ft/msl) 6/21/02 and 8/13/02 | Total Depth of Well (ft) (TOC) | Approximate Screen Interval** (ft TOC) | Effective Screen Length** (feet) | Static Water Level (ft/msl) (3/11/05) | Depth to Water (feet) (TOC) (3/11/05) | Head (feet) | Sample Collection Point (TOC) | Pump Submergence (feet) |
|---|---|---|---|---|---|---|---|---|---|---|
| MW-2D | 6 | 289.61 | 163.41 | 142 - 164 | 20 | 233.51 | 56.10 | 107.31 | **155.0** | 98.90 |
| MW-2S | 5 | 288.97 | 64.85 | 33 - 64 | 31 | 233.51 | 55.46 | 9.39 | **60.0** | 4.54 |
| MW-5D | 4 | 307.76 | 95.55 | 85 - 94 | 9 | 231.88 | 75.88 | 19.67 | **90.0** | 14.12 |
| MW-6D | 6 | 306.72 | 176.47 | 154 - 175 | 21 | 232.25 | 74.47 | 102.00 | **165.0** | 90.53 |
| MW-6S | 5 | 304.68 | 78.33 | 46 - 78 | 32 | 232.30 | 72.38 | 5.95 | **75.0** | 2.62 |
| MW-7I | 4 | 301.17 | 100.17 | 90 - 100 | 10 | 232.43 | 68.74 | 31.43 | **95.0** | 26.26 |
| MW-7S | 4 | 302.08 | 79.23 | 71 - 79 | 8 | 232.30 | 69.78 | 9.45 | **75.0** | 5.22 |
| MW-8 | 5 | 307.86 | 79.32 | 49 - 82 | 33 | 232.91 | 74.95 | 4.37 | **76.0** | 1.05 |
| MW-9 | 4 | 290.90 | 80.98 | 52 - 82 | 30 | 231.82 | 59.08 | 21.90 | **71.0** | 11.92 |
| MW-10 | 5 | 290.63 | 67.19 | 33 - 65 | 32 | 231.98 | 58.65 | 8.54 | **61.0** | 2.35 |
| MW-11 | 4 | 290.82 | 88.21 | 60 - 88 | 28 | 232.26 | 58.56 | 29.65 | **73.0** | 14.44 |
| MW-13 | 4 | 289.74 | 84.00 | 55 - 84 | 29 | 231.36 | 58.38 | 25.62 | **70.0** | 11.62 |
| MW-16 | 5 | 302.65 | 77.83 | 44 - 76 | 32 | 230.69 | 71.96 | 5.87 | **73.0** | 1.04 |
| MW-19 | 5 | 290.47 | 64.42 | 33 - 65 | 32 | 231.24 | 59.23 | 5.19 | **60.0** | 0.77 |
| MW-20 | 4 | 288.40 | 78.08 | 43 - 79 | 36 | 229.57 | 58.83 | 19.25 | **68.0** | 9.17 |
| MW-21 | 4 | 289.47 | 82.08 | 54 - 81 | 27 | 230.22 | 59.25 | 22.83 | **70.0** | 10.75 |
| MW-23 | 4 | 290.01 | 112.98 | 101 - 113 | 12 | 229.52 | 60.49 | 52.49 | **105.0** | 44.51 |
| MW-25 | 5 | 290.70 | 67.48 | 35 - 67 | 32 | 230.60 | 60.10 | 7.38 | **62.0** | 1.90 |
| MW-34D | 6 | 288.61 | 170.22 | 151 - 170 | 19 | 227.13 | 61.48 | 108.74 | **160.0** | 98.52 |
| MW-34I | 6 | 288.57 | 121.96 | 102 - 121 | 19 | 227.03 | 61.54 | 60.42 | **110.0** | 48.46 |
| MW-34S | 6 | 288.51 | 71.69 | 42 - 71 | 29 | 227.27 | 61.24 | 10.45 | **65.0** | 3.76 |
| MW-38 | 4 | 289.06 | 82.37 | 52 - 82 | 30 | 227.47 | 61.59 | 20.78 | **70.0** | 8.41 |
| MW-39 | 4 | 291.26 | 82.45 | 53 - 82 | 29 | 229.85 | 61.41 | 21.04 | **70.0** | 8.59 |
| MW-40 | 4 | 288.76 | 82.41 | 52 - 82 | 30 | 231.14 | 57.62 | 24.79 | **68.0** | 10.38 |
| MW-41 | 4 | 290.45 | 83.25 | 53 - 82 | 29 | 231.72 | 58.73 | 24.52 | **68.0** | 9.27 |

* TOC = Top of casing

** Measurements taken with optical televiewer April 2003. Interval measured to silted fill level.

## Table 2

## List of Existing Site Wells

Purity Oil Sales Superfund Site
3281 South Maple Avenue
Malaga, California

| | Well Type | Surface Conditions | Total Depth (feet TOC) 6/3/02 | Casing Diameter (in) | Approximate Screen Interval* (ft TOC) | Surveyed TOC Elevation (ft/msl) 6/21/2002 and 8/13/2002 | Depth to Water (ft TOC) 3/11/2005 |
|---|---|---|---|---|---|---|---|
| EW-1 | Extraction | active while gauged and sampled | 80.24 | 8 | 55 - 75 | 299.76 | 70.94 |
| EW-2 | Extraction | pump running when sampled | 79.86 | 8 | 55 - 74 | 301.75 | 78.71 |
| MW-2D | Monitoring | good; waterproof well caps | 163.41 | 6 | 142 - 164 | 289.61 | 56.11 |
| MW-2S | Monitoring | good; waterproof well caps | 64.85 | 5 | 33 - 64 | 288.97 | 55.46 |
| MW-3 | Monitoring | well casing extended for cover; well dry | 68.22 | 4 | 45 - 59 | 303.26 | Dry |
| MW-5D | Monitoring | good; well extended for cover grading | 95.55 | 4 | 85 - 94 | 307.76 | 75.88 |
| MW-5S | Monitoring | good; well extended for cover grading | 75.86 | 4 | 64 - 74 | 308.59 | Dry |
| MW-6D | Monitoring | good; well extended for cover grading | 176.47 | 6 | 154 - 175 | 306.72 | 74.47 |
| MW-6S | Monitoring | good; well extended for cover grading | 78.33 | 5 | 46 - 78 | 304.68 | 72.38 |
| MW-7I | Monitoring | good; well extended for cover grading | 100.17 | 4 | 90 - 100 | 301.17 | 68.74 |
| MW-7S | Monitoring | good; well extended for cover grading | 79.23 | 4 | 71 - 79 | 302.08 | 69.78 |
| MW-8 | Monitoring | good; well extended for cover grading | 79.32 | 5 | 49 - 82 | 307.86 | 74.75 |
| MW-9 | Monitoring | good; stovepipe | 80.98 | 4 | 60 - 80 | 290.90 | 59.08 |
| MW-10 | Monitoring | good; stovepipe | 67.19 | 5 | 33 - 65 | 290.63 | 58.65 |
| MW-11 | Monitoring | good; stovepipe | 88.21 | 4 | 60 - 88 | 290.82 | 58.56 |
| MW-12 | Monitoring | good; stovepipe; well dry | 51.43 | 4 | 37 - 52 | 291.06 | Dry |
| MW-13 | Monitoring | fair; stovepipe banged around | 84.00 | 4 | 55 - 84 | 289.74 | 58.38 |
| MW-14S | Monitoring | sand in casing at 30.98' | NM | 4 | NA | 296.67 | NA |
| MW-14D | Monitoring | obstruction in well at 67.15' | NM | 4 | NA | 296.67 | NA |
| MW-15 | Monitoring | under scrap metal | NM | NA | NA | NA | NA |
| MW-16 | Monitoring | good; well extended for cover grading | 77.83 | 5 | 44 - 76 | 302.65 | 71.96 |
| MW-17 | Monitoring | under scrap metal | NM | NA | NA | NA | NA |
| MW-18 | Monitoring | under scrap metal | NM | NA | NA | 289.80 | NA |
| MW-19 | Monitoring | damaged outer casing and lid | 64.42 | 5 | 33 - 65 | 290.47 | 59.23 |
| MW-20 | Monitoring | fair; stovepipe | 78.08 | 4 | 43 - 79 | 288.40 | 58.83 |
| MW-21 | Monitoring | good; stovepipe | 82.08 | 4 | 54 - 81 | 289.47 | 59.25 |
| MW-22p | Production | pump nonfunctional; unable to gauge | NM | 8 | NA | 289.71 | NA |
| MW-23 | Monitoring | fair; stovepipe | 112.98 | 4 | 101 - 113 | 290.01 | 60.49 |
| MW-24 | Monitoring | unlocatable | NM | NA | NA | NA | NA |
| MW-25 | Monitoring | good; stovepipe | 67.48 | 5 | 35 - 67 | 290.70 | 60.10 |

## Table 2

### List of Existing Site Wells

Purity Oil Sales Superfund Site
3281 South Maple Avenue
Malaga, California

| | Well Type | Surface Conditions | Total Depth (feet TOC) 6/3/02 | Casing Diameter (in) | Approximate Screen Interval* (ft TOC) | Surveyed TOC Elevation (ft/msl) 6/21/2002 and 8/13/2002 | Depth to Water (ft TOC) 3/11/2005 |
|---|---|---|---|---|---|---|---|
| MW-26p | Production | pump nonfunctional | 184.00 | 8 | NA | 290.79 | 60.68 |
| MW-27p | Production | well sealed, no sounding port | NM | 6 | NA | 288.19 | NA |
| MW-28p | Production | | 195.00 | 6 | NA | 290.76 | 61.53 |
| MW-29p | Production | needs stovepipe, pump nonfunctional | 154.00 | 6 | 97 - 154 | 288.88 | 61.01 |
| MW-30p | Production | well sealed; gate locked; pump nonfunctional | NM | 8 | NA | NA | NA |
| MW-31p | Production | needs stovepipe | NM | 6 | NA | 290.44 | 61.39 |
| MW-32p | Production | | 195.00 | 6 | NA | 287.85 | NA |
| MW-33p | Production | pump broken | NA | 8 | NA | 287.86 | 60.24 |
| MW-34D | Monitoring | good; stovepipe | 170.22 | 6 | 151 - 170 | 288.61 | 61.48 |
| MW-34I | Monitoring | good; stovepipe | 121.96 | 6 | 102 - 121 | 288.57 | 61.54 |
| MW-34S | Monitoring | good; stovepipe | 71.69 | 6 | 42 - 71 | 288.51 | 61.24 |
| MW-35p | Production | gate locked around well | 120.00 | 6 | NA | 289.64 | NA |
| MW-36 | Monitoring | unlocated; broken well head by canal bank | NM | NA | NA | NA | NA |
| MW-38 | Monitoring | good; stovepipe | 82.37 | 4 | 52 - 82 | 289.06 | 61.59 |
| MW-39 | Monitoring | good; stovepipe | 82.45 | 4 | 53 - 82 | 291.26 | 61.41 |
| MW-40 | Monitoring | good; stovepipe | 82.41 | 4 | 52 - 82 | 288.76 | 57,62 |
| MW-41 | Monitoring | good; stovepipe | 83.25 | 4 | 53 - 82 | 290.45 | 58.73 |

TOC = Top of casing
NA = Information not available.
NM = Not measured or not accessible
* Measurements taken with optical televiewer April 2003. Interval measured to silted fill level.

**Table 3**
**Analyses and Corresponding Sampling Containers**
**Groundwater Matrix**
Purity Oil Sales Superfund Site
3281 South Maple Avenue
Malaga, California

| | | Number of Bottles | | | | | |
|---|---|---|---|---|---|---|---|
| **Laboratory Analyses** | | **Organic VOCs using EPA Method 8015B/8260B** | **Inorganic Analytes using EPA Method E300.0** | **Ferrous Iron ($Fe^{+2}$) by Method 3500-Fe D Modified** | **Total Organic Carbon using Method SW9060** | **Dissolved Gasses ($CO_2$/Methane/ethane/ethene) by 8015B or** | **Metals using EPA Method 6000/7000** |
| **Sample Container and Preservation** | | 5-40mL VOAs preserved with HCl to pH 2 and chilled to 4°C | 1-1,000mL polyethylene bottle unpreserved and chilled to 4°C | 1-250ml amber glass bottle preserved with HCl and chilled to 4°C | 1-120mL amber glass bottle preserved with $H_3PO_4$ and chilled to 4°C | 2-40ml unpreserved VOAs chilled to 4°C | 1-500mL polyethylene bottle preserved with $HNO_3$ to pH 2 and chilled to 4°C |
| **Analytical Holding Times** | | <14 days | <48 hours | <48 hours | <28 days | <7 days | <180 days |
| **Sample ID** | **Sample Type** | | | | | | |
| Equipment rinsate | ED | 3 | 1 | 1 | 1 | 2 | 1 |
| Trip Blank | TB | 3 | 1 | 1 | 1 | 2 | 1 |
| EW-1 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| EW-2 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-2D | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-2S | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-3 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-5D | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-5S | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-6D | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-6S | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-7I | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-7S | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-8 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-9 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-10 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-11 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-13 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-14S | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-14D | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-15 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-16 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-17 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-18 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-19 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-20 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-21 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-22p | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-23 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-24 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-25 | N | 5 | 1 | 1 | 1 | 2 | 1 |

**Table 3**
**Analyses and Corresponding Sampling Containers**
**Groundwater Matrix**
Purity Oil Sales Superfund Site
3281 South Maple Avenue
Malaga, California

| Laboratory Analyses | | Number of Bottles | | | | | |
|---|---|---|---|---|---|---|---|
| | | **Organic VOCs using EPA Method 8015B/8260B** | **Inorganic Analytes using EPA Method E300.0** | **Ferrous Iron ($Fe^{+2}$) by Method 3500-Fe D Modified** | **Total Organic Carbon using Method SW9060** | **Dissolved Gasses ($CO_2$/Methane/ethane/ethene) by 8015B or** | **Metals using EPA Method 6000/7000** |
| **Sample Container and Preservation** | | 5-40mL VOAs preserved with HCl to pH 2 and chilled to 4°C | 1-1,000mL polyethylene bottle unpreserved and chilled to 4°C | 1-250ml amber glass bottle preserved with HCl and chilled to 4°C | 1-120mL amber glass bottle preserved with $H_3PO_4$ and chilled to 4°C | 2-40ml unpreserved VOAs chilled to 4°C | 1-500mL polyethylene bottle preserved with $HNO_3$ to pH 2 and chilled to 4°C |
| **Analytical Holding Times** | | <14 days | <48 hours | <48 hours | <28 days | <7 days | <180 days |
| **Sample ID** | **Sample Type** | | | | | | |
| MW-26p | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-27p | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-28p | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-29p | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-30p | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-31p | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-32p | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-33p | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-34D | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-34I | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-34S | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-35p | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-36 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-38 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-39 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-40 | N | 5 | 1 | 1 | 1 | 2 | 1 |
| MW-41 | N | 5 | 1 | 1 | 1 | 2 | 1 |

GW = Groundwater
N = Normal Sample
N* = Normal Sample designated for laboratory QC (double sample)
FD = Field Duplicate
EB = Equipment Rinsate Blank
TB = Trip Blank
Highlighted wells are not currently sampled because they are dry, obstructed, or otherwise not accessible

Equipment Rinsate Blank: If dedicated pumps and tubing are to be used, equipment rinsate samples will be eliminated. If non-dedicated pumps or tubing are used, then equipment rinsate samples are necessary, but one at the end of each day.

Trip Blank: Only one trip blank (3 VOAs) is necessary per ice chest.

**Table 4**
**Reporting Limits and Method Detection Limits - Water**
**Purity Oil Sales Superfund Site**
**3281 South Maple Avenue**
**Malaga, California**

| | Compound | Method | Reporting Limit | Method Detection Limit | ROD Action Levels* (mg/L) |
|---|---|---|---|---|---|
| **Metals** | Arsenic | 7060A | 0.005 mg/L | 0.00138 mg/L | ne |
| | Arsenic | 6010B | 0.1 mg/L | 0.0049 mg/L | ne |
| | Iron | 6010B | 0.2 mg/L | 0.0453 mg/L | **300** |
| | Manganese | 6010B | 0.005 mg/L | 0.00051 mg/L | **50** |
| | Selenium | 7740A | 0.005 mg/L | 0.0011 mg/L | ne |
| | Selenium | 6010B | 0.2 mg/L | 0.0047 mg/L | ne |
| **Other** | Nitrate | EPA 300 | 0.1 mg/L | 0.08 mg/L | |
| | Sulfate | EPA 300 | 1.0 mg/L | 0.3 mg/L | |
| | Chloride | EPA 300 | 0.4 mg/L | 0.3 mg/L | |
| | Ferrous iron | SM 18th 3500 | 0.1 mg/L | 0.008 mg/L | |
| | Methane | RSK-175 | 5 ug/L | 2 ug/L | |
| | CO2 | 8015B | 5000 ug/l | 1500 ug/l | (headspace method) |
| | Hydrogen | RSK-175 | not analyzed by LLI | not analyzed by LLI | |
| | Alkalinity | EPA 310 | 2.0 mg/l as CaCO3 | 0.41 mg/l as CaCO3 | |

| | | method | Reporting Limit (mg/L) | Method Detection Limit (mg/L) | ROD Action Levels* (mg/L) |
|---|---|---|---|---|---|
| **VOCs** | Dichlorodifluoromethane | 8260 | 0.5 | 0.1 | ne |
| | Chloromethane | 8260 | 0.5 | 0.1 | ne |
| | Vinyl Chloride | 8260 | 0.5 | 0.1 | **0.5** |
| | Bromomethane | 8260 | 0.5 | 0.1 | ne |
| | Chloroethane | 8260 | 0.5 | 0.1 | ne |
| | Trichlorofluoromethane | 8260 | 0.5 | 0.1 | ne |
| | 1,1-Dichloroethene | 8260 | 0.5 | 0.1 | **6** |
| | Acetone | 8260 | 5 | 3 | ne |
| | Carbon Disulfide | 8260 | 0.5 | 0.1 | ne |
| | Methylene Chloride | 8260 | 0.5 | 0.2 | ne |
| | t-Butyl Alcohol | 8260 | 10 | 4 | ne |
| | trans-1,2-Dichloroethene | 8260 | 0.5 | 0.1 | **10** |
| | Methyl Tertiary Butyl Ether | 8260 | 0.5 | 0.1 | ne |
| | 1,1-Dichloroethane | 8260 | 0.5 | 0.1 | **5** |
| | 2,2-Dichloropropane | 8260 | 0.5 | 0.1 | ne |
| | cis-1,2-Dichloroethene | 8260 | 0.5 | 0.1 | **6** |
| | 2-Butanone | 8260 | 5 | 1 | ne |
| | Bromochloromethane | 8260 | 0.5 | 0.1 | ne |
| | Chloroform | 8260 | 0.5 | 0.1 | ne |
| | 1,1,1-Trichloroethane | 8260 | 0.5 | 0.1 | ne |
| | 1,1-Dichloropropene | 8260 | 0.5 | 0.1 | ne |
| | Carbon Tetrachloride | 8260 | 0.5 | 0.1 | **0.5** |
| | Benzene | 8260 | 0.5 | 0.1 | **1** |
| | 1,2-Dichloroethane | 8260 | 0.5 | 0.1 | **0.5** |
| | Trichloroethene | 8260 | 0.5 | 0.1 | **5** |
| | 1,2-Dichloropropane | 8260 | 0.5 | 0.1 | ne |
| | Dibromomethane | 8260 | 0.5 | 0.1 | ne |
| | Bromodichloromethane | 8260 | 0.5 | 0.1 | ne |
| | 1,4-Dioxane | 8260 | 100 | 20 | ne |

**Table 4**
**Reporting Limits and Method Detection Limits - Water**
**Purity Oil Sales Superfund Site**
**3281 South Maple Avenue**
**Malaga, California**

| Compound | Method | Reporting Limit | Method Detection Limit | ROD Action Levels* (mg/L) |
|---|---|---|---|---|
| cis-1,3-Dichloropropene | 8260 | 0.5 | 0.1 | ne |
| 4-Methyl-2-Pentanone | 8260 | 5 | 1 | ne |
| Toluene | 8260 | 0.5 | 0.1 | ne |
| trans-1,3-Dichloropropene | 8260 | 0.5 | 0.1 | ne |
| 1,1,2-Trichloroethane | 8260 | 0.5 | 0.1 | ne |
| Tetrachloroethene | 8260 | 0.5 | 0.1 | ne |
| 1,3-Dichloropropane | 8260 | 0.5 | 0.1 | ne |
| Dibromochloromethane | 8260 | 0.5 | 0.1 | ne |
| 1,2-Dibromoethane | 8260 | 0.5 | 0.1 | ne |
| Chlorobenzene | 8260 | 0.5 | 0.1 | ne |
| 1,1,1,2-Tetrachloroethane | 8260 | 0.5 | 0.1 | ne |
| Ethylbenzene | 8260 | 0.5 | 0.1 | ne |
| Xylene total | 8260 | 0.5 | 0.1 | ne |
| Styrene | 8260 | 0.5 | 0.1 | ne |
| Bromoform | 8260 | 0.5 | 0.1 | ne |
| Isopropylbenzene | 8260 | 0.5 | 0.1 | ne |
| 1,1,2,2-Tetrachloroethane | 8260 | 0.5 | 0.1 | ne |
| Bromobenzene | 8260 | 0.5 | 0.1 | ne |
| 1,2,3-Trichloropropane | 8260 | 1 | 0.3 | ne |
| n-Propylbenzene | 8260 | 0.5 | 0.1 | ne |
| 2-Chlorotoluene | 8260 | 0.5 | 0.1 | ne |
| 1,3,5-Trimethylbenzene | 8260 | 0.5 | 0.1 | ne |
| 4-Chlorotoluene | 8260 | 0.5 | 0.1 | ne |
| tert-Butylbenzene | 8260 | 0.5 | 0.1 | ne |
| 1,2,4-Trimethylbenzene | 8260 | 0.5 | 0.1 | ne |
| sec-Butylbenzene | 8260 | 0.5 | 0.1 | ne |
| 1,3-Dichlorobenzene | 8260 | 0.5 | 0.1 | ne |
| p-Isopropyltoluene | 8260 | 0.5 | 0.1 | ne |
| 1,4-Dichlorobenzene | 8260 | 0.5 | 0.1 | ne |
| n-Butylbenzene | 8260 | 0.5 | 0.1 | ne |
| 1,2-Dichlorobenzene | 8260 | 0.5 | 0.1 | ne |
| 1,2-Dibromo-3-chloropropar | 8260 | 0.5 | 0.5 | ne |
| 1,2,4-Trichlorobenzene | 8260 | 0.5 | 0.1 | ne |
| Hexachlorobutadiene | 8260 | 0.5 | 0.1 | ne |
| Naphthalene | 8260 | 0.5 | 0.1 | ne |
| 1,2,3-Trichlorobenzene | 8260 | 0.5 | 0.1 | ne |

*Environmental Solutions Record of Decision (ROD), 1993 ne = Not established in the ROD
MDLs and RLs are evaluated annually and are subject to change.

## Table 5
## Summary of Containers, Preservation, and Holding Times

| PROCEDURE | SOILS/SLUDGE CONTAINER TYPE | SIZE | PRESERV-ATION | HOLDING TIME | WATER/WASTE WATER CONTAINER TYPE | SIZE | PRESERV-ATION | HOLDING TIME |
|---|---|---|---|---|---|---|---|---|
| **VOLATILE ORGANICS** | | | | | | | | |
| 601/8010B/8021B Vol. Halocarbon | B/ST,G-TLC | 2 oz | cool 4c | 14 days | G-TLS | 3x 40 ml | cool 4c/HCL * $ | 14 days |
| 602/8021B Vol. Aromatic | B/ST,G-TLC | 2 oz | cool 4c | 14 days | G-TLC | 3x 40 ml | cool 4c/HCL * $ | 14 days |
| 601/602: 8010B/8020A, 8021B | B/ST,G-TLC | 2 oz | cool 4c | 14 days | G-TLC | 3x 40 ml | cool 4c/HCL * $ | 14 days |
| 624/8260B Vol.Organic | B/ST,G-TLC | 2 oz | cool 4c | 14 days | G-TLC | 3x 40 ml | cool 4c/HCL * $ | 14 days |
| 602/8021B (BTEX only) | B/ST,G-TLC | 2 oz | cool 4c | 14 days | G-TLC | 4x 40ml | cool 4c/HCL * $ | 14 days |
| 8015B TPH Gasoline/GRO | B/ST,G-TLC | 2 oz | cool 4c | 14 days | G-TLC | 4x 40ml | cool 4c/HCL * | 14 days |
| TPH as Gas + BTEX | B/ST,G-TLC | 2 oz | cool 4c | 14 days | G-TLC | 4x 40ml | cool 4c/HCL * $ | 14 days |
| 601 Trihalomethane | B/ST,G-TLC | 2 oz | cool 4c | 14 days | G-TLC | 4x 40ml | cool 4c/HCL * $ | 14 days |
| **SEMI-VOLATILE ORGANICS** | | | | | | | | |
| 8041 Phenols | B/ST,G-TLC | 8 oz | cool 4c | 14 days # | G-TLC | 2.5 liter | cool 4c $ | 7 days # |
| 604 Phenols | B/ST,G-TLC | 8 oz | cool 4c | 14 days # | G-TLC | 2x1liter& | cool 4c $ | 7 days # |
| 8081A/GC8082 Pest/PCBs | B/ST,G-TLC | 8 oz | cool 4c | 14 days # | G-TLC | 2.5 liter | cool 4c $ ** | 7 days # |
| 608 Pest/PCBs | B/ST,G-TLC | 8 oz | cool 4c | 14 days # | G-TLC | 2x1liter& | cool 4c $ ** | 7 days # |
| 8100/8310 PAH/PNA | B/ST,G-TLC | 8 oz | cool 4c | 14 days # | G-TLC | 2.5 liter | cool 4c $ | 7 days # |
| 610 PNA's | B/ST,G-TLC | 8 oz | cool 4c | 14 days # | G-TLC | 2xliter& | cool 4c $ | 7 days # |
| 8141A Organo-P Pest | B/ST,G-TLC | 8 oz | cool 4c | 14 days # | G-TLC | 2.5 liter | cool 4c | 7 days # |
| 622 Organo-P Pest | B/ST,G-TLC | 8 oz | cool 4c | 14 days # | G-TLC | 2x1liter& | cool 4c | 7 days # |
| 8151A Chlor Herbicides | B/ST,G-TLC | 8 oz | cool 4c | 14 days # | G-TLC | 2.5 liter | cool 4c | 7 days # |
| 615 Chlor Herbicides | B/ST,G-TLC | 8 oz | cool 4c | 14 days # | G-TLC | 2x1liter | cool 4c | 7 days # |
| 8280A/8290 2,3,7,8 -TCDD | B/ST,G-TLC | 8 oz | cool 4c | 30 days % | G-TLC | 2.5 liter | cool 4c | 30 days % |
| 613 2,3,7,8 -TCDD | B/ST,G-TLC | 8 oz | cool 4c | 30 days % | G-TLC | 2x1liter& | cool 4c | 30 days % |
| 8270C Semivolatile Organics | B/ST,G-TLC | 8 oz | cool 4c | 14 days # | G-TLC | 2.5 liter | cool 4c | 7 days # |
| 625 Semivolatile Organics | B/ST,G-TLC | 8 oz | cool 4c | 14 days # | G-TLC | 2x1liter& | cool 4c | 7 days # |
| 8011 EDB/DBCP | N/A | N/A | N/A | N/A | G-TLC | 3x 40 ml | cool 4c | 14 days |
| 8015B TPH as Diesel/DRO | B/ST,G-TLC | 8 oz | cool 4c | 14 days # | G-TLC | 2.5 liter | cool 4c | 7 days # |
| 1311/1312 TCLPSPLP | B/ST,G-TLC | 2x8oz | cool 4c | 14 days # | G-TLC | 3x2.5liter | cool 4c | 14 days # |
| 8315 Formaldehyde | B/ST,G-TLC | 4 oz | cool 4c | 7 days | G-TLC | 2x250 ml | cool 4c | 3 days |
| **METALS** | | | | | | | | |
| 7196A Chromium VI | P,G | 8 oz | cool 4c | 30 days | P,G | 250 ml | cool 4c | 24 hours |
| 245.1/245.5, 7470A/7471A Mercury | P,G | 2 oz | cool 4c | 28 days | P,G | 250 ml | HNO3 * | 28 days |
| Organic Lead | G-TLC | 4 oz | cool 4c | 6 months | G-TLC | 1 liter | cool 4c | 6 months |
| All Other Metals (6010/7000) | P,G | 2 oz | cool 4c | 6 months | P,G | 1 liter | HNO3 * | 6 months |

B/ST= Brass or Steel Tube, G= Glass, P= Polyethylene, TLC= Teflon Lined Cap, TLS= Teflon Lined Septum

#= Days to Extraction, 40 days to analysis after extraction

*= pH<2: for Volatile Organics, samples must be analyzed within 7 days if unpreserved with HCl

**= pH adjusted to 5-9 with H2SO4 or NaOH upon receipt at lab unless extrcted within 72 hours of collection

$= Use 0.008% Sodium Thiosulphate when residual chlorine is present

^= Need 1X 40ml voa vial without headspace

&= Need 3 to do MS/MSD

##= Filter immediately

^= pH>12 for Cyanide, pH>9 for Sulphide

%= Days to Extraction, 45 days to analysis after extraction

**Table 6**
**BFB and DFTPP Key Ions and Abundance Criteria**

| Mass | Ion Abundance Criteria |
|---|---|
| **BFB[a]** | |
| 50 | 15.0 to 40.0 percent of the base peak |
| 75 | 30.0 to 60.0 percent of the base peak |
| 95 | Base peak, 100 percent relative abundance |
| 96 | 5.0 to 9.0 percent of the base peak |
| 173 | Less than 2.00 percent of mass 174 |
| 174 | 50.0 to 100.0 percent of the base peak |
| 175 | 5.0 to 9.0 percent of mass 174 |
| 176 | Greater than 95.0 percent but less than 101.0 percent of mass 174 |
| 177 | 5.0 to 9.0 percent of mass 176 |
| **DFTPP[b]** | |
| 51 | 30.0 to 60.0 percent of mass 198 |
| 68 | Less than 2.0 percent of mass 69 |
| 70 | Less than 2.0 percent of mass 69 |
| 127 | 40.0 to 60.0 percent of mass 198 |
| 197 | Less than 1.0 percent of mass 198 |
| 198 | Base peak, 100 percent relative abundance |
| 199 | 5.0 to 9.0 percent of mass 198 |
| 275 | 10.0 to 30.0 percent of mass 198 |
| 365 | Greater than 1.00 percent of mass 198 |
| 441 | Present but less than mass 443 |
| 442 | 40.0 to 100.0 percent of mass 198 |
| 443 | 17.0 to 23.0 percent of mass 442 |

[a]BFB = Bromofluorobenzene (2.0 □g/l or 50 ng).
[b]DFTPP = Decafluorotriphenylphosphine (50 □g/ml or 50 ng).

**Table 7**
**Relative Response Factor Criteria for**
**Initial and Continuing Calibration of Volatile Organic Compounds**

| Volatile Compound | Minimum RRF | Maximum %RSD | Maximum %Diff |
|---|---|---|---|
| **Chloromethane | 0.10 | 50 | ±50 |
| Bromomethane | | 50 | ±50 |
| *Vinyl chloride | | 30 | ±20 |
| Chloroethane | | 50 | ±50 |
| Methylene chloride | | 50 | ±50 |
| Acetone | | 50 | ±50 |
| Carbon disulfide | | 50 | ±50 |
| *1,1-Dichloroethene | | 30 | ±20 |
| **1,1-Dichloroethane | 0.10 | 50 | ±50 |
| Vinyl Acetate | | 50 | ±50 |
| 1,2-Dichloroethene (total) | | 50 | ±50 |
| *Chloroform | | 30 | ±20 |
| 1,2-Dichloroethane | | 50 | ±50 |
| 2-Butanone | | 50 | ±50 |
| 1,1,1-Trichloroethane | | 50 | ±50 |
| Carbon tetrachloride | | 50 | ±50 |
| Bromodichloromethane | | 50 | ±50 |
| *1,2-Dichloropropane | | 30 | ±20 |
| cis-1,3-Dichloropropene | | 50 | ±50 |
| Trichloroethene | | 50 | ±50 |
| Dibromochloromethane | | 50 | ±50 |
| 1,1,2-Trichloroethane | | 50 | ±50 |
| Benzene | | 50 | ±50 |
| trans-1,3-Dichloropropene | | 50 | ±50 |
| **Bromoform | 0.10 | 50 | ±50 |
| 4-Methyl-2-pentanone | | 50 | ±50 |
| 2-Hexanone | | 50 | ±50 |
| Tetrachloroethene | | 50 | ±50 |
| **1,1,2,2-Tetrachloroethane | 0.30 | 50 | ±50 |
| *Toluene | | 30 | ±20 |
| **Chlorobenzene | 0.30 | 50 | ±50 |
| *Ethylbenzene | | 30 | ±20 |
| Styrene | | 50 | ±50 |
| Xylenes (total) | | 50 | ±50 |
| **System Monitoring Compounds –** evaluated vs lab derived recovery limitss | | | |
| Dibromofluoromethane | | | |
| Toluene-$d_8$ | | | |
| 1,2 – dichloroethane-d4 | | | |
| 4-Bromofluorobenzene | | | |

*CCC specifications for SW-846 method 8260:
Initial calibration-maximum %RSD is 30%.
Continuing calibration-maximum % difference is 20%.
**SPCC specifications for SW-846 method 8260:
Minimum RRF is 0.10 (0.30 for chlorobenzene, 1,1,2,2-tetrachloroethane)

**Table 8**
**Levels of Quality Control and Deliverables: GC/MS**

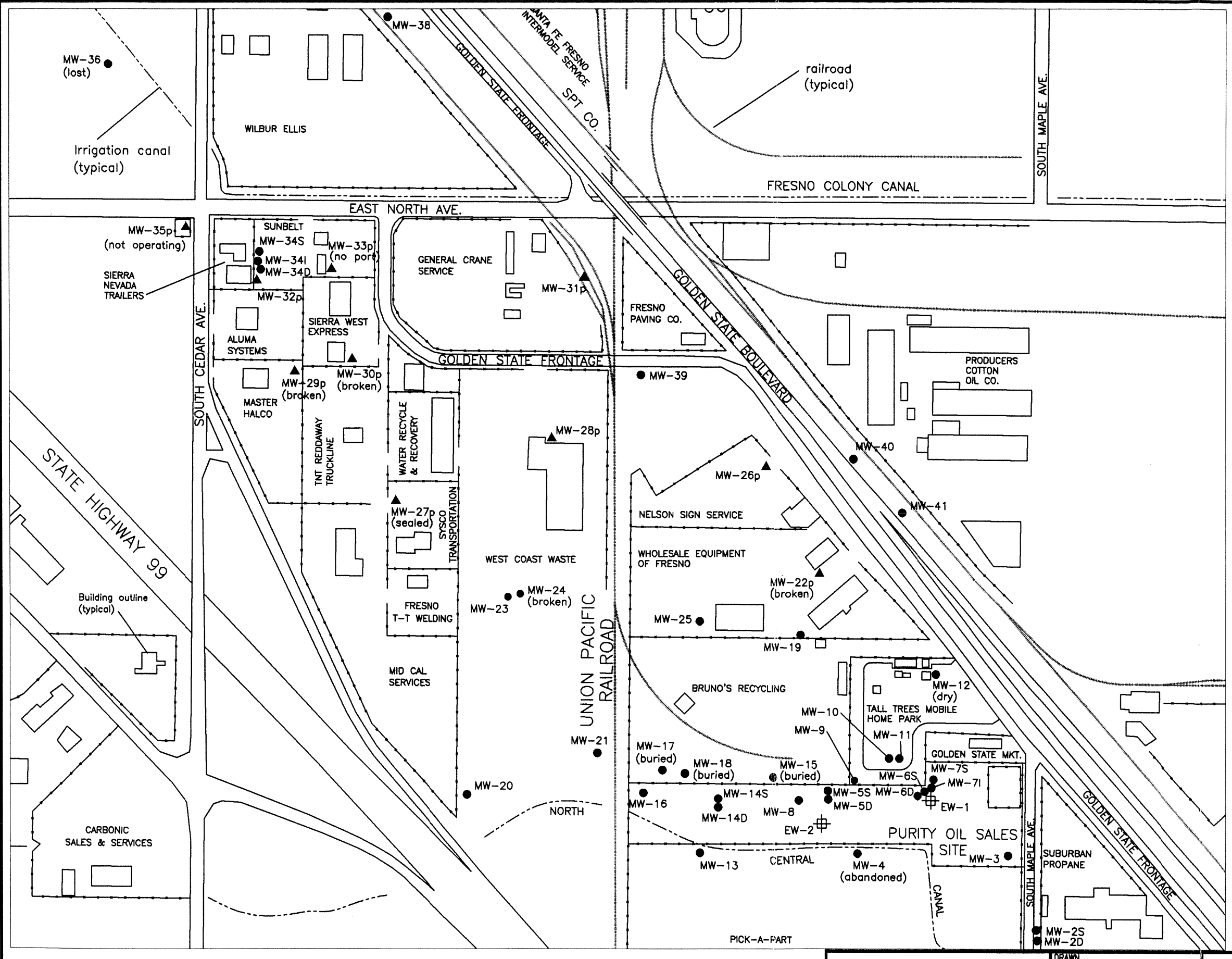
| | Preparation and Analysis | Deliverables |
|---|---|---|
| Tier I<br><br>LLI report + QC summary | BFB/DFTPP<br>Initial and continuing calibration.<br>Method blank and LCS for each prep batch.<br>In-house MS/MSD per 20 samples or per prep batch if batch is fewer than 20*. | Sample and Method blank results<br>Surrogate recoveries<br>Chain-of-custody documentation<br>Cooler Receipt Form<br>Case narrative (For Tier IC only) (comments added to reports) |
| Tier II<br><br>LLI report + QC summary | Same as Tier I<br>Batch QC for MS/MSD | CLP Forms 1 through 3 or equivalent<br>Sample and Method blank results (Form 1)<br>Surrogate recoveries (Form 2)<br>MS/MSD summary (Form 3) (For Tier IIM only)<br>LCS summary (Form 3)<br>Chain-of-custody documentation<br>Cooler Receipt Form<br>Case narrative (comments added to reports) |
| Tier III<br><br>LLI Type III package | Same as Tier I except:<br>Project specific MS/MSD | CLP Forms 1 through 8 or equivalent<br>Sample and Method blank results (Form 1)<br>Surrogate recoveries (Form 2)<br>MS/MSD summary (Form 3) when specified<br>LCS summary (Form 3)<br>Method blank summary (Form 4)<br>GC/MS tune summary (Form 5)<br>Initial calibration summary (Form 6)<br>Continuing calibration summary (Form 7)<br>Internal standard areas and RT (Form 8)<br>Raw Data:<br>Samples: RIC, TCL spectra, TIC spectra, quant reports for samples and blanks; TIC quant report for blanks<br>Copy of Corrective Action Report if applicable<br>Chain-of-custody documentation<br>Cooler Receipt Form<br>Case narrative |
| Tier IV<br><br>LLI Type I package | Same as Tier III | CLP Forms 1 through 8 or equivalent<br>Sample and Method blank results (Form 1)<br>Surrogate recoveries (Form 2)<br>MS/MSD summary (Form 3) when specified<br>LCS summary (Form 3)<br>Method blank summary (Form 4)<br>GC/MS tune summary (Form 5)<br>Initial calibration summary (Form 6)<br>Continuing calibration summary (Form 7)<br>Internal standard areas and RT (Form 8)<br>Raw Data:<br>Samples: RIC, TCL spectra, TIC spectra, quant reports for samples and blanks; TIC quant report for blanks<br>Standards: RIC, quant reports<br>MS/MSD: RIC, quant reports<br>BFB/DFTPP: RIC, spectra, and mass listing<br>Copy of Corrective Action Report if applicable<br>Chain-of-custody documentation<br>Cooler Receipt Form<br>Case narrative |

*Note: If sample limited (i.e. waters), prepare LCS/LCD

**Table 9**
**Levels of Quality Control and Deliverables: Cations (ICP/GFAA/CVAA)**

| | Preparation and Analysis | Deliverables |
|---|---|---|
| Tier I<br>LLI report + QC summary | Initial and continuing calibration.<br>ICV, CCV, ICB, CCB.<br>Method blank for each prep batch.<br>In-house MS/Dup (or MS/MSD) and LCS per 20 samples or per prep batch if batch is fewer than 20.<br>CRDL or RLS Standard (ICP).<br>Post-spike samples if pre-spike exceeds method limits (ICP, GFAA).<br>Serial dilutions.<br>Interference check sample (ICP). | Sample results<br>Method blank results<br>Chain-of-custody documentation<br>Cooler Receipt Form<br>Case narrative (For Tier IC only) (comments added to reports) |
| Tier II<br>LLI report + QC summary | Same as Tier I<br>Batch QC for MS/MSD | CLP Forms 1, 3, 5 through 7 or equivalent<br>Sample results (Form 1)<br>Blanks (Form 3)<br>Spike sample recovery (Form 5) (For Tier IIM only)<br>Duplicate results (Form 6) (For Tier IIM only)<br>Laboratory control sample (Form 7)<br>Chain-of-custody documentation<br>Cooler Receipt Form<br>Case narrative (comments added to reports) |
| Tier III<br>LLI Type III package | Same as Tier I except:<br>Project specific MS/MSD | CLP Forms 1 through 14 or equivalent<br>Sample results (Form 1)<br>ICV and CCV (Form 2)<br>Blanks (Form 3)<br>ICP interference check sample (Form 4)<br>Spike sample recovery (Form 5)<br>Duplicate results (Form 6)<br>Laboratory control sample (Form 7)<br>MSA (if needed) (Form 8)<br>ICP serial dilutions (Form 9)<br>Instrument detection limits (Form 10)<br>ICP interelement correction factors (Form 11)<br>ICP linear ranges (Form 12)<br>Preparation log (Form 13)<br>Analysis run log (Form 14)<br>Raw Data: Samples and blanks<br>Copy of Corrective Action Report if applicable<br>Chain-of-custody documentation<br>Cooler Receipt Form<br>Case Narrative |
| Tier IV<br>LLI Type I package | Same as Tier III | CLP Forms 1 through 14 or equivalent<br>Sample results (Form 1)<br>ICV and CCV (Form 2)<br>Blanks (Form 3)<br>ICP interference check sample (Form 4)<br>Spike sample recovery (Form 5)<br>Duplicate results (Form 6)<br>Laboratory control sample (Form 7)<br>MSA (if needed) (Form 8)<br>ICP serial dilutions (Form 9)<br>Instrument detection limits (Form 10)<br>ICP interelement correction factors (Form 11)<br>ICP linear ranges (Form 12)<br>Preparation log (Form 13)<br>Analysis run log (Form 14)<br>Raw data: copies of all hardcopy instrument readouts, digestion logs, and benchsheets<br>Copy of Corrective Action Report if applicable<br>Chain-of-custody documentation<br>Cooler Receipt Form<br>Case narrative |

# FIGURES




REFERENCE: THIS FIGURE IS BASED ON A "SITE PLAN" PROVIDED BY IT CORPORATION, DATED MARCH 2001, AND IS INTENDED FOR ILLUSTRATION ONLY.

SECOR *International Incorporated*

| | |
|---|---|
| DRAWN | FILE |
| APPR | FG |
| DATE | 01NOV03 |
| JOB NO. | 24CH.67003.00 |

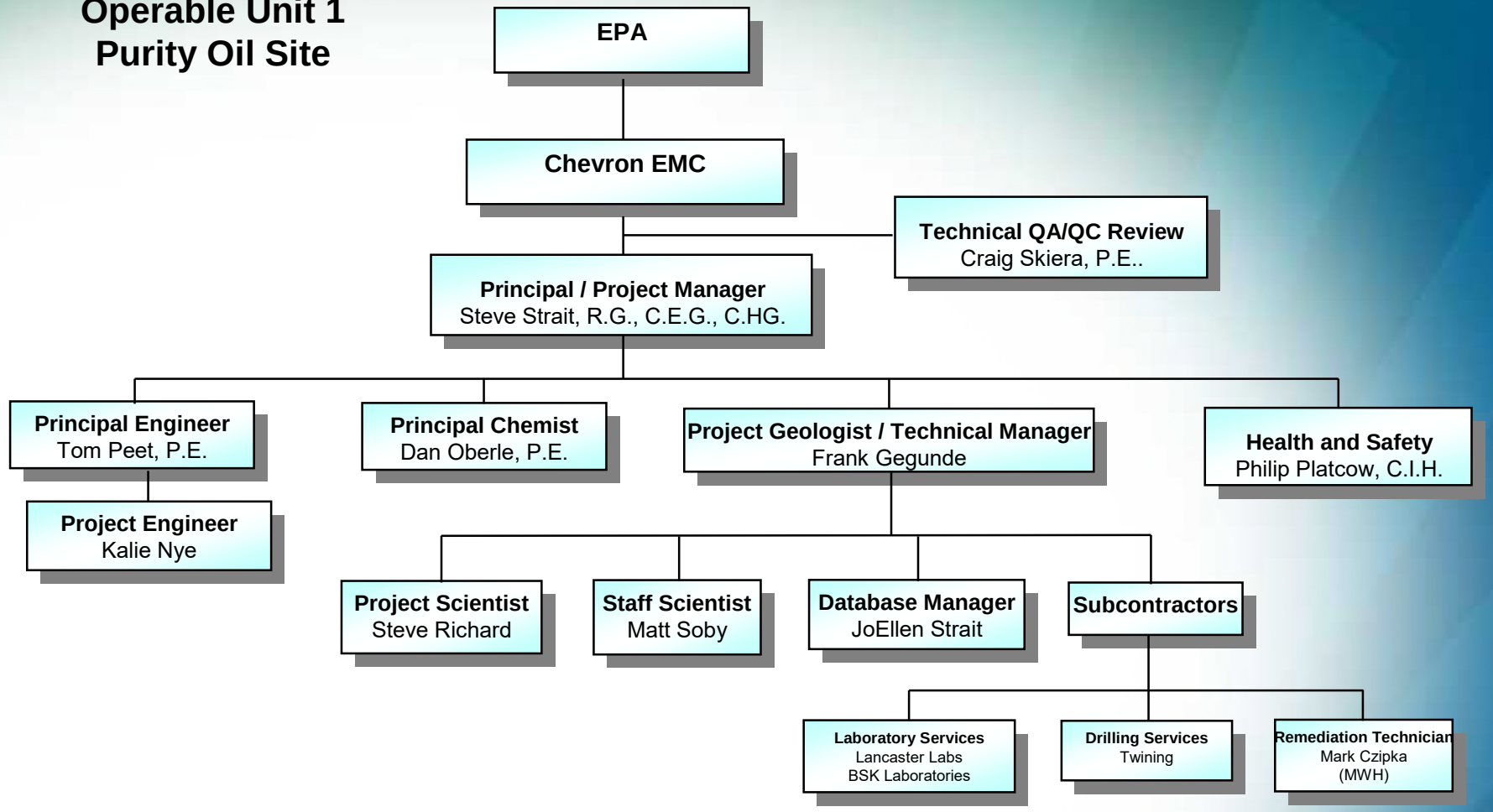
# FIGURE 1

PURITY OIL SALES
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

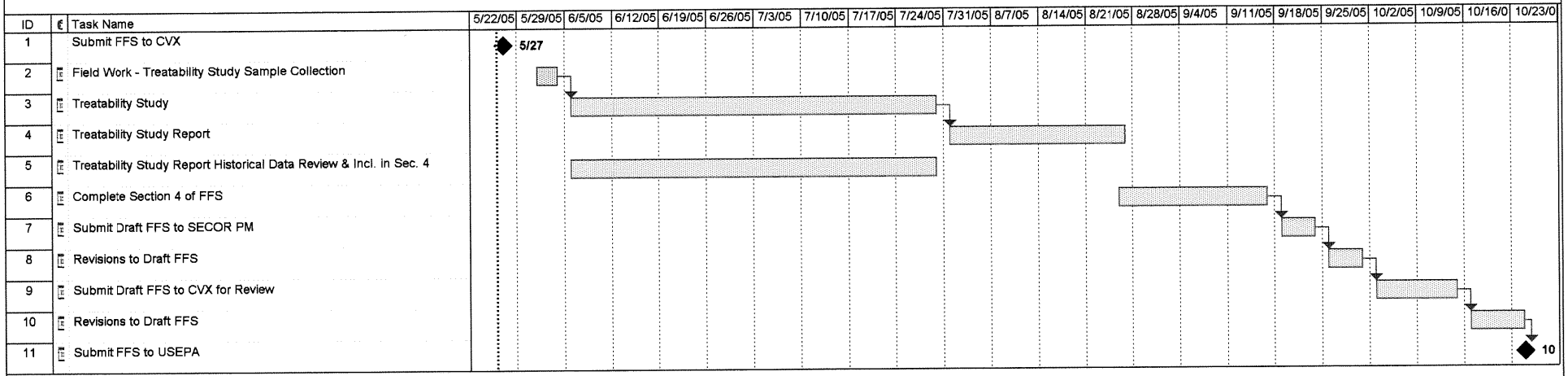
WELL LOCATION MAP

M:\ACAD\PURITY OIL-SITE PLAN.DWG REVISED 8/1/02 PR

# Figure 2
# Project Organization Chart
# Operable Unit 1
# Purity Oil Site

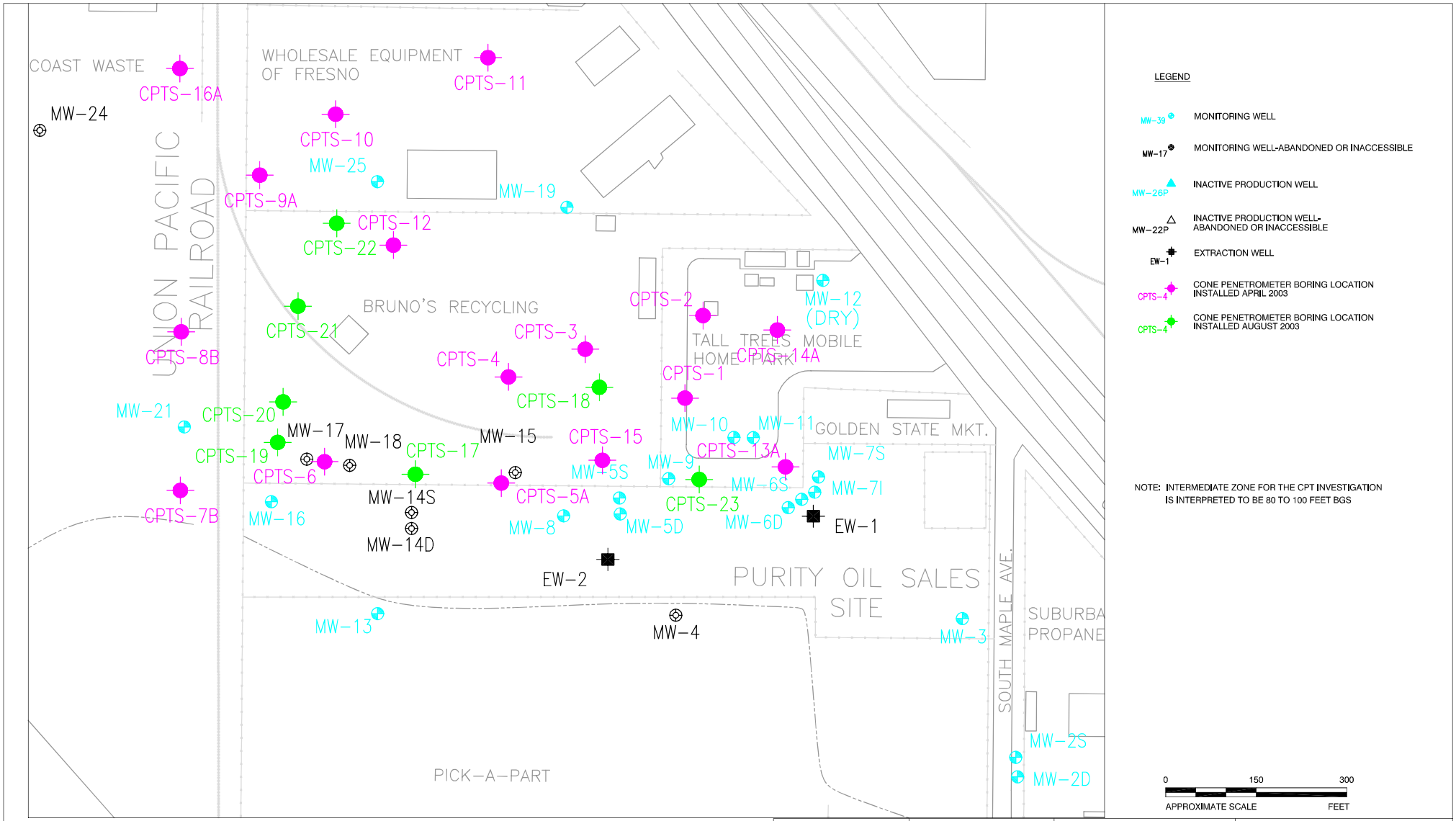


# Figure 3
# Project Schedule
# Treatability Study
# Purity Oil Sales Superfund Site
# OU-I




Project: Treatability Study Schedule
Date: Thu 5/26/05

Task | Split | Progress | Milestone | Summary | Rolled Up Task | Rolled Up Split | Rolled Up Milestone | Rolled Up Progress | External Tasks | Project Summary




| | | | |
|---|---|---|---|
| DRAWN BY: MAN<br>CHECKED: JR<br>APPROVED:<br>DATE: 09/02/03<br>JOB No.: 24CH.67003.00.0042<br>CAD FILE: GW-BASEMAP-FRESNO | PREPARED BY:<br>SECOR<br>2321 CLUB MERIDIAN DRIVE, SUITE E<br>OKEMOS, MI | PREPARED FOR:<br>PURITY OIL SALES<br><br>3281 SOUTH MAPLE AVENUE<br>MALAGA, CALIFORNIA | FIGURE<br><br>CPT BORING LOCATION MAP |

**Figure 5**

# Lancaster Laboratories Pre-Job Notification Form

Submit to Lancaster coordinator at least 2 days prior to start of sampling (preferably before their weekly Thursday morning meeting).
Contact Lancaster coordinator prior to submission regarding sampling & analysis objectives.

| | | | |
|---|---|---|---|
| Site Number/Global ID: | | Site Address: | |
| WBS Number: | | Chevron PM: | |
| S.O. Number: | | Supplier/PM: | |

| Matrix | Estimated Total No. of Samples Sent to Lab (including archives) | Estimated Numbers and Types of Lab Analyses (fill in analytical method name, with numbers below it for each matrix) | | | | | | | | Requested Rushed TATs (<10 days) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| Soil | | | | | | | | | | |
| Water | | | | | | | | | | |
| Air/Vapor | | | | | | | | | | |
| QC (trip) | | | | | | | | | | |
| | | | | | | | | | | |

***Notes:***

| |
|---|
| Expected field point names: |
| |
| Dates when samples are expected to arrive at lab (full range of dates, including any Saturday): |
| |
| Special requests (QC data package, raw data, special detection limits, etc.): |
| |
| Supplies needed now (sample containers, trip blanks, labels, airbills, custody seals, etc.): |
| |

11/1/04

# Figure C1-1

Lancaster Laboratories
2425 New Holland Pike • Lancaster, PA 17601

No. _____

**Investigation and Corrective Action Report (ICAR)**

**Part I** – Description of the Problem (Attach additional pages, if needed, in addition to supporting documentation.)

1. Date of issue:
2. LL sample number(s) involved:
3. Nature of the problem (describe in detail):

Initiated by: _____

**Part II** - The Investigation (Attach additional pages, if needed, in addition to supporting documentation.)

1. Steps taken to investigate the problem:
2. Explanation of probable cause(s):
3. Steps taken to prevent future occurrence (describe in detail and use corrective action check boxes below):

Corrective action(s): Check the appropriate box and attach supporting documentation

- ☐ Employee(s) retrained. (Attach proof of training)
- ☐ Employee(s) reread SOP, OMC, EQV, etc. (Attach copy of updated training record form)
- ☐ Other measures taken (Attach memo or equivalent proof)
- ☐ Further investigation needed from additional areas. (Include proof of the transfer of information)
- ☐ Additional information added to method reference – Pharm. option only (Attach proof)

4. Must investigation be complete before reporting further data to clients? Yes No
5. In addition to the samples listed above, would any additional data already reported to clients be affected by this problem? Yes No If yes, please explain:

Investigator(s): ..... Date: _____

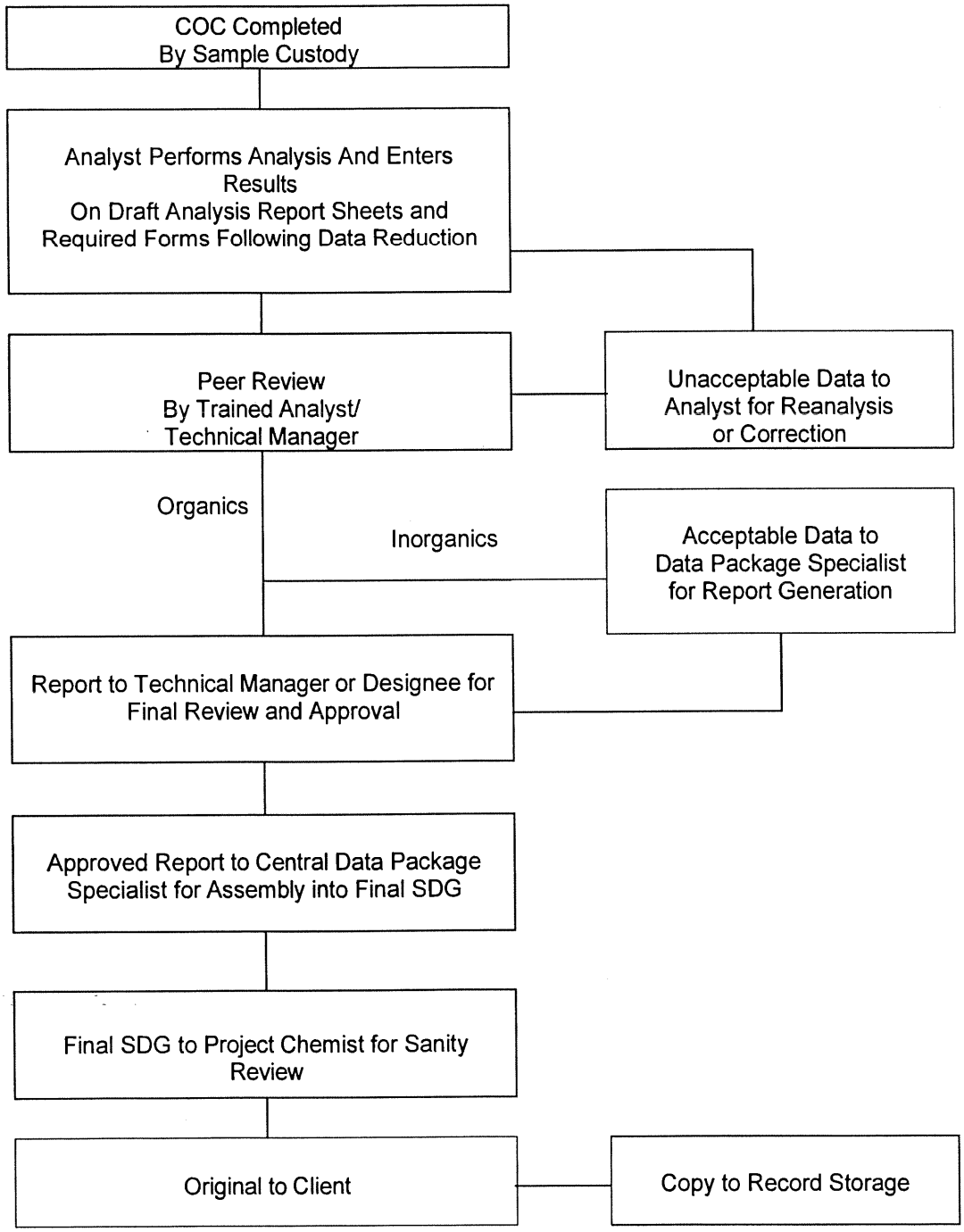
Departmental Review*: ..... Date: _____
(*Group Leader or above, must be someone other than the investigator)

Quality Assurance: ..... Date: _____

Return to QA by: ..... Date: _____

2084.01 05/29/01

**Figure 7**
**Data Handling and Reporting**



# APPENDIX A

# HISTORICAL TABULATION OF VOCs, IRON, AND MANGANESE

# and

# HISTORICAL WATER LEVEL MEASUREMENTS

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| **Extraction Wells** | | | | | | | | | | | | | | |
| EW-1 | 6/18/1999 | REG FF | 0.62 | 0.89 | 1.8 | <0.5 | 24 | <0.5 | <0.5 | <0.5 | 0.12 | 0.44 | NS | NS |
| | 9/16/1999 | REG FF | 0.86 | 0.81 | 1.8 | <0.5 | 23 | <0.5 | <0.5 | <0.5 | 900 | 430 | NS | NS |
| | 12/15/1999 | REG FF | 0.60 | 0.84 | 1.9 | <0.5 | 24 | <0.5 | 0.57 | <0.5 | 560 | 400 | NS | NS |
| | 3/15/2000 | REG FF | 0.63 | 0.85 | 1.8 | <0.5 | 26 | 0.4 | 0.55 | 0.37 | 830 | 440 | NS | NS |
| | 6/20/2000 | REG FF | <0.5 | 0.72 | 1.6 | <0.5 | 21 | <0.5 | <0.5 | <0.5 | 680 | 380 | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | 60 | <5 | <5 | <5 | 6,100 | 1,000 | NS | NS |
| | 10/18/2001 | REG | 1.9 | 2.6 | 2.8 | <0.5 | 85 | 0.96 | 0.70 | <0.5 | 5,400J | 890 | NS | NS |
| | 6/11/2002 | FS FF | 0.71 | 1.3 | 1.5 | <0.5 | 34 | 0.88 | 0.47 | 0.33 | 1,530 | 641 | <45 | <34 |
| | 9/20/2002 | FS FF | 0.87 | 1.4 | 1.7 | .15J | 37 | 0.55 | 0.61 | .32J | 4,840 | 888 | 14.1 | 5.2 |
| | 11/21/2002 | FS FF | 0.37 | 0.55 | 0.68 | <0.5 | 16.0 | <0.5 | <0.5 | <0.5 | 1,470 | 643 | 10.9 | <2.0 |
| | 1/29/2003 | FS | 0.5 | 0.79 | 1 | <0.5 | 23 | 0.53 | 0.39 | 0.32 | 1,080 | 661 | 8.3 | <2 |
| | 6/19/2003 | FS | 0.5 | 0.82 | 1 | <0.5 | 22 | 0.89 | 0.41J | 0.28J | 752 | 622 | 5.9 | <2 |
| | 9/12/2003 | FS | 0.8J | 1J | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 1,850 | 693 | <4.9 | <4.7 |
| | 12/11/2003 | FS | 0.6 | 0.9 | 1 | <0.1 | 22 | 0.3J | 0.5J | 0.3J | 807 | 709 | <4.9 | <4.7 |
| | 3/9/2004 | FS | 0.5 | 1 | 1.1 | <0.1 | 27 | 0.3J | 0.5J | 0.2J | 1,130 | 749 | <4.9 | <4.7 |
| | 6/9/2004 | FS | 0.6 | 0.7 | 0.8 | <0.1 | 23 | 0.4J | 0.4J | 0.2J | 1,050 | 658 | <9.4 | <5.9 |
| | 8/10/2004 | FS | 0.9 | 1.1 | 1.2 | <0.1 | 33 | 0.3J | 0.6 | 0.3J | 1,810 | 826 | 8.4J | <5.9 |
| | 11/18/2004 | FS | 0.4J | 0.7 | 0.5J | <0.1 | 6.2 | <0.1 | <0.1 | 0.2J | 643 | 726 | <4.7 | <5.9 |
| | 3/18/2005 | FS | 0.6 | 1.0 | <0.1 | <0.1 | 18.0 | 0.2J | 0.2J | 0.2J | 3,360 | 787 | 15.1 | <5.9 |
| EW-2 | 6/18/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.38 | 0.24 | NS | NS |
| | 9/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 81 | 130 | NS | NS |
| | 12/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 64 | 120 | NS | NS |
| | 3/15/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 50 | 100 | NS | NS |
| | 6/20/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 78 | NS | NS |
| | 9/14/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 360 | 80 | NS | NS |
| | 12/20/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | 48 | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | 89 | 630 | NS | NS |
| | 10/17/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 170 | 540 | NS | NS |
| | 6/11/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 14.1 | 82 | <45 | <34 |
| | 9/20/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 47.6B | <10 | 1.7B | <50 |
| | 11/21/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 363 | 35.4 | 9.3B | <2.0 |
| | 1/29/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 8.6 | 25.1 | 1.4 | <2 |
| | 6/19/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | 0.14J | <0.5 | <0.5 | <0.5 | <100 | 26 | 2.5 | <2 |
| | 9/12/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | 9.3 | <4.9 | <4.7 |
| | 12/11/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | 20.2 | <4.9 | <4.7 |
| | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | 18.8 | <4.9 | 6.4J |
| | 6/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | 16.1 | <4.7 | <5.9 |
| | 8/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | 0.1J | <0.1 | <0.1 | <0.1 | <49.5 | 12.3 | <4.7 | <5.9 |
| | 11/18/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | 9.8 | <4.7 | <5.9 |
| | 3/17/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | 8.2 | <4.7 | <5.9 |
| **Shallow** | | | | | | | | | | | | | | |
| MW-2s | 2/24/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 60 | 3.8 | NS | NS |
| | 9/14/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.17 | 0.036 | NS | NS |
| | 12/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.16 | 0.026 | NS | NS |
| | 3/25/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.2 | 0.019 | NS | NS |
| | 6/17/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 1.2 | 0.052 | NS | NS |
| | 9/28/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.49 | 0.031 | NS | NS |
| | 12/6/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 2.1 | 0.073 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-2s | 3/16/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 1.3 | 0.042 | NS | NS |
| | 6/7/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 2.6 | 0.12 | NS | NS |
| | 4/19/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 3.1 | 0.36 | NS | NS |
| | 7/12/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 3.9 | 0.37 | NS | NS |
| | 10/25/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 1.2 | 0.30 | NS | NS |
| | 1/29/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 2.7 | 0.29 | NS | NS |
| | 4/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | 0.6 | 0.59 | 0.22 | NS | NS |
| | 4/18/1996 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | 0.7 | 1.3 | 0.22 | NS | NS |
| | 7/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 1.8 | 0.22 | NS | NS |
| | 10/22/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 1.5 | 0.16 | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 1.7 | 0.19 | NS | NS |
| | 6/11/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.96 | 0.13 | NS | NS |
| | 9/18/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.19 | 0.039 | NS | NS |
| | 12/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.13 | 0.046 | NS | NS |
| | 3/18/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.24 | 0.048 | NS | NS |
| | 6/25/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.07 | 0.017 | NS | NS |
| | 9/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.04 | 0.007 | NS | NS |
| | 12/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.05 | 0.008 | NS | NS |
| | 12/16/1998 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.008 | NS | NS |
| | 3/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.021 | NS | NS |
| | 6/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.008 | NS | NS |
| | 9/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/16/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 52 | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 68 | NS | NS |
| | 9/14/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 83 | NS | NS |
| | 12/20/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | 41 | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | 16 | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 44 J | 38 | NS | NS |
| | 6/6/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 65.3 | 57.1 | <45 | <34 |
| | 9/20/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 25.2B | 0.7B | 3.2B | <50 |
| | 11/25/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 1,360 | 136 | 5.5 | <2.0 |
| | 1/31/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 124 | 14.1 | 3.6 | <2 |
| | 6/18/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 31J | <5 | 3.1 | 0.3J |
| | 9/10/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 81.1J | 3.0J | <4.9 | <4.7 |
| | 12/11/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 149J | 3.1J | <4.9 | <4.7 |
| | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 73J | 1.1J | <4.9 | <4.7 |
| | 6/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 95.1J | 2.0J | <9.4 | <5.9 |
| | 8/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | 2.8J | <4.7 | <5.9 |
| | 11/15/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 83.6J | 2.3J | <4.7 | <5.9 |
| | 3/14/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | 2.1J | <4.7 | <5.9 |
| MW-3 | 2/24/1992 | REG FF | <0.5 | <1 | 12 | <1 | <1 | <1 | <1 | <0.5 | 0.36 | 0.03 | NS | NS |
| | 6/9/1992 | REG FF | <0.5 | <1 | 7.1 | <1 | <1 | <1 | <1 | <0.5 | 0.29 | 0.05 | NS | NS |
| | 9/14/1992 | REG FF | <0.5 | <1 | 6.3 | <1 | <1 | <1 | <1 | <0.5 | 0.29 | 0.029 | NS | NS |
| | 3/30/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 1.5 | 0.055 | NS | NS |
| | 6/22/1993 | REG | <0.5 | <1 | 2.2 | <1 | <1 | <1 | <1 | <0.5 | 1.1 | 0.072 | NS | NS |
| | 10/1/1993 | REG FF | <0.5 | <1 | 2.3 | <1 | <1 | <1 | <1 | <0.5 | 1.6 | 0.032 | NS | NS |
| | 12/10/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.47 | 0.018 | NS | NS |
| | 3/15/1994 | REG | <0.5 | <1 | 1.5 | <1 | <1 | <1 | <1 | <0.5 | 1.2 | 0.026 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-3 | 3/16/1994 | REG FF | | | | | | | | | 0.09 | 0.017 | NS | NS |
| | 9/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.007 | NS | NS |
| | 12/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.006 | NS | NS |
| | 3/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.33 | 0.017 | NS | NS |
| | 6/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.05 | 0.008 | NS | NS |
| | 9/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 14.0 | NS | NS |
| | 12/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/16/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.33 | <0.5 | <30 | 8.0 | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 5.0 | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | 34.0 | NS | NS |
| | 10/16/2001 | REG | 0.51 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 30 | 19.0 | NS | NS |
| | 6/6/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 194 | 43.3 | <45 | <34 |
| | 9/18/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | .34J | <0.5 | 34.1B | 2.9B | 1.9B | 5.5B |
| | 11/19/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <9.0 | 22.4 | 6.3B | <2.0 |
| | 1/29/2003 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.28J | <0.5 | <100 | 55.4 | <1 | <2 |
| | 6/18/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.28 | <0.5 | 2,760 | 228 | 1.1 | 1.2 |
| MW-5s | 6/23/2000 | REG FF | <0.5 | 10 | 2 | <0.5 | 31 | <0.5 | <0.5 | <0.5 | <30 | 190 | NS | NS |
| | 9/15/2000 | REG | <0.5 | 9.6 | 1.5 | <0.5 | 31 | <0.5 | <0.5 | 0.97 | <30 | 200 | NS | NS |
| | 12/20/2000 | REG | <0.5 | 10 | 2.2 | <0.5 | 37 | 0.51 | <0.5 | <3 | 40 | 270 | NS | NS |
| | 5/9/2001 | REG | <5 | 13 | <5 | <5 | 33 | <5 | <5 | <5 | <30 | 380 | NS | NS |
| | 5/9/2001 | FD | <5 | 13 | <5 | <5 | 33 | <5 | <5 | <5 | <30 | 380 | NS | NS |
| | 6/12/2002 | FS FF | 0.39 | 11 | 1.5 | <0.5 | 8.9 | <5 | <5 | 0.68 | 41 | 394 | 12.4 | <34 |
| | 9/18/2002 | FS FF | <0.5 | 6.6 | .48J | <0.5 | 4.6 | <0.5 | <0.5 | <0.5 | <100 | 49.9 | 3.5B | 5.5B |
| | 11/20/2002 | FS FF | <0.5 | 5.9 | 0.59 | <0.5 | 3.4 | <0.5 | <0.5 | <0.5 | <9.0 | 15.9 | 7.5 | <2.0 |
| | 1/28/2003 | FS FF | <0.5 | 4.1 | 0.42J | <0.5 | 1.0 | <0.5 | <0.5 | <0.5 | <100 | 105 | 1.7B | <2 |
| | 6/20/2003 | FS | <0.5 | 4.5 | 0.57 | <0.5 | 0.49J | <0.5 | <0.5 | <0.5 | 161 | 265 | 2.0 | 0.5J |
| | 9/9/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | 112 | <4.9 | <4.7 |
| | 12/10/2003 | FS | <0.1 | 3.8 | 0.4J | <0.1 | 0.3J | <0.1 | <0.1 | <0.1 | <45.3 | 94.4 | <4.9 | <4.7 |
| | 3/11/2004 | FS | <0.1 | 2.2 | 0.2J | <0.1 | 0.1J | <0.1 | <0.1 | <0.1 | <45.3 | 114 | <4.9 | 7.2J |
| MW-6s | 2/25/1992 | REG FF | <0.5 | 2.0 | 4.0 | <1 | 37 | <1 | 3.0 | <0.5 | 1.1 | 0.61 | NS | NS |
| | 6/9/1992 | REG FF | | | | | | | | | 0.36 | 0.62 | NS | NS |
| | 6/10/1992 | REG | 0.8 | 2.0 | 4.5 | <1 | 71 | <1 | 3.0 | 1 | 0.63 | 0.63 | NS | NS |
| | 9/14/1992 | REG FF | <0.5 | 2.2 | 3.4 | <1 | 44 | <1 | 3.0 | <0.5 | 0.16 | 0.59 | NS | NS |
| | 12/13/1992 | REG FF | <0.5 | 1.3 | 3.6 | <1 | 39 | <1 | 4.1 | <0.5 | 1.20 | 0.68 | NS | NS |
| | 3/26/1993 | REG FF | <0.5 | <1 | 2.5 | <1 | 26 | <1 | 3.8 | <0.5 | 1.20 | 0.61 | NS | NS |
| | 6/30/1993 | REG FF | <0.5 | 1.9 | 3.8 | <1 | 38 | <1 | 4.8 | <0.5 | 0.74 | 0.74 | NS | NS |
| | 9/28/1993 | REG FF | <0.5 | 2.4 | 4.1 | <1 | 90 | <1 | 3.8 | 1.4 | 0.83 | 0.78 | NS | NS |
| | 12/6/1993 | REG FF | <0.5 | 5.3 | <0.5 | <1 | 170 | 2.2 | 5.2 | <0.5 | 0.84 | 0.72 | NS | NS |
| | 3/14/1994 | REG FF | <0.5 | 2.4 | 5.1 | <1 | 46 | <1 | 3.6 | <0.5 | 3.0 | 0.8 | NS | NS |
| | 6/7/1994 | REG FF | <0.5 | 1.3 | 2.9 | <1 | 34 | <1 | 2.6 | <0.5 | 6.4 | 1.1 | NS | NS |
| | 9/12/1994 | REG FF | <0.5 | 1.9 | 4.3 | <1 | 34 | <1 | 2.1 | <0.5 | 4.3 | 0.92 | NS | NS |
| | 4/25/1995 | REG FF | 0.7 | 6 | 9.6 | <05 | 99 | 1.8 | 1.6 | 1.9 | 0.83 | 1.1 | NS | NS |
| | 7/13/1995 | REG FF | 2.1 | 7.6 | 8.4 | <0.5 | 100 | 1.8 | 1.8 | 1.1 | 1.7 | 1.1 | NS | NS |
| | 10/27/1995 | REG FF | 1.1 | 6.4 | 10 | <0.5 | 93 | 1.9 | 1.4 | 1.2 | 2.1 | 1.0 | NS | NS |
| | 1/29/1996 | REG FF | 0.87 | 5.5 | 10 | <0.5 | 79 | 1.5 | 1.0 | 1.3 | 2.4 | 1.1 | NS | NS |
| | 4/19/1996 | REG FF | 0.9 | 5.3 | 9.9 | 0.7 | 68 | 2.0 | 1.1 | 1.0 | 1.6 | 1.1 | NS | NS |
| | 4/19/1996 | FD FF | 1 | 5.2 | 9.6 | 0.6 | 68 | 2.1 | 1.1 | 1.0 | 1.6 | 1.1 | NS | NS |
| | 7/19/1996 | REG FF | 1.2 | 6.5 | 11 | <0.5 | 84 | 1.8 | 1.2 | 1.5 | 1.9 | 1.2 | NS | NS |
| | 10/24/1996 | REG FF | 1.6 | 6.4 | 11 | 1.1 | 78 | 2.4 | 1.6 | 3.7 | 1.7 | 1.3 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-6s | 2/27/1997 | REG FF | <0.5 | 4.8 | 10 | <0.5 | 62 | 1.3 | 0.95 | 1.5 | 2.2 | 2.0 | NS | NS |
| | 6/11/1997 | REG FF | 0.62 | 4.1 | 10 | <0.5 | 49 | 1.1 | <0.5 | 1.6 | 1 | 1.9 | NS | NS |
| | 9/19/1997 | REG FF | 0.92 | 4.3 | 7.4 | 0.6 | 51 | 1.3 | 0.98 | 0.81 | 1.1 | 1.7 | NS | NS |
| | 12/18/1997 | REG FF | 0.89 | 8.2 | 9.1 | <0.5 | 96 | 2.4 | 1.5 | 2.5 | 2.3 | 1.7 | NS | NS |
| | 3/19/1998 | REG FF | 0.82 | 4.7 | 5.3 | 0.6 | 61 | 1.2 | 1.5 | 1.4 | 1.5 | 1.3 | NS | NS |
| | 6/26/1998 | REG FF | 0.9 | 4 | 4.8 | 0.53 | 66 | 1.4 | 1.8 | 1.5 | 1.2 | 1.3 | NS | NS |
| | 9/17/1998 | REG FF | 0.85 | 3.9 | 5.4 | <0.5 | 50 | 1.0 | 1.4 | 1.3 | 0.65 | 1.4 | NS | NS |
| | 12/17/1998 | REG FF | 1.6 | 9.8 | 10 | 0.96 | 130 | 26 | 1.3 | 1.6 | 4.5 | 0.5 | NS | NS |
| | 3/18/1999 | REG FF | 1.8 | 9.3 | 14 | 1.0 | 110 | 2.2 | 1.5 | 1.4 | 1.6 | 1.7 | NS | NS |
| | 9/17/1999 | REG FF | 1.4 | 8.4 | 12 | 0.51 | 130 | 2.1 | 1.2 | 1.2 | 2,400 | 1,800 | NS | NS |
| | 12/16/1999 | REG FF | 1.5 | 7.9 | 13 | 0.69 | 160 | 2.2 | 1.8 | 1.1 | 2,200 | 1,900 | NS | NS |
| | 12/16/1999 | FD FF | 1.4 | 7.4 | 12 | 0.64 | 150 | 2.2 | 2.1 | 1.0 | 2,200 | 2,000 | NS | NS |
| | 3/17/2000 | REG FF | 2.3 | 9.6 | 14 | 0.85 | 180 | 3.1 | 2.4 | 2.2 | 1,600 | 1,700 | NS | NS |
| | 6/23/2000 | REG FF | 2 | 8.3 | 14 | <0.5 | 180 | 2.5 | 1.8 | 0.99 | 80 | 2,100 | NS | NS |
| | 9/15/2000 | REG | 2.4 | 8 | 14 | <0.5 | 230 | 4.3 | 1.5 | <0.5 | 360 | 2,200 | NS | NS |
| | 12/20/2000 | REG | 2.6 | 8.6 | 13 | <0.5 | 170 | 2.4 | 1.3 | <3 | 1,400 | 2,500 | NS | NS |
| | 5/9/2001 | REG | <5 | 8.6 | 12 | <5 | 160 | <5 | <5 | <5 | 2,200 | 2,100 | NS | NS |
| | 10/19/2001 | REG | 1.8 | 8.9 | 14 | <0.5 | 200 | 3 | 1.5 | 2.2 | 4,200 J | 3,300 | NS | NS |
| | 10/19/2001 | FD | 1.7 | 8.6 | 14 | <0.5 | 210 | 2.7 | 1.6 | 1.6 | 4,300 J | 3,300 | NS | NS |
| | 6/12/2002 | FS FF | 1.6 | 7 | 11 | 0.45 | 170 | 2.5 | 1.2 | 1.9 | 1,710 | 2,700 | 31.3 | <34 |
| | 6/12/2002 | FD FF | 1.6 | 6.8 | 11 | 0.46 | 170 | 2.5 | 1.2 | 1.9 | 1,970 | 3,740 | <45 | <34 |
| | 9/18/2002 | FS | 2.3 | 11 | 13 | 0.63 | 170E | 1.8 | 1.4 | 1.4 | 1,080 | 2,600 | 11.8 | 6.4B |
| | 11/20/2002 | FS | 3.5 | 16 | 16 | 0.96 | 220 | 2.2 | 1.4 | 1.4 | 1,290 | 3,000 | 11.8 | <2.0 |
| | 1/28/2003 | FS | 1.8J | 8.2 | 11 | <2.5 | 130 | 1.8J | 1.2J | 0.95J | 1,510 | 2,650 | 6.6 | <2 |
| | 1/28/2003 | FD | 1.7DJ | 8.0D | 9.5D | <2.5 | 120D | 1.8DJ | 1.1DJ | 0.91DJ | 1,580 | 2,710 | 6.5 | <2 |
| | 6/20/2003 | FS | 1.4 | 7.7 | 12 | 0.54 | 160E | 2.2 | 1.7 | 1.3 | 1,620 | 2,790 | 6.8 | 0.2J |
| | 9/9/2003 | FS | 1J | 8 | 10 | <0.5 | 130 | 2J | 1J | 0.7J | 1,680 | 2,860 | 8.0J | <2 |
| | 12/9/2003 | FS | 0.9 | 7.0 | 5.4 | 0.2J | 54 | 1.2 | 1.3 | 0.4J | 1,590 | 2,740 | 5.6J | <4.7 |
| | 3/11/2004 | FS | 0.7 | 6.2 | 6.2 | 0.2J | 80 | 1.3 | 1.2 | 0.5J | 1,510 | 2,730 | <4.9 | 5.6J |
| | 6/9/2004 | FS | 0.9 | 7.0 | 5.0 | 0.2J | 78 | 1.3 | 1.2 | 0.5J | 1,660 | 2,660 | <9.4 | <5.9 |
| | 8/13/2004 | FS | 1.0 | 8.6 | 6.0 | 0.4J | 91 | 1.5 | 1.4 | 0.6 | 1,520 | 2,590 | <4.7 | <5.9 |
| | 11/17/2004 | FS | 0.9 | 8.3 | 5.5 | 0.3J | 74 | 1.1 | 1.3 | 0.5J | 1,320 | 2,350 | <4.7 | <5.9 |
| | 3/18/2005 | FS | 0.8 | 8.0 | 4.3 | 0.2J | 67.0 | 1.1 | 1.4 | 0.4J | 1,430 | 2,270 | <4.7 | <5.9 |
| MW-7s | 2/25/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | 11 | <1 | 2.0 | <0.5 | 1.20 | 0.72 | NS | NS |
| | 2/25/1992 | FD FF | <0.5 | <1 | <0.5 | <1 | 12 | <1 | 3.0 | <0.5 | 1.60 | 0.79 | NS | NS |
| | 6/9/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | 20 | <1 | 5.0 | <0.5 | 0.48 | 0.67 | NS | NS |
| | 9/15/1992 | REG FF | <0.5 | <1 | 0.68 | <1 | 14 | <1 | 4.9 | <0.5 | 0.16 | 0.6 | NS | NS |
| | 12/13/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | 15 | <1 | 4.6 | <0.5 | 0.16 | 0.67 | NS | NS |
| | 3/24/1993 | REG FF | <0.5 | <1 | 0.89 | <1 | 19 | <1 | 4.2 | <0.5 | 0.22 | 0.76 | NS | NS |
| | 6/21/1993 | REG FF | <0.5 | <1 | 0.92 | <1 | <1 | <1 | 3.0 | <0.5 | 0.60 | 0.74 | NS | NS |
| | 9/30/1993 | REG FF | <0.5 | <1 | 0.79 | <1 | 26 | <1 | 2.7 | <0.5 | 0.12 | 0.69 | NS | NS |
| | 12/6/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | 31 | <1 | 3.1 | <0.5 | 0.36 | 0.62 | NS | NS |
| | 3/16/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | 15 | <1 | 2.3 | <0.5 | 0.29 | 0.65 | NS | NS |
| | 6/8/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | 19 | <1 | 2.5 | <0.5 | 0.31 | 0.77 | NS | NS |
| | 9/12/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | 14 | <1 | 1.7 | <0.5 | 0.71 | 0.70 | NS | NS |
| | 1/20/1995 | REG FF | <0.5 | 1.0 | 1.0 | <0.5 | 25 | 1 | 2.2 | <0.5 | <0.007 | 0.73 | NS | NS |
| | 4/24/1995 | REG FF | 1.0 | 1.5 | 1.0 | <0.5 | 43 | 1 | 1.0 | 0.5 | 0.09 | 0.94 | NS | NS |
| | 7/13/1995 | REG FF | 1.8 | 2.0 | 1.5 | <0.5 | 62 | 6.7 | 0.8 | <0.5 | 1.10 | 1.0 | NS | NS |
| | 10/27/1995 | REG FF | 2.5 | 2.7 | 2.2 | <0.5 | 73 | <0.5 | <0.5 | <0.5 | 2.0 | 0.88 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-7s | 1/29/1996 | REG FF | 2.7 | 2.4 | 2.7 | <0.5 | 66 | 0.72 | 1.1 | 0.51 | 3.0 | 0.77 | NS | NS |
| | 4/19/1996 | REG FF | 3.3 | 3.1 | 3.3 | 0.5 | 87 | 1.6 | 1.2 | 0.6 | 2.4 | 0.69 | NS | NS |
| | 7/19/1996 | REG FF | 2.7 | 2.6 | 3.5 | <0.5 | 70 | 1.0 | 1.0 | 0.8 | 3.5 | 0.69 | NS | NS |
| | 10/24/1996 | REG FF | 2.0 | 2.1 | 3.6 | <0.5 | 54 | <0.5 | 0.88 | <0.5 | 2.6 | 0.61 | NS | NS |
| | 2/27/1997 | REG FF | 3.1 | 2.9 | 4.3 | <0.5 | 81 | 1.0 | 0.89 | 0.78 | 4.6 | 0.71 | NS | NS |
| | 6/11/1997 | REG FF | 3.7 | 3.5 | 4.9 | <0.5 | 92 | 2.0 | 0.93 | 0.91 | 4.1 | 0.55 | NS | NS |
| | 9/19/1997 | REG FF | 2.1 | 2.3 | 4.7 | <0.5 | 60 | 0.98 | 0.66 | 0.79 | 2.7 | 0.61 | NS | NS |
| | 12/18/1997 | REG FF | 2.0 | 2.8 | 5.5 | <0.5 | 64 | 1.6 | 0.83 | <0.5 | 3.6 | 0.58 | NS | NS |
| | 3/19/1998 | REG FF | 1.0 | 1.8 | 3.6 | <0.5 | 39 | 0.98 | <0.5 | <0.5 | 2.8 | 0.51 | NS | NS |
| | 6/26/1998 | REG FF | 1.1 | 1.9 | 3.0 | <0.5 | 53 | 1.1 | <0.5 | 0.78 | 2.2 | 0.57 | NS | NS |
| | 6/26/1998 | FD FF | 1.2 | 2.0 | 3.1 | <0.5 | 56 | 1.2 | <0.5 | 0.77 | 2.3 | 0.59 | NS | NS |
| | 9/17/1998 | REG FF | 0.9 | 1.9 | 3.9 | <0.5 | 44 | 1.0 | <0.5 | 0.63 | 2.7 | 0.53 | NS | NS |
| | 12/17/1998 | REG FF | 4.5 | 4.5 | 5.0 | 0.83 | 130 | 1.7 | 1.1 | 1.1 | 2.2 | 3.40 | NS | NS |
| | 3/18/1999 | REG FF | 3.1 | 2.7 | 3.4 | 0.62 | 71 | <0.5 | 1.2 | 0.58 | 4.2 | 0.45 | NS | NS |
| | 6/18/1999 | REG FF | 2.4 | 2.2 | 1.9 | <0.5 | 63 | <0.5 | 0.61 | <0.5 | 3.1 | 0.34 | NS | NS |
| | 6/18/1999 | FD FF | 2.4 | 2.1 | 2.0 | <0.5 | 63 | <0.5 | 0.65 | <0.5 | 3.3 | 0.36 | NS | NS |
| | 9/16/1999 | REG FF | 2.3 | 2.0 | 1.8 | <0.5 | 60 | <0.5 | 0.58 | <0.5 | 3,600 | 340 | NS | NS |
| | 9/16/1999 | FD FF | 2.2 | 2.0 | 1.7 | <0.5 | 57 | <0.5 | 0.52 | <0.5 | 3,700 | 360 | NS | NS |
| | 12/16/1999 | REG FF | 2.0 | 1.6 | 1.8 | <0.5 | 57 | 0.61 | 0.59 | <0.5 | 3,300 | 340 | NS | NS |
| | 3/17/2000 | REG FF | 1.6 | 1.3 | 1.4 | <0.5 | 37 | 0.47 | 0.49 | 0.46 | 860 | 350 | NS | NS |
| | 6/23/2000 | REG FF | 1.8 | 1.7 | 1.9 | <0.5 | 50 | 0.71 | <0.5 | <0.5 | 140 | 500 | NS | NS |
| | 9/15/2000 | REG | 1.4 | 1.5 | 1.7 | <0.5 | 47 | 0.6 | <0.5 | <0.5 | 1,800 | 490 | NS | NS |
| | 12/20/2000 | REG | 3.2 | 4.5 | 6.4 | <0.5 | 140 | 2.0 | 1.2 | <3 | 5,100 | 920 | NS | NS |
| | 12/20/2000 | FD | 2.6 | 8.4 | 12.0 | 0.67 | 160 | 2.4 | 1.2 | <3 | 4,600 | 2,500 | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | 110 | <5 | <5 | <5 | 1,600 | 560 | NS | NS |
| | 5/9/2001 | FD | <5 | <5 | <5 | <5 | 110 | <5 | <5 | <5 | 1,600 | 540 | NS | NS |
| | 10/19/2001 | REG | 2.8 | 2.3 | 1.7 | <0.5 | 80 | 0.59 | <0.5 | 0.76 | 3,700 J | 520 | NS | NS |
| | 6/12/2002 | FS FF | 3.2 | 2.7 | 1.5 | 0.26 | 83 | 1.3 | 0.58 | 0.58 | 5,030 | 481 | 40.3 | <34 |
| | 9/18/2002 | FS | 1.9 | 1.7 | 1.4 | <0.5 | 54E | 2.1 | 0.64 | 0.54 | 5,050 | 476 | 26.9 | <50 |
| | 9/18/2002 | FD | 1.9 | 1.6 | 1.4 | <0.5 | 53E | 1.8 | 0.62 | 0.58 | 5,250 | 482 | 29.4 | 4.8B |
| | 11/20/2002 | FD | 0.67 | 0.74 | 0.71 | <0.5 | 18 | 0.37 | 0.37 | 0.23 | 1,500 | 509 | 15.3 | <2.0 |
| | 1/28/2003 | FS | 0.75 | 0.78 | 0.75 | <0.5 | 23 | 0.86 | 0.41J | 0.27J | 1,470 | 490 | 11.6 | <2 |
| | 6/19/2003 | FS | 1.5 | 1.4 | 1.2 | 0.27J | 48E | 0.8 | 0.44J | <0.5 | 1,090 | 553 | 9.5 | <2 |
| | 9/9/2003 | FS | 2J | 2J | 1J | <0.5 | 47 | 0.5J | <0.5 | <0.5 | 1,620 | 548 | 12.2 | <2 |
| | 12/9/2003 | FS | 1.0 | 0.8 | <0.1 | <0.1 | 21 | 0.2J | 0.4J | 0.2J | 1,030 | 591 | 8.4J | <4.7 |
| | 3/12/2004 | FS | 0.7 | 0.9 | 0.7 | <0.1 | 27 | 0.2J | 0.3J | 0.2J | 1,340 | 514 | 11 | <4.7 |
| | 6/9/2004 | FS | 0.7 | 0.8 | 0.4J | <0.1 | 22 | 0.2J | 0.3J | 0.1J | 912 | 561 | <9.4 | <5.9 |
| | 8/13/2004 | FS | 1.2 | 1.1 | 0.7 | <0.1 | 36 | 0.3J | 0.3J | 0.2J | 1,040 | 557 | 9.5J | <5.9 |
| | 11/17/2004 | FS | 1.0 | 0.8 | 0.6 | <0.1 | 25 | 0.2J | 0.3J | 0.2J | 752 | 570 | 7.9J | <5.9 |
| | 3/18/2005 | FS | 0.9 | 1.1 | 0.7 | <0.1 | 27.0 | 0.3J | 0.2J | 0.2J | 575 | 452 | 6.1J | <5.9 |
| MW-8 | 2/20/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 3.2 | 0.58 | NS | NS |
| | 6/9/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 1.3 | 0.57 | NS | NS |
| | 9/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 1.1 | 0.53 | NS | NS |
| | 9/15/1992 | FD FF | <0.5 | <1 | <0.5 | <1 | 1.2 | <1 | <1 | <0.5 | 0.99 | 0.53 | NS | NS |
| | 12/13/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | 2.1 | <1 | <1 | <0.5 | 2.3 | 1 | NS | NS |
| | 3/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | 1.6 | <1 | <1 | <0.5 | 1.7 | 0.82 | NS | NS |
| | 6/21/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | 1.6 | <1 | <1 | <0.5 | 2.8 | 1.1 | NS | NS |
| | 10/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | 5.6 | <1 | <1 | <0.5 | 4 | 1.4 | NS | NS |
| | 12/10/1993 | REG | <0.5 | <1 | <0.5 | <1 | 2.6 | <1 | <1 | <0.5 | 6.1 | 1.3 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-8 | 3/16/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | 1.6 | <1 | <1 | <0.5 | 2.5 | 1.1 | NS | NS |
| | 6/8/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | 2.7 | <1 | <1 | <0.5 | 2.8 | 1.4 | NS | NS |
| | 9/19/1997 | REG FF | <0.5 | 1 | <0.5 | <0.5 | 8.1 | <0.5 | <0.5 | <0.5 | 0.86 | 1.3 | NS | NS |
| | 12/18/1997 | REG FF | 0.71 | 2.3 | 1.0 | <0.5 | 20 | <0.5 | <0.5 | <0.5 | 0.77 | 1.1 | NS | NS |
| | 3/18/1998 | REG FF | <0.5 | 2.4 | 1.2 | <0.5 | 25 | <0.5 | <0.5 | <0.5 | 0.88 | 1.1 | NS | NS |
| | 6/25/1998 | REG FF | 0.58 | 1.4 | 0.57 | <0.5 | 13 | <0.5 | <0.5 | <0.5 | 0.89 | 1.2 | NS | NS |
| | 6/25/1998 | FD FF | 0.59 | 1.4 | 0.55 | <0.5 | 12 | <0.5 | <0.5 | <0.5 | 0.84 | 1.1 | NS | NS |
| | 9/17/1998 | REG FF | 0.62 | 1.3 | 0.72 | <0.5 | 13 | <0.5 | <0.5 | <0.5 | 0.64 | 1.3 | NS | NS |
| | 12/16/1998 | REG FF | 0.51 | 1.7 | 0.99 | <0.5 | 18 | <0.5 | <0.5 | <0.5 | 0.89 | 1.2 | NS | NS |
| | 3/17/1999 | REG FF | 0.9 | 2.5 | 1.6 | <0.5 | 25 | <0.5 | 0.82 | <0.5 | 0.97 | 1.3 | NS | NS |
| | 6/18/1999 | REG FF | <0.5 | 1.9 | 0.96 | <0.5 | 20 | <0.5 | <0.5 | <0.5 | 0.22 | 0.94 | NS | NS |
| | 9/17/1999 | REG FF | 0.52 | 2.3 | 1.2 | <0.5 | 23 | <0.5 | <0.5 | <0.5 | 60 | 930 | NS | NS |
| | 9/17/1999 | FD FF | <0.5 | 1.8 | 0.98 | <0.5 | 19 | <0.5 | <0.5 | <0.5 | 60 | 970 | NS | NS |
| | 12/16/1999 | REG FF | <0.5 | 0.81 | 0.54 | <0.5 | 9.2 | <0.5 | <0.5 | <0.5 | <30 | 1,000 | NS | NS |
| | 3/16/2000 | REG FF | 0.53 | 1.1 | 0.66 | <0.5 | 13 | <0.5 | <0.5 | <0.5 | 440 | 960 | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | 0.93 | 0.67 | <0.5 | 9.6 | <0.5 | <0.5 | <0.5 | 420 | 1,000 | NS | NS |
| | 6/22/2000 | FD FF | <0.5 | 0.8 | 0.89 | <0.5 | 7.8 | <0.5 | <0.5 | <0.5 | 400 | 1,000 | NS | NS |
| | 9/14/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 610 | 1,000 | NS | NS |
| | 12/20/2000 | REG | <0.5 | 1.5 | 1.2 | <0.5 | 14 | <0.5 | <0.5 | <3 | 340 | 1,400 | NS | NS |
| | 12/20/2000 | FD | <0.5 | <0.5 | 0.81 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | 130 | 1,400 | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | 24 | <5 | <5 | <5 | 800 | 1,000 | NS | NS |
| | 5/9/2001 | FD | <5 | <5 | <5 | <5 | 26 | <5 | <5 | <5 | 700 | 1,000 | NS | NS |
| | 10/17/2001 | REG | 0.65 | 4.6 | 2.7 | <0.5 | 42 | <0.5 | <0.5 | <0.5 | 1,400 | 1,100 | NS | NS |
| | 6/11/2002 | FS FF | 0.50 | 4.5 | 1.9 | <0.5 | 29 | 0.24 | 0.14 | <0.5 | 16.3 | 15.6 | 16.1 | <34 |
| | 9/19/2002 | FS | 0.36J | 2.5 | 0.78 | <0.5 | 13 | <0.5 | <0.5 | <0.5 | 1190 | 1,060 | 8.4B | <50 |
| | 11/20/2002 | FS | 0.24 | 5.6 | 2.0 | <0.5 | 32 | <0.5 | <0.5 | <0.5 | 861 | 1,530 | 10.8 | <2.0 |
| | 1/28/2003 | FS | 0.26J | 3.6 | 1.2 | <0.5 | 19 | <0.5 | 0.15J | <0.5 | 773 | 1,130 | 5.4 | <2 |
| | 6/20/2003 | FS | 0.26J | 4 | 1.7 | <0.5 | 26 | 0.24J | 0.19 | 0.23J | 814 | 1,200 | 4.6 | <2 |
| | 9/9/2003 | FS | <0.5 | 4J | 1J | <0.5 | 17 | <0.5 | <0.5 | <0.5 | 541 | 1,090 | <4.9 | <4.7 |
| | 12/10/2003 | FS | 0.2J | 2.2 | 0.7 | <0.1 | 12 | <0.1 | 0.1J | <0.1 | 792 | 1,220 | 7.6J | <4.7 |
| | 3/11/2004 | FS | 0.3J | 3.4 | 1.9 | <0.1 | 23 | 0.1J | 0.2J | <0.1 | 658 | 1,600 | 5.5J | <4.7 |
| | 6/9/2004 | FS | 0.2J | 3.6 | 1.8 | <0.1 | 22 | 0.1J | 0.2J | <0.1 | 513 | 1,490 | <9.4 | <5.9 |
| | 8/13/2004 | FS | 0.2J | 2.9 | 1.2 | <0.1 | 16 | <0.1 | 0.2J | <0.1 | 781 | 1,540 | 7.1J | <5.9 |
| | 11/17/2004 | FS | 0.1J | 1.7 | 0.4J | <0.1 | 6.3 | <0.1 | 0.2J | <0.1 | 859 | 1,240 | 6.3J | <5.9 |
| | 3/18/2005 | FS | <0.1 | 1.7 | 0.3J | <0.1 | 0.9 | <0.1 | 0.9 | <0.1 | 575 | 843 | 6.0J | <5.9 |
| MW-10 | 2/26/1992 | REG FF | <0.5 | 6 | 2 | <1 | 52 | 3.0 | 1 | <0.5 | <0.04 | 1.5 | NS | NS |
| | 6/9/1992 | REG FF | <0.5 | 8 | 1.9 | <1 | 78 | 4.0 | 1 | <0.5 | 1.1 | 2.0 | NS | NS |
| | 12/15/1992 | REG | <0.5 | 5.2 | 2.5 | <1 | 47 | 2.5 | 1.6 | <0.5 | 1.3 | 2.0 | NS | NS |
| | 3/25/1993 | REG FF | <0.5 | 3 | 2 | <1 | 27 | 1.5 | 1.4 | <0.5 | 1.1 | 1.7 | NS | NS |
| | 6/18/1993 | REG FF | <0.5 | 6.4 | 2.4 | <1 | 87 | 3.1 | 2.1 | <0.5 | 1.4 | 2.1 | NS | NS |
| | 10/1/1993 | REG FF | 1.4 | 15 | 2.9 | <1 | 180 | 6.3 | 1.8 | <0.5 | 1.9 | 2.2 | NS | NS |
| | 10/1/1993 | FD FF | 1.3 | 15 | 3.2 | 1.6 | 170 | 6.4 | 2.2 | <0.5 | 1.8 | 2.2 | NS | NS |
| | 12/10/1993 | REG | 0.96 | 23 | 3.1 | <1 | 150 | 8.3 | 1.9 | <0.5 | 0.48 | 2.1 | NS | NS |
| | 3/16/1994 | REG FF | <0.5 | 25 | 2.9 | 1.8 | 150 | 9.0 | 1.9 | 2.6 | 1.4 | 2.2 | NS | NS |
| | 6/9/1994 | REG FF | <0.5 | 25 | 2.7 | 1.9 | 110 | 11 | 2.0 | 2.0 | 1.2 | 2.3 | NS | NS |
| | 9/14/1994 | REG FF | 1.0 | 28 | 3 | 2.3 | 180 | 11 | 2.7 | 3.1 | 0.87 | 2.0 | NS | NS |
| | 10/27/1995 | REG FF | <0.5 | 19 | 2 | <0.5 | 140 | 7.7 | 1.3 | 1.0 | 2.2 | 2.1 | NS | NS |
| | 1/29/1996 | REG FF | <0.5 | 18 | 1.5 | 0.68 | 120 | 5.2 | 1.0 | 1.0 | 2.1 | 2.0 | NS | NS |
| | 4/19/1996 | REG FF | 0.6 | 16 | 1.3 | 0.80 | 110 | 5.6 | <0.5 | 0.7 | 1.3 | 1.8 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-10 | 7/19/1996 | REG FF | 0.5 | 15 | 1.4 | <0.5 | 97 | 4.3 | 0.70 | 1 | 1.2 | 1.8 | NS | NS |
| | 10/24/1996 | REG FF | <0.5 | 13 | 1.2 | <0.5 | 75 | 3.8 | 0.74 | 1.6 | 1.3 | 1.6 | NS | NS |
| | 2/27/1997 | REG FF | <0.5 | 8.8 | <0.5 | <0.5 | 47 | 2.6 | <0.5 | 0.69 | 1.5 | 1.8 | NS | NS |
| | 2/27/1997 | FD FF | <0.5 | 9.1 | 0.68 | 0.55 | 49 | 2.5 | 0.56 | 0.77 | 1.5 | 1.7 | NS | NS |
| | 6/11/1997 | REG FF | <0.5 | 10 | 0.85 | <0.5 | 56 | 3.3 | <0.5 | 1.0 | 1.6 | 1.6 | NS | NS |
| | 9/19/1997 | REG FF | 0.7 | 10 | 1.2 | <0.5 | 65 | 3.2 | <0.5 | 0.94 | 1.5 | 1.7 | NS | NS |
| | 9/19/1997 | FD FF | <0.5 | 9.2 | 1.3 | <0.5 | 62 | 3.1 | <0.5 | 1.0 | 1.4 | 1.7 | NS | NS |
| | 12/18/1997 | REG FF | <0.5 | 8.9 | 1.1 | <0.5 | 49 | 2.6 | <0.5 | 1.3 | 1.2 | 1.5 | NS | NS |
| | 3/19/1998 | REG FF | 0.7 | 8.7 | 1.0 | 0.71 | 50 | 2.6 | 0.66 | 0.83 | 1.5 | 1.6 | NS | NS |
| | 6/25/1998 | REG FF | 1.1 | 6.8 | 1.5 | 0.69 | 62 | 2.4 | 0.83 | 0.76 | 1.7 | 1.8 | NS | NS |
| | 9/17/1998 | REG FF | 1.4 | 7.6 | 2.1 | 0.63 | 73 | 2.6 | 0.95 | 0.81 | 0.39 | 1.6 | NS | NS |
| | 9/17/1998 | FD FF | 1.5 | 7.5 | 2.3 | <0.5 | 75 | 2.6 | 0.93 | 0.83 | 0.40 | 1.5 | NS | NS |
| | 12/17/1998 | REG FF | 0.96 | 6.8 | 1.6 | 0.66 | 67 | 2.1 | <0.5 | 0.87 | 0.042 | 1.1 | NS | NS |
| | 3/18/1999 | REG FF | 2 | 7.2 | 2.3 | 0.87 | 72 | 2.4 | 1.0 | 0.78 | <0.03 | 1.2 | NS | NS |
| | 3/18/1999 | FD FF | 1.9 | 7 | 2.3 | 0.82 | 69 | 2.3 | 0.99 | 0.75 | <0.03 | 1.2 | NS | NS |
| | 6/16/1999 | REG FF | 1.2 | 7.8 | 1.9 | <0.5 | 81 | <0.5 | <0.5 | 0.55 | 0.12 | 1.5 | NS | NS |
| | 9/17/1999 | REG FF | 1.4 | 8.3 | 2.2 | <0.5 | 92 | 2.8 | 0.51 | 0.86 | 110 | 1,600 | NS | NS |
| | 12/16/1999 | REG FF | 1.2 | 5.5 | 2.1 | <0.5 | 71 | 1.8 | 0.7 | 0.67 | 42 | 1,400 | NS | NS |
| | 3/16/2000 | REG FF | 1.3 | 5.5 | 1.6 | 0.29 | 56 | 1.9 | 0.73 | 0.94 | 50 | 1,200 | NS | NS |
| | 3/16/2000 | FD FF | 1.2 | 5.6 | 1.6 | 0.38 | 56 | 1.9 | 0.73 | 0.98 | 40 | 1,100 | NS | NS |
| | 6/21/2000 | REG FF | 1.4 | 5.6 | 2.0 | <0.5 | 67 | 2.2 | <0.5 | 0.69 | 350 | 1,200 | NS | NS |
| | 9/14/2000 | REG | 1.6 | 5 | 2.3 | <0.5 | 83 | 1.9 | <0.5 | <0.5 | 350 | 1,100 | NS | NS |
| | 12/19/2000 | FD | <0.5 | <0.5 | 0.62 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | 12 | NS | NS |
| | 12/20/2000 | REG | 1.9 | 4.6 | 2.9 | <0.5 | 74 | 2 | 0.55 | <3 | 960 | 1,300 | NS | NS |
| | 5/9/2001 | REG | <5 | 6.4 | <5 | <5 | 74 | <5 | <5 | <5 | <30 | 1,000 | NS | NS |
| | 5/9/2001 | FD | <5 | 6.2 | <5 | <5 | 70 | <5 | <5 | <5 | <30 | 1,000 | NS | NS |
| | 10/17/2001 | REG | 6.5 | 8.9 | 6.9 | <0.5 | 150 | 4.3 | 0.38 | 1.0 | 210 | 1,600 | NS | NS |
| | 6/10/2002 | FS FF | 4.6 | 6.6 | 7.2 | <0.5 | 130 | 4.1 | <0.5 | 0.99 | 1,520 | 1,600 | 42.7 | <34 |
| | 9/19/2002 | FS | 3.1 | 5.4 | 5 | .36J | 110D | 2.8 | .33J | 0.66 | 1,910 | 1,940 | 2.7B | 2.9B |
| | 11/21/2002 | FS | 1.7 | 3.6 | 3.8 | 0.36 | 74.0 | 1.6 | 0.18 | 0.65 | 2,240 | 2,110 | 13.4 | <2.0 |
| | 1/29/2003 | FS | 2.3 | 3.7 | 4.0 | 0.28J | 88E | 2.2 | 0.24J | 0.69 | 3,430 | 2,120 | 9.1 | <2 |
| | 6/19/2003 | FS | 2.9 | 4 | 5 | 0.4J | 96E | 2.1 | 0.27J | 0.84 | 3,130 | 2,080 | 7.1 | <2 |
| | 9/11/2003 | FS | 4J | 5 | 6 | <0.5 | 110 | 2J | <0.5 | <0.5 | 3,840 | 2,190 | <4.9 | <4.7 |
| | 12/10/2003 | FS | 3.4 | 4.4 | 5.1 | 0.4J | 85 | 2.3 | 0.3J | 0.5 | 3,850 | 2,200 | 6.6J | <4.7 |
| | 3/10/2004 | FS | 4.3 | 4.7 | 6.6 | 0.4J | 110 | 3.2 | 0.4J | 0.6 | 4,480 | 2,300 | 6.7J | <4.7 |
| | 6/10/2004 | FS | 4.7 | 4.6 | 5.4 | 0.3J | 110 | 2.8 | 0.3J | 0.6 | 4,260 | 2,300 | <4.7 | <5.9 |
| | 8/12/2004 | FS | 6.3 | 6.0 | 7.3 | 0.4J | 120 | 3.2 | 0.4J | 0.7 | 4,720 | 2,220 | 7.1J | <5.9 |
| | 11/18/2004 | FS | 5.8 | 5.2 | 5.9 | 0.5J | 130 | 3.1 | 0.4J | 0.7 | 4,660 | 2,170 | <4.7 | <5.9 |
| | 3/16/2005 | FS | 5.5 | 5.2 | <0.1 | 0.4J | 130 | 3.0 | 0.3J | 0.7 | 8,490 | 2,270 | 6.4J | <5.9 |
| MW-14d | 2/27/1992 | REG FF | 22 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.96 | 0.04 | NS | NS |
| | 6/8/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.15 | <0.01 | NS | NS |
| | 9/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 1.6 | 0.031 | NS | NS |
| | 12/8/1993 | REG | | | | | | | | | 0.044 | 0.029 | NS | NS |
| | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.33 | 0.029 | NS | NS |
| | 6/8/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.64 | 0.017 | NS | NS |
| | 4/22/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | 0.01 | NS | NS |
| | 4/19/1996 | REG FF | <0.5 | <0.5 | 0.8 | <0.5 | <0.7 | <0.5 | 1.4 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/4/997 | REG FF | <0.5 | <0.5 | 1.5 | <0.5 | <0.5 | <0.5 | 1.7 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/24/1998 | REG FF | <0.5 | <0.5 | 0.99 | <0.5 | <0.5 | <0.5 | 1.7 | <0.5 | <0.03 | <0.005 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-14d | 6/24/1998 | FD FF | <0.5 | <0.5 | **0.97** | <0.5 | <0.5 | <0.5 | **1.7** | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/18/1999 | REG FF | <0.5 | <0.5 | **0.81** | <0.5 | <0.5 | <0.5 | **1.5** | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/16/1999 | REG FF | <0.5 | <0.5 | **0.86** | <0.5 | <0.5 | <0.5 | **1.8** | <0.5 | <30 | <5 | NS | NS |
| | 12/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **1.4** | <0.5 | <30 | <5 | NS | NS |
| | 3/17/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/22/2000 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.83** | <0.5 | <30 | <5 | NS | NS |
| | 9/14/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/20/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.92** | <3 | <30 | <5 | NS | NS |
| | 2/25/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **7.3** | **0.2** | NS | NS |
| | 6/9/1992 | REG FF | | | | | | | | | **0.6** | **0.02** | NS | NS |
| MW-16 | 6/10/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.25** | **0.01** | NS | NS |
| | 9/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.16** | **0.02** | NS | NS |
| | 12/13/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.54** | **0.03** | NS | NS |
| | 3/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.31** | <0.01 | NS | NS |
| | 6/17/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1.0** | **0.045** | NS | NS |
| | 10/2/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.34** | **0.02** | NS | NS |
| | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.59** | **0.033** | NS | NS |
| | 3/16/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **19** | **0.17** | NS | NS |
| | 3/16/1994 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **26** | **0.21** | NS | NS |
| | 6/10/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **2.4** | **0.056** | NS | NS |
| | 9/19/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.035** | NS | NS |
| | 12/18/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.28** | **0.054** | NS | NS |
| | 3/19/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.11** | **0.048** | NS | NS |
| | 6/25/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.16** | **0.031** | NS | NS |
| | 9/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.12** | **0.032** | NS | NS |
| | 12/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.29** | **0.031** | NS | NS |
| | 3/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.11** | **0.042** | NS | NS |
| | 3/17/1999 | FD FF | **0.64** | <0.5 | <0.5 | **0.5** | <0.5 | <0.5 | <0.5 | <0.5 | **0.12** | **0.043** | NS | NS |
| | 6/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.12** | **0.047** | NS | NS |
| | 6/17/1999 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.12** | **0.044** | NS | NS |
| | 9/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **11** | NS | NS |
| | 12/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **23** | NS | NS |
| | 3/16/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **40** | **12** | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/14/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/20/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | <5 | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | <5 | NS | NS |
| | 10/17/2001 | REG | **0.38** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **55** | **17** | NS | NS |
| | 6/11/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **16.3** | **15.6** | <45 | <34 |
| | 9/19/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **46.8B** | **1.5B** | <10 | **5.4B** |
| | 11/20/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **73.2** | **1.6** | **9.9** | 2.0 |
| | 1/28/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **9.6B** | <5 | **1.0B** | <2 |
| | 6/20/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **25J** | <5 | **1.8** | <2 |
| | 9/9/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 9/9/2003 | FD | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 12/10/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 6/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-16 | 8/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **0.1J** | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 11/18/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 3/16/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **82.0J** | <0.84 | <4.7 | <5.9 |
| MW-19 | 9/19/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.6** | **0.17** | NS | NS |
| | 12/17/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1.5** | **0.39** | NS | NS |
| | 3/30/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.18** | **0.062** | NS | NS |
| | 6/18/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.14** | **0.048** | NS | NS |
| | 6/18/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.12** | **0.051** | NS | NS |
| | 10/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.06** | **0.04** | NS | NS |
| | 12/10/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.16** | **0.035** | NS | NS |
| | 6/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.16** | **0.11** | NS | NS |
| | 6/16/1999 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.16** | **0.11** | NS | NS |
| | 9/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **140** | **200** | NS | NS |
| | 12/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **220** | NS | NS |
| | 12/15/1999 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **200** | NS | NS |
| | 3/15/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **40** | **220** | NS | NS |
| | 6/21/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **80** | NS | NS |
| | 9/14/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **210** | NS | NS |
| | 12/20/2000 | REG | <05 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | **75** | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **140** | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <50 J | **81** | NS | NS |
| | 10/18/2001 | FD | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **2.9 UJ** | **75** | NS | NS |
| | 6/7/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **162** | **72** | <45 | <34 |
| | 9/23/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **139** | **4.7B** | <10 | **5.3B** |
| | 11/25/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **29.1** | **2.5** | **2.9** | <2.0 |
| | 1/31/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **17.7B** | **6.4B** | **1.1** | **0.83B** |
| | 6/18/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | **2.8J** | **1.9** | **1.5** |
| | 9/12/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **14.9** | <4.9 | <4.7 |
| | 9/12/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **14.9** | <4.9 | <4.7 |
| | 12/12/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **7.0** | **7.0J** | <4.7 |
| | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **5.2** | <4.9 | <4.7 |
| | 6/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <9.4 | <5.9 |
| | 8/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **8.4** | <4.7 | <5.9 |
| | 11/19/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **55.6J** | **14.4** | <4.7 | <5.9 |
| | 3/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **0.1J** | <0.1 | **3.8** | **4.1** | **7.3** | **1.5** |
| MW-24 | 2/21/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **5.9** | **4.1** | NS | NS |
| | 4/22/1992 | REG FF | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | **0.7** | **1.8** | NS | NS |
| | 6/1/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.3** | **1.8** | NS | NS |
| | 6/17/1992 | REG | | | | | | | | | **0.41** | **2.4** | NS | NS |
| | 9/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.096** | **1.9** | NS | NS |
| | 12/13/1992 | REG | | | | | | | | | **0.076** | **1.9** | NS | NS |
| | 12/14/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | **1.9** | NS | NS |
| | 3/23/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.08** | **1.8** | NS | NS |
| | 6/17/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | **1.9** | NS | NS |
| | 9/28/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | **1.4** | NS | NS |
| | 12/6/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.34** | **1.4** | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.16** | **1.4** | NS | NS |
| | 6/7/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.47** | **1.5** | NS | NS |
| | 6/7/1994 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.58** | **1.5** | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-24 | 9/14/1994 | REG FF | 1.8 | <1 | <0.5 | <1 | 1.1 | <1 | 2.9 | <0.5 | 1.1 | 1.5 | NS | NS |
| | 1/17/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 0.027 | 0.7 | NS | NS |
| | 4/21/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 0.04 | 1.0 | NS | NS |
| | 7/12/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | 0.79 | NS | NS |
| | 7/12/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | 0.78 | NS | NS |
| | 10/26/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | 0.61 | NS | NS |
| | 1/26/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | 0.73 | NS | NS |
| | 4/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | 0.8 | <0.7 | 1.3 | 0.6 | <0.5 | <0.03 | 0.73 | NS | NS |
| | 7/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.68 | NS | NS |
| | 10/23/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.67 | NS | NS |
| | 2/26/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.77 | NS | NS |
| | 6/4/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.66 | NS | NS |
| | 9/18/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.84 | NS | NS |
| | 9/18/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.78 | NS | NS |
| | 12/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.73 | NS | NS |
| | 3/18/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.58 | NS | NS |
| | 6/24/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.73 | NS | NS |
| | 9/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.71 | NS | NS |
| | 9/16/1998 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.73 | NS | NS |
| MW-25 | 2/20/1992 | REG FF | <0.5 | 2.0 | <0.5 | <1 | 7.0 | <1 | <1 | <0.5 | 0.33 | 2.4 | NS | NS |
| | 6/2/1992 | REG FF | <0.5 | 1 | <0.5 | <1 | 5.0 | <1 | <1 | <0.5 | 0.29 | 3.0 | NS | NS |
| | 6/8/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.28 | 0.06 | NS | NS |
| | 6/8/1992 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.24 | 0.06 | NS | NS |
| | 9/14/1992 | REG FF | <0.5 | 3.2 | 1.8 | <1 | 15 | <1 | <1 | <0.5 | 1.20 | 2.4 | NS | NS |
| | 12/17/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | 1.9 | <1 | <1 | <0.5 | 0.48 | 2.3 | NS | NS |
| | 3/15/1993 | REG | | | | | | | | | 0.78 | 1.8 | NS | NS |
| | 3/23/1993 | REG FF | <0.5 | 1.0 | 1.7 | <1 | 2.3 | <1 | <1 | <0.5 | 0.34 | 3.2 | NS | NS |
| | 7/1/1993 | REG FF | <0.5 | 1.1 | 1.4 | <1 | 1.2 | <1 | <0.5 | <0.5 | 0.70 | 2.7 | NS | NS |
| | 9/28/1993 | REG | | | | | | | | | 0.061 | 1.5 | NS | NS |
| | 9/30/1993 | REG FF | <0.5 | 1.8 | 1.7 | <1 | 22 | <1 | <1 | <0.5 | 0.29 | 2.1 | NS | NS |
| | 12/9/1993 | REG | <0.5 | 5.5 | 2.20 | <1 | 35 | <1 | <1 | <0.5 | 0.64 | 3.1 | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | 8.0 | 2.7 | <1 | 36 | <1 | <1 | <0.5 | 0.22 | 1.9 | NS | NS |
| | 6/7/1994 | REG FF | <0.5 | 4.5 | <0.5 | <1 | 17 | <1 | <1 | <0.5 | 1.8 | 1.1 | NS | NS |
| | 9/14/1994 | REG FF | <0.5 | 4.0 | 1.2 | <1 | 7.5 | <1 | <1 | <0.5 | 2.9 | 1.7 | NS | NS |
| | 9/14/1994 | FD FF | <0.5 | 4.6 | 1.3 | <1 | 10 | <1 | <1 | <0.5 | 7.9 | 1.6 | NS | NS |
| | 9/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 3.6 | 0.12 | NS | NS |
| | 1/19/1995 | REG FF | <0.5 | 2.0 | <0.5 | <0.5 | 1.8 | <0.5 | <0.5 | <0.5 | 0.044 | 1.3 | NS | NS |
| | 4/22/1995 | REG FF | <0.5 | 2.0 | <0.5 | <0.5 | 2.3 | <0.5 | <0.5 | <0.5 | 0.26 | 1.2 | NS | NS |
| | 4/22/1995 | FD FF | <0.5 | 1.8 | <0.5 | <0.5 | 2.1 | <0.5 | <0.5 | <0.5 | 0.24 | 1.3 | NS | NS |
| | 7/13/1995 | REG FF | <0.5 | 2.8 | 0.7 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 0.43 | 2.1 | NS | NS |
| | 7/13/1995 | FD FF | <0.5 | 2.8 | 1.1 | <0.5 | 1.9 | <0.5 | <0.5 | <0.5 | 0.44 | 2.1 | NS | NS |
| | 10/27/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 0.11 | 1.9 | NS | NS |
| | 10/27/1995 | FD FF | <0.5 | 0.6 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 0.11 | 1.8 | NS | NS |
| | 1/29/1996 | REG FF | <0.5 | 1.5 | 0.96 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 0.29 | 1.7 | NS | NS |
| | 1/29/1996 | FD FF | <0.5 | 1.5 | 0.91 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 0.27 | 1.6 | NS | NS |
| | 4/18/1996 | REG FF | <0.5 | 0.8 | 0.6 | <0.5 | 0.8 | <0.5 | <0.5 | 0.9 | 0.03 | 1.4 | NS | NS |
| | 7/19/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.05 | 1.5 | NS | NS |
| | 7/19/1996 | FD FF | <0.5 | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.04 | 1.4 | NS | NS |
| | 10/24/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.17 | 1.4 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-25 | 10/24/1996 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.16** | **1.4** | NS | NS |
| | 2/27/1997 | REG FF | <0.5 | **0.62** | <0.5 | <0.5 | **2.9** | <0.5 | <0.5 | <0.5 | **0.64** | **1.7** | NS | NS |
| | 6/5/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | **1.8** | <0.5 | <0.5 | <0.5 | **0.36** | **1.4** | NS | NS |
| | 6/5/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | **1.9** | <0.5 | <0.5 | <0.5 | **0.34** | **1.4** | NS | NS |
| | 9/19/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | **0.81** | <0.5 | <0.5 | <0.5 | **0.63** | **1.6** | NS | NS |
| | 12/18/1997 | REG FF | <0.5 | **1.1** | <0.5 | <0.5 | **3.4** | <0.5 | <0.5 | <0.5 | **0.50** | **1.4** | NS | NS |
| | 12/18/1997 | FD FF | <0.5 | **1.1** | <0.5 | <0.5 | **3.3** | <0.5 | <0.5 | <0.5 | **0.50** | **1.4** | NS | NS |
| | 3/19/1998 | REG FF | <0.5 | **1.5** | <0.5 | <0.5 | **4.1** | <0.5 | <0.5 | <0.5 | **0.52** | **1.4** | NS | NS |
| | 3/19/1998 | FD FF | <0.5 | **1.4** | <0.5 | <0.5 | **4.0** | <0.5 | <0.5 | <0.5 | **0.46** | **1.3** | NS | NS |
| | 6/25/1998 | REG FF | <0.5 | **1.8** | <0.5 | <0.5 | **5.4** | <0.5 | <0.5 | <0.5 | **0.61** | **1.4** | NS | NS |
| | 9/17/1998 | REG FF | <0.5 | **1.0** | <0.5 | <0.5 | **2.5** | <0.5 | <0.5 | <0.5 | **0.64** | **1.6** | NS | NS |
| | 12/17/1998 | REG FF | <0.5 | **2.0** | <0.5 | <0.5 | **5.5** | <0.5 | <0.5 | <0.5 | **0.32** | **1.3** | NS | NS |
| | 12/17/1998 | FD FF | <0.5 | **2.1** | **0.5** | <0.5 | **6.0** | <0.5 | <0.5 | <0.5 | **0.32** | **1.3** | NS | NS |
| | 3/18/1999 | REG FF | <0.5 | **1.0** | <0.5 | <0.5 | **2.0** | <0.5 | <0.5 | <0.5 | **0.34** | **1.2** | NS | NS |
| | 6/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **1.20** | **1.7** | NS | NS |
| | 9/15/1999 | REG FF | <0.5 | **1.0** | **0.92** | <0.5 | **5.5** | <0.5 | <0.5 | <0.5 | **660** | **1,800** | NS | NS |
| | 12/14/1999 | REG FF | <0.5 | **0.62** | **0.99** | <0.5 | **3.7** | <0.5 | <0.5 | <0.5 | **1,900** | **2,500** | NS | NS |
| | 3/15/2000 | REG FF | <0.5 | **0.30** | **0.69** | <0.5 | **1.6** | <0.5 | <0.5 | <0.5 | **1,400** | **2,000** | NS | NS |
| | 3/15/2000 | FD FF | <0.5 | **0.28** | **0.65** | <0.5 | **1.3** | <0.5 | <0.5 | <0.5 | **1,400** | **2,100** | NS | NS |
| | 6/21/2000 | REG FF | <0.5 | <0.5 | **0.53** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **1,400** | NS | NS |
| | 9/13/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **290** | **1,600** | NS | NS |
| | 12/20/2000 | REG | <0.5 | <0.5 | **0.85** | <0.5 | <0.5 | <0.5 | <0.5 | <3 | **130** | **1,400** | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **930** | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **6.7 UJ** | **820** | NS | NS |
| | 6/7/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **91.7** | **1,030** | <45 | <34 |
| | 9/23/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **<100** | **263** | <10 | **3.4B** |
| | 9/23/2002 | FD | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **9.9B** | **258** | <10 | **3B** |
| | 11/25/2002 | FD | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <9.0 | **148** | **6.9** | <2.0 |
| | 1/31/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **4.1B** | **55.6** | **3.1** | <2 |
| | 6/18/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | **459** | **2.1** | **0.6J** |
| | 9/11/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **85.9** | <4.9 | <4.7 |
| | 12/12/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **49.0** | <4.9 | <4.7 |
| | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **11.2** | <4.9 | **4.9J** |
| | 6/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **40.0** | <9.4 | <5.9 |
| | 8/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **63.5** | <4.7 | <5.9 |
| | 11/19/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **87.3** | <4.7 | <5.9 |
| | 3/16/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **18.7** | <4.7 | <5.9 |
| MW-34s | 2/21/1992 | REG FF | <0.5 | <1 | >0.5 | <1 | <1 | <1 | <1 | <0.5 | **1.1** | **0.05** | NS | NS |
| | 6/5/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 12/17/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.12** | <0.01 | NS | NS |
| | 3/23/1993 | REG FF | <0.5 | <1 | **1.5** | <1 | <1 | <1 | <1 | <0.5 | **0.045** | <0.01 | NS | NS |
| | 6/14/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.40** | <0.01 | NS | NS |
| | 12/7/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 12/7/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.074** | <0.01 | NS | NS |
| | 3/14/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.34** | <0.01 | NS | NS |
| | 1/18/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.019** | **0.002** | NS | NS |
| | 1/18/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.008** | <0.002 | NS | NS |
| | 4/18/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.16** | <0.005 | NS | NS |
| | 7/11/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-34s | 10/24/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 1/25/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 4/16/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | **0.5** | <0.5 | **0.6** | <0.03 | <0.005 | NS | NS |
| | 7/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 10/22/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 10/22/1996 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 3/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.04** | <0.005 | NS | NS |
| | 6/23/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 3/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/14/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **6** | NS | NS |
| | 6/20/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **10** | NS | NS |
| | 9/12/2000 | REG | <0.5 | <0.5 | **1.0** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **31** | **20** | NS | NS |
| | 12/19/2000 | REG | <0.5 | <0.5 | **0.68** | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | **12** | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **10** | NS | NS |
| | 10/16/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **47** | **15** | NS | NS |
| | 6/4/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | **17.5** | <45 | <34 |
| | 9/23/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **18.2B** | **13.3** | <10 | **2.8B** |
| | 11/22/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <9.0 | **20.5** | **6.9B** | <2.0 |
| | 1/31/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **35B** | **9.5B** | **1.8** | <2 |
| | 6/17/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | **1.9** | **0.9J** |
| | 9/8/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **10** | <4.9 | <4.7 |
| | 12/16/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **7.7** | <4.9 | <4.7 |
| | 3/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 6/7/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <9.4 | <5.9 |
| | 8/10/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **0.96J** | <4.7 | <5.9 |
| | 11/19/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 3/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.050 | **2.0** | **1.6** | **2.7** |
| **Shallow to Middle** | | | | | | | | | | | | | | |
| MW-7i | 2/20/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1.8** | **0.07** | NS | NS |
| | 6/9/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.18** | <0.01 | NS | NS |
| | 6/9/1992 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.14** | <0.01 | NS | NS |
| | 6/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | **0.034** | NS | NS |
| | 12/13/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.049** | <0.01 | NS | NS |
| | 3/25/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.23** | <0.01 | NS | NS |
| | 3/25/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.26** | **0.012** | NS | NS |
| | 6/16/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 6/16/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 9/28/1993 | REG FF | <0.5 | <1 | **2.6** | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 12/8/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.10** | <0.01 | NS | NS |
| | 6/7/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.17** | <0.01 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-7i | 4/22/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.27** | **0.033** | NS | NS |
| | 4/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | **0.8** | **0.09** | **0.015** | NS | NS |
| | 6/5/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/24/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/18/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/23/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **290** | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <50 J | **15** | NS | NS |
| | 6/12/2002 | FS FF | **0.16** | <0.5 | <0.5 | <0.5 | **0.12** | <0.5 | <0.5 | <0.5 | <100 | **2.5** | <45 | <34 |
| | 9/18/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 439 | **3.6B** | 4.2B | 4B |
| | 11/21/2002 | FS | <0.5 | **1.0** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **29.8B** | **1.5B** | **8B** | **3.6B** |
| | 1/28/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **38B** | <5 | **3.4** | <2 |
| | 6/19/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **76J** | <5 | **2.6** | <2 |
| | 9/9/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **144J** | <5 | <4.9 | <2 |
| | 12/9/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 3/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 6/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **98.6J** | <0.84 | <9.4 | <5.9 |
| | 8/13/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 11/18/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 3/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| MW-9 | 5/9/2001 | REG | <5 | **36** | **9.8** | <5 | **210** | <5 | <5 | <5 | <30 | **830** | NS | NS |
| | 10/18/2001 | REG | **0.93** | **24** | **6.6** | <0.5 | **190** | **3.0** | <0.5 | **1.6** | **60 J** | **2,000** | NS | NS |
| | 6/12/2002 | FS FF | **0.11** | **2.1** | **0.49** | <0.5 | **12** | **0.28** | <5 | <5 | <100 | **619** | <45 | <34 |
| | 9/19/2002 | FS | <0.5 | **0.56** | **.39J** | <0.5 | **4.9** | <0.5 | <0.5 | <0.5 | <100 | **458** | <10 | **4.7B** |
| | 11/21/2002 | FS | **0.14** | **8.6** | **2.4** | **0.41** | **46** | **0.69** | <0.5 | **0.62** | 9.0 | **753** | **13.4B** | **4B** |
| | 1/29/2003 | FS | <0.5 | **0.41J** | **0.24J** | <0.5 | **2.7** | <0.5 | <0.5 | <0.5 | **5.2B** | **383** | **1.6B** | <2 |
| | 1/29/2003 | FD | <0.5 | **0.4J** | **0.24J** | <0.5 | **2.7** | <0.5 | <0.5 | <0.5 | <100 | **376** | **2.2** | <2 |
| | 6/19/2003 | FS | <0.5 | **0.57** | **0.31J** | <0.5 | **3.8** | **0.16J** | <0.5 | <0.5 | <100 | **356** | **2.1** | <2 |
| | 9/11/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | **3J** | <0.5 | <0.5 | <0.5 | <45.3 | **314** | <4.9 | <4.7 |
| | 12/10/2003 | FS | <0.1 | **0.2J** | **0.2J** | <0.1 | **2.1** | <0.1 | **0.1J** | <0.1 | <45.3 | **296** | <4.9 | <4.7 |
| | 3/12/2004 | FS | <0.1 | **0.1J** | **0.1J** | <0.1 | **1.6** | <0.1 | **0.1J** | <0.1 | <45.3 | **242** | <4.9 | <4.7 |
| | 6/11/2004 | FS | <0.1 | **0.7** | **0.8** | ND | **11** | **0.1J** | **0.3J** | **0.1J** | <49.5 | **322** | <9.4 | <5.9 |
| | 8/11/2004 | FS | <0.1 | **0.3J** | **0.4J** | <0.1 | **4.9** | <0.1 | **0.3J** | <0.1 | <49.5 | **343** | <4.7 | <5.9 |
| | 11/18/2004 | FS | <0.1 | **0.2J** | **0.2J** | <0.1 | **2.8** | <0.1 | **0.2J** | <0.1 | <49.5 | **295** | <4.7 | <5.9 |
| | 3/16/2005 | FS | <0.1 | **0.4J** | **0.4J** | <0.1 | **5.8** | <0.1 | **0.3J** | <0.1 | <49.5 | **355** | <4.7 | <5.9 |
| MW-11 | 2/26/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | **1.0** | <1 | <1 | <0.5 | **1.7** | **0.35** | NS | NS |
| | 6/9/1992 | REG FF | <0.5 | <1 | **1.2** | <1 | **9.0** | <1 | **1.0** | <0.5 | **3.7** | **0.27** | NS | NS |
| | 12/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | **7.8** | <1 | **1.1** | <0.5 | **0.32** | **0.19** | NS | NS |
| | 3/26/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | **6.5** | <1 | <1 | <0.5 | **0.46** | **0.2** | NS | NS |
| | 6/18/1993 | REG FF | <0.5 | <1 | **1.6** | <1 | **14** | <1 | **2.0** | <0.5 | **0.74** | **0.32** | NS | NS |
| | 10/1/1993 | REG FF | <0.5 | **1.1** | **1.2** | <1 | **23** | <1 | **1.7** | <0.5 | **0.71** | **0.12** | NS | NS |
| | 12/10/1993 | REG | <0.5 | **1.9** | <0.5 | <1 | **22** | <1 | **1.4** | <0.5 | **0.66** | **0.11** | NS | NS |
| | 3/16/1994 | REG FF | <0.5 | **2.4** | <0.5 | <1 | **19** | <1 | **1.2** | <0.5 | **0.57** | **0.065** | NS | NS |
| | 6/8/1994 | REG FF | | | | | | | | | <0.04 | **0.053** | NS | NS |
| | 6/8/1994 | FD FF | | | | | | | | | <0.04 | **0.058** | NS | NS |
| | 6/9/1994 | REG | <0.5 | <1 | <0.5 | <1 | **11** | <1 | **1.6** | <0.5 | **0.91** | **0.082** | NS | NS |
| | 6/9/1994 | FD | <0.5 | **1.5** | <0.5 | <1 | **13** | **1.5** | **1.6** | <0.5 | **0.87** | **0.083** | NS | NS |
| | 9/14/1994 | REG FF | <0.5 | **2.6** | **1.8** | <1 | **32** | **2.5** | **2.9** | <0.5 | **0.84** | **0.23** | NS | NS |
| | 1/19/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | **8.6** | <0.5 | <0.5 | <0.5 | <0.007 | **0.036** | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-11 | 4/24/1995 | REG FF | <0.5 | 1.7 | 0.6 | <0.5 | 18 | <0.5 | <0.5 | <0.5 | <0.03 | 0.086 | NS | NS |
| | 4/24/1995 | FD FF | <0.5 | 1.9 | 0.7 | <0.5 | 19 | 0.8 | <0.5 | <0.5 | 0.04 | 0.086 | NS | NS |
| | 7/13/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | 13 | <0.5 | <0.5 | <0.5 | 0.38 | 0.14 | NS | NS |
| | 10/26/1995 | REG FF | <0.5 | 3.0 | 1.0 | <0.5 | 27 | 1 | <0.5 | <0.5 | <0.03 | 0.059 | NS | NS |
| | 1/29/1996 | REG FF | <0.5 | 3.5 | 1.4 | <0.5 | 30 | 1.3 | <0.5 | <0.5 | <0.03 | 0.028 | NS | NS |
| | 4/19/1996 | REG FF | <0.5 | 4.2 | 1.4 | <0.5 | 36 | 2.2 | <0.5 | <0.5 | <0.03 | 0.07 | NS | NS |
| | 7/19/1996 | REG FF | 0.7 | 9.3 | 2.2 | <0.5 | 80 | 3.7 | <0.5 | 0.9 | <0.03 | 0.13 | NS | NS |
| | 10/24/1996 | REG FF | <0.5 | 6.4 | 1.8 | <0.5 | 55 | 2.8 | <0.5 | 1.0 | 0.089 | 0.14 | NS | NS |
| | 2/27/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.007 | NS | NS |
| | 6/11/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | 2.1 | <0.5 | <0.5 | <0.5 | <0.03 | 0.026 | NS | NS |
| | 6/11/1997 | FD FF | <0.5 | 0.89 | <0.5 | <0.5 | 6.1 | <0.5 | <0.5 | <0.5 | <0.03 | 0.026 | NS | NS |
| | 9/19/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.007 | NS | NS |
| | 12/18/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.013 | NS | NS |
| | 3/19/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.016 | NS | NS |
| | 6/25/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.038 | NS | NS |
| | 9/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.011 | NS | NS |
| | 12/7/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.056 | NS | NS |
| | 3/18/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.012 | NS | NS |
| | 6/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 7.0 | NS | NS |
| | 12/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/15/1999 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/16/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 7.0 | NS | NS |
| | 6/21/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 7.0 | NS | NS |
| | 9/12/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 6.0 | NS | NS |
| | 12/20/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | 6.0 | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | 40 | 49 | NS | NS |
| | 10/17/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | 1.0 | <0.5 | <0.5 | <0.5 | 93 | 150 | NS | NS |
| | 6/10/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | 47.9 | <45 | <34 |
| | 6/10/2002 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | 0.3 | <0.5 | <0.5 | <0.5 | <100 | 58.3 | <45 | <34 |
| | 9/19/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 76.8B | 45.1 | <10 | 4B |
| | 9/19/2002 | FD | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 5,250 | 482 | 29.4 | 4.8B |
| | 11/22/2002 | FS | 0.27 | 0.12 | 0.43 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 22.5B | 127 | 12.2B | 3.8B |
| | 1/29/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | 0.18J | <0.5 | <0.5 | <0.5 | 15.5B | 51.8 | 1.6B | <2 |
| | 6/19/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | 0.15J | <0.5 | <0.5 | <0.5 | <100 | 50 | 1.7 | <2 |
| | 9/11/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | 36.9 | <4.9 | <4.7 |
| | 12/11/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | 27.5 | <4.9 | <4.7 |
| | 3/10/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | 26.2 | <4.9 | 7.8J |
| | 6/10/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 84.8J | 33.3 | <4.7 | <5.9 |
| | 8/12/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | 0.1J | <0.1 | <0.1 | <0.1 | <49.5 | 34.5 | <4.7 | <5.9 |
| | 11/18/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | 28.7 | <4.7 | <5.9 |
| | 3/16/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | 21.9 | <4.7 | <5.9 |
| MW-13 | 2/24/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 2.81 | 0.02 | NS | NS |
| | 6/2/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 1.2 | 0.01 | NS | NS |
| | 9/17/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 1.3 | 0.023 | NS | NS |
| | 12/13/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 1.4 | 0.017 | NS | NS |
| | 3/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.66 | <0.01 | NS | NS |
| | 6/21/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 1.1 | 0.027 | NS | NS |
| | 10/2/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.71 | 0.014 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-13 | 10/2/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1.5** | **0.038** | NS | NS |
| | 12/10/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.72** | **0.018** | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **61** | NS | NS |
| | 10/17/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **32** | **19** | NS | NS |
| | 6/10/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **35.5** | **13.8** | <45 | <34 |
| | 9/19/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **96.6B** | **1.9B** | <10 | **5.4B** |
| | 11/21/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **11.7B** | **0.8B** | **4.7B** | <2.0 |
| | 1/29/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **10.8B** | <5 | **1.1B** | <2 |
| | 6/19/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | **2.0** | <2 |
| | 9/12/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **2.5J** | <4.9 | <4.7 |
| | 12/10/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **0.79J** | <4.9 | <4.7 |
| | 3/12/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 6/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | **7.3J** |
| | 8/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 11/18/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **239** | **1.3J** | <4.7 | <5.9 |
| | 3/16/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **246** | **2.1J** | **5.0J** | <5.9 |
| MW-18 | 2/27/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.95** | **1.2** | NS | NS |
| | 6/8/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | **0.18** | NS | NS |
| | 3/17/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **110** | NS | NS |
| | 3/17/2000 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **110** | NS | NS |
| MW-20 | 3/10/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.16** | **0.05** | NS | NS |
| | 6/9/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.64** | **0.16** | NS | NS |
| | 9/19/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.57** | **0.1** | NS | NS |
| | 12/16/1992 | REG FF | | | | | | | | | **0.14** | **0.012** | NS | NS |
| | 12/18/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | | | NS | NS |
| | 3/24/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.062** | <0.01 | NS | NS |
| | 7/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.073** | <0.01 | NS | NS |
| | 9/28/1993 | REG | | | | | | | | | **0.041** | <0.01 | NS | NS |
| | 9/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 12/8/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.27** | <0.01 | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | <5 | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <50 J | **0.93** | NS | NS |
| | 6/5/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **14.1** | <5 | <45 | <34 |
| | 9/20/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **<100** | <5 | **3B** | **4B** |
| | 11/22/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <9.0 | **0.3** | **6.8B** | **2.1B** |
| | 1/31/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **4.9B** | <5 | **8.1** | <2 |
| | 6/17/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **42J** | <5 | **5.8** | <2 |
| | 9/11/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **13.J** | **5.8J** | <4.7 |
| | 12/12/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | **7.1J** | <4.7 |
| | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | **7.5J** | <4.7 |
| | 6/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <9.4 | <5.9 |
| | 8/10/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | **6.0J** | <5.9 |
| | 11/19/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 3/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.050 | **0.21** | **2.9** | **6.9** |
| MW-21 | 2/21/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.38** | **0.05** | NS | NS |
| | 6/1/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.04** | **0.01** | NS | NS |
| | 9/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.088** | <0.01 | NS | NS |
| | 12/13/1992 | REG | | | | | | | | | **0.15** | **0.013** | NS | NS |
| | 12/14/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-21 | 3/22/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.99** | <0.01 | NS | NS |
| | 6/30/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.17** | <0.01 | NS | NS |
| | 9/28/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 12/6/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1.0** | **0.033** | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.084** | <0.01 | NS | NS |
| | 6/7/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.25** | <0.01 | NS | NS |
| | 9/12/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.37** | <0.01 | NS | NS |
| | 1/19/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.01** | <0.002 | NS | NS |
| | 1/19/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.007 | <0.002 | NS | NS |
| | 4/21/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 7/12/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 10/26/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 1/26/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 4/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | **0.9** | <0.7 | **1.3** | **0.6** | <0.5 | <0.03 | <0.005 | NS | NS |
| | 7/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 10/23/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 2/26/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | | <0.005 | NS | NS |
| | 2/26/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/4/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.03** | <0.005 | NS | NS |
| | 9/18/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 3/18/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 3/18/1998 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/24/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 3/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.018** | NS | NS |
| | 9/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **8.0** | NS | NS |
| | 3/14/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **8.0** | NS | NS |
| | 6/21/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/13/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/20/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | <5 | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **14** | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **2 UJ** | **2.5** | NS | NS |
| | 6/5/2002 | FS FF | <0.5 | **0.11** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | <45 | <34 |
| | 9/20/2002 | FS | <.5 | **.31J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | **1.7B** | **3.3B** | <50 |
| | 11/22/2002 | FS | <0.5 | **0.21** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **9.4B** | **1.5B** | **9.1B** | <2.0 |
| | 1/31/2003 | FS | <0.5 | **0.26J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **8.8B** | <5 | **5.3** | <2 |
| | 6/17/2003 | FS | <0.5 | **0.22J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | **4.8** | **0.2J** |
| | 9/11/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **0.84J** | <4.9 | <4.7 |
| | 12/12/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **385** | **24.4** | **6.4J** | <4.7 |
| | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **0.51J** | <4.9 | <4.7 |
| | 6/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <9.4 | <5.9 |
| | 8/10/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 11/19/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 3/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **8.4** | **2.3** | **6.6** | **5.2** |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-30p | 2/25/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.29** | **0.25** | NS | NS |
| | 6/15/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **4.9** | **0.36** | NS | NS |
| | 9/27/1993 | REG FF | <0.5 | **1.5** | **0.93** | <1 | <1 | <1 | <1 | <0.5 | **0.3** | **0.29** | NS | NS |
| | 12/9/1993 | REG | <0.5 | **1.3** | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.12** | **0.28** | NS | NS |
| | 3/14/1994 | REG FF | <0.5 | <1 | **0.91** | <1 | <1 | <1 | <1 | <0.5 | **0.15** | **0.25** | NS | NS |
| | 6/6/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.27** | **0.3** | NS | NS |
| | 9/12/1994 | REG FF | <0.5 | **1.2** | **1.0** | <1 | <1 | <1 | <1 | <0.5 | **0.2** | **0.25** | NS | NS |
| | 1/20/1995 | REG FF | <0.5 | **0.8** | **0.6** | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.007 | **0.28** | NS | NS |
| | 4/20/1995 | REG FF | <0.5 | **0.5** | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | **0.27** | NS | NS |
| | 7/10/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | **0.25** | NS | NS |
| | 10/24/1995 | REG FF | <0.5 | **0.7** | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | **0.25** | NS | NS |
| | 1/26/1996 | REG FF | <0.5 | **0.7** | **0.7** | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | **0.25** | NS | NS |
| | 4/16/1996 | REG FF | <0.5 | **0.6** | **0.7** | <0.5 | <0.7 | <0.5 | <0.5 | **0.9** | <0.03 | **0.24** | NS | NS |
| | 7/17/1996 | REG FF | <0.5 | **0.7** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.27** | NS | NS |
| | 10/23/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.24** | NS | NS |
| | 10/23/1996 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.29** | NS | NS |
| MW-33p | 3/2/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.37** | **0.05** | NS | NS |
| | 6/2/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.16** | **0.06** | NS | NS |
| | 9/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | **0.028** | NS | NS |
| | 12/14/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.043** | **0.035** | NS | NS |
| | 3/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.18** | **0.016** | NS | NS |
| | 6/15/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | **0.036** | NS | NS |
| | 9/30/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | **0.038** | NS | NS |
| | 9/30/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | **1.7** | <0.5 | <0.04 | **0.038** | NS | NS |
| | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | **0.042** | NS | NS |
| | 3/16/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.041** | **0.042** | NS | NS |
| | 6/8/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.091** | **0.053** | NS | NS |
| | 9/14/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.06** | **0.039** | NS | NS |
| MW-36 | 3/10/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.17** | **0.14** | NS | NS |
| | 6/8/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.17** | **0.05** | NS | NS |
| | 9/19/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.19** | **0.019** | NS | NS |
| | 9/19/1992 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.23** | **0.02** | NS | NS |
| | 12/16/1992 | REG FF | | | | | | | | | <0.04 | <0.01 | NS | NS |
| | 12/17/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.46** | **0.074** | NS | NS |
| | 3/24/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.13** | **0.03** | NS | NS |
| | 7/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <0.5 | <0.5 | **0.21** | **0.015** | NS | NS |
| | 9/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.056** | <0.01 | NS | NS |
| | 12/8/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.85** | **0.027** | NS | NS |
| MW-38 | 6/24/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.93** | **0.32** | NS | NS |
| | 6/24/1992 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.76** | **0.26** | NS | NS |
| | 9/19/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.1** | **0.012** | NS | NS |
| | 12/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.15** | **0.011** | NS | NS |
| | 3/15/1993 | REG | | | | | | | | | **1.4** | **0.038** | NS | NS |
| | 3/24/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.12** | **0.014** | NS | NS |
| | 7/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.15** | <0.01 | NS | NS |
| | 9/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.075** | <0.01 | NS | NS |
| | 9/29/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.12** | **0.013** | NS | NS |
| | 12/8/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.38** | <0.01 | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-38 | 6/8/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.49** | **0.013** | NS | NS |
| | 9/13/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.23** | **0.047** | NS | NS |
| | 1/17/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.13** | **0.006** | NS | NS |
| | 4/18/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 0.03 | <0.005 | NS | NS |
| | 7/10/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 10/24/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 10/24/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 1/25/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 4/16/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | **0.6** | <0.5 | **0.5** | <0.03 | <0.005 | NS | NS |
| | 7/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 7/17/1996 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 10/22/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/16/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 3/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/23/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 3/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/15/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **60** | **370** | NS | NS |
| | 9/13/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/19/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | <5 | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | <5 | NS | NS |
| | 10/17/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **34** | **2.2** | NS | NS |
| | 6/4/2002 | FS FF | <0.5 | **0.2** | <0.5 | **1.3** | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | <45 | <34 |
| | 9/23/2002 | FS | <0.5 | **0.1J** | <0.5 | **0.81** | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | <10 | **4.8B** |
| | 11/22/2002 | FS | <0.5 | <0.5 | <0.5 | **0.45** | <0.5 | <0.5 | <0.5 | <0.5 | <9.0 | **0.3** | **5.9B** | <2.0 |
| | 1/30/2003 | FS | <0.5 | <0.5 | <0.5 | **0.69** | <0.5 | <0.5 | <0.5 | <0.5 | **4.2B** | <5 | <1 | <2 |
| | 6/17/2003 | FS | <0.5 | <0.5 | <0.5 | **0.29J** | <0.5 | <0.5 | <0.5 | <0.5 | **50J** | **2.6J** | **1.8** | **0.3J** |
| | 9/8/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 12/16/2003 | FS | <0.1 | <0.1 | <0.1 | **0.6** | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 3/8/2004 | FS | <0.1 | <0.1 | <0.1 | **0.6** | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | **5.3J** |
| | 6/7/2004 | FS | <0.1 | <0.1 | <0.1 | **0.2J** | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <9.4 | <5.9 |
| | 8/10/2004 | FS | <0.1 | <0.1 | <0.1 | **0.1J** | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 11/15/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 3/14/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| MW-39 | 6/25/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.21** | **0.09** | NS | NS |
| | 9/18/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.35** | **0.086** | NS | NS |
| | 12/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.27** | **0.13** | NS | NS |
| | 3/15/1993 | REG | | | | | | | | | **1.8** | **0.048** | NS | NS |
| | 3/24/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.12** | **0.012** | NS | NS |
| | 7/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <0.5 | <0.5 | **0.095** | <0.01 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-39 | 9/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.086** | <0.01 | NS | NS |
| | 12/8/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.83** | **0.023** | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.047** | <0.01 | NS | NS |
| | 6/8/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1.5** | **0.040** | NS | NS |
| | 9/13/1994 | REG FF | | | | | | | | | **0.045** | <0.01 | NS | NS |
| | 1/17/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.007 | **0.002** | NS | NS |
| | 1/17/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.007 | <0.002 | NS | NS |
| | 4/19/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 7/12/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.06** | <0.005 | NS | NS |
| | 10/25/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.03** | **0.028** | NS | NS |
| | 1/25/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 4/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | **0.8** | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 7/19/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 10/23/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.007** | NS | NS |
| | 9/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/17/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 3/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/24/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.005** | NS | NS |
| | 9/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.014** | NS | NS |
| | 3/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.007** | NS | NS |
| | 6/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/15/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/13/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **6.0** | NS | NS |
| | 12/19/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | <5 | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | <5 | NS | NS |
| | 10/17/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **33** | **1.6** | NS | NS |
| | 6/5/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <100 | <5 | <45 | <34 |
| | 6/5/2002 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <100 | <5 | <45 | <34 |
| | 9/23/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | **263** | <10 | **4.8B** |
| | 11/22/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <9.0 | **0.5B** | **4.1B** | **2.2B** |
| | 1/29/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | **1.7B** | <2 |
| | 6/17/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **139** | <5 | **2.2** | **0.5J** |
| | 9/8/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 12/12/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **2.0J** | **19.5** | **22.5** |
| | 3/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 6/7/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <9.4 | <5.9 |
| | 8/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | **5.4J** | <5.9 |
| | 11/15/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 3/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.050 | **0.23** | **1.9** | <0.0059 |
| MW-40 | 6/24/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **83** | **12** | NS | NS |
| | 9/18/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **130** | **25** | NS | NS |
| | 12/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **120** | **26** | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-40 | 3/15/1993 | REG | | | | | | | | | 84 | 25 | NS | NS |
| | 3/24/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 110 | 25 | NS | NS |
| | 7/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <0.5 | <0.5 | 99 | 25 | NS | NS |
| | 7/1/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <0.5 | <0.5 | 97 | 26 | NS | NS |
| | 9/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 110 | 27 | NS | NS |
| | 12/8/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 120 | 26 | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 79 | 24 | NS | NS |
| | 6/8/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 49 | 20 | NS | NS |
| | 9/13/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 78 | 19 | NS | NS |
| | 1/18/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 1.3 | 0.94 | NS | NS |
| | 4/19/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 0.87 | 0.99 | NS | NS |
| | 7/11/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 0.5 | 0.74 | NS | NS |
| | 7/11/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 0.48 | 0.68 | NS | NS |
| | 10/25/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 0.38 | 0.35 | NS | NS |
| | 1/25/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | 0.25 | 0.31 | NS | NS |
| | 4/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | 0.9 | <0.5 | <0.5 | 0.21 | 0.22 | NS | NS |
| | 7/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.39 | 0.47 | NS | NS |
| | 10/22/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.26 | 0.37 | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 1.7 | 1.4 | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.1 | 0.36 | NS | NS |
| | 6/3/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.08 | 0.36 | NS | NS |
| | 9/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.2 | 0.14 | NS | NS |
| | 12/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.15 | 0.15 | NS | NS |
| | 3/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.11 | 0.14 | NS | NS |
| | 3/17/1998 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.1 | 0.14 | NS | NS |
| | 6/23/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.072 | NS | NS |
| | 9/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.052 | NS | NS |
| | 12/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.06 | 0.09 | NS | NS |
| | 3/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.06 | 0.1 | NS | NS |
| | 6/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | 0.1 | NS | NS |
| | 9/15/1999 | REG FF | 0.73 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | 7.0 | NS | NS |
| | 12/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 360 | 170 | NS | NS |
| | 3/15/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 1,800 | 4,900 | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 220 | 100 | NS | NS |
| | 9/13/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 1,200 | 3,600 | NS | NS |
| | 12/19/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | 60 | 180 | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | 36 | 150 | NS | NS |
| | 10/17/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 58 | 130 | NS | NS |
| | 6/7/2002 | FS FF | 0.18 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 9.8 | 63.9 | <45 | <34 |
| | 9/23/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 22B | 124 | <10 | 6.6B |
| | 11/25/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 9.9 | 28.6 | 3.7 | <2.0 |
| | 1/31/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 8.2B | 39.1 | 2.4 | <2 |
| | 6/17/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 58J | 82 | 2.0 | 0.6J |
| | 9/8/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | 56.2 | <4.9 | <4.7 |
| | 12/11/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | 7.4 | <4.9 | <4.7 |
| | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | 21.5 | <4.9 | <4.7 |
| | 6/7/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | 20.7 | <9.4 | <5.9 |
| | 8/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | 33.3 | <4.7 | <5.9 |
| | 11/15/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | 25.2 | <4.7 | <5.9 |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-40 | 3/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.050 | **31.2** | <0.0047 | **2.1** |
| MW-41 | 6/25/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1.3** | **1.4** | NS | NS |
| | 9/18/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **200** | **20** | NS | NS |
| | 12/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **180** | **15** | NS | NS |
| | 3/15/1993 | REG | | | | | | | | | **110** | **14** | NS | NS |
| | 3/24/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **190** | **18** | NS | NS |
| | 3/24/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **180** | **16** | NS | NS |
| | 7/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <0.5 | <0.5 | **200** | **16** | NS | NS |
| | 9/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **160** | **26** | NS | NS |
| | 12/8/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **120** | **17** | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **100** | **14** | NS | NS |
| | 6/8/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **98** | **15** | NS | NS |
| | 9/13/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **73** | **12** | NS | NS |
| | 1/18/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **9.2** | **3** | NS | NS |
| | 4/19/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **3.1** | **2.5** | NS | NS |
| | 7/11/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **7.8** | **3.7** | NS | NS |
| | 10/25/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.92** | **1.6** | NS | NS |
| | 1/25/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.68** | **1.7** | NS | NS |
| | 4/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | **0.9** | <0.7 | **1.5** | **0.7** | <0.5 | **0.61** | **1.4** | NS | NS |
| | 4/17/1996 | FD FF | <0.5 | <0.5 | <0.5 | **0.8** | <0.7 | **1.4** | **0.6** | <0.5 | **0.65** | **1.5** | NS | NS |
| | 7/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.82** | **1.3** | NS | NS |
| | 10/22/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **3.3** | **1.8** | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **24** | **8.9** | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.39** | **0.63** | NS | NS |
| | 9/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.4** | **0.45** | NS | NS |
| | 12/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **7.5** | **2.6** | NS | NS |
| | 3/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.68** | **0.27** | NS | NS |
| | 6/23/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **14** | **20** | NS | NS |
| | 9/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.37** | **0.19** | NS | NS |
| | 9/15/1998 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.4** | **0.2** | NS | NS |
| | 12/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.7** | **0.29** | NS | NS |
| | 3/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.56** | **0.36** | NS | NS |
| | 6/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **62** | **50** | NS | NS |
| | 12/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **34** | **320** | NS | NS |
| | 3/15/2000 | REG FF | **0.25** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **6,100** | **3,600** | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **60** | **1,500** | NS | NS |
| | 9/13/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **74** | **980** | NS | NS |
| | 12/19/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | **220** | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | **240** | **420** | NS | NS |
| | 10/17/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **64** | **96** | NS | NS |
| | 6/7/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **5,270** | **4,490** | <45 | <34 |
| | 9/23/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **4,810** | **740** | <10 | **4B** |
| | 11/25/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **65.4** | **114** | **3.9** | <2.0 |
| | 1/30/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **63B** | **189** | <1 | <2 |
| | 6/18/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **224** | **424** | **0.7** | **0.2J** |
| | 9/8/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **456** | <4.9 | <4.7 |
| | 12/11/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **528** | <4.9 | <4.7 |
| | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **379** | <4.9 | <4.7 |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-41 | 6/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **59.5J** | **612** | <9.4 | <5.9 |
| | 8/11/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **91.5J** | **259** | <4.7 | <5.9 |
| | 11/15/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **52.9J** | **516** | <4.7 | <5.9 |
| | 3/15/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | **81.3** | **561** | **2.3** | **1.70** |
| **Shallow to Middle to Deep** | | | | | | | | | | | | | | |
| MW-26p | 3/3/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.04** | <0.01 | NS | NS |
| | 6/3/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.07** | <0.01 | NS | NS |
| | 6/3/1992 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.28** | **0.02** | NS | NS |
| | 6/17/1992 | REG | | | | | | | | | **1.3** | **0.043** | NS | NS |
| | 9/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.26** | **0.016** | NS | NS |
| | 12/17/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.14** | <0.01 | NS | NS |
| | 3/26/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.44** | **0.016** | NS | NS |
| | 6/17/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.055** | <0.01 | NS | NS |
| | 9/28/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.045** | <0.01 | NS | NS |
| | 12/10/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 3/14/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.32** | <0.01 | NS | NS |
| | 6/7/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.24** | **0.018** | NS | NS |
| | 9/12/1994 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.087** | <0.01 | NS | NS |
| | 1/20/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.007 | <0.002 | NS | NS |
| | 1/20/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.007 | <0.002 | NS | NS |
| | 4/21/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 7/13/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 4/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | **0.9** | <0.7 | **1.4** | **0.8** | <0.5 | <0.03 | <0.005 | NS | NS |
| | 7/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 10/23/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 2/26/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/5/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/18/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 3/18/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/24/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 3/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/14/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/20/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **100** | <5 | NS | NS |
| | 9/12/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/18/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | <5 | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | <5 | NS | NS |
| MW-27p | 2/25/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1.8** | **0.23** | NS | NS |
| | 3/14/1993 | REG | **1.3** | <1 | **0.63** | <1 | <1 | <1 | <1 | <0.5 | | | NS | NS |
| | 3/14/1993 | FD | <1 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | | | NS | NS |
| | 6/15/1993 | REG FF | <0.5 | <1 | **0.64** | <1 | <1 | <1 | <1 | <0.5 | **1.0** | **0.1** | NS | NS |
| | 9/27/1993 | REG FF | <0.5 | <1 | **0.6** | **2.3** | <1 | <1 | <1 | <0.5 | **0.29** | **0.064** | NS | NS |
| | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | **0.027** | NS | NS |
| | 3/14/1994 | REG FF | | | | | | | | | **0.081** | **0.024** | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-27p | 3/14/1994 | FD FF | | | | | | | | | **0.063** | **0.023** | NS | NS |
| | 6/6/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.097** | **0.018** | NS | NS |
| | 6/6/1994 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.13** | **0.02** | NS | NS |
| | 9/12/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.07** | <0.01 | NS | NS |
| | 9/12/1994 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.11** | **0.019** | NS | NS |
| | 4/20/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | **0.018** | NS | NS |
| | 4/20/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | **0.018** | NS | NS |
| | 7/12/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | **0.011** | NS | NS |
| | 10/25/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | **0.012** | NS | NS |
| | 1/26/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | **0.01** | NS | NS |
| | 4/16/1996 | REG FF | <0.5 | <0.5 | **0.9** | <0.5 | <0.7 | **0.8** | <0.5 | **1.0** | <0.03 | **0.01** | NS | NS |
| | 7/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 10/22/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.006** | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.008** | NS | NS |
| | 6/4/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.007** | NS | NS |
| | 6/4/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.007** | NS | NS |
| | 9/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.006** | NS | NS |
| | 12/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.006** | NS | NS |
| | 3/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.007** | NS | NS |
| | 6/23/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.005** | NS | NS |
| | 9/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | **0.88** | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.005** | NS | NS |
| **Middle** | | | | | | | | | | | | | | |
| MW-23 | 3/5/1992 | REG FF | | | | | | | | | **150** | **33** | NS | NS |
| | 3/10/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.08** | **0.07** | NS | NS |
| | 4/22/1992 | REG FF | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <0.04 | **0.03** | NS | NS |
| | 6/9/1992 | REG FF | | | | | | | | | <0.04 | **0.05** | NS | NS |
| | 6/10/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.59** | **0.06** | NS | NS |
| | 9/19/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.05** | **0.028** | NS | NS |
| | 12/16/1992 | REG FF | | | | | | | | | <0.04 | **0.043** | NS | NS |
| | 12/17/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.079** | **0.046** | NS | NS |
| | 3/15/1993 | REG | | | | | | | | | **0.48** | **0.076** | NS | NS |
| | 3/24/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.48** | **0.13** | NS | NS |
| | 7/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.098** | **0.042** | NS | NS |
| | 9/28/1993 | REG | | | | | | | | | <0.04 | **0.051** | NS | NS |
| | 9/29/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | **0.048** | NS | NS |
| | 12/8/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.25** | **0.058** | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | **0.037** | NS | NS |
| | 6/8/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.19** | **0.058** | NS | NS |
| | 6/8/1994 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.19** | **0.056** | NS | NS |
| | 9/12/1994 | REG FF | | | | | | | | | **0.14** | **0.28** | NS | NS |
| | 9/13/1994 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | | | NS | NS |
| | 1/17/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.011** | **0.036** | NS | NS |
| | 4/21/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | **0.008** | NS | NS |
| | 4/21/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | **0.008** | NS | NS |
| | 7/12/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | **0.006** | NS | NS |
| | 10/26/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | **0.012** | NS | NS |
| | 1/26/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | **0.13** | NS | NS |
| | 1/26/1996 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | **0.13** | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-23 | 4/17/1996 | REG FF | <0.5 | <0.5 | **0.7** | <0.5 | <0.7 | **1.4** | **0.7** | <0.5 | <0.03 | **0.007** | NS | NS |
| | 7/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.011** | NS | NS |
| | 7/18/1996 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.010** | NS | NS |
| | 10/23/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.021** | NS | NS |
| | 2/26/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.021** | NS | NS |
| | 6/4/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.013** | NS | NS |
| | 9/18/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.016** | NS | NS |
| | 12/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.03** | NS | NS |
| | 12/17/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.03** | NS | NS |
| | 3/18/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.006** | NS | NS |
| | 6/24/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.005** | NS | NS |
| | 9/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.007** | NS | NS |
| | 3/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.12** | **0.71** | NS | NS |
| | 6/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.16** | **0.77** | NS | NS |
| | 9/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **480** | NS | NS |
| | 9/15/1999 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **490** | NS | NS |
| | 12/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **190** | NS | NS |
| | 3/14/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **280** | NS | NS |
| | 6/21/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **18** | NS | NS |
| | 9/13/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **160** | NS | NS |
| | 12/20/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | **60** | **210** | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **44** | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <50 J | **2.2** | NS | NS |
| | 6/5/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | **7.6** | <45 | <34 |
| | 9/20/2002 | FS | <0.5 | **0.41J** | **0.17J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **17.9B** | **265** | <10 | **2.9B** |
| | 11/22/2002 | FS | <0.5 | **0.33** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <9.0 | **256** | **6.1B** | <2.0 |
| | 1/31/2003 | FS | <0.5 | **0.4J** | **0.2J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **4.9B** | **283** | **3.4** | <2 |
| | 6/17/2003 | FS | <0.5 | **0.53** | **0.29J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **40J** | **263** | **2.2** | **0.3J** |
| | 9/11/2003 | FS | <0.5 | **0.6J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **267** | <4.9 | <4.7 |
| | 9/11/2003 | FD | <0.5 | **0.5J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **275** | <4.9 | <4.7 |
| | 12/12/2003 | FS | <0.1 | <0.1 | **0.3J** | **0.6** | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **324** | **5.2J** | <4.7 |
| | 3/9/2004 | FS | <0.1 | **0.6** | **0.3J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **312** | <4.9 | <4.7 |
| | 6/8/2004 | FS | <0.1 | **0.5** | **0.3J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **253** | <9.4 | <5.9 |
| | 8/10/2004 | FS | <0.1 | **0.6** | **0.4J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **249** | <4.7 | <5.9 |
| | 11/19/2004 | FS | <0.1 | **0.5J** | **0.3J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **301** | <4.7 | <5.9 |
| | 3/14/2005 | FS | <0.1 | **0.4J** | **0.4J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **269** | <4.7 | <5.9 |
| MW-34i | 2/19/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.08** | **0.02** | NS | NS |
| | 6/3/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.06** | <0.01 | NS | NS |
| | 9/14/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | **0.033** | NS | NS |
| | 12/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 3/25/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 6/14/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 9/27/1993 | REG FF | <0.5 | <1 | **0.86** | <1 | <1 | <1 | **7.7** | <0.5 | <0.04 | <0.01 | NS | NS |
| | 9/27/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 12/7/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.048** | <0.01 | NS | NS |
| | 6/6/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.083** | <0.01 | NS | NS |
| | 9/14/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.1** | <0.01 | NS | NS |
| | 1/19/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.046** | **0.01** | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-34i | 4/18/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.17** | **0.012** | NS | NS |
| | 7/11/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 10/24/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 1/25/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 4/16/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | **0.5** | <0.03 | <0.005 | NS | NS |
| | 4/16/1996 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | **0.6** | <0.03 | <0.005 | NS | NS |
| | 7/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 10/22/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.059** | <0.005 | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.005** | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 3/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.5** | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/23/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/23/1998 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/15/1998 | REG FF | <0.5 | <0.5 | **0.74** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/15/1998 | FD FF | <0.5 | <0.5 | **0.51** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 3/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 3/16/1999 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.010** | NS | NS |
| | 6/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/14/2000 | REG FF | <0.5 | <0.5 | **0.57** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **6.0** | NS | NS |
| | 6/20/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **8.0** | NS | NS |
| | 9/12/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **52** | **16** | NS | NS |
| | 12/19/2000 | REG | <0.5 | <0.5 | **0.55** | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | **17** | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | **66** | **20** | NS | NS |
| | 10/16/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **71** | **25** | NS | NS |
| | 10/16/2001 | FD | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **110** | **30** | NS | NS |
| | 6/4/2002 | FS FF | <0.5 | <0.5 | **0.28** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **17.7** | **14.4** | <45 | <34 |
| | 9/23/2002 | FS | <.5 | **0.15J** | **0.53** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **36.2B** | **3.3B** | <10 | **2.8B** |
| | 11/22/2002 | FS | <0.5 | **0.15** | **0.35J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **12.6B** | **3.5B** | **4.5B** | <2.0 |
| | 1/31/2003 | FS | <0.5 | **0.12J** | **0.46J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **12.4B** | **3.5B** | **3.1** | <2 |
| | 6/17/2003 | FS | <0.5 | **0.12J** | **0.5** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | **2.5** | <2 |
| | 9/8/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **2.9J** | <4.9 | <4.7 |
| | 12/15/2003 | FS | <0.1 | **0.1J** | **0.4J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **2.6J** | <4.9 | <4.7 |
| | 3/8/2004 | FS | <0.1 | **0.1J** | **0.4J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **2.4J** | <4.9 | <4.7 |
| | 6/7/2004 | FS | <0.1 | <0.1 | **0.4J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **2.5J** | <9.4 | <5.9 |
| | 8/10/2004 | FS | <0.1 | **0.1J** | **0.5** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **2.7J** | <4.7 | <5.9 |
| | 11/19/2004 | FS | <0.1 | **0.1J** | **0.5** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **10.7** | <4.7 | <5.9 |
| | 3/14/2005 | FS | <0.1 | **0.1J** | **0.6** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **2.3J** | <4.7 | <5.9 |
| **Middle to Deep** | | | | | | | | | | | | | | |
| MW-2d | 2/24/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.73** | **0.02** | NS | NS |
| | 6/8/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.04** | <0.01 | NS | NS |
| | 6/17/1992 | REG | | | | | | | | | **0.041** | <0.01 | NS | NS |
| | 9/16/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.065** | <0.01 | NS | NS |
| | 9/16/1992 | FD | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.084** | <0.01 | NS | NS |
| | 12/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.2** | <0.01 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-2d | 3/23/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.1 | 0.016 | NS | NS |
| | 6/17/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0..01 | NS | NS |
| | 10/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.091 | <0.01 | NS | NS |
| | 12/6/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 1.3 | 0.032 | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | 91 | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 3.1 UJ | 61 | NS | NS |
| | 6/6/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 11.1 | 6.7 | <45 | <34 |
| | 9/20/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 89.8B | 4.8B | <10 | 4.1B |
| | 11/25/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 22.1 | 54.5 | 4.6 | <2.0 |
| | 1/31/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 20.1B | 8.8B | 1.6 | <2 |
| | 6/18/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | 4.6J | 1.4 | 0.2J |
| | 9/10/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 51.5J | 7.9 | <4.9 | <4.7 |
| | 12/11/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | 6.5 | <4.9 | <4.7 |
| | 3/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 65.6J | 6.8 | <4.9 | <4.7 |
| | 6/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | 6.5 | <9.4 | <5.9 |
| | 8/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | 5.8 | <4.7 | <5.9 |
| | 8/9/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | 5.8 | <4.7 | <5.9 |
| | 11/15/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 106J | 5.1 | <4.7 | <5.9 |
| | 3/14/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | 4.0J | <4.7 | <5.9 |
| MW-5d | 2/25/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.25 | 0.15 | NS | NS |
| | 6/9/1992 | REG FF | | | | | | | | | <0.04 | 0.21 | NS | NS |
| | 6/10/1992 | REG | 5.8 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.04 | 0.25 | NS | NS |
| | 9/14/1992 | REG FF | 8.6 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.051 | 0.27 | NS | NS |
| | 12/13/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.08 | 0.29 | NS | NS |
| | 3/26/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.056 | 0.23 | NS | NS |
| | 6/18/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | 0.22 | NS | NS |
| | 9/28/1993 | REG FF | <0.5 | <1 | 1.6 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | 0.24 | NS | NS |
| | 12/7/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.18 | 0.26 | NS | NS |
| | 6/23/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/15/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 44 | 340 | NS | NS |
| | 12/20/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | 380 | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | 280 | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 15 UJ | 150 | NS | NS |
| | 6/11/2002 | FS FF | 0.31 | 0.16 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | 6.8 | <45 | <34 |
| | 9/18/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 48.8B | 68.5 | 3.7B | 3.9B |
| | 11/20/2002 | FS | <0.5 | 0.27 | <0.5 | <0.5 | 0.27 | <0.5 | <0.5 | <0.5 | <9.0 | 156 | 5.3 | <2.0 |
| | 1/28/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 6.2B | 50.3 | <1 | <2 |
| | 6/20/2003 | FS | <0.5 | 0.12J | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | 90 | 1.4 | <2 |
| | 9/9/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | 125 | <4.9 | <4.7 |
| | 12/9/2003 | FS | <0.1 | 0.2J | <0.1 | <0.1 | 0.1J | <0.1 | <0.1 | <0.1 | <45.3 | 120 | <4.9 | <4.7 |
| | 3/11/2004 | FS | <0.1 | 0.2J | <0.1 | <0.1 | 0.2J | <0.1 | <0.1 | <0.1 | <45.3 | 204 | <4.9 | <4.7 |
| | 6/9/2004 | FS | <0.1 | 0.4J | <0.1 | <0.1 | 0.5 | <0.1 | <0.1 | <0.1 | <49.5 | 281 | <9.4 | <5.9 |
| | 8/13/2004 | FS | <0.1 | 0.5J | <0.1 | <0.1 | 0.6 | <0.1 | <0.1 | <0.1 | <49.5 | 266 | <4.7 | <5.9 |
| | 11/17/2004 | FS | <0.1 | 0.2J | <0.1 | <0.1 | 0.2J | <0.1 | <0.1 | <0.1 | <49.5 | 135 | <4.7 | <5.9 |
| | 3/18/2005 | FS | <0.1 | 0.5J | <0.1 | <0.1 | 0.6 | <0.1 | <0.1 | <0.1 | <49.5 | 641 | <4.7 | <5.9 |
| MW-6d | 9/18/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.29 | 0.062 | NS | NS |
| | 12/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.27 | 0.088 | NS | NS |
| | 3/30/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | 0.12 | 0.062 | NS | NS |
| | 7/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <0.5 | <0.5 | 0.7 | 0.032 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-6d | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.72** | **0.067** | NS | NS |
| | 6/10/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.23** | **0.027** | NS | NS |
| | 4/24/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | **0.025** | NS | NS |
| | 4/19/1996 | REG FF | **0.5** | **1.3** | **0.6** | <0.5 | **4.0** | **0.6** | **1.1** | <0.5 | <0.03 | **0.024** | NS | NS |
| | 6/5/1997 | REG FF | **0.59** | <0.5 | <0.5 | <0.5 | **1.7** | <0.5 | <0.5 | <0.5 | <0.03 | **0.024** | NS | NS |
| | 6/25/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.016** | NS | NS |
| | 6/18/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | **0.58** | <0.5 | **0.75** | <0.5 | <0.03 | **0.016** | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **18** | NS | NS |
| | 6/22/2000 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **20** | NS | NS |
| | 5/9/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **21** | NS | NS |
| | 10/18/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **2.9 UJ** | **12** | NS | NS |
| | 6/11/2002 | FS FF | <0.5 | **0.13** | <0.5 | <0.5 | **0.33** | <0.5 | **0.19** | <0.5 | <100 | **10.7** | <45 | <34 |
| | 9/18/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.32J** | <0.5 | **140** | **11.5** | **1.9B** | <50 |
| | 11/20/2002 | FS | <0.5 | **0.63** | <0.5 | <0.5 | 1.2 | <0.5 | **0.64** | <0.5 | **93.5** | **4.8** | <1.0 | <2.0 |
| | 1/28/2003 | FS | <0.5 | **1.1** | **0.13J** | <0.5 | **1.8** | <0.5 | **1.1** | <0.5 | **159** | **3.9B** | **1.7B** | <2 |
| | 6/20/2003 | FS | <0.5 | **1.5** | **0.23J** | <0.5 | **2.8** | **0.16J** | **1.5** | <0.5 | **39J** | **2.1J** | **1.8** | <2 |
| | 9/9/2003 | FS | <0.5 | **2J** | <0.5 | <0.5 | **4J** | <0.5 | **2J** | <0.5 | <45.3 | **0.74J** | <4.9 | <4.7 |
| | 12/9/2003 | FS | <0.1 | **1.9** | **0.3J** | <0.1 | **4.3** | <0.1 | **2.2** | <0.1 | <45.3 | **0.83J** | <4.9 | <4.7 |
| | 3/11/2004 | FS | <0.1 | **2.2** | **0.4J** | <0.1 | **4.8** | <0.1 | **2.6** | <0.1 | <45.3 | **0.62J** | <4.9 | <4.7 |
| | 6/9/2004 | FS | <0.1 | **2.6** | **0.4J** | <0.1 | **5.9** | <0.1 | **3.2** | <0.1 | <49.5 | **1.4J** | <9.4 | <5.9 |
| | 8/13/2004 | FS | <0.1 | **3.1** | **0.4J** | <0.1 | **6.0** | <0.1 | **3.7** | <0.1 | <49.5 | **0.94J** | <4.7 | <5.9 |
| | 11/17/2004 | FS | <0.1 | **3.5** | **0.5** | <0.1 | **6.2** | <0.1 | **4.3** | <0.1 | <49.5 | **1.7J** | <4.7 | <5.9 |
| | 3/18/2005 | FS | <0.1 | **3.7** | **0.5J** | <0.1 | **5.5** | <0.1 | **4.2** | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| MW-28p | 3/2/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 6/2/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.23** | <0.01 | NS | NS |
| | 9/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.4** | <0.01 | NS | NS |
| | 3/15/1993 | REG | | | | | | | | | **0.075** | <0.01 | NS | NS |
| | 3/30/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.042** | <0.01 | NS | NS |
| | 3/30/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.046** | <0.01 | NS | NS |
| | 6/15/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 9/27/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 12/6/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 3/15/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 6/6/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.087** | <0.01 | NS | NS |
| | 9/13/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.056** | <0.01 | NS | NS |
| | 1/21/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.008** | <0.002 | NS | NS |
| | 1/21/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.007 | <0.002 | NS | NS |
| | 4/21/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 7/10/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 7/10/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 10/25/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 1/29/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 4/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | **0.8** | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 7/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 10/23/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 2/26/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-28p | 6/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/14/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/20/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 9/12/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/19/2000 | REG | **1.1** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | <30 | <5 | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | <5 | NS | NS |
| | 10/16/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **27** | **2.1** | NS | NS |
| | 6/5/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | <45 | <34 |
| | 9/17/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | <10 | <50 |
| | 11/19/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <9.0 | **0.9B** | **4.2B** | <2.0 |
| | 1/30/2003 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **4.0** | <5 | **1.7B** | <2 |
| | 6/16/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | **2.0** | <2 |
| | 9/10/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 12/15/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 3/10/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 6/10/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <9.4 | <5.9 |
| | 8/12/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | **6.2J** | <5.9 |
| | 11/22/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 3/17/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| MW-29p | 3/2/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | **0.07** | NS | NS |
| | 6/2/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | **0.41** | NS | NS |
| | 9/16/1992 | REG | | | | | | | | | <0.04 | **0.076** | NS | NS |
| | 9/17/1992 | REG | <0.5 | <1 | **0.65** | <1 | <1 | <1 | <1 | <0.5 | <0.04 | **0.076** | NS | NS |
| | 12/13/1992 | REG | | | | | | | | | **0.13** | **0.2** | NS | NS |
| | 12/14/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | **0.19** | NS | NS |
| | 12/14/1992 | FD FF | | | | | | | | | <0.04 | **0.2** | NS | NS |
| | 12/30/1992 | REG | <0.5 | <1 | **0.9** | <1 | <1 | <1 | <1 | <0.5 | | | NS | NS |
| | 12/30/1992 | FD | <0.5 | <1 | **0.87** | <1 | <1 | <1 | <1 | <0.5 | | | NS | NS |
| | 3/23/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.055** | **0.28** | NS | NS |
| | 6/14/1993 | REG FF | <0.5 | <1 | **0.7** | <1 | <1 | <1 | <1 | <0.5 | **0.12** | **0.34** | NS | NS |
| | 9/27/1993 | REG FF | <0.5 | <1 | **0.55** | <1 | <1 | <1 | <1 | <0.5 | <0.04 | **0.26** | NS | NS |
| | 12/6/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.13** | **0.11** | NS | NS |
| | 12/6/1993 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.081** | **0.11** | NS | NS |
| | 6/6/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.068** | **0.15** | NS | NS |
| | 4/20/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | **0.14** | NS | NS |
| | 4/16/1996 | REG FF | <0.5 | <0.5 | <0.5 | **0.6** | <0.7 | **0.8** | <0.5 | **0.9** | <0.03 | **0.099** | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.11** | NS | NS |
| MW-34d | 2/21/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.14** | **0.02** | NS | NS |
| | 6/5/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 9/16/1992 | REG | | | | | | | | | <0.04 | <0.01 | NS | NS |
| | 9/17/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.043** | <0.01 | NS | NS |
| | 12/14/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.15** | **0.01** | NS | NS |
| | 12/15/1992 | REG | <0.5 | <1 | <0.5 | <1 | **7.8** | <1 | **1.1** | <0.5 | | | NS | NS |
| | 3/25/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.047** | <0.01 | NS | NS |
| | 6/14/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.057** | <0.01 | NS | NS |
| | 9/28/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-34d | 3/14/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 3/14/1994 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 6/6/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.046** | <0.01 | NS | NS |
| | 9/14/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.1** | <0.01 | NS | NS |
| | 1/19/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.007 | **0.008** | NS | NS |
| | 4/18/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 4/18/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.04** | <0.005 | NS | NS |
| | 7/11/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 10/24/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 1/25/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 1/25/1996 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 4/16/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 7/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 10/22/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **1.0** | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/16/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **1.1** | <0.5 | <0.03 | <0.005 | NS | NS |
| | 3/17/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/23/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 3/16/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/15/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.04** | <0.005 | NS | NS |
| | 9/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 12/14/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 3/14/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 6/20/2000 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **8.0** | NS | NS |
| | 9/12/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **6.0** | NS | NS |
| | 12/19/2000 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | **320** | **66** | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | **160** | **57** | NS | NS |
| | 10/16/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **94** | **26** | NS | NS |
| | 6/4/2002 | FS FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | **10.3** | <45 | <34 |
| | 9/23/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **13.4B** | **.5B** | **1.1B** | **4.7B** |
| | 11/22/2002 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **10.4B** | **0.3** | **4.7B** | **3.3B** |
| | 1/31/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **7.1B** | <5 | **2.7** | <2 |
| | 6/17/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **54J** | **4.2J** | **2.0** | **0.2J** |
| | 9/11/2003 | FS | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 9/11/2003 | FD | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 12/15/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | **6.1J** | <4.7 |
| | 3/8/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | <0.51 | <4.9 | <4.7 |
| | 6/7/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <9.4 | <5.9 |
| | 8/10/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 11/19/2004 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| | 3/14/2005 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | <0.84 | <4.7 | <5.9 |
| None | | | | | | | | | | | | | | |
| MW-22p | 3/3/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.09** | **0.01** | NS | NS |
| | 6/1/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.04** | <0.01 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-22p | 9/14/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.057** | <0.01 | NS | NS |
| | 12/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.046** | <0.01 | NS | NS |
| | 12/16/1992 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.048** | <0.01 | NS | NS |
| | 3/22/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.042** | <0.01 | NS | NS |
| | 9/30/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.056** | <0.01 | NS | NS |
| | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 12/9/1993 | FD | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 3/14/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.077** | <0.01 | NS | NS |
| | 6/7/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.073** | <0.01 | NS | NS |
| | 9/12/1994 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 1/20/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.007 | <0.002 | NS | NS |
| | 4/22/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 7/13/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.04** | <0.005 | NS | NS |
| | 10/26/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 10/26/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 1/29/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 4/18/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | **0.7** | <0.03 | <0.005 | NS | NS |
| | 7/19/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 10/23/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| MW-31p | 3/2/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.33** | <0.01 | NS | NS |
| | 3/2/1992 | FD FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.52** | <0.01 | NS | NS |
| | 6/2/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | | | NS | NS |
| | 6/3/1992 | REG FF | | | | | | | | | **0.55** | **0.03** | NS | NS |
| | 9/16/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | <0.04 | <0.01 | NS | NS |
| | 12/14/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **1.1** | **0.025** | NS | NS |
| | 3/23/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.15** | <0.01 | NS | NS |
| | 7/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <0.5 | <0.5 | **0.14** | <0.01 | NS | NS |
| | 10/1/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.16** | <0.01 | NS | NS |
| | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.3** | <0.01 | NS | NS |
| | 3/14/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.4** | <0.01 | NS | NS |
| | 6/9/1994 | REG FF | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | **0.71** | **0.022** | NS | NS |
| | 9/13/1994 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.17** | <0.01 | NS | NS |
| | 4/20/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.11** | **0.031** | NS | NS |
| | 7/13/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.03** | <0.005 | NS | NS |
| | 10/25/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.04** | <0.005 | NS | NS |
| | 10/25/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 1/25/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.04** | **0.006** | NS | NS |
| | 4/16/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | **1.0** | **0.04** | <0.005 | NS | NS |
| | 7/17/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 10/22/1996 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.035** | <0.005 | NS | NS |
| | 2/25/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 2/25/1997 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.04** | <0.005 | NS | NS |
| | 9/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/16/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 3/17/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/23/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 9/16/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 12/15/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |
| MW-32p | 2/24/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.11** | **0.01** | NS | NS |
| | 6/4/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.19** | **0.04** | NS | NS |
| | 9/16/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.055** | **0.011** | NS | NS |
| | 12/15/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.29** | **0.17** | NS | NS |
| | 3/22/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.14** | <0.01 | NS | NS |
| | 6/21/1993 | REG FF | <0.5 | <1 | **0.82** | <1 | <1 | <1 | <1 | <0.5 | **0.083** | **0.012** | NS | NS |
| | 9/30/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.27** | **0.016** | NS | NS |
| | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.48** | **0.018** | NS | NS |
| | 12/9/1993 | FD | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.66** | **0.022** | NS | NS |
| | 6/9/1994 | REG FF | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | **0.33** | **0.029** | NS | NS |
| | 4/19/1995 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | **0.11** | **0.013** | NS | NS |
| | 4/19/1995 | FD FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | **0.012** | NS | NS |
| | 4/16/1995 | REG FF | <0.5 | <0.5 | **0.6** | <0.5 | <0.7 | <0.5 | <0.5 | **1.0** | <0.03 | **0.012** | NS | NS |
| | 6/3/1997 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.01** | NS | NS |
| | 6/23/1998 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.033** | **0.01** | NS | NS |
| | 6/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | **0.012** | NS | NS |
| | 6/20/2000 | REG FF | <0.5 | <0.5 | **0.66** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | **13** | NS | NS |
| | 5/8/2001 | REG | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <30 | **11** | NS | NS |
| | 10/17/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **34** | **12** | NS | NS |
| | 6/4/2002 | FS FF | <0.5 | **0.12** | **0.55** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **12.8** | **10.1** | <45 | <34 |
| | 9/17/2002 | FS FF | <0.5 | <0.5 | **0.55** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **9.8B** | **10.5** | <10 | **3.7B** |
| | 11/19/2002 | FS FF | <0.5 | <0.5 | **0.34** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **13.4B** | **12.2** | **5.2B** | <2.0 |
| | 1/30/2003 | FS | <0.5 | <0.5 | **0.4** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **14.8** | **11.9** | **2.2** | <2 |
| | 6/16/2003 | FS | <0.5 | <0.5 | **0.44J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | <5 | **0.04J** | <2 |
| | 9/10/2003 | FS | <0.5 | <0.5 | **0.6J** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <45.3 | **10.7** | <4.9 | <4.7 |
| | 12/16/2003 | FS | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **10.4** | <4.9 | <4.7 |
| | 3/10/2004 | FS | <0.1 | <0.1 | **0.5J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <45.3 | **12.6** | <4.9 | <4.7 |
| | 6/10/2004 | FS | <0.1 | <0.1 | **0.3J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **11.8** | <9.4 | <5.9 |
| | 8/12/2004 | FS | <0.1 | <0.1 | **0.4J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **10.7** | <4.7 | <5.9 |
| | 11/22/2004 | FS | <0.1 | <0.1 | **0.2J** | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <49.5 | **9.1** | <4.7 | <5.9 |
| MW-35p | 3/6/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.08** | **0.13** | NS | NS |
| | 6/5/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.1** | **0.03** | NS | NS |
| | 9/17/1992 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.39** | **0.026** | NS | NS |
| | 12/17/1992 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | . | **0.063** | **0.06** | NS | NS |
| | 12/17/1992 | FD FF | <0.5 | <1 | **0.56** | <1 | <1 | <1 | <1 | <0.5 | **0.057** | **0.07** | NS | NS |
| | 3/30/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.079** | **0.16** | NS | NS |
| | 6/18/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.091** | **0.25** | NS | NS |
| | 10/2/1993 | REG FF | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.33** | **0.024** | NS | NS |
| | 12/9/1993 | REG | <0.5 | <1 | <0.5 | <1 | <1 | <1 | <1 | <0.5 | **0.51** | **0.044** | NS | NS |
| | 6/9/1994 | REG FF | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | **0.093** | <0.01 | NS | NS |
| | 10/26/1995 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.7 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/17/1999 | REG FF | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.03 | <0.005 | NS | NS |
| | 6/22/2000 | REG FF | <0.5 | <0.5 | **0.53** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <30 | <5 | NS | NS |
| | 10/17/2001 | REG | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **41** | **4.0** | NS | NS |

# Appendix A
## Historical Concentrations of Selected Volatile Organic Compounds and Metals
## Purity Oil Sales Superfund Site, Malaga, California

| Well ID | Date | Type | Benzene | 1,1-Dichloroethane | 1,2-Dichloroethane | 1,1-Dichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride | Iron * | Manganese * | Arsenic | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MCL/ROD/RG | 1 | 5 | 0.5 | 6 | 6 | 10 | 5 | 0.5 | 300 | 50 | 10 | 50 |

Notes:

All results are reported in micrograms/liter (µg/L) unless otherwise noted.

* Prior to September 1999 results are reported in milligrams/liter (mg/L).

ROD/MCL/RG - Record of Decision/Maximum Contaminant Level/Remedial Goal

REG/FS - primary sample/field sample

FF - field filtered

NS - not sampled

< - not detected above the reporting limit

J - estimated value

B = Value is less than contract required detection limit (CRDL), but greater than or equal to the instrument detection limit (IDL).

D = Organic constituent is identified in an analysis at a secondary dilution factor.

E = Organic constituent value reported exceeds the linear calibration range for that compound.

UJ - reporting limit is estimated

Bolded values are detected above the method detection limit

Outlined values exceed the ROD/MCL/RG

Data and information prior to June 2002 was supplied to SECOR by IT Corporation. SECOR accepts no responsibility for the accuracy of this data.

# Appendix A
## Historical Water Level Measurements and Elevations
## Purity Oil Sales Superfund Site, Malaga, California
## March 2005

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| **Extraction Wells** | | | | | | |
| EW-1 | 5/7/2001 | IT | 299.82 | 62.87 | 236.95 | |
| | 10/15/2002 | IT | | 63.58 | 236.24 | |
| | 6/3/2002 | SECOR | 299.77 | NA | NA | |
| | 9/17/2002 | SECOR | | 78.36 | 221.41 | Pump running during measurement |
| | 11/18/2002 | SECOR | | 63.99 | 235.78 | |
| | 1/27/2003 | SECOR | | 78.98 | 220.79 | |
| | 6/16/2003 | SECOR | | 77.90 | 221.87 | |
| | 9/8/2003 | SECOR | | 67.56 | 232.21 | |
| | 12/8/2003 | SECOR | | 78.60 | 221.17 | |
| | 3/8/2004 | SECOR | | 76.35 | 223.42 | |
| | 6/7/2004 | SECOR | | 77.35 | 222.42 | |
| | 8/6/2004 | SECOR | | 75.85 | 223.92 | |
| | 11/12/2004 | SECOR | | 78.92 | 220.85 | |
| | 3/11/2005 | SECOR | | 70.94 | 228.83 | |
| EW-2 | 5/7/2001 | IT | 301.81 | 65.56 | 236.25 | |
| | 10/15/2001 | IT | | 66.53 | 235.28 | |
| | 6/3/2002 | SECOR | 301.7 | 63.27 | 301.70 | |
| | 9/17/2002 | SECOR | | 78.45 | 223.25 | Pump running during measurement |
| | 11/18/2002 | SECOR | | 78.90 | 222.28 | |
| | 1/27/2003 | SECOR | | 77.78 | 223.92 | |
| | 6/16/2003 | SECOR | | 78.74 | 222.96 | |
| | 9/8/2003 | SECOR | | 67.92 | 233.78 | |
| | 12/8/2003 | SECOR | | 78.79 | 222.91 | |
| | 3/8/2004 | SECOR | | 78.75 | 222.95 | |
| | 6/7/2004 | SECOR | | 78.83 | 222.87 | |
| | 8/6/2004 | SECOR | | 75.72 | 225.98 | |
| | 11/12/2004 | SECOR | | 78.76 | 222.94 | |
| | 3/11/2005 | SECOR | | 78.71 | 222.99 | |
| **Shallow** | | | | | | |
| MW-2s | 12/28/1987 | CH2M Hill 1988 | 289.27 | 39.24 | 250.03 | |
| | 1/14/1988 | CH2M Hill 1988 | | 39.30 | 249.97 | |
| | 2/18/1988 | CH2M Hill 1988 | | 39.34 | 249.93 | |
| | 3/3/1988 | CH2M Hill 1988 | | 39.46 | 249.81 | |
| | 4/2/1988 | CH2M Hill 1988 | | 39.10 | 250.17 | |
| | 4/17/1995 | Envirosolve | 289.21 | 56.35 | 232.86 | |
| | 7/7/1995 | Envirosolve | | 56.03 | 233.18 | |
| | 10/23/1995 | Envirosolve | | 54.71 | 234.50 | |
| | 4/15/1996 | Envirosolve | | 54.75 | 234.46 | |
| | 3/16/1998 | Envirosolve | | 52.68 | 236.53 | |
| | 6/22/1998 | Envirosolve | | 51.10 | 238.11 | |
| | 9/14/1998 | Envirosolve | | 50.64 | 238.57 | |
| | 12/14/1998 | Envirosolve | | 50.53 | 238.68 | |
| | 3/15/1999 | IT | | 50.85 | 238.36 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 50.92 | 238.29 | |
| | 9/13/1999 | IT | | 51.06 | 238.15 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 50.24 | 238.97 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 49.92 | 239.29 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 49.14 | 240.07 | |
| | 9/11/2000 | IT | | 48.64 | 240.57 | |
| | 12/18/2000 | IT | | 48.38 | 240.83 | |
| | 5/7/2001 | IT | | 50.74 | 238.47 | |
| | 10/15/2001 | IT | | 51.64 | 237.57 | |
| | 6/3/2002 | SECOR | 288.97 | 52.46 | 237.15 | |
| | 9/16/2002 | SECOR | | 51.47 | 237.50 | Micro Purge Pump Installed |
| | 11/18/2002 | SECOR | | 52.26 | 236.71 | |
| | 1/27/2003 | SECOR | | 52.49 | 236.48 | |
| | 6/16/2003 | SECOR | | 53.06 | 235.91 | |
| | 9/8/2003 | SECOR | | 53.30 | 235.67 | |
| | 12/8/2003 | SECOR | | 53.06 | 235.91 | |

**Appendix A**
**Historical Water Level Measurements and Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**March 2005**

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-2s | 3/8/2004 | SECOR | | 53.17 | 235.80 | |
| | 6/7/2004 | SECOR | | 54.45 | 234.52 | |
| | 8/6/2004 | SECOR | | 54.95 | 234.02 | |
| | 11/12/2004 | SECOR | | 55.28 | 233.69 | |
| | 3/11/2005 | SECOR | | 55.46 | 233.51 | |
| MW-3 | 2/28/1982 | USEPA-ERT 1982 | 301.52 | 47.34 | 254.18 | |
| | 8/7/1984 | Harding Lawson Associates 1986 | 291.36 | 42.13 | 249.23 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 41.90 | 249.46 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 41.88 | 249.48 | |
| | 5/27/1986 | CH2M Hill 1988 | 291.52 | 40.37 | 251.15 | |
| | 7/9/1986 | CH2M Hill 1988 | | 40.56 | 250.96 | |
| | 8/11/1986 | CH2M Hill 1988 | 291.52 | 40.51 | 251.01 | |
| | 8/22/1986 | CH2M Hill 1988 | | 40.45 | 251.07 | |
| | 9/23/1986 | CH2M Hill 1988 | | 40.52 | 251.00 | |
| | 10/21/1986 | CH2M Hill 1988 | | 40.31 | 251.07 | |
| | 11/14/1986 | CH2M Hill 1988 | | 40.22 | 251.30 | |
| | 12/22/1986 | CH2M Hill 1988 | | 40.35 | 251.17 | |
| | 1/19/1987 | CH2M Hill 1988 | | 40.27 | 251.25 | |
| | 2/17/1987 | CH2M Hill 1988 | | 40.29 | 251.23 | |
| | 4/10/1987 | CH2M Hill 1988 | | 40.00 | 251.52 | |
| | 4/28/1987 | CH2M Hill 1988 | | 40.20 | 251.32 | |
| | 5/21/1987 | CH2M Hill 1988 | | 40.29 | 251.23 | |
| | 6/30/1987 | CH2M Hill 1988 | | 40.52 | 251.00 | |
| | 8/17/1987 | CH2M Hill 1988 | | 40.62 | 250.90 | |
| | 9/15/1987 | CH2M Hill 1988 | | 41.43 | 250.09 | |
| | 10/26/1987 | CH2M Hill 1988 | | 41.99 | 249.53 | |
| | 12/28/1987 | CH2M Hill 1988 | | 42.12 | 249.40 | |
| | 1/14/1988 | CH2M Hill 1988 | | 42.17 | 249.35 | |
| | 2/18/1988 | CH2M Hill 1988 | | 42.23 | 249.29 | |
| | 3/3/1988 | CH2M Hill 1988 | | 42.30 | 249.22 | |
| | 4/2/1988 | CH2M Hill 1988 | | 42.01 | 249.51 | |
| | 3/16/1998 | Envirosolve | 291.50 | 55.57 | 235.93 | |
| | 6/22/1998 | Envirosolve | | 54.03 | 237.47 | |
| | 9/14/1998 | Envirosolve | | 53.52 | 237.98 | |
| | 12/14/1998 | Envirosolve | | 53.44 | 238.06 | |
| | 3/15/1999 | IT | | 53.76 | 237.74 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 54.10 | 237.40 | |
| | 9/13/1999 | IT | | 54.14 | 237.36 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 53.18 | 238.32 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 52.63 | 238.87 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 52.11 | 239.39 | |
| | 9/11/2000 | IT | | 51.42 | 240.08 | |
| | 12/18/2000 | IT | | 50.89 | 240.61 | |
| | 5/7/2001 | IT | 294.46 | 56.61 | 237.85 | |
| | 10/15/2001 | IT | | 57.36 | 237.10 | |
| | 6/3/2002 | SECOR | 294.26 | 58.05 | 236.51 | |
| | 9/16/2002 | SECOR | 303.26 | 65.92 | 237.34 | Top of casing has been elevated |
| | 11/18/2002 | SECOR | | 66.72 | 236.54 | |
| | 1/27/2003 | SECOR | | 67.16 | 236.10 | |
| | 6/16/2003 | SECOR | | 67.75 | 235.51 | |
| | 9/8/2003 | SECOR | | 67.99 | 235.27 | |
| | 12/8/2003 | SECOR | | 67.89 | 235.37 | |
| | 3/8/2004 | SECOR | | NA | NA | Well is dry |
| | 6/7/2004 | SECOR | | NA | NA | Well is dry |
| | 8/6/2004 | SECOR | | NA | NA | Well is dry |
| | 11/12/2004 | SECOR | | NA | NA | Well is dry |
| | 3/11/2005 | SECOR | | NA | NA | Well is dry |
| MW-4 | 2/28/1982 | USEPA-ERT 1982 | 300.81 | 47.68 | 253.13 | |
| | 8/7/1984 | Harding Lawson Associates 1986 | 290.63 | 42.07 | 248.56 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 41.76 | 248.87 | |

**Appendix A**
**Historical Water Level Measurements and Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**March 2005**

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-4 | 5/26/1986 | CH2M Hill 1988 | 290.78 | 40.23 | 250.55 | |
| | 7/9/1986 | CH2M Hill 1988 | | 40.61 | 250.17 | |
| | 9/23/1986 | CH2M Hill 1988 | | 40.36 | 250.42 | |
| | 10/21/1986 | CH2M Hill 1988 | | 40.25 | 250.53 | |
| | 11/14/1986 | CH2M Hill 1988 | | 40.44 | 250.34 | |
| | 12/22/1986 | CH2M Hill 1988 | | 40.68 | 250.10 | |
| | 1/19/1987 | CH2M Hill 1988 | | 40.56 | 250.22 | |
| | 2/17/1987 | CH2M Hill 1988 | | 40.56 | 250.22 | |
| | 4/10/1987 | CH2M Hill 1988 | | 40.29 | 250.49 | |
| | 4/28/1987 | CH2M Hill 1988 | | 40.51 | 250.27 | |
| | 5/21/1987 | CH2M Hill 1988 | | 40.40 | 250.38 | |
| | 6/30/1987 | CH2M Hill 1988 | | 40.39 | 250.39 | |
| | 8/17/1987 | CH2M Hill 1988 | 290.78 | 40.83 | 249.95 | |
| | 9/15/1987 | CH2M Hill 1988 | | 41.86 | 248.92 | |
| | 10/26/1987 | CH2M Hill 1988 | | 42.40 | 248.38 | |
| | 12/28/1987 | CH2M Hill 1988 | 290.78 | 42.44 | 248.34 | |
| | 1/14/1988 | CH2M Hill 1988 | | 42.47 | 248.31 | |
| | 2/18/1988 | CH2M Hill 1988 | | 42.50 | 248.28 | |
| | 3/3/1988 | CH2M Hill 1988 | | 42.15 | 248.63 | |
| | 4/2/1988 | CH2M Hill 1988 | | 41.88 | 248.90 | |
| MW-5s | 8/7/1984 | Harding Lawson Associates 1986 | 296.75 | 48.94 | 247.81 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 48.65 | 248.10 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 48.61 | 248.14 | |
| | 5/27/1986 | CH2M Hill 1988 | | 46.92 | 249.83 | |
| | 7/9/1986 | CH2M Hill 1988 | | 47.33 | 249.42 | |
| | 8/11/1986 | CH2M Hill 1988 | | 47.15 | 249.60 | |
| | 8/22/1986 | CH2M Hill 1988 | | 47.17 | 249.58 | |
| | 9/23/1986 | CH2M Hill 1988 | | 47.11 | 249.64 | |
| | 10/21/1986 | CH2M Hill 1988 | | 47.01 | 249.74 | |
| | 11/14/1986 | CH2M Hill 1988 | | 47.09 | 249.66 | |
| | 12/22/1986 | CH2M Hill 1988 | | 47.30 | 249.45 | |
| | 1/19/1987 | CH2M Hill 1988 | | 47.15 | 249.60 | |
| | 2/17/1987 | CH2M Hill 1988 | | 47.12 | 249.63 | |
| | 4/10/1987 | CH2M Hill 1988 | | 46.82 | 249.93 | |
| | 4/28/1987 | CH2M Hill 1988 | | 46.99 | 249.76 | |
| | 5/21/1987 | CH2M Hill 1988 | | 47.02 | 249.73 | |
| | 6/30/1987 | CH2M Hill 1988 | | 47.21 | 249.54 | |
| | 8/17/1987 | CH2M Hill 1988 | | 47.51 | 249.24 | |
| | 9/15/1987 | CH2M Hill 1988 | | 48.48 | 248.27 | |
| | 10/26/1987 | CH2M Hill 1988 | | 48.96 | 247.79 | |
| | 12/28/1987 | CH2M Hill 1988 | | 48.98 | 247.77 | |
| | 1/14/1988 | CH2M Hill 1988 | | 48.94 | 247.81 | |
| | 2/18/1988 | CH2M Hill 1988 | | 49.02 | 247.73 | |
| | 3/3/1988 | CH2M Hill 1988 | | 48.73 | 248.02 | |
| | 4/2/1988 | CH2M Hill 1988 | | 48.65 | 248.10 | |
| | 9/13/1999 | IT | 296.77 | 59.55 | 237.22 | may be residual water trapped in well |
| | 12/13/1999 | IT | | 59.60 | 237.17 | may be hitting top of pump |
| | 3/13/2000 | IT | | 59.52 | 237.25 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 59.00 | 237.77 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 58.36 | 238.41 | |
| | 12/18/2000 | IT | | 57.60 | 239.17 | |
| | 5/7/2001 | IT | 301.92 | 65.76 | 236.16 | |
| | 10/15/2001 | IT | | 66.54 | 235.38 | |
| | 6/3/2002 | SECOR | 301.81 | 67.29 | 234.52 | |
| | 9/16/2002 | SECOR | 308.59 | 71.88 | 236.71 | Top of casing has been elevated |
| | 11/18/2002 | SECOR | | 72.74 | 235.85 | |
| | 1/27/2003 | SECOR | | 73.16 | 235.43 | |
| | 6/16/2003 | SECOR | | 73.78 | 234.81 | Not purged |
| | 9/8/2003 | SECOR | | 73.81 | 234.78 | |
| | 12/8/2003 | SECOR | | 73.85 | 234.74 | |

**Appendix A**
**Historical Water Level Measurements and Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**March 2005**

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-6s | 3/8/2004 | SECOR | | 74.17 | 234.42 | |
| | 6/7/2004 | SECOR | | NA | NA | Well is dry |
| | 8/6/2004 | SECOR | | NA | NA | Well is dry |
| | 11/12/2004 | SECOR | | NA | NA | Well is dry |
| | 3/11/2005 | SECOR | | NA | NA | Well is dry |
| | 12/28/1987 | CH2M Hill 1988 | 295.64 | 47.17 | 248.47 | |
| | 1/14/1988 | CH2M Hill 1988 | | 47.21 | 248.43 | |
| | 2/18/1988 | CH2M Hill 1988 | | 47.28 | 248.36 | |
| | 3/3/1988 | CH2M Hill 1988 | | 47.21 | 248.43 | |
| | 4/2/1988 | CH2M Hill 1988 | | 46.92 | 248.72 | |
| | 4/17/1995 | Envirosolve | 295.81 | 64.94 | 230.87 | |
| | 7/7/1995 | Envirosolve | | 64.56 | 231.25 | |
| | 10/23/1995 | Envirosolve | | 63.26 | 232.55 | |
| | 4/15/1996 | Envirosolve | | 63.23 | 232.58 | |
| | 3/16/1998 | Envirosolve | | 60.89 | 234.92 | |
| | 6/22/1998 | Envirosolve | 295.81 | 59.43 | 236.38 | |
| | 9/14/1998 | Envirosolve | | 58.88 | 236.93 | |
| | 12/14/1998 | Envirosolve | | 59.07 | 236.74 | |
| | 3/15/1999 | IT | | 59.22 | 236.59 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | 295.81 | 59.97 | 235.84 | |
| | 9/13/1999 | IT | | 59.55 | 236.26 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 58.58 | 237.23 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 58.25 | 237.56 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 57.49 | 238.32 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 57.05 | 238.76 | |
| | 12/18/2000 | IT | | 56.17 | 239.64 | |
| | 5/7/2001 | IT | 299.13 | 62.09 | 237.04 | |
| | 10/15/2001 | IT | | 62.96 | 236.17 | |
| | 6/3/2002 | SECOR | 299.09 | 64.05 | 235.04 | |
| | 9/16/2002 | SECOR | 304.68 | 68.46 | 236.22 | Micro Purge Pump Installed; TOC Was Elevated |
| | 11/18/2002 | SECOR | | 68.90 | 235.78 | |
| | 1/27/2003 | SECOR | | 69.70 | 234.98 | |
| | 6/16/2003 | SECOR | | 70.21 | 234.41 | |
| | 9/8/2003 | SECOR | | 70.45 | 234.23 | |
| | 12/8/2003 | SECOR | | 70.31 | 234.37 | |
| | 3/8/2004 | SECOR | | 70.62 | 234.06 | |
| | 6/7/2004 | SECOR | | 71.43 | 233.25 | |
| | 8/6/2004 | SECOR | | 72.05 | 232.63 | |
| | 11/12/2004 | SECOR | | 72.25 | 232.43 | |
| | 3/11/2005 | SECOR | | 62.38 | 242.30 | |
| MW-7s | 8/7/1984 | Harding Lawson Associates 1986 | 293.99 | 45.63 | 248.36 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 45.37 | 248.62 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 45.32 | 248.67 | |
| | 5/27/1986 | CH2M Hill 1988 | 294.18 | 43.82 | 250.36 | |
| | 7/9/1986 | CH2M Hill 1988 | | 44.19 | 249.99 | |
| | 8/11/1986 | CH2M Hill 1988 | | 44.10 | 250.08 | |
| | 8/22/1986 | CH2M Hill 1988 | | 44.07 | 250.11 | |
| | 9/23/1986 | CH2M Hill 1988 | | 43.96 | 250.22 | |
| | 10/21/1986 | CH2M Hill 1988 | | 43.95 | 250.23 | |
| | 11/14/1986 | CH2M Hill 1988 | | 43.94 | 250.24 | |
| | 12/22/1986 | CH2M Hill 1988 | | 43.97 | 250.21 | |
| | 1/19/1987 | CH2M Hill 1988 | | 43.78 | 250.40 | |
| | 2/17/1987 | CH2M Hill 1988 | | 43.80 | 250.38 | |
| | 4/10/1987 | CH2M Hill 1988 | | 43.62 | 250.56 | |
| | 4/28/1987 | CH2M Hill 1988 | | 43.71 | 250.47 | |
| | 5/21/1987 | CH2M Hill 1988 | | 43.77 | 250.41 | |
| | 6/30/1987 | CH2M Hill 1988 | | 44.08 | 250.10 | |
| | 8/17/1987 | CH2M Hill 1988 | | 44.23 | 249.95 | |
| | 9/15/1987 | CH2M Hill 1988 | | 45.17 | 249.01 | |
| | 10/26/1987 | CH2M Hill 1988 | | 45.57 | 248.61 | |

**Appendix A**
**Historical Water Level Measurements and Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**March 2005**

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-7s | 12/28/1987 | CH2M Hill 1988 | | 45.72 | 248.46 | |
| | 1/14/1988 | CH2M Hill 1988 | | 45.64 | 248.54 | |
| | 2/18/1988 | CH2M Hill 1988 | | 45.77 | 248.41 | |
| | 3/3/1988 | CH2M Hill 1988 | | 45.74 | 248.44 | |
| | 4/2/1988 | CH2M Hill 1988 | | 45.48 | 248.70 | |
| | 1/16/1995 | Envirosolve | | 62.87 | 231.31 | |
| | 4/17/1995 | Envirosolve | 294.15 | 63.24 | 230.91 | |
| | 7/7/1995 | Envirosolve | | 62.88 | 231.27 | |
| | 10/23/1995 | Envirosolve | | 61.60 | 232.55 | |
| | 4/15/1996 | Envirosolve | | 61.57 | 232.58 | |
| | 3/16/1998 | Envirosolve | 294.15 | 59.21 | 234.94 | |
| | 6/22/1998 | Envirosolve | | 57.73 | 236.42 | |
| | 9/14/1998 | Envirosolve | | 57.19 | 236.96 | |
| | 12/14/1998 | Envirosolve | | 57.39 | 236.76 | |
| | 3/15/1999 | IT | | 57.70 | 236.45 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 57.97 | 236.18 | |
| | 9/13/1999 | IT | | 57.97 | 236.18 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 56.92 | 237.23 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 56.70 | 237.45 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 55.72 | 238.43 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 55.07 | 239.08 | |
| | 12/18/2000 | IT | | 54.26 | 239.89 | |
| | 5/7/2001 | IT | 298.83 | 61.50 | 237.33 | |
| | 10/15/2001 | IT | 298.83 | 62.57 | 236.26 | |
| | 6/3/2002 | SECOR | 298.79 | 63.70 | 235.09 | |
| | 9/16/2002 | SECOR | | 65.86 | 236.22 | Micro Purge Pump Installed; TOC Was Elevated |
| | 11/18/2002 | SECOR | 302.08 | 66.36 | 235.72 | |
| | 1/27/2003 | SECOR | | 66.94 | 235.14 | |
| | 6/16/2003 | SECOR | | 67.58 | 234.50 | |
| | 9/8/2003 | SECOR | | 67.80 | 234.28 | |
| | 12/8/2003 | SECOR | | 67.71 | 234.37 | |
| | 3/8/2004 | SECOR | | 67.88 | 234.20 | |
| | 6/7/2004 | SECOR | | 68.94 | 233.14 | |
| | 8/6/2004 | SECOR | | 69.34 | 232.74 | |
| | 11/12/2004 | SECOR | | 69.75 | 232.33 | |
| | 3/11/2005 | SECOR | | 69.78 | 232.30 | |
| MW-8 | 12/28/1987 | CH2M Hill 1988 | 296.67 | 49.18 | 247.49 | |
| | 1/14/1988 | CH2M Hill 1988 | | 49.13 | 247.54 | |
| | 2/18/1988 | CH2M Hill 1988 | | 49.22 | 247.45 | |
| | 3/3/1988 | CH2M Hill 1988 | | 48.78 | 247.89 | |
| | 4/2/1988 | CH2M Hill 1988 | | 48.88 | 247.79 | |
| | 1/16/1995 | Envirosolve | | 65.77 | 230.90 | |
| | 4/17/1995 | Envirosolve | 296.83 | 66.57 | 230.26 | |
| | 7/7/1995 | Envirosolve | | 66.22 | 230.61 | |
| | 10/23/1995 | Envirosolve | | 64.96 | 231.87 | |
| | 4/15/1996 | Envirosolve | | 64.88 | 231.95 | |
| | 3/16/1998 | Envirosolve | | 62.85 | 233.98 | |
| | 6/22/1998 | Envirosolve | | 61.45 | 235.38 | |
| | 9/14/1998 | Envirosolve | | 60.89 | 235.94 | |
| | 12/14/1998 | Envirosolve | | 60.67 | 236.16 | |
| | 3/15/1999 | IT | | 61.04 | 235.79 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 61.68 | 235.15 | |
| | 9/13/1999 | IT | | 61.39 | 235.44 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 60.36 | 236.47 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 60.04 | 236.79 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 59.41 | 237.42 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 59.06 | 237.77 | |
| | 12/18/2000 | IT | | 58.27 | 238.56 | |
| | 5/7/2001 | IT | 301.87 | 66.03 | 235.84 | |
| | 10/15/2001 | IT | | 66.85 | 235.02 | |

**Appendix A**
**Historical Water Level Measurements and Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**March 2005**

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-8 | 6/3/2002 | SECOR | 300.72 | 66.53 | 234.19 | |
| | 9/16/2002 | SECOR | 307.86 | 72.27 | 235.59 | Micro Purge Pump Installed; TOC Was Elevated |
| | 11/18/2002 | SECOR | | 73.04 | 234.82 | |
| | 1/27/2003 | SECOR | | 73.44 | 234.42 | |
| | 6/16/2003 | SECOR | | 74.01 | 233.85 | |
| | 9/8/2003 | SECOR | | 74.13 | 233.73 | |
| | 12/8/2003 | SECOR | | 72.78 | 235.08 | |
| | 3/8/2004 | SECOR | | 73.11 | 234.75 | |
| | 6/7/2004 | SECOR | | 74.04 | 233.82 | |
| | 8/6/2004 | SECOR | | 74.63 | 233.23 | |
| | 11/12/2004 | SECOR | | 74.92 | 232.94 | |
| | 3/18/2005 | SECOR | | 74.95 | 232.91 | |
| MW-10 | 12/28/1987 | CH2M Hill 1988 | 290.91 | 43.65 | 247.26 | |
| | 1/14/1988 | CH2M Hill 1988 | | 43.08 | 247.83 | |
| | 2/18/1988 | CH2M Hill 1988 | | 43.09 | 247.82 | |
| | 3/3/1988 | CH2M Hill 1988 | | 43.05 | 247.86 | |
| | 4/2/1988 | CH2M Hill 1988 | 290.91 | 42.73 | 248.18 | |
| | 1/16/1995 | Envirosolve | | 59.06 | 231.85 | |
| | 4/17/1995 | Envirosolve | 288.68 | 57.60 | 231.08 | |
| | 7/7/1995 | Envirosolve | 290.63 | 59.58 | 231.05 | |
| | 10/23/1995 | Envirosolve | | 58.38 | 232.25 | |
| | 4/15/1996 | Envirosolve | | 58.28 | 232.35 | |
| | 3/16/1998 | Envirosolve | | 56.20 | 234.43 | |
| | 6/22/1998 | Envirosolve | | 54.81 | 235.82 | |
| | 9/14/1998 | Envirosolve | | 54.20 | 236.43 | |
| | 12/14/1998 | Envirosolve | | 54.07 | 236.56 | |
| | 3/15/1999 | IT | | 54.31 | 236.32 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 54.80 | 235.83 | |
| | 9/13/1999 | IT | | 54.86 | 235.77 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 54.07 | 236.56 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 53.31 | 237.32 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | 290.63 | 53.07 | 237.56 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 52.55 | 238.08 | |
| | 12/18/2000 | IT | | 51.60 | 239.03 | |
| | 5/7/2001 | IT | | 53.99 | 236.64 | |
| | 10/15/2001 | IT | | 54.78 | 235.85 | |
| | 6/3/2002 | SECOR | | 55.70 | 234.93 | |
| | 9/16/2002 | SECOR | | 54.37 | 236.26 | Micro Purge Pump Installed |
| | 11/18/2002 | SECOR | | 55.32 | 235.31 | |
| | 1/27/2003 | SECOR | | 55.71 | 234.92 | |
| | 6/16/2003 | SECOR | | 56.41 | 234.22 | |
| | 9/8/2003 | SECOR | | 56.59 | 234.04 | |
| | 12/8/2003 | SECOR | | 56.53 | 234.10 | |
| | 3/8/2004 | SECOR | | 56.85 | 233.78 | |
| | 6/7/2004 | SECOR | | 57.64 | 232.99 | |
| | 8/6/2004 | SECOR | | 58.22 | 232.41 | |
| | 11/12/2004 | SECOR | | 58.64 | 231.99 | |
| | 3/11/2005 | SECOR | | 58.65 | 231.98 | |
| MW-12 | 2/28/1982 | USEPA-ERT 1982 | 300.74 | 48.17 | 252.57 | |
| | 8/7/1984 | Harding Lawson Associates 1986 | 290.50 | 43.00 | 247.50 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 42.81 | 247.69 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 42.82 | 247.68 | |
| | 5/27/1986 | CH2M Hill 1988 | 290.64 | 41.19 | 249.45 | |
| | 7/9/1986 | CH2M Hill 1988 | | 41.56 | 249.08 | |
| | 8/11/1986 | CH2M Hill 1988 | | 41.49 | 249.15 | |
| | 8/22/1986 | CH2M Hill 1988 | | 41.47 | 249.17 | |
| | 9/23/1986 | CH2M Hill 1988 | | 41.47 | 249.17 | |
| | 10/21/1986 | CH2M Hill 1988 | | 41.31 | 249.33 | |
| | 11/14/1986 | CH2M Hill 1988 | | 41.16 | 249.48 | |
| | 12/22/1986 | CH2M Hill 1988 | | 41.38 | 249.26 | |

# Appendix A
## Historical Water Level Measurements and Elevations
## Purity Oil Sales Superfund Site, Malaga, California
## March 2005

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-12 | 1/19/1987 | CH2M Hill 1988 | | 41.23 | 249.41 | |
| | 2/17/1987 | CH2M Hill 1988 | | 41.17 | 249.47 | |
| | 4/28/1987 | CH2M Hill 1988 | | 41.00 | 249.64 | |
| | 5/21/1987 | CH2M Hill 1988 | | 41.19 | 249.45 | |
| | 6/30/1987 | CH2M Hill 1988 | | 41.41 | 249.23 | |
| | 8/17/1987 | CH2M Hill 1988 | | 41.55 | 249.09 | |
| | 9/15/1987 | CH2M Hill 1988 | | 42.54 | 248.10 | |
| | 10/26/1987 | CH2M Hill 1988 | | 43.02 | 247.62 | |
| | 12/28/1987 | CH2M Hill 1988 | | 43.06 | 247.58 | |
| | 1/14/1988 | CH2M Hill 1988 | | 43.12 | 247.52 | |
| | 2/18/1988 | CH2M Hill 1988 | | 43.09 | 247.55 | |
| | 3/3/1988 | CH2M Hill 1988 | 290.64 | 43.15 | 247.49 | |
| | 4/2/1988 | CH2M Hill 1988 | | 42.95 | 247.69 | |
| MW-14d | 8/7/1984 | Harding Lawson Associates 1986 | 296.70 | 49.81 | 246.89 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 49.51 | 247.19 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 49.53 | 247.17 | |
| | 5/27/1986 | CH2M Hill 1988 | 296.68 | 47.63 | 249.05 | |
| | 7/9/1986 | CH2M Hill 1988 | | 48.19 | 248.49 | |
| | 8/11/1986 | CH2M Hill 1988 | | 47.94 | 248.74 | |
| | 8/22/1986 | CH2M Hill 1988 | | 48.00 | 248.68 | |
| | 9/23/1986 | CH2M Hill 1988 | | 47.91 | 248.77 | |
| | 10/21/1986 | CH2M Hill 1988 | | 47.83 | 248.85 | |
| | 11/14/1986 | CH2M Hill 1988 | | 47.92 | 248.76 | |
| | 12/22/1986 | CH2M Hill 1988 | | 48.10 | 248.58 | |
| | 1/19/1987 | CH2M Hill 1988 | | 47.95 | 248.73 | |
| | 2/17/1987 | CH2M Hill 1988 | | 47.93 | 248.75 | |
| | 4/10/1987 | CH2M Hill 1988 | | 47.66 | 249.02 | |
| | 4/28/1987 | CH2M Hill 1988 | | 47.82 | 248.86 | |
| | 5/21/1987 | CH2M Hill 1988 | | 47.85 | 248.83 | |
| | 6/30/1987 | CH2M Hill 1988 | | 48.11 | 248.57 | |
| | 8/17/1987 | CH2M Hill 1988 | | 48.36 | 248.32 | |
| | 9/15/1987 | CH2M Hill 1988 | | 49.49 | 247.19 | |
| | 10/26/1987 | CH2M Hill 1988 | | 49.80 | 246.88 | |
| | 12/28/1987 | CH2M Hill 1988 | | 49.76 | 246.92 | |
| | 1/14/1988 | CH2M Hill 1988 | | 49.23 | 247.45 | |
| | 2/18/1988 | CH2M Hill 1988 | 296.67 | 49.79 | 246.89 | |
| | 3/3/1988 | CH2M Hill 1988 | | 49.20 | 247.48 | |
| | 4/2/1988 | CH2M Hill 1988 | | 49.53 | 247.15 | |
| | 4/17/1995 | Envirosolve | | 66.92 | 229.75 | |
| | 7/7/1995 | Envirosolve | | 66.60 | 230.07 | |
| | 10/23/1995 | Envirosolve | | 65.27 | 231.40 | |
| | 4/15/1996 | Envirosolve | | 65.21 | 231.46 | |
| | 3/16/1998 | Envirosolve | | 63.21 | 233.46 | |
| | 6/22/1998 | Envirosolve | | 61.83 | 234.84 | |
| | 9/14/1998 | Envirosolve | | 61.22 | 235.45 | |
| | 12/14/1998 | Envirosolve | | 61.01 | 235.66 | |
| | 3/15/1999 | IT | | 61.44 | 235.23 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 62.17 | 234.50 | |
| | 9/13/1999 | IT | | 61.88 | 234.79 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 60.64 | 236.03 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 60.37 | 236.30 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 59.75 | 236.92 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 59.29 | 237.38 | |
| | 12/18/2000 | IT | | 58.43 | 238.24 | |
| | 6/3/2002 | SECOR | 301.85 | NA | NA | Well has obstruction |
| | 9/16/2002 | SECOR | | NA | NA | Well has obstruction |
| | 11/18/2002 | SECOR | | NA | NA | Well has obstruction |
| MW-14s | 8/7/1984 | Harding Lawson Associates 1986 | 296.68 | 49.80 | 246.88 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 49.49 | 247.19 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 49.50 | 247.18 | |

**Appendix A**
**Historical Water Level Measurements and Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**March 2005**

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-14s | 5/27/1986 | CH2M Hill 1988 | | 47.49 | 249.19 | |
| | 7/9/1986 | CH2M Hill 1988 | | 48.17 | 248.51 | |
| | 8/11/1986 | CH2M Hill 1988 | | 47.96 | 248.72 | |
| | 8/22/1986 | CH2M Hill 1988 | | 48.02 | 248.66 | |
| | 9/23/1986 | CH2M Hill 1988 | | 47.71 | 248.97 | |
| | 10/21/1986 | CH2M Hill 1988 | | 47.81 | 248.87 | |
| | 11/14/1986 | CH2M Hill 1988 | | 47.92 | 248.76 | |
| | 12/22/1986 | CH2M Hill 1988 | | 48.08 | 248.60 | |
| | 1/19/1987 | CH2M Hill 1988 | | 47.92 | 248.76 | |
| | 2/17/1987 | CH2M Hill 1988 | | 47.92 | 248.76 | |
| | 4/10/1987 | CH2M Hill 1988 | | 47.62 | 249.06 | |
| | 4/28/1987 | CH2M Hill 1988 | | 47.82 | 248.86 | |
| | 5/21/1987 | CH2M Hill 1988 | | 47.87 | 248.81 | |
| | 6/30/1987 | CH2M Hill 1988 | | 48.06 | 248.62 | |
| | 8/17/1987 | CH2M Hill 1988 | | 48.36 | 248.32 | |
| | 9/15/1987 | CH2M Hill 1988 | | 49.45 | 247.23 | |
| | 10/26/1987 | CH2M Hill 1988 | | 49.73 | 246.95 | |
| | 12/28/1987 | CH2M Hill 1988 | | 49.76 | 246.92 | |
| | 1/14/1988 | CH2M Hill 1988 | | 49.71 | 246.97 | |
| | 2/18/1988 | CH2M Hill 1988 | | 49.80 | 246.88 | |
| | 3/3/1988 | CH2M Hill 1988 | | 49.21 | 247.47 | |
| | 4/2/1988 | CH2M Hill 1988 | | 49.52 | 247.16 | |
| | 9/13/1999 | IT | 296.67 | 59.66 | 237.01 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 59.69 | 236.98 | may be hitting top of pump |
| | 3/13/2000 | IT | | 59.64 | 237.03 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 59.64 | 237.03 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 59.44 | 237.23 | |
| | 12/18/2000 | IT | | 52.40 | 244.27 | |
| | 5/7/2001 | IT | 301.75 | 66.16 | 235.59 | |
| | 6/3/2002 | SECOR | 301.62 | NA | NA | Well has obstruction |
| | 9/16/2002 | SECOR | | NA | NA | Well has obstruction |
| | 11/18/2002 | SECOR | | NA | NA | Well has obstruction |
| MW-16 | 12/28/1987 | CH2M Hill 1988 | 295.97 | 49.55 | 246.42 | |
| | 1/14/1988 | CH2M Hill 1988 | | 49.60 | 246.37 | |
| | 2/18/1988 | CH2M Hill 1988 | | 49.60 | 246.37 | |
| | 3/3/1988 | CH2M Hill 1988 | 296.18 | 49.20 | 246.77 | |
| | 4/2/1988 | CH2M Hill 1988 | | 49.28 | 246.69 | |
| | 10/23/1995 | Envirosolve | | 65.28 | 230.90 | |
| | 4/15/1996 | Envirosolve | | 65.22 | 230.96 | |
| | 3/16/1998 | Envirosolve | | 63.21 | 232.97 | |
| | 6/22/1998 | Envirosolve | | 61.83 | 234.35 | |
| | 9/14/1998 | Envirosolve | | 61.18 | 235.00 | |
| | 12/14/1998 | Envirosolve | | 60.98 | 235.20 | |
| | 3/15/1999 | IT | | 61.29 | 234.89 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 62.11 | 234.07 | |
| | 9/13/1999 | IT | | 61.73 | 234.45 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 60.55 | 235.63 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 60.02 | 236.16 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 59.59 | 236.59 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 59.44 | 236.74 | |
| | 12/18/2000 | IT | | 58.47 | 237.71 | |
| | 5/7/2001 | IT | 300.50 | 65.58 | 234.92 | |
| | 10/15/2001 | IT | | 66.73 | 233.77 | |
| | 6/3/2002 | SECOR | 300.47 | 66.15 | 234.32 | |
| | 9/16/2002 | SECOR | 302.65 | 68.18 | 234.47 | Micro Purge Pump Installed; TOC Was Elevated |
| | 11/18/2002 | SECOR | | 69.02 | 233.63 | |
| | 1/27/2003 | SECOR | | 69.38 | 233.27 | |
| | 6/16/2003 | SECOR | | 69.81 | 232.84 | |
| | 9/8/2003 | SECOR | | 69.94 | 232.71 | |
| | 12/8/2003 | SECOR | | 69.94 | 232.71 | |

**Appendix A**
**Historical Water Level Measurements and Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**March 2005**

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-16 | 3/8/2004 | SECOR | | 70.19 | 232.46 | |
| | 6/7/2004 | SECOR | | 71.03 | 231.62 | |
| | 8/6/2004 | SECOR | | 71.67 | 230.98 | |
| | 11/12/2004 | SECOR | | 71.95 | 230.70 | |
| | 3/11/2005 | SECOR | | 71.96 | 230.69 | |
| MW-19 | 12/28/1987 | CH2M Hill 1988 | 291.08 | 44.38 | 246.70 | |
| | 1/14/1988 | CH2M Hill 1988 | | 44.43 | 246.65 | |
| | 2/18/1988 | CH2M Hill 1988 | | 44.4 | 246.68 | |
| | 3/3/1988 | CH2M Hill 1988 | | 44.43 | 246.65 | |
| | 4/2/1988 | CH2M Hill 1988 | | 44.35 | 246.73 | |
| | 6/14/1999 | IT | 291.04 | 56.81 | 234.23 | |
| | 9/13/1999 | IT | | 56.55 | 234.49 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 55.53 | 235.51 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 55.14 | 235.90 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 53.35 | 237.69 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | 290.47 | 53.04 | 237.43 | |
| | 12/18/2000 | IT | | 52.41 | 238.06 | |
| | 5/7/2001 | IT | 291.04 | 54.96 | 236.08 | |
| | 10/15/2001 | IT | | 55.52 | 235.52 | |
| | 6/3/2002 | SECOR | 290.47 | 56.37 | 234.10 | |
| | 9/16/2002 | SECOR | | 55.27 | 235.20 | Micro Purge Pump Installed |
| | 11/18/2002 | SECOR | | 56.12 | 234.35 | |
| | 1/27/2003 | SECOR | | 56.56 | 233.91 | |
| | 6/16/2003 | SECOR | | 57.12 | 233.35 | |
| | 9/8/2003 | SECOR | | 57.21 | 233.26 | |
| | 12/8/2003 | SECOR | | 57.16 | 233.31 | |
| | 3/8/2004 | SECOR | | 57.65 | 232.82 | |
| | 6/7/2004 | SECOR | | 58.38 | 232.09 | |
| | 8/6/2004 | SECOR | | 59.01 | 231.46 | |
| | 11/12/2004 | SECOR | | 59.35 | 231.12 | |
| | 3/11/2005 | SECOR | | 59.23 | 231.24 | |
| MW-24 | 12/28/1987 | CH2M Hill 1988 | 289.61 | 44.72 | 244.89 | |
| | 1/14/1988 | CH2M Hill 1988 | | 44.69 | 244.92 | |
| | 2/18/1988 | CH2M Hill 1988 | | 44.72 | 244.89 | |
| | 3/3/1988 | CH2M Hill 1988 | | 44.81 | 244.80 | |
| | 4/2/1988 | CH2M Hill 1988 | | 44.87 | 244.74 | |
| | 1/16/1995 | Envirosolve | | 60.86 | 228.75 | |
| | 4/17/1995 | Envirosolve | 289.85 | 61.57 | 228.28 | |
| | 7/7/1995 | Envirosolve | | 61.98 | 227.87 | |
| | 10/23/1995 | Envirosolve | | 60.58 | 229.27 | |
| | 4/15/1996 | Envirosolve | | 60.23 | 229.62 | |
| | 3/16/1998 | Envirosolve | | 58.07 | 231.78 | |
| | 6/22/1998 | Envirosolve | | 56.96 | 232.89 | |
| | 9/14/1998 | Envirosolve | 289.85 | 56.25 | 233.60 | |
| MW-25 | 12/28/1987 | CH2M Hill 1988 | 290.72 | 44.74 | 245.98 | |
| | 1/14/1988 | CH2M Hill 1988 | | 44.78 | 245.94 | |
| | 2/18/1988 | CH2M Hill 1988 | | 44.77 | 245.95 | |
| | 3/3/1988 | CH2M Hill 1988 | | 44.81 | 245.91 | |
| | 4/2/1988 | CH2M Hill 1988 | | 44.79 | 245.93 | |
| | 1/16/1995 | Envirosolve | | 61.00 | 229.72 | |
| | 4/17/1995 | Envirosolve | 290.70 | 61.49 | 229.21 | |
| | 7/7/1995 | Envirosolve | | 61.67 | 229.03 | |
| | 10/23/1995 | Envirosolve | | 60.40 | 230.30 | |
| | 4/15/1996 | Envirosolve | | 60.08 | 230.62 | |
| | 3/16/1998 | Envirosolve | | 58.00 | 232.70 | |
| | 6/22/1998 | Envirosolve | | 56.78 | 233.92 | |
| | 9/14/1998 | Envirosolve | | 56.10 | 234.60 | |
| | 12/14/1998 | Envirosolve | | 55.91 | 234.79 | |
| | 3/15/1999 | IT | | 56.21 | 234.49 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 56.88 | 233.82 | |

# Appendix A
## Historical Water Level Measurements and Elevations
## Purity Oil Sales Superfund Site, Malaga, California
## March 2005

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-25 | 9/13/1999 | IT | | 56.61 | 234.09 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 55.48 | 235.22 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 55.15 | 235.55 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 54.32 | 236.38 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 54.09 | 236.61 | |
| | 12/18/2000 | IT | | 53.38 | 237.32 | |
| | 5/7/2001 | IT | | 56.05 | 234.65 | |
| | 10/15/2001 | IT | | 56.71 | 233.99 | |
| | 6/3/2002 | SECOR | 290.70 | 57.52 | 233.18 | |
| | 9/16/2002 | SECOR | | 56.00 | 234.70 | Micro Purge Pump Installed |
| | 11/18/2002 | SECOR | | 56.91 | 233.79 | |
| | 1/27/2003 | SECOR | | 57.31 | 233.39 | |
| | 6/16/2003 | SECOR | | 57.95 | 232.75 | |
| | 9/8/2003 | SECOR | | 58.19 | 232.51 | |
| | 12/8/2003 | SECOR | | 58.03 | 232.67 | |
| | 3/8/2004 | SECOR | | 58.42 | 232.28 | |
| | 6/7/2004 | SECOR | | 59.30 | 231.40 | |
| | 8/6/2004 | SECOR | | 58.89 | 231.81 | |
| | 11/12/2004 | SECOR | | 60.06 | 230.64 | |
| | 3/11/2005 | SECOR | | 60.10 | 230.60 | |
| MW-34s | 1/16/1995 | Envirosolve | 288.51 | 62.47 | 226.04 | |
| | 4/17/1995 | Envirosolve | | 62.35 | 226.16 | |
| | 7/7/1995 | Envirosolve | | 63.52 | 224.99 | |
| | 10/23/1995 | Envirosolve | | 62.05 | 226.46 | |
| | 4/15/1996 | Envirosolve | | 61.56 | 226.95 | |
| | 3/16/1998 | Envirosolve | | 59.16 | 229.35 | |
| | 6/22/1998 | Envirosolve | | 58.68 | 229.83 | |
| | 9/14/1998 | Envirosolve | | 57.65 | 230.86 | |
| | 12/14/1998 | Envirosolve | | 57.65 | 230.86 | |
| | 3/15/1999 | IT | | 57.73 | 230.78 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 58.20 | 230.31 | |
| | 9/13/1999 | IT | | 56.30 | 232.21 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 57.26 | 231.25 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 56.78 | 231.73 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 55.78 | 232.73 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 55.68 | 232.83 | |
| | 12/18/2000 | IT | | 55.02 | 233.49 | |
| | 5/7/2001 | IT | | 57.21 | 231.30 | |
| | 10/15/2001 | IT | | 57.67 | 230.84 | |
| | 6/3/2002 | SECOR | 288.51 | 59.02 | 229.49 | |
| | 9/16/2002 | SECOR | | 57.44 | 231.07 | Micro Purge Pump Installed |
| | 11/18/2002 | SECOR | | 58.19 | 230.32 | |
| | 1/27/2003 | SECOR | | 58.72 | 229.79 | |
| | 6/16/2003 | SECOR | | 59.38 | 229.13 | |
| | 9/8/2003 | SECOR | | 59.68 | 228.83 | |
| | 12/8/2003 | SECOR | | 59.48 | 229.03 | |
| | 3/8/2004 | SECOR | 288.51 | 59.90 | 228.61 | |
| | 6/7/2004 | SECOR | | 61.02 | 227.49 | |
| | 8/6/2004 | SECOR | | 61.36 | 227.15 | |
| | 11/12/2004 | SECOR | | 61.43 | 227.08 | |
| | 3/11/2005 | SECOR | | 61.24 | 227.27 | |
| **Shallow to Middle** | | | | | | |
| MW-7i | 8/7/1984 | Harding Lawson Associates 1986 | 294.05 | 45.69 | 248.36 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 45.44 | 248.61 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 45.40 | 248.65 | |
| | 5/27/1986 | CH2M Hill 1988 | 294.04 | 43.59 | 250.45 | |
| | 7/9/1986 | CH2M Hill 1988 | | 44.14 | 249.90 | |
| | 8/11/1986 | CH2M Hill 1988 | | 43.91 | 250.13 | |
| | 8/22/1986 | CH2M Hill 1988 | | 43.94 | 250.10 | |
| | 9/23/1986 | CH2M Hill 1988 | | 43.92 | 250.12 | |

# Appendix A
## Historical Water Level Measurements and Elevations
## Purity Oil Sales Superfund Site, Malaga, California
## March 2005

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-7i | 10/21/1986 | CH2M Hill 1988 | | 43.68 | 250.36 | |
| | 11/14/1986 | CH2M Hill 1988 | | 43.66 | 250.38 | |
| | 12/22/1986 | CH2M Hill 1988 | | 43.84 | 250.20 | |
| | 1/19/1987 | CH2M Hill 1988 | | 43.67 | 250.37 | |
| | 2/17/1987 | CH2M Hill 1988 | | 43.72 | 250.32 | |
| | 4/10/1987 | CH2M Hill 1988 | | 43.48 | 250.56 | |
| | 4/28/1987 | CH2M Hill 1988 | | 43.57 | 250.47 | |
| | 5/21/1987 | CH2M Hill 1988 | | 43.67 | 250.37 | |
| | 6/30/1987 | CH2M Hill 1988 | | 43.98 | 250.06 | |
| | 8/17/1987 | CH2M Hill 1988 | | 44.13 | 249.91 | |
| | 9/15/1987 | CH2M Hill 1988 | | 45.05 | 248.99 | |
| | 10/26/1987 | CH2M Hill 1988 | | 45.46 | 248.58 | |
| | 12/28/1987 | CH2M Hill 1988 | | 45.58 | 248.46 | |
| | 1/14/1988 | CH2M Hill 1988 | | 45.54 | 248.50 | |
| | 2/18/1988 | CH2M Hill 1988 | | 45.65 | 248.39 | |
| | 3/3/1988 | CH2M Hill 1988 | | 45.60 | 248.44 | |
| | 4/2/1988 | CH2M Hill 1988 | | 45.34 | 248.70 | |
| | 4/17/1995 | Envirosolve | 293.99 | 62.76 | 231.23 | |
| | 7/7/1995 | Envirosolve | | 62.42 | 231.57 | |
| | 10/23/1995 | Envirosolve | | 61.18 | 232.81 | |
| | 4/15/1996 | Envirosolve | | 61.17 | 232.82 | |
| | 3/16/1998 | Envirosolve | | 59.07 | 234.92 | |
| | 6/22/1998 | Envirosolve | | 57.60 | 236.39 | |
| | 9/14/1998 | Envirosolve | | 57.04 | 236.95 | |
| | 12/14/1998 | Envirosolve | | 57.04 | 236.95 | |
| | 3/15/1999 | IT | | 57.42 | 236.57 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 57.70 | 236.29 | |
| | 9/13/1999 | IT | | 57.67 | 236.32 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 56.63 | 237.36 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 56.37 | 237.62 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 55.59 | 238.40 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 54.96 | 239.03 | |
| | 12/18/2000 | IT | | 54.31 | 239.68 | |
| | 5/7/2001 | IT | 298.79 | 61.82 | 236.97 | |
| | 10/15/2001 | IT | | 62.58 | 236.21 | |
| | 6/3/2002 | SECOR | 298.74 | 63.44 | 235.30 | |
| | 9/16/2002 | SECOR | 301.17 | 64.64 | 236.53 | Micro Purge Pump Installed; TOC Was Elevated |
| | 11/18/2002 | SECOR | | 65.37 | 235.80 | |
| | 1/27/2003 | SECOR | | 65.88 | 235.29 | |
| | 6/16/2003 | SECOR | | 66.47 | 234.70 | |
| | 9/8/2003 | SECOR | | 66.67 | 234.50 | |
| | 12/8/2003 | SECOR | | 66.57 | 234.60 | |
| | 3/8/2004 | SECOR | | 66.92 | 234.25 | |
| | 6/7/2004 | SECOR | | 67.83 | 233.34 | |
| | 8/6/2004 | SECOR | | 68.40 | 232.77 | |
| | 11/12/2004 | SECOR | | 68.72 | 232.45 | |
| | 3/11/2005 | SECOR | | 68.74 | 232.43 | |
| MW-9 | 8/7/1984 | Harding Lawson Associates 1986 | 291 | 43.26 | 247.74 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 43.01 | 247.99 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 43.00 | 248.00 | |
| | 5/27/1986 | CH2M Hill 1988 | 291 | 41.58 | 249.42 | |
| | 7/9/1986 | CH2M Hill 1988 | | 41.67 | 249.33 | |
| | 8/11/1986 | CH2M Hill 1988 | | 43.93 | 247.07 | |
| | 8/22/1986 | CH2M Hill 1988 | 291 | 41.52 | 249.48 | |
| | 9/23/1986 | CH2M Hill 1988 | | 41.48 | 249.52 | |
| | 10/21/1986 | CH2M Hill 1988 | | 41.36 | 249.64 | |
| | 11/14/1986 | CH2M Hill 1988 | | 41.31 | 249.69 | |
| | 12/22/1986 | CH2M Hill 1988 | | 41.57 | 249.43 | |
| | 1/19/1987 | CH2M Hill 1988 | | 41.41 | 249.59 | |
| | 2/17/1987 | CH2M Hill 1988 | | 41.32 | 249.68 | |

**Appendix A**
**Historical Water Level Measurements and Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**March 2005**

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-9 | 4/10/1987 | CH2M Hill 1988 | | 41.10 | 249.90 | |
| | 4/28/1987 | CH2M Hill 1988 | | 41.29 | 249.71 | |
| | 5/21/1987 | CH2M Hill 1988 | | 41.32 | 249.68 | |
| | 8/17/1987 | CH2M Hill 1988 | | 41.72 | 249.28 | |
| | 9/15/1987 | CH2M Hill 1988 | | 42.92 | 248.08 | |
| | 10/26/1987 | CH2M Hill 1988 | | 42.13 | 248.87 | |
| | 12/28/1987 | CH2M Hill 1988 | | 43.24 | 247.76 | |
| | 1/14/1988 | CH2M Hill 1988 | | 43.25 | 247.75 | |
| | 2/18/1988 | CH2M Hill 1988 | | 43.27 | 247.73 | |
| | 3/3/1988 | CH2M Hill 1988 | | 43.13 | 247.87 | |
| | 4/2/1988 | CH2M Hill 1988 | | 43.00 | 248.00 | |
| | 6/3/2002 | SECOR | 290.90 | 56.29 | 234.61 | |
| | 9/16/2002 | SECOR | | 54.97 | 235.93 | Micro Purge Pump Installed |
| | 11/18/2002 | SECOR | | 55.78 | 235.12 | |
| | 1/27/2003 | SECOR | | 56.20 | 234.70 | |
| | 6/16/2003 | SECOR | | 56.84 | 234.06 | |
| | 9/8/2003 | SECOR | | 57.00 | 233.90 | |
| | 12/8/2003 | SECOR | | 56.93 | 233.97 | |
| | 3/8/2004 | SECOR | | 57.24 | 233.66 | |
| | 6/7/2004 | SECOR | | 58.15 | 232.75 | |
| | 8/6/2004 | SECOR | | 58.61 | 232.29 | |
| | 11/12/2004 | SECOR | | 59.05 | 231.85 | |
| | 3/11/2005 | SECOR | | 59.08 | 231.82 | |
| MW-11 | 8/7/1984 | Harding Lawson Associates 1986 | 290.87 | 42.99 | 247.88 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 42.75 | 248.12 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 42.76 | 248.11 | |
| | 5/27/1986 | CH2M Hill 1988 | 291.04 | 41.30 | 249.74 | |
| | 7/9/1986 | CH2M Hill 1988 | | 41.55 | 249.49 | |
| | 8/11/1986 | CH2M Hill 1988 | | 41.50 | 249.54 | |
| | 8/22/1986 | CH2M Hill 1988 | | 41.45 | 249.59 | |
| | 9/23/1986 | CH2M Hill 1988 | | 41.40 | 249.64 | |
| | 10/21/1986 | CH2M Hill 1988 | | 41.25 | 249.79 | |
| | 11/14/1986 | CH2M Hill 1988 | | 41.21 | 249.83 | |
| | 12/22/1986 | CH2M Hill 1988 | | 41.39 | 249.65 | |
| | 1/19/1987 | CH2M Hill 1988 | | 41.26 | 249.78 | |
| | 2/17/1987 | CH2M Hill 1988 | | 41.22 | 249.82 | |
| | 4/10/1987 | CH2M Hill 1988 | | 40.99 | 250.05 | |
| | 4/28/1987 | CH2M Hill 1988 | | 41.14 | 249.90 | |
| | 5/21/1987 | CH2M Hill 1988 | | 41.22 | 249.82 | |
| | 6/30/1987 | CH2M Hill 1988 | | 41.46 | 249.58 | |
| | 8/17/1987 | CH2M Hill 1988 | | 41.61 | 249.43 | |
| | 9/15/1987 | CH2M Hill 1988 | | 41.61 | 249.43 | |
| | 10/26/1987 | CH2M Hill 1988 | | 43.09 | 247.95 | |
| | 12/28/1987 | CH2M Hill 1988 | | 43.10 | 247.94 | |
| | 1/14/1988 | CH2M Hill 1988 | | 43.14 | 247.90 | |
| | 2/18/1988 | CH2M Hill 1988 | 291.04 | 43.16 | 247.88 | |
| | 3/3/1988 | CH2M Hill 1988 | | 43.12 | 247.92 | |
| | 4/2/1988 | CH2M Hill 1988 | | 42.90 | 248.14 | |
| | 1/16/1995 | Envirosolve | | 59.68 | 231.36 | |
| | 7/7/1995 | Envirosolve | 291.02 | 59.92 | 231.10 | |
| | 10/23/1995 | Envirosolve | | 58.73 | 232.29 | |
| | 4/15/1996 | Envirosolve | | 58.61 | 232.41 | |
| | 3/16/1998 | Envirosolve | | 56.56 | 234.46 | |
| | 6/22/1998 | Envirosolve | | 55.12 | 235.90 | |
| | 9/14/1998 | Envirosolve | | 54.53 | 236.49 | |
| | 12/14/1998 | Envirosolve | | 54.44 | 236.58 | |
| | 3/15/1999 | IT | | 54.73 | 236.29 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | 291.02 | 55.22 | 235.80 | |
| | 9/13/1999 | IT | | 55.11 | 235.91 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 53.42 | 237.60 | Ref. Elev. = Water elev + DTW |

# Appendix A
## Historical Water Level Measurements and Elevations
## Purity Oil Sales Superfund Site, Malaga, California
## March 2005

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-11 | 3/13/2000 | IT | | 53.75 | 237.27 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 53.00 | 238.02 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 52.59 | 238.43 | |
| | 12/18/2000 | IT | | 51.98 | 239.04 | |
| | 5/7/2001 | IT | | 54.57 | 236.45 | |
| | 10/15/2001 | IT | | 55.26 | 235.76 | |
| | 6/3/2002 | SECOR | 290.82 | 56.09 | 234.73 | |
| | 9/16/2002 | SECOR | | 54.42 | 236.40 | Micro Purge Pump Installed |
| | 11/18/2002 | SECOR | | 55.25 | 235.57 | |
| | 1/27/2003 | SECOR | | 55.66 | 235.16 | |
| | 6/16/2003 | SECOR | | 56.27 | 234.55 | |
| | 9/8/2003 | SECOR | | 56.47 | 234.35 | |
| | 12/8/2003 | SECOR | | 56.42 | 234.40 | |
| | 3/8/2004 | SECOR | | 56.75 | 234.07 | |
| | 6/7/2004 | SECOR | | 57.64 | 233.18 | |
| | 8/6/2004 | SECOR | | 58.18 | 232.64 | |
| | 11/12/2004 | SECOR | | 58.52 | 232.30 | |
| | 3/11/2005 | SECOR | | 58.56 | 232.26 | |
| MW-13 | 8/7/1984 | Harding Lawson Associates 1986 | 289.77 | 42.68 | 247.09 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 42.34 | 247.43 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 42.35 | 247.42 | |
| | 5/27/1986 | CH2M Hill 1988 | 289.96 | 40.84 | 249.12 | |
| | 7/9/1986 | CH2M Hill 1988 | | 41.11 | 248.85 | |
| | 8/22/1986 | CH2M Hill 1988 | | 40.96 | 249.00 | |
| | 9/23/1986 | CH2M Hill 1988 | | 40.75 | 249.21 | |
| | 10/21/1986 | CH2M Hill 1988 | | 40.74 | 249.22 | |
| | 11/14/1986 | CH2M Hill 1988 | | 40.91 | 249.05 | |
| | 12/22/1986 | CH2M Hill 1988 | | 41.10 | 248.86 | |
| | 1/19/1987 | CH2M Hill 1988 | | 40.91 | 249.05 | |
| | 2/17/1987 | CH2M Hill 1988 | | 40.93 | 249.03 | |
| | 4/10/1987 | CH2M Hill 1988 | | 40.72 | 249.24 | |
| | 4/28/1987 | CH2M Hill 1988 | | 40.97 | 248.99 | |
| | 5/21/1987 | CH2M Hill 1988 | | 40.89 | 249.07 | |
| | 6/30/1987 | CH2M Hill 1988 | | 40.13 | 249.83 | |
| | 8/17/1987 | CH2M Hill 1988 | | 40.42 | 249.54 | |
| | 9/15/1987 | CH2M Hill 1988 | | 42.47 | 247.49 | |
| | 10/26/1987 | CH2M Hill 1988 | | 42.82 | 247.14 | |
| | 12/28/1987 | CH2M Hill 1988 | | 42.83 | 247.13 | |
| | 1/14/1988 | CH2M Hill 1988 | | 42.86 | 247.10 | |
| | 2/18/1988 | CH2M Hill 1988 | | 42.86 | 247.10 | |
| | 3/3/1988 | CH2M Hill 1988 | 289.96 | 41.87 | 248.09 | |
| | 4/2/1988 | CH2M Hill 1988 | | 42.49 | 247.47 | |
| | 7/7/1995 | Envirosolve | 289.92 | 59.61 | 230.31 | |
| | 10/23/1995 | Envirosolve | | 58.26 | 231.66 | |
| | 4/15/1996 | Envirosolve | | 58.30 | 231.62 | |
| | 3/16/1998 | Envirosolve | | 56.37 | 233.55 | |
| | 6/22/1998 | Envirosolve | | 54.90 | 235.02 | |
| | 9/14/1998 | Envirosolve | | 54.35 | 235.57 | |
| | 12/14/1998 | Envirosolve | | 54.04 | 235.88 | |
| | 3/15/1999 | IT | | 54.58 | 235.34 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 55.37 | 234.55 | |
| | 9/13/1999 | IT | | 54.99 | 234.93 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 53.76 | 236.16 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 53.43 | 236.49 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 52.91 | 237.01 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 52.72 | 237.20 | |
| | 12/18/2000 | IT | | 51.85 | 238.07 | |
| | 5/7/2001 | IT | | 54.82 | 235.10 | |
| | 10/15/2001 | IT | | 55.74 | 234.18 | |
| | 6/3/2002 | SECOR | 289.74 | 56.21 | 233.53 | |

**Appendix A**
**Historical Water Level Measurements and Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**March 2005**

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-13 | 9/16/2002 | SECOR | | 54.50 | 235.24 | Micro Purge Pump Installed |
| | 11/18/2002 | SECOR | 289.74 | 55.29 | 234.45 | |
| | 1/27/2003 | SECOR | | 55.62 | 234.12 | |
| | 6/16/2003 | SECOR | | 56.27 | 233.47 | |
| | 9/8/2003 | SECOR | | 56.40 | 233.34 | |
| | 12/8/2003 | SECOR | | 56.28 | 233.46 | |
| | 3/8/2004 | SECOR | | 56.60 | 233.14 | |
| | 6/7/2004 | SECOR | | 57.48 | 232.26 | |
| | 8/6/2004 | SECOR | | 58.12 | 231.62 | |
| | 11/12/2004 | SECOR | | 58.39 | 231.35 | |
| | 3/11/2005 | SECOR | | 58.38 | 231.36 | |
| MW-18 | 8/7/1984 | Harding Lawson Associates 1986 | 289.53 | 42.94 | 246.59 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 42.65 | 246.88 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 42.69 | 246.84 | |
| | 5/27/1986 | CH2M Hill 1988 | 289.58 | 41.05 | 248.53 | |
| | 7/9/1986 | CH2M Hill 1988 | | 41.34 | 248.24 | |
| | 8/22/1986 | CH2M Hill 1988 | | 41.26 | 248.32 | |
| | 9/23/1986 | CH2M Hill 1988 | | 41.16 | 248.42 | |
| | 10/21/1986 | CH2M Hill 1988 | | 41.05 | 248.53 | |
| | 11/14/1986 | CH2M Hill 1988 | | 41.05 | 248.53 | |
| | 12/22/1986 | CH2M Hill 1988 | | 41.29 | 248.29 | |
| | 1/19/1987 | CH2M Hill 1988 | | 41.10 | 248.48 | |
| | 2/17/1987 | CH2M Hill 1988 | | 41.09 | 248.49 | |
| | 4/10/1987 | CH2M Hill 1988 | | 40.84 | 248.74 | |
| | 4/28/1987 | CH2M Hill 1988 | | 41.05 | 248.53 | |
| | 5/21/1987 | CH2M Hill 1988 | | 41.05 | 248.53 | |
| | 6/30/1987 | CH2M Hill 1988 | | 41.05 | 248.53 | |
| | 8/17/1987 | CH2M Hill 1988 | | 41.51 | 248.07 | |
| | 9/15/1987 | CH2M Hill 1988 | | 42.36 | 247.22 | |
| | 10/26/1987 | CH2M Hill 1988 | | 42.86 | 246.72 | |
| | 12/28/1987 | CH2M Hill 1988 | 246.67 | 0.00 | 246.67 | |
| | 1/14/1988 | CH2M Hill 1988 | | -0.01 | 246.68 | |
| | 2/18/1988 | CH2M Hill 1988 | | 0.02 | 246.65 | |
| | 3/3/1988 | CH2M Hill 1988 | | -0.28 | 246.95 | |
| | 4/2/1988 | CH2M Hill 1988 | | -0.13 | 246.80 | |
| | 4/17/1995 | Envirosolve | 289.8 | 60.18 | 229.62 | |
| | 7/7/1995 | Envirosolve | | 60.03 | 229.77 | |
| | 10/23/1995 | Envirosolve | | 58.68 | 231.12 | |
| | 6/7/2004 | SECOR | | 59.34 | 230.46 | |
| | 8/6/2004 | SECOR | | 59.97 | 229.83 | |
| | 11/12/2004 | SECOR | | NA | NA | Obstructed |
| | 3/11/2005 | SECOR | | NA | NA | Obstructed |
| MW-20 | 7/7/1995 | Envirosolve | 288.53 | 60.37 | 228.16 | |
| | 10/23/1995 | Envirosolve | | 58.67 | 229.86 | |
| | 4/15/1996 | Envirosolve | | 58.63 | 229.90 | |
| | 3/16/1998 | Envirosolve | | 56.49 | 232.04 | |
| | 6/22/1998 | Envirosolve | | 55.17 | 233.36 | |
| | 9/14/1998 | Envirosolve | | 54.47 | 234.06 | |
| | 12/14/1998 | Envirosolve | | 54.19 | 234.34 | |
| | 3/15/1999 | IT | | 54.80 | 233.73 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 55.70 | 232.83 | |
| | 9/13/1999 | IT | | 55.12 | 233.41 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 53.85 | 234.68 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 53.62 | 234.91 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 53.04 | 235.49 | |
| | 9/11/2000 | IT | | 52.89 | 235.64 | |
| | 12/18/2000 | IT | | 51.92 | 236.61 | |
| | 5/7/2001 | IT | | 55.07 | 233.46 | |
| | 10/15/2001 | IT | | 56.09 | 232.44 | |
| | 6/3/2002 | SECOR | 288.4 | 56.38 | 232.02 | |

# Appendix A
## Historical Water Level Measurements and Elevations
## Purity Oil Sales Superfund Site, Malaga, California
## March 2005

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-20 | 9/16/2002 | SECOR | | 55.01 | 233.39 | Micro Purge Pump Installed |
| | 11/18/2002 | SECOR | | 55.86 | 232.54 | |
| | 1/27/2003 | SECOR | | 56.16 | 232.24 | |
| | 6/16/2003 | SECOR | | 56.73 | 231.67 | |
| | 9/8/2003 | SECOR | | 56.91 | 231.49 | |
| | 12/8/2003 | SECOR | | 56.71 | 231.69 | |
| | 3/8/2004 | SECOR | | 57.16 | 231.24 | |
| | 6/7/2004 | SECOR | | 58.02 | 230.38 | |
| | 8/6/2004 | SECOR | | 58.59 | 229.81 | |
| | 11/12/2004 | SECOR | | 58.84 | 229.56 | Bent lid, broken latch, marked with fencing |
| | 3/11/2005 | SECOR | | 58.83 | 229.57 | |
| MW-21 | 8/7/1984 | Harding Lawson Associates 1986 | 289.80 | 43.84 | 245.96 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | 289.80 | 43.54 | 246.26 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 43.55 | 246.25 | |
| | 5/27/1986 | CH2M Hill 1988 | 289.73 | 41.89 | 247.84 | |
| | 7/9/1986 | CH2M Hill 1988 | | 42.43 | 247.30 | |
| | 8/11/1986 | CH2M Hill 1988 | | 42.03 | 247.70 | |
| | 8/22/1986 | CH2M Hill 1988 | | 41.97 | 247.76 | |
| | 9/23/1986 | CH2M Hill 1988 | | 41.90 | 247.83 | |
| | 10/21/1986 | CH2M Hill 1988 | | 41.74 | 247.99 | |
| | 11/14/1986 | CH2M Hill 1988 | | 41.83 | 247.90 | |
| | 12/22/1986 | CH2M Hill 1988 | | 42.05 | 247.68 | |
| | 1/19/1987 | CH2M Hill 1988 | | 41.85 | 247.88 | |
| | 2/17/1987 | CH2M Hill 1988 | | 41.83 | 247.90 | |
| | 4/10/1987 | CH2M Hill 1988 | | 41.62 | 248.11 | |
| | 4/28/1987 | CH2M Hill 1988 | | 41.85 | 247.88 | |
| | 5/21/1987 | CH2M Hill 1988 | | 42.05 | 247.68 | |
| | 6/30/1987 | CH2M Hill 1988 | | 42.18 | 247.55 | |
| | 8/17/1987 | CH2M Hill 1988 | | 42.41 | 247.32 | |
| | 9/15/1987 | CH2M Hill 1988 | | 43.62 | 246.11 | |
| | 10/26/1987 | CH2M Hill 1988 | | 43.80 | 245.93 | |
| | 12/28/1987 | CH2M Hill 1988 | | 43.76 | 245.97 | |
| | 1/14/1988 | CH2M Hill 1988 | | 43.81 | 245.92 | |
| | 2/18/1988 | CH2M Hill 1988 | | 43.81 | 245.92 | |
| | 3/3/1988 | CH2M Hill 1988 | 289.73 | 43.69 | 246.04 | |
| | 4/2/1988 | CH2M Hill 1988 | | 43.75 | 245.98 | |
| | 4/17/1995 | Envirosolve | 289.77 | 60.84 | 228.93 | |
| | 7/7/1995 | Envirosolve | | 60.86 | 228.91 | |
| | 10/23/1995 | Envirosolve | | 59.36 | 230.41 | |
| | 4/15/1996 | Envirosolve | | 59.19 | 230.58 | |
| | 3/15/1999 | IT | | 55.25 | 234.52 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 56.19 | 233.58 | |
| | 9/13/1999 | IT | | 55.70 | 234.07 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 54.56 | 235.21 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 54.26 | 235.51 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 53.39 | 236.38 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 53.25 | 236.52 | |
| | 12/18/2000 | IT | | 52.39 | 237.38 | |
| | 5/7/2001 | IT | | 55.13 | 234.64 | |
| | 10/15/2001 | IT | | 56.21 | 233.56 | |
| | 6/3/2002 | SECOR | 289.47 | 56.56 | 232.83 | |
| | 9/16/2002 | SECOR | | 55.29 | 234.18 | Micro Purge Pump Installed |
| | 11/18/2002 | SECOR | | 56.14 | 233.33 | |
| | 1/27/2003 | SECOR | | 56.51 | 232.96 | |
| | 6/16/2003 | SECOR | | 57.09 | 232.38 | |
| | 9/8/2003 | SECOR | | 57.22 | 232.25 | |
| | 12/8/2003 | SECOR | | 57.13 | 232.34 | |
| | 3/8/2004 | SECOR | | 57.54 | 231.93 | |
| | 6/7/2004 | SECOR | | 58.33 | 231.14 | |
| | 8/6/2004 | SECOR | | 58.97 | 230.50 | |

# Appendix A
## Historical Water Level Measurements and Elevations
## Purity Oil Sales Superfund Site, Malaga, California
## March 2005

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-21 | 11/12/2004 | SECOR | | 59.23 | 230.24 | Marked with orange fencing |
| | 3/11/2005 | SECOR | | 59.25 | 230.22 | Marked with orange fencing |
| MW-30p | 6/19/2000 | IT | 0.00 | 54.13 | -54.13 | Ref. Elev. = Water elev + DTW |
| | 5/7/2001 | IT | | 55.51 | -55.51 | |
| MW-33p | 5/21/1987 | CH2M Hill 1988 | 287.86 | 44.23 | 243.63 | |
| | 6/30/1987 | CH2M Hill 1988 | | 44.46 | 243.40 | |
| | 9/15/1987 | CH2M Hill 1988 | | 46.17 | 241.69 | |
| | 10/26/1987 | CH2M Hill 1988 | | 45.95 | 241.91 | |
| | 2/18/1988 | CH2M Hill 1988 | | 45.63 | 242.23 | |
| | 3/3/1988 | CH2M Hill 1988 | | 45.90 | 241.96 | |
| | 4/2/1988 | CH2M Hill 1988 | | 48.76 | 239.10 | |
| | 4/17/1995 | Envirosolve | | 61.44 | 226.42 | |
| | 9/13/1999 | IT | | 56.79 | 231.07 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 56.21 | 231.65 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 55.72 | 232.14 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 54.74 | 233.12 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | 287.86 | 54.17 | 233.69 | |
| | 12/18/2000 | IT | | 53.84 | 234.02 | |
| | 5/7/2001 | IT | | 56.00 | 231.86 | |
| | 10/15/2001 | IT | | 56.40 | 231.46 | |
| | 6/3/2002 | SECOR | | 57.65 | 230.21 | |
| | 9/16/2002 | SECOR | | 56.21 | 231.65 | |
| | 11/18/2002 | SECOR | | 57.18 | 230.68 | |
| | 1/27/2003 | SECOR | | 57.66 | 230.20 | |
| | 6/16/2003 | SECOR | | 58.31 | 229.55 | |
| | 9/8/2003 | SECOR | | 58.48 | 229.38 | |
| | 12/8/2003 | SECOR | | 58.48 | 229.38 | |
| | 6/7/2004 | SECOR | | 59.90 | 227.96 | |
| | 8/6/2004 | SECOR | | 60.31 | 227.55 | |
| | 11/12/2004 | SECOR | | NA | NA | No sampling port |
| | 3/11/2005 | SECOR | | 60.24 | 227.62 | |
| MW-36 | 7/7/1995 | Envirosolve | 286.83 | 62.74 | 224.09 | |
| | 10/23/1995 | Envirosolve | | 61.95 | 224.88 | |
| | 4/15/1996 | Envirosolve | | 61.10 | 225.73 | |
| MW-38 | 1/16/1995 | Envirosolve | 289.06 | 63.44 | 225.62 | |
| | 4/17/1995 | Envirosolve | | 63.08 | 225.98 | |
| | 7/7/1995 | Envirosolve | | 63.99 | 225.07 | |
| | 10/23/1995 | Envirosolve | | 63.43 | 225.63 | |
| | 4/15/1996 | Envirosolve | | 62.16 | 226.90 | |
| | 3/16/1998 | Envirosolve | 289.06 | 60.13 | 228.93 | |
| | 6/22/1998 | Envirosolve | | 59.67 | 229.39 | |
| | 9/14/1998 | Envirosolve | | 58.44 | 230.62 | |
| | 12/14/1998 | Envirosolve | | 58.75 | 230.31 | |
| | 3/15/1999 | IT | | 58.56 | 230.50 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 58.94 | 230.12 | |
| | 9/13/1999 | IT | | 58.38 | 230.68 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 58.17 | 230.89 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 57.39 | 231.67 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 55.89 | 233.17 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 55.27 | 233.79 | |
| | 12/18/2000 | IT | | 55.60 | 233.46 | |
| | 5/7/2001 | IT | | 57.22 | 231.84 | |
| | 10/15/2001 | IT | | 57.19 | 231.87 | |
| | 6/3/2002 | SECOR | | 59.07 | 229.49 | |
| | 9/16/2002 | SECOR | | 57.28 | 231.78 | Micro Purge Pump Installed |
| | 11/18/2002 | SECOR | | 58.50 | 230.56 | |
| | 1/27/2003 | SECOR | | 59.05 | 230.01 | |
| | 6/16/2003 | SECOR | | 59.66 | 229.40 | |
| | 9/8/2003 | SECOR | | 60.03 | 229.03 | |
| | 12/8/2003 | SECOR | | 60.06 | 229.00 | |

# Appendix A
## Historical Water Level Measurements and Elevations
## Purity Oil Sales Superfund Site, Malaga, California
## March 2005

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-38 | 3/8/2004 | SECOR | | 60.31 | 228.75 | |
| | 6/7/2004 | SECOR | | 61.26 | 227.80 | |
| | 8/6/2004 | SECOR | | 61.66 | 227.40 | |
| | 11/12/2004 | SECOR | | 61.96 | 227.10 | |
| | 3/11/2005 | SECOR | | 61.59 | 227.47 | |
| MW-39 | 1/16/1995 | Envirosolve | 291.26 | 62.83 | 228.43 | |
| | 4/17/1995 | Envirosolve | | 62.91 | 228.35 | |
| | 7/7/1995 | Envirosolve | | 63.34 | 227.92 | |
| | 10/23/1995 | Envirosolve | | 62.37 | 228.89 | |
| | 4/15/1996 | Envirosolve | | 61.74 | 229.52 | |
| | 3/16/1998 | Envirosolve | | 59.67 | 231.59 | |
| | 6/22/1998 | Envirosolve | | 58.75 | 232.51 | |
| | 9/14/1998 | Envirosolve | | 57.85 | 233.41 | |
| | 12/14/1998 | Envirosolve | | 57.70 | 233.56 | |
| | 3/15/1999 | IT | | 57.82 | 233.44 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 58.35 | 232.91 | |
| | 9/13/1999 | IT | | 58.11 | 233.15 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 57.27 | 233.99 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 56.77 | 234.49 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 55.72 | 235.54 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 55.28 | 235.98 | |
| | 12/18/2000 | IT | | 54.92 | 236.34 | |
| | 5/7/2001 | IT | | 57.15 | 234.11 | |
| | 10/15/2001 | IT | 291.26 | 57.47 | 233.79 | |
| | 6/3/2002 | SECOR | | 58.73 | 232.53 | |
| | 9/16/2002 | SECOR | | 57.20 | 234.06 | Micro Purge Pump Installed |
| | 11/18/2002 | SECOR | | 58.16 | 233.10 | |
| | 1/27/2003 | SECOR | | 58.60 | 232.66 | |
| | 6/16/2003 | SECOR | | 59.22 | 232.04 | |
| | 9/8/2003 | SECOR | | 59.49 | 231.77 | |
| | 12/8/2003 | SECOR | | 59.58 | 231.68 | |
| | 3/8/2004 | SECOR | | 59.76 | 231.50 | |
| | 6/7/2004 | SECOR | | 60.70 | 230.56 | |
| | 8/6/2004 | SECOR | | 61.19 | 230.07 | |
| | 11/12/2004 | SECOR | | 61.49 | 229.77 | |
| | 3/11/2005 | SECOR | | 61.41 | 229.85 | |
| MW-40 | 1/16/1995 | Envirosolve | 288.76 | 58.93 | 229.83 | |
| | 4/17/1995 | Envirosolve | | 58.98 | 229.78 | |
| | 7/7/1995 | Envirosolve | | 59.21 | 229.55 | |
| | 10/23/1995 | Envirosolve | | 58.30 | 230.46 | |
| | 4/15/1996 | Envirosolve | | 57.73 | 231.03 | |
| | 3/16/1998 | Envirosolve | | 55.70 | 233.06 | |
| | 6/22/1998 | Envirosolve | | 54.64 | 234.12 | |
| | 9/14/1998 | Envirosolve | | 53.84 | 234.92 | |
| | 12/14/1998 | Envirosolve | | 53.66 | 235.10 | |
| | 3/15/1999 | IT | 288.76 | 53.77 | 234.99 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 54.20 | 234.56 | |
| | 9/13/1999 | IT | | 54.23 | 234.53 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 53.24 | 235.52 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 52.83 | 235.93 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 51.77 | 236.99 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 51.26 | 237.50 | |
| | 12/18/2000 | IT | | 50.88 | 237.88 | |
| | 5/7/2001 | IT | | 53.03 | 235.73 | |
| | 10/15/2001 | IT | | 53.36 | 235.40 | |
| | 6/3/2002 | SECOR | | 54.66 | 234.10 | |
| | 9/16/2002 | SECOR | | 53.25 | 235.51 | Micro Purge Pump Installed |
| | 11/18/2002 | SECOR | | 54.22 | 234.54 | |
| | 1/27/2003 | SECOR | | 54.77 | 233.99 | |
| | 6/16/2003 | SECOR | | 55.33 | 233.43 | |

**Appendix A**
**Historical Water Level Measurements and Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**March 2005**

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-40 | 9/8/2003 | SECOR | | 55.57 | 233.19 | |
| | 12/8/2003 | SECOR | | 55.60 | 233.16 | |
| | 3/8/2004 | SECOR | | 55.94 | 232.82 | |
| | 6/7/2004 | SECOR | | 56.77 | 231.99 | |
| | 8/6/2004 | SECOR | | 57.26 | 231.50 | |
| | 11/12/2004 | SECOR | | 57.65 | 231.11 | |
| | 3/11/2005 | SECOR | | 57.62 | 231.14 | |
| MW-41 | 1/16/1995 | Envirosolve | 290.45 | 60.08 | 230.37 | |
| | 4/17/1995 | Envirosolve | | 60.16 | 230.29 | |
| | 7/7/1995 | Envirosolve | | 60.29 | 230.16 | |
| | 10/23/1995 | Envirosolve | | 59.35 | 231.10 | |
| | 4/15/1996 | Envirosolve | | 58.87 | 231.58 | |
| | 3/16/1998 | Envirosolve | | 56.84 | 233.61 | |
| | 6/22/1998 | Envirosolve | | 55.70 | 234.75 | |
| | 9/14/1998 | Envirosolve | | 54.96 | 235.49 | |
| | 12/14/1998 | Envirosolve | | 54.77 | 235.68 | |
| | 3/15/1999 | IT | | 54.91 | 235.54 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 55.32 | 235.13 | |
| | 9/13/1999 | IT | | 55.37 | 235.08 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 54.38 | 236.07 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 52.97 | 237.48 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 53.00 | 237.45 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 52.48 | 237.97 | |
| | 12/18/2000 | IT | | 52.06 | 238.39 | |
| | 5/7/2001 | IT | | 54.27 | 236.18 | |
| | 10/15/2001 | IT | | 54.67 | 235.78 | |
| | 6/3/2002 | SECOR | | 55.87 | 234.58 | |
| | 9/16/2002 | SECOR | | 54.41 | 236.04 | Micro Purge Pump Installed |
| | 11/18/2002 | SECOR | | 55.35 | 235.10 | |
| | 1/27/2003 | SECOR | | 55.86 | 234.59 | |
| | 6/16/2003 | SECOR | | 56.41 | 234.04 | |
| | 9/8/2003 | SECOR | 290.45 | 56.65 | 233.80 | |
| | 12/8/2003 | SECOR | | 56.69 | 233.76 | |
| | 3/8/2004 | SECOR | | 57.02 | 233.43 | |
| | 6/7/2004 | SECOR | | 57.86 | 232.59 | |
| | 8/6/2004 | SECOR | | 58.36 | 232.09 | |
| | 11/12/2004 | SECOR | | 58.75 | 231.70 | |
| | 3/11/2005 | SECOR | | 58.73 | 231.72 | |
| **Shallow to Middle to Deep** | | | | | | |
| MW-26p | 5/21/1987 | CH2M Hill 1988 | 289.8 | 43.17 | 246.63 | |
| | 6/30/1987 | CH2M Hill 1988 | | 43.60 | 246.20 | |
| | 9/15/1987 | CH2M Hill 1988 | | 44.96 | 244.84 | |
| | 10/26/1987 | CH2M Hill 1988 | | 45.18 | 244.62 | |
| | 2/18/1988 | CH2M Hill 1988 | | 45.07 | 244.73 | |
| | 3/3/1988 | CH2M Hill 1988 | | 45.22 | 244.58 | |
| | 4/2/1988 | CH2M Hill 1988 | | 45.21 | 244.59 | |
| | 4/17/1995 | Envirosolve | 290.79 | 61.50 | 229.29 | |
| | 7/7/1995 | Envirosolve | | 61.46 | 229.33 | |
| | 10/23/1995 | Envirosolve | | 60.55 | 230.24 | |
| | 4/15/1996 | Envirosolve | | 60.25 | 230.54 | |
| | 3/16/1998 | Envirosolve | | 58.21 | 232.58 | |
| | 6/22/1998 | Envirosolve | 290.79 | 56.97 | 233.82 | |
| | 9/14/1998 | Envirosolve | | 56.25 | 234.54 | |
| | 12/14/1998 | Envirosolve | | 56.05 | 234.74 | |
| | 3/15/1999 | IT | | 56.45 | 234.34 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 56.78 | 234.01 | |
| | 9/13/1999 | IT | | 56.75 | 234.04 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 55.68 | 235.11 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 55.20 | 235.59 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 54.24 | 236.55 | Ref. Elev. = Water elev + DTW |

**Appendix A**
**Historical Water Level Measurements and Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**March 2005**

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-26p | 9/11/2000 | IT | | 53.81 | 236.98 | |
| | 12/18/2000 | IT | | 53.47 | 237.32 | |
| | 5/7/2001 | IT | | 55.81 | 234.98 | |
| | 6/3/2002 | SECOR | | 57.24 | 233.55 | |
| | 9/16/2002 | SECOR | | 55.77 | 235.02 | |
| | 11/18/2002 | SECOR | | 56.83 | 233.96 | |
| | 1/27/2003 | SECOR | | 57.25 | 233.54 | |
| | 6/16/2003 | SECOR | | 57.79 | 233.00 | |
| | 9/8/2003 | SECOR | | 58.09 | 232.70 | |
| | 12/8/2003 | SECOR | | 58.06 | 232.73 | |
| | 3/8/2004 | SECOR | | 58.4 | 232.39 | |
| | 6/7/2004 | SECOR | | 59.30 | 231.49 | |
| | 8/6/2004 | SECOR | | 59.80 | 230.99 | |
| | 11/12/2004 | SECOR | | 60.15 | 230.64 | |
| | 3/11/2005 | SECOR | | 60.08 | 230.71 | |
| MW-27p | 5/21/1987 | CH2M Hill 1988 | 288.18 | 43.03 | 245.15 | |
| | 6/30/1987 | CH2M Hill 1988 | | 43.27 | 244.91 | |
| | 9/15/1987 | CH2M Hill 1988 | | 44.81 | 243.37 | |
| | 10/26/1987 | CH2M Hill 1988 | | 44.88 | 243.30 | |
| | 2/18/1988 | CH2M Hill 1988 | | 44.52 | 243.66 | |
| | 3/3/1988 | CH2M Hill 1988 | | 44.77 | 243.41 | |
| | 4/2/1988 | CH2M Hill 1988 | | 45.36 | 242.82 | |
| | 4/17/1995 | Envirosolve | 288.19 | 61.00 | 227.19 | |
| | 7/7/1995 | Envirosolve | | 61.26 | 226.93 | |
| | 10/23/1995 | Envirosolve | | 59.89 | 228.30 | |
| | 4/15/1996 | Envirosolve | | 59.76 | 228.43 | |
| | 3/15/1999 | IT | | 56.01 | 232.18 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 56.57 | 231.62 | |
| | 9/13/1999 | IT | | 56.05 | 232.14 | Ref. Elev. = Water elev + DTW |
| **Middle** | | | | | | |
| MW-23 | 1/16/1995 | Envirosolve | 287.93 | 59.30 | 228.63 | |
| | 4/17/1995 | Envirosolve | | 59.97 | 227.96 | |
| | 7/7/1995 | Envirosolve | | 60.08 | 227.85 | |
| | 10/23/1995 | Envirosolve | | 58.71 | 229.22 | |
| | 4/15/1996 | Envirosolve | | 58.55 | 229.38 | |
| | 3/16/1998 | Envirosolve | | 56.36 | 231.57 | |
| | 6/22/1998 | Envirosolve | | 55.19 | 232.74 | |
| | 9/14/1998 | Envirosolve | | 54.44 | 233.49 | |
| | 3/15/1999 | IT | 287.93 | 56.75 | 231.18 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 57.44 | 230.49 | |
| | 9/13/1999 | IT | | 56.94 | 230.99 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 55.93 | 232.00 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 55.53 | 232.40 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 54.84 | 233.09 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | 290.01 | 54.57 | 235.44 | |
| | 12/18/2000 | IT | | 53.86 | 236.15 | |
| | 5/7/2001 | IT | | 56.62 | 233.39 | |
| | 10/15/2001 | IT | | 57.30 | 232.71 | |
| | 6/3/2002 | SECOR | | 58.00 | 232.01 | |
| | 9/16/2002 | SECOR | | 56.58 | 233.43 | Micro Purge Pump Installed |
| | 11/18/2002 | SECOR | | 57.53 | 232.48 | |
| | 1/27/2003 | SECOR | | 57.81 | 232.20 | |
| | 6/16/2003 | SECOR | | 58.43 | 231.58 | |
| | 9/8/2003 | SECOR | | 58.70 | 231.31 | |
| | 12/8/2003 | SECOR | | 58.55 | 231.46 | |
| | 3/8/2004 | SECOR | | 58.88 | 231.13 | |
| | 6/7/2004 | SECOR | | 59.88 | 230.13 | |
| | 8/6/2004 | SECOR | | 60.37 | 229.64 | |
| | 11/12/2004 | SECOR | | 60.59 | 229.42 | |
| | 3/11/2005 | SECOR | | 60.49 | 229.52 | |

**Appendix A**
**Historical Water Level Measurements and Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**March 2005**

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-34i | 1/16/1995 | Envirosolve | 288.57 | 62.65 | 225.92 | |
| | 4/17/1995 | Envirosolve | | 62.65 | 225.92 | |
| | 7/7/1995 | Envirosolve | | 63.51 | 225.06 | |
| | 10/23/1995 | Envirosolve | | 62.28 | 226.29 | |
| | 4/15/1996 | Envirosolve | | 61.79 | 226.78 | |
| | 3/16/1998 | Envirosolve | | 59.38 | 229.19 | |
| | 6/22/1998 | Envirosolve | | 58.89 | 229.68 | |
| | 9/14/1998 | Envirosolve | | 57.91 | 230.66 | |
| | 12/14/1998 | Envirosolve | | 57.87 | 230.70 | |
| | 3/15/1999 | IT | | 57.95 | 230.62 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 58.42 | 230.15 | |
| | 9/13/1999 | IT | | 57.86 | 230.71 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 57.45 | 231.12 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 56.94 | 231.63 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 55.99 | 232.58 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 55.65 | 232.92 | |
| | 12/18/2000 | IT | | 55.25 | 233.32 | |
| | 5/7/2001 | IT | | 57.45 | 231.12 | |
| | 10/15/2001 | IT | | 57.91 | 230.66 | |
| | 6/3/2002 | SECOR | | 59.15 | 229.42 | |
| | 9/16/2002 | SECOR | | 57.59 | 230.98 | Micro Purge Pump Installed |
| | 11/18/2002 | SECOR | | 58.48 | 230.09 | |
| | 1/27/2003 | SECOR | | 58.99 | 229.58 | |
| | 6/16/2003 | SECOR | | 59.64 | 228.93 | |
| | 9/8/2003 | SECOR | | 60.00 | 228.57 | |
| | 12/8/2003 | SECOR | | 59.75 | 228.82 | |
| | 3/8/2004 | SECOR | | 60.14 | 228.43 | |
| | 6/7/2004 | SECOR | | 61.26 | 227.31 | |
| | 8/6/2004 | SECOR | | 61.62 | 226.95 | |
| | 11/12/2004 | SECOR | | 61.72 | 226.85 | |
| | 3/11/2005 | SECOR | | 61.54 | 227.03 | |
| **Middle to Deep** | | | | | | |
| MW-2d | 12/28/1987 | CH2M Hill 1988 | 289.74 | 39.83 | 249.91 | |
| | 1/14/1988 | CH2M Hill 1988 | | 39.85 | 249.89 | |
| | 2/18/1988 | CH2M Hill 1988 | | 39.90 | 249.84 | |
| | 3/3/1988 | CH2M Hill 1988 | | 40.04 | 249.70 | |
| | 4/2/1988 | CH2M Hill 1988 | | 39.72 | 250.02 | |
| | 7/7/1995 | Envirosolve | 289.69 | 56.49 | 233.20 | |
| | 10/23/1995 | Envirosolve | | 55.21 | 234.48 | |
| | 4/15/1996 | Envirosolve | | 55.28 | 234.41 | |
| | 3/16/1998 | Envirosolve | | 53.29 | 236.40 | |
| | 6/22/1998 | Envirosolve | | 51.59 | 238.10 | |
| | 9/14/1998 | Envirosolve | | 51.11 | 238.58 | |
| | 12/14/1998 | Envirosolve | | 50.87 | 238.82 | |
| | 3/15/1999 | IT | | 51.47 | 238.22 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | 289.69 | 51.75 | 237.94 | |
| | 9/13/1999 | IT | | 51.75 | 237.94 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 50.75 | 238.94 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 50.76 | 238.93 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 49.76 | 239.93 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 49.28 | 240.41 | |
| | 12/18/2000 | IT | | 48.91 | 240.78 | |
| | 5/7/2001 | IT | 289.69 | 51.24 | 238.45 | |
| | 10/15/2001 | IT | | 52.23 | 237.46 | |
| | 6/3/2002 | SECOR | 289.61 | 52.94 | 236.67 | |
| | 9/16/2002 | SECOR | | 52.13 | 237.48 | Micro Purge Pump Installed |
| | 11/18/2002 | SECOR | | 53.06 | 236.55 | |
| | 1/27/2003 | SECOR | | 53.25 | 236.36 | |
| | 6/16/2003 | SECOR | | 53.80 | 235.81 | |
| | 9/8/2003 | SECOR | | 53.90 | 235.71 | |

# Appendix A
## Historical Water Level Measurements and Elevations
## Purity Oil Sales Superfund Site, Malaga, California
## March 2005

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-2d | 12/8/2003 | SECOR | | 53.98 | 235.63 | |
| | 3/8/2004 | SECOR | | 54.32 | 235.29 | |
| | 6/7/2004 | SECOR | | 55.19 | 234.42 | |
| | 8/6/2004 | SECOR | | 55.67 | 233.94 | |
| | 11/12/2004 | SECOR | | 56.07 | 233.54 | |
| | 3/11/2005 | SECOR | | 56.10 | 233.51 | |
| MW-5d | 8/7/1984 | Harding Lawson Associates 1986 | 296.75 | 48.95 | 247.80 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 48.68 | 248.07 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 48.65 | 248.10 | |
| | 5/27/1986 | CH2M Hill 1988 | 269.71 | 19.89 | 249.82 | |
| | 7/9/1986 | CH2M Hill 1988 | | 20.25 | 249.46 | |
| | 8/11/1986 | CH2M Hill 1988 | | 20.17 | 249.54 | |
| | 8/22/1986 | CH2M Hill 1988 | | 20.19 | 249.52 | |
| | 9/23/1986 | CH2M Hill 1988 | | 20.14 | 249.57 | |
| | 10/21/1986 | CH2M Hill 1988 | | 19.96 | 249.75 | |
| | 11/14/1986 | CH2M Hill 1988 | | 20.13 | 249.58 | |
| | 12/22/1986 | CH2M Hill 1988 | | 20.25 | 249.46 | |
| | 1/19/1987 | CH2M Hill 1988 | | 20.1 | 249.61 | |
| | 2/17/1987 | CH2M Hill 1988 | | 20.13 | 249.58 | |
| | 4/10/1987 | CH2M Hill 1988 | | 19.79 | 249.92 | |
| | 4/28/1987 | CH2M Hill 1988 | | 19.97 | 249.74 | |
| | 5/21/1987 | CH2M Hill 1988 | 296.71 | 47.03 | 249.68 | |
| | 6/30/1987 | CH2M Hill 1988 | | 47.03 | 249.68 | |
| | 8/17/1987 | CH2M Hill 1988 | | 47.52 | 249.19 | |
| | 9/15/1987 | CH2M Hill 1988 | | 48.52 | 248.19 | |
| | 10/26/1987 | CH2M Hill 1988 | | 48.9 | 247.81 | |
| | 12/28/1987 | CH2M Hill 1988 | | 48.95 | 247.76 | |
| | 1/14/1988 | CH2M Hill 1988 | | 48.93 | 247.78 | |
| | 2/18/1988 | CH2M Hill 1988 | | 49 | 247.71 | |
| | 3/3/1988 | CH2M Hill 1988 | | 48.71 | 248.00 | |
| | 4/2/1988 | CH2M Hill 1988 | | 48.63 | 248.08 | |
| | 6/14/1999 | IT | 296.66 | 61.1 | 235.56 | |
| | 9/13/1999 | IT | | 61.03 | 235.63 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 59.94 | 236.72 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 59.63 | 237.03 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 58.95 | 237.71 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 58.42 | 238.24 | |
| | 12/18/2000 | IT | | 57.64 | 239.02 | |
| | 5/7/2001 | IT | 301.71 | 65.59 | 236.12 | |
| | 10/15/2001 | IT | | 66.39 | 235.32 | |
| | 6/3/2002 | SECOR | 301.6 | 67.17 | 234.43 | |
| | 9/16/2002 | SECOR | 307.76 | 71.82 | 235.94 | Micro Purge Pump Installed; TOC Was Elevated |
| | 11/18/2002 | SECOR | | 72.62 | 235.14 | |
| | 1/27/2003 | SECOR | | 73.01 | 234.75 | |
| | 6/16/2003 | SECOR | | 73.65 | 234.11 | |
| | 9/8/2003 | SECOR | | 73.82 | 233.94 | |
| | 12/8/2003 | SECOR | | 73.76 | 234.00 | |
| | 3/8/2004 | SECOR | | 74.04 | 233.72 | |
| | 6/7/2004 | SECOR | | 74.99 | 232.77 | |
| | 8/6/2004 | SECOR | | 75.54 | 232.22 | |
| | 11/12/2004 | SECOR | | 75.85 | 231.91 | |
| | 3/11/2005 | SECOR | | 75.88 | 231.88 | |
| MW-6d | 12/28/1987 | CH2M Hill 1988 | 296.94 | 48.57 | 248.37 | |
| | 1/14/1988 | CH2M Hill 1988 | 296.94 | 48.60 | 248.34 | |
| | 2/18/1988 | CH2M Hill 1988 | | 48.68 | 248.26 | |
| | 3/3/1988 | CH2M Hill 1988 | | 48.70 | 248.24 | |
| | 4/2/1988 | CH2M Hill 1988 | | 48.50 | 248.44 | |
| | 1/16/1995 | Envirosolve | | 64.95 | 231.99 | |
| | 4/17/1995 | Envirosolve | 296.68 | 65.49 | 231.19 | |
| | 7/7/1995 | Envirosolve | | 65.17 | 231.51 | |

**Appendix A**
**Historical Water Level Measurements and Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**March 2005**

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-6d | 10/23/1995 | Envirosolve | | 63.94 | 232.74 | |
| | 4/15/1996 | Envirosolve | | 63.98 | 232.70 | |
| | 3/16/1998 | Envirosolve | | 61.87 | 234.81 | |
| | 6/22/1998 | Envirosolve | | 60.35 | 236.33 | |
| | 9/14/1998 | Envirosolve | | 59.81 | 236.87 | |
| | 12/14/1998 | Envirosolve | | 59.66 | 237.02 | |
| | 6/14/1999 | IT | | 60.46 | 236.22 | |
| | 6/19/2000 | IT | | 58.11 | 238.57 | |
| | 9/11/2000 | IT | | 57.93 | 238.75 | |
| | 12/18/2000 | IT | | 57.17 | 239.51 | |
| | 5/7/2001 | IT | 299.41 | 62.70 | 236.71 | |
| | 10/15/2001 | IT | | 63.28 | 236.13 | |
| | 6/3/2002 | SECOR | 296.66 | 61.51 | 235.15 | |
| | 9/16/2002 | SECOR | 306.72 | 70.26 | 236.46 | Micro Purge Pump Installed; TOC Was Elevated |
| | 11/18/2002 | SECOR | | 71.13 | 235.59 | |
| | 1/27/2003 | SECOR | | 71.49 | 235.23 | |
| | 6/16/2003 | SECOR | | 72.09 | 234.63 | |
| | 9/8/2003 | SECOR | | 72.31 | 234.41 | |
| | 12/8/2003 | SECOR | | 72.09 | 234.63 | |
| | 3/8/2004 | SECOR | | 72.56 | 234.16 | |
| | 6/7/2004 | SECOR | | 73.38 | 233.34 | |
| | 8/6/2004 | SECOR | | 74.03 | 232.69 | |
| | 11/12/2004 | SECOR | | 74.32 | 232.40 | |
| | 3/11/2005 | SECOR | | 74.47 | 232.25 | |
| MW-28p | 5/21/1987 | CH2M Hill 1988 | 290.79 | 44.98 | 245.81 | |
| | 6/30/1987 | CH2M Hill 1988 | | 45.16 | 245.63 | |
| | 9/15/1987 | CH2M Hill 1988 | | 46.58 | 244.21 | |
| | 10/26/1987 | CH2M Hill 1988 | | 46.71 | 244.08 | |
| | 2/18/1988 | CH2M Hill 1988 | | 46.50 | 244.29 | |
| | 3/3/1988 | CH2M Hill 1988 | | 46.70 | 244.09 | |
| | 4/2/1988 | CH2M Hill 1988 | | 47.00 | 243.79 | |
| | 1/16/1995 | Envirosolve | | 62.27 | 228.52 | |
| | 4/17/1995 | Envirosolve | 290.76 | 62.95 | 227.81 | |
| | 7/7/1995 | Envirosolve | | 63.15 | 227.61 | |
| | 10/23/1995 | Envirosolve | | 61.99 | 228.77 | |
| | 4/15/1996 | Envirosolve | | 61.62 | 229.14 | |
| | 3/16/1998 | Envirosolve | | 60.46 | 230.30 | |
| | 6/14/1999 | IT | | 58.46 | 232.30 | |
| | 9/13/1999 | IT | | 57.89 | 232.87 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 57.15 | 233.61 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 56.71 | 234.05 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 55.82 | 234.94 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 55.45 | 235.31 | |
| | 12/18/2000 | IT | | 54.98 | 235.78 | |
| | 5/7/2001 | IT | 290.76 | 57.45 | 233.31 | |
| | 10/15/2001 | IT | | 57.85 | 232.91 | |
| | 6/3/2002 | SECOR | | 58.91 | 231.85 | |
| | 9/16/2002 | SECOR | | 57.41 | 233.35 | |
| | 11/18/2002 | SECOR | | 58.43 | 232.33 | |
| | 1/27/2003 | SECOR | | 58.83 | 231.93 | |
| | 6/16/2003 | SECOR | | 59.43 | 231.33 | |
| | 9/8/2003 | SECOR | | 59.74 | 231.02 | |
| | 12/8/2003 | SECOR | | 59.69 | 231.07 | |
| | 3/8/2004 | SECOR | | 59.96 | 230.80 | |
| | 6/7/2004 | SECOR | | 60.66 | 230.10 | |
| | 8/6/2004 | SECOR | | 61.41 | 229.35 | |
| | 11/12/2004 | SECOR | | 61.65 | 229.11 | |
| | 3/11/2005 | SECOR | | 61.53 | 229.23 | |
| MW-29p | 5/21/1987 | CH2M Hill 1988 | 288.88 | 44.83 | 244.05 | |
| | 6/30/1987 | CH2M Hill 1988 | | 45.04 | 243.84 | |

**Appendix A**
**Historical Water Level Measurements and Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**March 2005**

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-29p | 9/15/1987 | CH2M Hill 1988 | | 46.77 | 242.11 | |
| | 10/26/1987 | CH2M Hill 1988 | 288.88 | 46.56 | 242.32 | |
| | 2/18/1988 | CH2M Hill 1988 | | 46.22 | 242.66 | |
| | 3/3/1988 | CH2M Hill 1988 | | 46.47 | 242.41 | |
| | 4/2/1988 | CH2M Hill 1988 | | 48.05 | 240.83 | |
| | 4/17/1995 | Envirosolve | | 62.40 | 226.48 | |
| | 4/15/1996 | Envirosolve | | 61.32 | 227.56 | |
| | 6/22/1998 | Envirosolve | | 58.20 | 230.68 | |
| | 6/14/1999 | IT | | 58.03 | 230.85 | |
| | 9/13/1999 | IT | | 57.58 | 231.30 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 56.84 | 232.04 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 56.38 | 232.50 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 55.07 | 233.81 | |
| | 12/18/2000 | IT | | 54.57 | 234.31 | |
| | 5/7/2001 | IT | | 56.97 | 231.91 | |
| | 10/15/2001 | IT | | 57.52 | 231.36 | |
| | 6/3/2002 | SECOR | | 58.62 | 230.26 | |
| | 9/16/2002 | SECOR | | 57.22 | 231.66 | |
| | 11/18/2002 | SECOR | | 58.03 | 230.85 | |
| | 1/27/2003 | SECOR | | 58.51 | 230.37 | |
| | 6/16/2003 | SECOR | | 59.14 | 229.74 | |
| | 9/8/2003 | SECOR | | 59.35 | 229.53 | |
| | 3/8/2004 | SECOR | | 59.61 | 229.27 | |
| | 6/7/2004 | SECOR | | 60.74 | 228.14 | |
| | 8/6/2004 | SECOR | | 61.14 | 227.74 | |
| | 11/12/2004 | SECOR | | 61.20 | 227.68 | |
| | 3/11/2005 | SECOR | | 61.01 | 227.87 | |
| MW-34d | 1/16/1995 | Envirosolve | | | 225.90 | |
| | 4/17/1995 | Envirosolve | 288.61 | 62.65 | 225.96 | |
| | 7/7/1995 | Envirosolve | | 63.50 | 225.11 | |
| | 10/23/1995 | Envirosolve | | 62.27 | 226.34 | |
| | 4/15/1996 | Envirosolve | | 61.79 | 226.82 | |
| | 3/16/1998 | Envirosolve | | 59.37 | 229.24 | |
| | 6/22/1998 | Envirosolve | | 58.88 | 229.73 | |
| | 9/14/1998 | Envirosolve | | 57.91 | 230.70 | |
| | 12/14/1998 | Envirosolve | | 57.86 | 230.75 | |
| | 3/15/1999 | IT | | 57.94 | 230.67 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 58.41 | 230.20 | |
| | 9/13/1999 | IT | | 57.85 | 230.76 | Ref. Elev. = Water elev + DTW |
| | 12/13/1999 | IT | | 57.44 | 231.17 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 56.94 | 231.67 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 55.97 | 232.64 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 55.42 | 233.19 | |
| | 12/18/2000 | IT | | 55.27 | 233.34 | |
| | 5/7/2001 | IT | | 57.48 | 231.13 | |
| | 10/15/2001 | IT | | 57.91 | 230.70 | |
| | 6/3/2002 | SECOR | | 59.18 | 229.43 | |
| | 9/16/2002 | SECOR | | 57.56 | 231.05 | Micro Purge Pump Installed |
| | 11/18/2002 | SECOR | | 58.46 | 230.15 | |
| | 1/27/2003 | SECOR | | 58.96 | 229.65 | |
| | 6/16/2003 | SECOR | | 59.61 | 229.00 | |
| | 9/8/2003 | SECOR | | 59.99 | 228.62 | |
| | 12/8/2003 | SECOR | | 59.73 | 228.88 | |
| | 3/8/2004 | SECOR | | 60.12 | 228.49 | |
| | 6/7/2004 | SECOR | | 61.26 | 227.35 | |
| | 8/6/2004 | SECOR | | 61.60 | 227.01 | |
| | 11/12/2004 | SECOR | | 61.69 | 226.92 | |
| | 3/11/2005 | SECOR | | 61.48 | 227.13 | |
| **None** | | | | | | |
| EPA-3 | 2/28/1982 | USEPA-ERT 1982 | 300.72 | 48.59 | 252.13 | |

**Appendix A**
**Historical Water Level Measurements and Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**March 2005**

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| EPA-5 | 2/28/1982 | USEPA-ERT 1982 | 299.15 | 47.75 | 251.40 | |
| EPA-6 | 2/28/1982 | USEPA-ERT 1982 | 300.04 | 47.34 | 252.70 | |
| EPA-7 | 2/28/1982 | USEPA-ERT 1982 | 300.47 | 49.16 | 251.31 | |
| EPA-7 | 8/7/1984 | Harding Lawson Associates 1986 | 289.33 | 43.18 | 246.15 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 42.87 | 246.46 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 42.92 | 246.41 | |
| MW-1p | 5/21/1987 | CH2M Hill 1988 | 292.50 | 10.14 | 252.36 | |
| | 6/30/1987 | CH2M Hill 1988 | | 40.11 | 252.39 | |
| | 2/18/1988 | CH2M Hill 1988 | 292.50 | 41.90 | 250.60 | |
| | 3/13/1988 | CH2M Hill 1988 | | 42.12 | 250.38 | |
| | 4/2/1988 | CH2M Hill 1988 | | 41.60 | 250.90 | |
| MW-15 | 8/7/1984 | Harding Lawson Associates 1986 | 289.98 | 42.84 | 247.14 | |
| | 9/11/1984 | Harding Lawson Associates 1986 | | 42.57 | 247.41 | |
| | 9/14/1984 | Harding Lawson Associates 1986 | | 42.60 | 247.38 | |
| | 5/27/1986 | CH2M Hill 1988 | 290.08 | 40.85 | 249.23 | |
| | 7/9/1986 | CH2M Hill 1988 | | 41.43 | 248.65 | |
| | 8/22/1986 | CH2M Hill 1988 | | 41.23 | 248.85 | |
| | 9/23/1986 | CH2M Hill 1988 | | 41.18 | 248.90 | |
| | 10/21/1986 | CH2M Hill 1988 | | 41.06 | 249.02 | |
| | 11/14/1986 | CH2M Hill 1988 | | 41.02 | 249.06 | |
| | 12/22/1986 | CH2M Hill 1988 | | 41.21 | 248.87 | |
| | 1/19/1987 | CH2M Hill 1988 | | 41.02 | 249.06 | |
| | 2/17/1987 | CH2M Hill 1988 | | 41.03 | 249.05 | |
| | 4/10/1987 | CH2M Hill 1988 | | 40.83 | 249.25 | |
| | 4/28/1987 | CH2M Hill 1988 | | 40.95 | 249.13 | |
| | 5/21/1987 | CH2M Hill 1988 | | 40.96 | 249.12 | |
| | 6/30/1987 | CH2M Hill 1988 | | 41.25 | 248.83 | |
| | 8/17/1987 | CH2M Hill 1988 | | 40.45 | 249.63 | |
| | 9/15/1987 | CH2M Hill 1988 | | 42.48 | 247.60 | |
| | 10/26/1987 | CH2M Hill 1988 | | 42.83 | 247.25 | |
| | 12/28/1987 | CH2M Hill 1988 | | 42.91 | 247.17 | |
| | 1/14/1988 | CH2M Hill 1988 | | 42.92 | 247.16 | |
| | 2/18/1988 | CH2M Hill 1988 | | 42.95 | 247.13 | |
| | 3/3/1988 | CH2M Hill 1988 | | 42.68 | 247.40 | |
| | 4/2/1988 | CH2M Hill 1988 | | 42.68 | 247.40 | |
| MW-17 | 12/28/1987 | CH2M Hill 1988 | 289.84 | 43.15 | 246.69 | |
| | 1/14/1988 | CH2M Hill 1988 | | 43.07 | 246.77 | |
| | 2/18/1988 | CH2M Hill 1988 | | 43.20 | 246.64 | |
| | 3/3/1988 | CH2M Hill 1988 | | 42.87 | 246.97 | |
| | 4/2/1988 | CH2M Hill 1988 | | 43.00 | 246.84 | |
| MW-22p | 5/21/1987 | CH2M Hill 1988 | 289.73 | 41.45 | 248.28 | |
| | 2/18/1988 | CH2M Hill 1988 | | 43.13 | 246.60 | |
| | 3/3/1988 | CH2M Hill 1988 | | 43.27 | 246.46 | |
| | 4/2/1988 | CH2M Hill 1988 | | 43.22 | 246.51 | |
| | 6/14/1999 | IT | 289.71 | 54.98 | 234.73 | |
| | 9/13/1999 | IT | | 84.87 | 234.84 | Ref. Elev. = Water elev + DTW |
| MW-31p | 5/21/1987 | CH2M Hill 1988 | 290.47 | 45.25 | 245.22 | |
| | 6/30/1987 | CH2M Hill 1988 | | 46.18 | 244.29 | |
| | 9/15/1987 | CH2M Hill 1988 | | 46.89 | 243.58 | |
| | 10/26/1987 | CH2M Hill 1988 | | 47.01 | 243.46 | |
| | 2/18/1988 | CH2M Hill 1988 | | 46.75 | 243.72 | |
| | 3/3/1988 | CH2M Hill 1988 | | 47.00 | 243.47 | |
| | 4/2/1988 | CH2M Hill 1988 | | 47.16 | 243.31 | |
| | 1/16/1995 | Envirosolve | | 62.95 | 227.52 | |
| | 4/17/1995 | Envirosolve | 290.44 | 62.92 | 227.52 | |
| | 7/7/1995 | Envirosolve | | 63.28 | 227.16 | |
| | 10/23/1995 | Envirosolve | | 62.53 | 227.91 | |
| | 4/15/1996 | Envirosolve | | 61.77 | 228.67 | |
| | 3/16/1998 | Envirosolve | | 59.76 | 230.68 | |
| | 6/22/1998 | Envirosolve | | 58.74 | 231.70 | |

**Appendix A**
**Historical Water Level Measurements and Elevations**
**Purity Oil Sales Superfund Site, Malaga, California**
**March 2005**

| Well ID | Date | Consultant | Top of Casing (ft msl) | Depth to Water (ft below TOC) | Groundwater Elevation (ft msl) | Comments |
|---|---|---|---|---|---|---|
| MW-31p | 9/14/1998 | Envirosolve | | 57.89 | 232.55 | |
| | 12/14/1998 | Envirosolve | | 57.86 | 232.58 | |
| | 3/15/1999 | IT | | 57.98 | 232.46 | Ref. Elev. = Water elev + DTW |
| | 6/14/1999 | IT | | 58.41 | 232.03 | |
| | 9/13/1999 | IT | | 58.11 | 232.33 | Ref. Elev. = Water elev + DTW |
| | 13/13/99 | IT | | 57.40 | 233.04 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 56.81 | 233.63 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | 290.44 | 55.58 | 234.86 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 55.10 | 235.34 | |
| | 12/18/2000 | IT | | 54.96 | 235.48 | |
| | 5/7/2001 | IT | | 57.06 | 233.38 | |
| | 10/15/2001 | IT | | 57.20 | 233.24 | |
| | 6/3/2002 | SECOR | | 58.69 | 231.75 | |
| | 9/16/2002 | SECOR | | 57.10 | 233.34 | |
| | 11/18/2002 | SECOR | | 58.18 | 232.26 | |
| | 1/27/2003 | SECOR | | 58.72 | 231.72 | |
| | 6/16/2003 | SECOR | | 59.33 | 231.11 | |
| | 9/8/2003 | SECOR | | 59.63 | 230.81 | |
| | 12/8/2003 | SECOR | | 59.60 | 230.84 | |
| | 3/8/2004 | SECOR | | 59.92 | 230.52 | |
| | 6/7/2004 | SECOR | | 60.87 | 229.57 | |
| | 8/6/2004 | SECOR | | 61.19 | 229.25 | |
| | 11/12/2004 | SECOR | | 61.59 | 228.85 | Casing rusting out, holes on side |
| | 3/11/2005 | SECOR | | 61.39 | 229.05 | |
| MW-32p | 5/21/1987 | CH2M Hill 1988 | 287.85 | 44.64 | 243.21 | |
| | 6/30/1987 | CH2M Hill 1988 | | 44.93 | 242.92 | |
| | 2/18/1988 | CH2M Hill 1988 | | 46.30 | 241.55 | |
| | 3/3/1988 | CH2M Hill 1988 | | 46.47 | 241.38 | |
| | 4/2/1988 | CH2M Hill 1988 | | 54.17 | 233.68 | |
| | 4/17/1995 | Envirosolve | | 61.90 | 225.95 | |
| | 4/15/1996 | Envirosolve | | 60.92 | 226.93 | |
| | 6/14/1999 | IT | | 57.70 | 230.15 | |
| | 9/13/1999 | IT | | 57.23 | 230.62 | Ref. Elev. = Water elev + DTW |
| | 3/13/2000 | IT | | 56.15 | 231.70 | Ref. Elev. = Water elev + DTW |
| | 6/19/2000 | IT | | 55.22 | 232.63 | Ref. Elev. = Water elev + DTW |
| | 9/11/2000 | IT | | 54.67 | 233.18 | |
| | 12/18/2000 | IT | | 54.40 | 233.45 | |
| | 5/7/2001 | IT | | 56.45 | 231.40 | |
| | 6/3/2002 | SECOR | | 58.1 | 229.75 | |
| | 9/16/2002 | SECOR | | 56.78 | 231.07 | |
| | 11/18/2002 | SECOR | | 57.61 | 230.24 | |
| | 1/27/2003 | SECOR | | 58.14 | 229.71 | |
| | 6/16/2003 | SECOR | | 58.78 | 229.07 | |
| | 9/8/2003 | SECOR | | 59.26 | 228.59 | |
| | 12/8/2003 | SECOR | | 58.99 | 228.86 | |
| | 3/8/2004 | SECOR | | 59.31 | 228.54 | |
| | 6/10/2004 | SECOR | | 60.32 | 227.53 | |
| | 8/12/2004 | SECOR | | 60.84 | 227.01 | |
| | 11/12/2004 | SECOR | | 60.95 | 226.90 | |
| | 3/11/2005 | SECOR | | NA | NA | Unable to access |

# APPENDIX B

# STANDARD OPERATING PROCEDURES

# STANDARD OPERATING PROCEDURES (SOPS)

- SOP B-1, Pre-Field Drilling Activities;
- SOP B-2, Soil Boring Completion;
- SOP B-3, Completion of Groundwater Monitoring Well Boreholes;
- SOP B-4, Completing Field Logs of Boreholes;
- SOP B-5, Soil Descriptions;
- SOP B-6, Sub-Surface Soil Sampling;
- SOP B-7, Groundwater Monitoring Well Construction;
- SOP B-8, Well Development;
- SOP B-9, Surveying Sampling Locations;
- SOP B-10, Boring/Well Abandonment;
- SOP B-11, Collecting Groundwater Level and LNAPL Level Measurements;
- SOP B-12, Slug Test,
- SOP B-13, Groundwater Sampling from Observation/Monitoring Wells;
- SOP B-14, QED MicroPurge® Sampling Method;
- SOP B-15, Water, Soil and Waste Solid Sample Handling and Transport;
- SOP B-16, Field Screening;
- SOP B-17, Decontamination;
- SOP B–18, Installation of Permanent Steel Conductor Casing and The Use of Hollow Stem Augers as Temporary Conductor;
- SOP B-19, YSI™ Dissolved Oxygen Meter Operation;

# SOP B-1

# PRE-FIELD DRILLING ACTIVITIES

The following procedures are to be followed prior to the commencement of drilling activities at the Site:

1. Notify the appropriate state agency of intention to drill/install wells. Include the following information in the Notice of Intent:
    1. Site Address/Location
    2. Site Cadastral Coordinates - Township, Range, Section
    3. Number and Type of Wells to be Drilled (i.e. 2" Groundwater Monitoring Well)
    4. Proposed Depth
    5. Land Owner
    6. Party Responsible for Wells (usually the client)
    7. Reason for Installing the Wells
    8. Proposed Drilling Date

2. Obtain local agency drilling permit(s), as necessary.

3. Obtain State Department of Transportation (or Municipality) Permits if well will be in a public right-of-way or private property access agreements if well will be on adjacent property.

4. Arrange for utility locates and have appropriate employee attend locates personally. Note overhead utilities. **Complete a Utilities and Structures Checklist for each hole prior to drilling.**

5. Call and schedule drilling company.

    5.1 Specify well type, construction, depths, and completion details.

    5.2 Specify soil/rock sampling requirements.

6. Submit laboratory work/bottle order.

7. Review the current Health and Safety Plan (HASP) for the Site.

    7.1 Provide copy of the HASP to the drilling company in advance.

    7.2 Request proof of drilling company's OSHA safety training and medical surveillance in advance.

8. Schedule required equipment and obtain needed supplies. A typical list includes:
    - Hand Auger and shovel
    - Ziplock® or equivalent sealable plastic bags
    - Paper Towels
    - Field Notebook
    - Permanent Markers/Pens
    - Water Level Indicator or Interface Probe
    - Photo-ionization Detector (PID) or Flame-ionization Detector & Calibration Gas

- Alconox® or similar low-phosphate cleaning agent
- De-ionized Water
- Nitrile Gloves
- Disposable Bailers
- Nylon Rope or Twine for Bailers
- Sample containers and cooler
- Level D Safety Equipment (Hard Hat, Boots & Safety Glasses)

**** Boreholes must be hand augered or hand dug to a depth of five feet before drilling.****
**(Except in areas where underground structure removal has occurred.)**

**Note: In cases where hand augering is necessary, continuous split spoon samples will also be collected to a depth of five feet within approximately 1 foot of the hand-augered hole for the purposes of sample collection unless circumstances preclude the need for sample collection within the first 5 feet.**

# SOP B-2

# SOIL BORING COMPLETION

Prior to the drilling of soil borings, scheduled drilling sites will be cleared for utilities and structures by the environmental contractor or their subcontractors. A Utilities and Structures Checklist will also be filled out and signed prior to drilling and excavation activities. A copy of this form is included in Appendix C.

Drilling will be accomplished using either a direct-push rig (cone penetrometer [CPT] or Geo-Probe® type), or hollow-stem auger or air rotary or percussion drilling equipment or other applicable drilling rig capable of collecting continuous samples (split-spoon and/or dry core barrel) from the surface to the base of each hole. During drilling of soil borings, a continuous, descriptive, lithologic log will be prepared by a qualified geologist or geotechnical individual based on an examination of the split-spoon samples and soil cuttings. A copy of a blank boring log form is included in Appendix C. In the event that the soil boring can not be completed to a satisfactory depth, an alternative site may be chosen.

Except in the case of CPT or Geo-Probe®, split-spoon samples will be obtained at each soil boring every 5 feet until first encountered groundwater. Continuous core samples will be obtained below first encountered groundwater to the base of the boring. The soil cores recovered in each split-spoon will be screened in the field for the presence of hydrocarbon constituents through visual examination and using a Photo-ionization Detector (PID) or Flame-ionization Detector (FID). Soil samples will be selected based on staining, odor and elevated PID values and submitted to the laboratory for chemical analysis. These samples will be collected to assist in the identification and quantification of the vertical distribution of selected constituents that may be present in soils.

In the case of CPT boring, no soil samples will be collected. In the case of Geo-Probe®, continuous sampling will be conducted from 5 feet below the surface to the extent of the required boring.

Borehole cuttings will be both continuously screened for volatile organic compounds (VOCs) and visually examined for signs of staining; those cuttings with either VOCs detected or heavy staining will be stockpiled separately from those soils that are VOC free.

Boreholes will not be left open overnight unless unsaturated conditions are unexpectedly encountered. In these instances, the borehole will be left open for 24 hours to determine whether low permeability conditions are retarding groundwater movement. If a groundwater level is observed after the 24-hour period, the level will be noted and the borehole abandoned as described in the SOP entitled "SOP for Boring/Well Abandonment."

Upon completion of the drilling, the boring will be surveyed as per the procedures detailed in the SOP entitled "SOP for Surveying Sampling Locations," and abandoned following the procedures detailed in the SOP entitled "SOP for Boreholes/Wells Abandonment."

# SOP B-3

# THE COMPLETION OF GROUNDWATER MONITORING WELL BOREHOLES

Prior to the drilling of soil borings, scheduled drilling sites will be cleared for utilities and structures by the environmental contractor or their subcontractors. A Utilities and Structures Checklist will also be filled out and signed prior to drilling and excavation activities. A copy of this form is included in Appendix C.

Drilling will be accomplished using either a hollow-stem auger or air/mud rotary or percussion drilling equipment or other applicable drilling rig capable of collecting continuous samples (split-spoon and/or dry core barrel) from the surface to the base of each hole. During drilling of soil borings, a continuous, descriptive, lithologic log will be prepared by a qualified geologist or geotechnical individual based on an examination of the split-spoon samples and soil cuttings. A copy of a blank boring log form is included in Appendix C. In the event that the soil boring cannot be completed to a satisfactory depth, an alternative site may be chosen.

Split-spoon samples will be obtained at each soil boring every 5 feet until first encountered groundwater. Continuous core samples will be obtained below first encountered groundwater to the base of the boring. The soil cores recovered in each split-spoon will be screened in the field for the presence of hydrocarbon constituents through visual examination and using a Photo-ionization Detector (PID), Flame-ionization Detector, or flourometer. Soil samples will be selected based on staining, odor and elevated PID, FID, or flourometer values and submitted to the laboratory for chemical analysis. These samples will be collected to assist in the identification and quantification of the vertical distribution of selected constituents that may be present in soils.

In the event air rotary drilling is required, continuous core samples will be collected from the top of competent bedrock until the termination depth of the boring with a 2 1/8-inch $N_x$ core barrel (usually 10-foot in length). Following bedrock core retrieval, the borehole will be reamed using a 4-inch roller bit and air rotary techniques to allow sufficient annular space for 2-inch diameter PVC monitoring well installation.

Borehole cuttings will be both continuously screened for volatile organic compounds (VOCs) and visually examined for signs of staining; those cuttings with either VOCs detected or heavy staining will be stockpiled separately from those soils that are VOC free.

Upon completion of the drilling, the groundwater monitoring well will be constructed according to the procedures detailed in the SOP entitled "SOP for Groundwater Monitoring Well Construction," and surveyed according to the procedures detailed in the SOP entitled "SOP for Surveying Sampling Locations."

# SOP B-4

# COMPLETING FIELD LOGS OF BORINGS

Borings installed on the Site, except those specifically excluded, are to be geologically logged during drilling activities. The following procedures are to be followed for the logging of borings at the Site:

1. As much information as possible is to be shown in the heading of each log. This includes, but is not limited to:
   - Project name and project identification number;
   - Identification of borehole;
   - Name of drilling company and lead driller;
   - Make, model, type, and size of drilling equipment used;
   - Start and end date of drilling
   - Name(s) of field personnel present;
   - Total depth of borehole; and
   - Depth to first encountered water.

2. Each log is to begin with a description of the surface, i.e., native, paved with asphalt, paved with concrete, and such. If any concrete is cut to open the hole, the thickness will be noted.
3. Every foot will be accounted for, with no gaps. If an interval is not sampled, it will be noted. If an attempt is made to sample an interval, but there is no recovery, it will be noted.
4. Complete construction details are to be detailed for each well on a standard well construction form (Appendix C). Construction details should include:
   - A description of the type and length of casing i.e., 20' of 2" inner diameter Schedule 40 polyvinyl chloride (PVC) casing;
   - Length and depths of the top and bottom of the screened interval;
   - Screen slot size;
   - Depths of the top and bottom of the filter pack;
   - Filter pack materials and sand size;
   - Depths and types of bentonite seals;
   - Detail of the use of grout; and
   - Detail of the surface completion (i.e., stick up, flush mounted).

5. The number of bags of sand, bentonite, and grout used will be counted. These numbers will be compared daily with the driller's daily report.

*** The purpose of the field notes and logs is to document observations. They should not be used to state general interpretations.

# SOP B-5

# SOIL DESCRIPTIONS

Soils logged during Site investigations (i.e. drilling activities) will be described in the following manner:

Soil descriptions will be recorded on a standard Boring Log form, an example of which is presented in Appendix C. The following categories will be included in Boring Logs, in the listed order:

1. The most current Unified Soil Classification System (USCS) Group Symbol.
2. Color (field moisture condition according to Munsell Soil Color Chart or geotechnical gauge).
3. Group Name.
4. Grain Size Range (unless describing a clay).
5. Shape/Angularity of Grains (unless describing a clay).
6. Consistency (SOFT, HARD, LOOSE, etc.), and plasticity for Clays and Silts.
7. Additional Observations (organic material, roots, construction debris, fossils, etc.).
8. Contacts (both sharp and gradational).
9. Moisture Content (DRY, MOIST, WET).
10. Odor with descriptions limited to NO ODOR, SLIGHT ODOR, or STRONG ODOR. No other adjectives to describe an odor will be used.
11. Staining.
12. The relative percentage of clay, silt, sand, and gravel summarized. For example, a grab sample of soil containing 20% gravel, 70% sand, 10% silt, and 0% clay will appear summarized on the boring log as (20, 70, 10, 0).
13. The total depth of each hole.

In addition to the above items, first encountered groundwater and the static water level are also to be noted on the Boring Log Form (Appendix C).

# SOP B-10

# BORING/WELL ABANDONMENT

Following installation and surveying (by either a professional surveyor or a field team using a global positioning system (GPS)), soil borings that will not be converted to groundwater monitoring or extraction wells will be abandoned. In addition, project requirements and/or field conditions may require the occasional abandonment of constructed and/or partially constructed wells. The following minimum requirements for abandoning wells, and soil borings, as required by the California Well Standards (Bulletin 74-90) and based upon previous investigations of the Site geology and hydrology, are presented below:

- All removable casing and or tubing will be removed.
- The hole will be filled, from the total depth to the top of all saturated zones, with cement/bentonite grout, or expanding cement is preferred in contaminated zones, while bentonite pellets are suggested in uncontaminated, saturated zones. The hole is not to be backfilled with cuttings, regardless of whether they have been characterized as clean or dirty.
- A mixture consisting of cement and 2 to 5 percent bentonite will be used as a surface seal, from the top of all saturated zones to the ground surface.
- A mounded, expanding cement collar will be placed at the ground surface in order to divert surface drainage and prevent the intrusion of water into the abandoned hole.
- Borehole seals will be installed using the "tremie pipe" method to ensure a proper seal.

Note: The above procedures are to be performed by a licensed driller, per applicable State requirements.

# SOP B-7

# GROUNDWATER MONITORING WELL CONSTRUCTION

The construction of monitoring wells installed through one water-bearing unit are described within this SOP. Wells installed through two or more water-bearing units require the use of conductor casing in their construction. For construction details of wells requiring conductor casing, see the SOP entitled "SOP for Installation of Permanent Steel Conductor Casing".

Monitoring wells installed in unconsolidated deposits will be constructed with either polyvinyl chloride (PVC) or stainless steel well screen and PVC or stainless steel flush-joint casing. The length of the screen will be selected to approximately penetrate the saturated deposits of a single hydraulic unit. During drilling and split-spoon sampling, observation will be made to identify when saturated conditions are encountered and if groundwater is under confining or unconfined water table conditions. For confining conditions, wells will be completed with screens extending from the base of the confining layer to the top of competent bedrock. For water table conditions, well screens will be placed from the bottom of the boring upwards to approximately 5 feet above the seasonal high water table unless this results in the top of the screen being too close to the ground surface to permit the placement of a bentonite seal. The maximum screen length will not exceed 10 feet. Screens will have an appropriate slot size (i.e. 0.010 inches [10 slot]), based upon encountered conditions, and silica sand will be installed to a minimum of 2 feet above the top of the screen. A bentonite seal of 2 to 3 feet will be placed above the sand. From the bentonite seal to the ground surface will be a bentonite-grout seal with at least 4% bentonite. A protective steel casing or manhole with a locking cap and well identification will be cemented in place around each well upon completion.

During the construction of wells, the field conditions may require and/or the project manger may specify the use of hollow-stem augers as temporary conductor. The details of this procedure are contained within the SOP entitled "SOP for the Use of Hollow-Stem Augers as Temporary Conductor".

The well will then be developed and surveyed according to the applicable SOPs.

# SOP B-8

# WELL DEVELOPMENT

After completion, each well will be developed by surging and/or bailing a minimum of five well (i.e., borehole) volumes prior to sampling. Appropriate well development will help maximize yields and minimize the turbidity of water obtained during sampling. Well development will terminate when both the groundwater turbidity does not decrease after five casing volumes have been purged, and when pH, electrical conductivity, and temperature have stabilized to within +/- 0.2 standard units, 10%, and 2.0 degrees F, respectively.

Well development activities and measurements will be recorded on a standard development form. A blank copy of this form can be presented in Appendix C.

Groundwater removed during development will be containerized and disposed of as detailed in Investigation Derived Waste.

# SOP B-9

# SURVEYING SAMPLING LOCATIONS

Site sampling locations will be surveyed with a portable global positioning system (GPS) and/or by a licensed professional surveyor. In addition, all temporary sampling locations (i.e., soil borings scheduled for abandonment) will also be measured from a fixed, permanent point such as a structure or roadway.

Upon the initial sampling of Site sampling locations, the field personnel will enter the coordinates of the location into a portable GPS unit. Distances from a fixed, permanent structure will also be measured for all temporary sampling locations. GPS interference may impact the accuracy of the GPS coordinates provided, so it is necessary to double-check these coordinates. The coordinates provided by GPS must be checked against the measurements from a fixed location to identify inaccurate coordinates. Inaccurate coordinates will be resurveyed using the GPS equipment. Following this initial GPS surveying, groundwater monitoring or extraction wells will be surveyed by a licensed surveyor. The surveyor will measure both the horizontal coordinates and land surface elevation. In addition, the top-of-casing elevation will be measured in wells. These coordinates will be measured from a measuring point notched into the north side of the polyvinyl casing (PVC) casing of newly installed wells. Horizontal coordinates will be determined to the nearest 0.1 foot, while the elevation will be to the nearest 0.01 foot relative to the National Geodetic Vertical Datum (mean sea level). The elevation of the measuring point and land surface at each well will be surveyed to the nearest 0.01 foot relative to the National Geodetic Datum (mean sea level).

# SOP B-6

# SUB-SURFACE SOIL SAMPLING

Split-spoon samples will be obtained at each soil boring every 5 feet until first encountered groundwater. Continuous core samples will be obtained below first encountered groundwater to the base of the boring. The soil cores recovered in each split-spoon will be screened in the field for the presence of hydrocarbon constituents through visual examination and using a photo-ionization detector (PID) or flame-ionization detector. Soil samples will be selected based on staining, odor and elevated PID, flame-ionization detector, or flourometer values and submitted to the laboratory for chemical analysis. These samples will be collected to assist in the identification and quantification of the vertical distribution of selected hydrocarbon constituents that may be present in soils.

The procedures listed below are to be followed for collecting Site sub-surface soil samples:

1. Record the borehole location and identification on a standard soil sampling form and the field log book.
2. Upon recovery of the sampler from the borehole, open and immediately field screen each core.
3. Based on the results of the field screening, collect the appropriate number of bagged and jarred samples. Bag samples are to be placed within new, appropriately sized Zip-Lock™ or equivalent plastic bags. Jar samples are to be placed within appropriately sized (based on the proposed analysis to be run, cross-referenced with the sample bottle requirements) new glass sample jars, and closed tightly.
4. If brass sleeves are used to collect samples, sleeves containing soil samples collected for analysis will be capped immediately upon removal from the split-spoon sampler with Teflon tape and plastic end caps.
5. Label necessary sample containers with the project number, borehole number, depth interval, date, time, analysis to be performed, and the initials of the sample personnel prior to or immediately after sampling each interval.
6. Select soil samples to be submitted for laboratory analysis based on staining, odor and elevated PID, flame-ionization detector, or flourometer values. Prepare samples according to the sample bottle requirements listed in Table 1. Handle and submit the container samples as described in the applicable SOP.
7. Describe the lithology of the core according to the procedures detailed in the logging and soil and rock description SOPs.
8. Decontaminate sampling equipment as per the procedures in the applicable SOPs.

# SOP B-11

# COLLECTING GROUNDWATER LEVEL AND LNAPL LEVEL MEASUREMENTS

Groundwater and non-aqueous phase liquid (NAPL) levels, if present, will be measured with an electronic oil/water interface probe (IP). In general, groundwater wells will be measured in order from wells with the lowest concentrations of detected constituents to wells that exhibit the highest concentrations of detected constituents, based on the most recent analytical data, and as practical. Groundwater and NAPL elevations will be measured to a surveyed point marked on the north side of the top of the respective well casing. The groundwater and NAPL level measurements will be recorded to the nearest 0.01-foot using a graduated electronic IP. Static groundwater elevations will be calculated by subtracting the depth to water from the surveyed elevation of the measuring point. Groundwater and NAPL gauging will follow the procedures listed below:

1. Identify the well and record its designation on a Groundwater Level Data Sheet (Appendix C) and Groundwater Sampling Field Data Sheet (if groundwater sampling is to following the gauging event [Appendix C]).
2. Unlock the well if it is fitted with a lock.
3. Remove the well cap and place it cap down to keep it clean.
4. Measure and record the depth to water from the designated measuring point, on the Groundwater Level Data Sheet and Groundwater Sampling Field Data Sheet.
5. Check for the presence of any light non-aqueous phase liquid (LNAPL) with an oil/water interface probe and determine the depth to any identified LNAPL from the measuring point.
6. If LNAPL is present and the elevation of the water is to be determined, correct the water level, considering the thickness and the density of the overlaying LNAPL. Record both the field measured depth to the water and the corrected depth.
7. As necessary, the total well depth will be measured. A comparison of this measured depth with the depth of the well at the time the well was completed will indicate if significant sediment accumulation is occurring in the well. When total depths are measured, a check should be conducted for the presence of dense NAPL with the IP.
8. The IP should be decontaminated prior to its first use, and between each well.
9. Once every quarter, at a minimum, the IP should be calibrated against a standardized steel measuring tape. Any discrepancies should be noted in the calibration log, and corrected by a certified service center.

# SOP B-12

# SLUG TEST

This test procedure is used to estimate the hydraulic characteristics of aquifer materials surrounding the screen of a low-yielding monitoring well or piezometer. In this slug test procedure, a known volume, a closed cylinder or other solid body (a slug), is suddenly introduced or removed from a well or piezometer. When a slug is introduced to a well or piezometer, the test is referred to as a falling head test. When a slug is removed, the test is a rising head test.

The rate at which the water level in a well or piezometer rises or falls after removing or introducing a slug is controlled by the formation characteristics. During a slug test, the rise and subsequent fall (slug introduced) or the rise (slug removed) of water in the well/piezometer is measured. From these measurements, the aquifer's hydraulic conductivity or transmissivity can be estimated.

A slug test is a primary method for estimating the hydraulic characteristics of aquifers with low to medium hydraulic conductivity. A slug test can be completed within a short period of time, no pumping is required, and no additional wells or piezometers are needed.

The test procedure presented here is most applicable to aquifers exhibiting low hydraulic characteristics. If the aquifer exhibits medium hydraulic characteristics, this test procedure may require modification or a pumping test may be required.

Data collected during a slug test may be affected by leaky casing joints, boundary effects, entrapped air, skin alteration in near-well-bore due to mud cake build-up, acidizing, hydraulic fracturing, or formation erosion, partial penetration, anisotropy of formation, well-bore storage and/or presence of fractures in the formation. Proper construction and development and pre-test examination to determine if the well or piezometer is open to the aquifer are important aspects of planning and conducting slug tests.

Select water level measuring equipment which best fits the well/aquifer setting and collects the type of data necessary to properly estimate the hydraulic characteristics of the aquifer. Recovery to the initial water level in moderately permeable aquifers may require only one minute or less. For this situation, a pressure transducer and data logger is recommended to measure and record the water level.

Recovery to the initial water level in aquifers of low permeability may require hours or days.

The procedures to be used for conducting slug test are listed below:

1) Fully develop the well or piezometer.

2) Measure with an electric water level measuring device the static water level in the well or piezometer. Record measurement (and all proceeding measurements) in bound field logbook, or data form.

   If using a pressure transducer and data logger, check transducer to ensure its range is sufficient to cover the expected changing water level. Decontaminate transducer and cable (and any other equipment, including the slug, which will be introduced into the well or piezometer). Install the decontaminated transducer in the well or piezometer at least

3 feet below the lowest point of the slug after it is introduced. Hitting the transducer with the slug could cause damage to the transducer.

**Falling Head Test**

1) Determine the volume of the closed cylinder or other solid body to be used as the slug.

2) Rapidly lower the slug into and submerge it completely just below the water surface. This is equivalent to adding a volume of water equal to the volume of the slug into the well or piezometer.

3) Measure and record the rise and subsequent fall of the water level in the well or piezometer. Continue measurements until the water level stabilizes within the range of the initial water level.

4) Remove the slug and the pressure transducer from the well or piezometer.

**Rising Head Test**

1) Determine the volume of the closed cylinder or other solid body to be used as the slug.

2) Lower the slug into and submerge it completely just below the water surface. Allow the water level to reach static conditions and stabilize within the range of the initial water level. Depending on the permeability of the aquifer, this step may take as little as five minutes or as long as a few hours or more.

3) Rapidly remove the slug from the well or piezometer. This is equivalent to removing a volume of water equal to the volume of the slug from the well or piezometer.

4) Measure and record the rise of the water level in the well or piezometer. Continue measurements until the water level stabilizes within the range of the initial water level.

5) Decontaminate all equipment which was in contact with the groundwater in the well or piezometer.

Curve-fitting methods have been developed for analysis of data collected during slug tests conducted in confined aquifers with fully penetrating wells. Bower and Rice (1976) developed a slug test data analysis method for well partially of fully penetrating unconfined aquifers. In addition, several computer programs, based on proven analysis methods, are available for the analysis of slug test data. Select analysis method which best fits the well/aquifer setting and the collected test data.

**Equipment Calibration**

1) The cables of electric water level measuring devices should be checked to ensure measurement accuracy.
2) Pressure transducers should be calibrated in accordance with the manufacturer's instructions.

**Equipment Maintenance**

1) Decontaminate all equipment which will be placed in a well or piezometer before it's use.

2) Keep all equipment in proper operating condition according to manufacturer specifications. This includes keeping all equipment clean, switching equipment off when not in use, storing equipment in the correct containers when not in use, and replacing batteries when required.

# SOP B-13

# GROUNDWATER SAMPLING FROM OBSERVATION/MONITORING WELLS

The following protocol has been developed to obtain groundwater samples that provide representative chemical quality information. The groundwater sampling procedure will consist of the two steps described below: an initial purging of the well, followed by the collection of samples. The following field equipment is required for well evacuation and sampling:

- Field book, pens, marking pens, and labels.
- Disposable gloves.
- NAPL/water level indicator.
- Distilled water, sprayer.
- Alconox® or equivalent low-phosphate cleaning agent solution.
- Disposable polyethylene bailers, or centrifugal, peristaltic, and/or submersible pumps, with appropriate tubing.
- Tools for opening wells.
- Keys for well locking caps.
- Graduated pail and 5-gallon purge buckets.
- Coolers and ice.
- Multi-meter (i.e. Hydac™) or equivalent.
- Purge water container (i.e., 200-gallon tank).
- Bailer cord.
- Chains-of-Custody and field forms.
- Sample containers.

## Well Purging

Wells will be purged prior to sampling. Purging will consist of the following steps:

1. Identify the well and record its designation on a both a standard Groundwater Sampling Field Data Sheet (Appendix C) and the field log book.
2. Unlock the well and remove the well cap, placing in such a way as to prevent it from coming into contact with any contaminated surfaces.
3. Collect groundwater and non-aqueous phase liquid (NAPL) level measurements as described in the SOP entitle "SOP For Collecting Groundwater Level and NAPL Level Measurements," if this procedure has not already been completed. If NAPL is present and the elevation of the water is to be determined, correct the water level, considering the thickness and the density of the overlaying NAPL. If NAPL is present, do not sample the well groundwater.
4. Record applicable information on a standard Groundwater Level Measurement Form and in the field logbook.
5. Compute the volume of water in the well based on the total depth of the well measured, the diameter of the well casing, and the height of the water column in the well.
6. Measure the total depth of the well if required. A comparison of this measured depth with the depth of the well at the time the well was completed will indicate if significant sediment accumulation is occurring in the well.
7. Remove three to five times the volume of standing water in the well, using either a bailer, centrifugal pump, peristaltic pump, or a submersible pump, depending on the depth to water and project specific requirements.

In cases where a pump is used:

1. use dedicated or new tubing in each well
2. If a generator is needed, place it downwind of the well
3. The submersible pump will be cleaned inside and out according to the "SOP on Decontamination" immediately before placement in the well
4. Make sure the pump is running before it enters the well, in order to prevent introduction of the remnants of the final distilled water rinse into the well
5. Position and maintain the intake opening of the pump line or pump impellers just below the water to ensure that the well is properly flushed.
6. If there is a decrease in the well's water level as a result of pumping, the intake line should be lowered as needed. In no case should the pump be placed lower than ten feet below the static water level measured in the well
7. Pump discharge should be used to limit groundwater drawdown in the well. If the well has been purged or developed recently, the water level (the volume of water in the casing) may not have yet recovered or returned to its static condition. This does not require a change in the evacuation procedures outlined above. Although the actual column of water in the casing under such conditions is less than normally encountered, the removal of three to five times this volume is normally sufficient to provide samples for analysis that are representative of water from the surrounding formation.
8. Following the removal of <u>each casing volume</u> of water from the well, field screen the groundwater for pH, conductivity, and temperature, according to the applicable SOPs.
9. Complete purging when the following qualifications are met:
    a. minimum of three casing volumes of groundwater have been removed from the well, and;
    b. The final two measurements of pH, conductivity, and temperature are within 0.2 standard units, 10%, and 2.0 degrees F, respectively

    or:

    c. If the well goes dry prior to the removal of the third casing volume, note this, and the number of gallons removed from the well, on the sampling sheet and in the field log book.
    d. Gauge the well groundwater level on appropriate intervals to measure recharge.
    e. Upon the well reaching 80 percent recovery of its initially recorded static water level, continue on to step 1, Groundwater sample collection procedures.

**<u>Groundwater sample collection procedures</u>**

After purging, wells are to be sampled following the procedure listed below. Unless directed to do otherwise by the Site-specific work plan, collect water samples using disposable, polyethylene bottom-filling bailers. If the well was purged with a disposable bailer, use the same bailer for sampling.

1. Gauge the well with the interface probe (IP), and determine if the well has reached 80 percent or greater recharge.
    a. If the well has not reached 80 percent recharge, gauge the well on appropriate intervals to measure the recharge.
    b. Once the well reaches 80 percent recharge, continue on to step 2
    c. If the well does not reach 80 percent recharge within 24-hours, note this and sample the well. If there is not enough water to collect a full set of samples, note the well as dry and discontinue sampling efforts for that well. Enter "dry" on the groundwater sampling field sheet and in the field logbook for that well.

2. Lower the bailer into the well slowly and gently, in order to minimizes disturbances to the water table and to avoid aerating the sample.
3. Remove the bailer carefully and gently pour the water sample into the sample containers to minimize the volatilization of organic compounds.
4. Collect duplicate samples directly from the bailer with each sample receiving equal amounts to ensure sample uniformity.
5. If a bailer will not hold the volume of water necessary to immediately fill the sample containers, each container will receive an equal amount from each full bailer.
6. During the sampling of such wells, cap partially filled sample bottles and keep out of sunlight, as delays in obtaining adequate sample volume could otherwise jeopardize the representativeness of the samples.
7. Once the samples have been collected, prepare and preserve them in accordance with recommended USEPA procedures and the Site specific work plan.
8. In general and whenever possible, collect groundwater (as well as surface water, soils, and sediment samples) with the intent to first fill sample containers designated for volatile organic analysis. Follow this by filling containers for semi-volatile organic analyses, metals analyses, and major cation/anion analyses.
9. Upon completion of sampling, cover and lock the well, and remove the sampling materials from around the well.
10. Disposable items, such as bailers, rope, cleaning rags, and gloves, should be disposed of as per workplan guidelines or ad advised by project manager or task leader.

Well purging and groundwater sample collection procedures for QED MicroPurge sampling are described in the SOP entitled "QED MicroPurge Sampling Method".

# SOP B-14

# QED MICROPURGE® SAMPLING METHOD

This procedure is designed to assist the user in collecting representative groundwater samples using low-flow (minimal drawdown) purging and sampling methods as discussed in U.S. EPA, Ground Water Issue, Publication Number EPA/540/S-95/504, April 1996 by Puls, R.W. and M.J. Barcelona - "Low-Flow (Minimal Drawdown) Ground-water Sampling Procedures."

The field sampler's objective is to purge and sample the well so that the water that is discharged from the pump, and subsequently collected, is representative of the formation water from the aquifer's identified zone of interest.

The wells to be sampled are equipped with dedicated QED Well Wizard™ bladder (squeeze-type) pumps manufactured by QED Environmental Systems, Inc. Each dedicated bladder pump is positioned with its inlet located within the screened interval of the well. The dedicated downwell equipment, including bladder pumps, Teflon-lined PE tubing and well seals, was installed a minimum of 72 hours prior to the scheduled sampling event to allow well equilibrium to become re-established. At the time of equipment installation, each well's pump was flow tested to determine, and document, the specific well's optimum flow rate that would result in achieving a minimal drawdown of the initial Static Water Level (SWL) within the drawdown parameters detailed below. Once established, this rate will be reproduced for each subsequent sampling event. If a significant change in initial water level occurs between events, it may be necessary to reestablish the optimum flow rate at each sampling event.

Initial Pump Flow Test Procedures

If possible, the optimum flow rate for each well will be established during well development or redevelopment, or in advance of the actual sampling event. The monitoring well must be gauged for depth to water (SWL) prior to the installation of the dedicated pump and before pumping of any water from the well. The measurement will be documented on a Groundwater Field Sampling Sheet and project field logbook.

After pump installation, and confirmation that the SWL has returned to its original level (as determined prior to pump installation), the bladder pump should be started at a discharge rate between 0.5 to 1.0 Liters per minute without any In-Line Flow Cell connected. The water level in the well casing must be monitored continuously for any change from the original measurement. If significant drawdown is observed, the pump's flow rate should be incrementally reduced until the SWL drawdown ceases and stabilizes. Total drawdown from the initial (static) water level should not exceed 25% of the distance between pump inlet location and the top of the well screen (for example, if a well has a 10-foot screen zone and the pump inlet is located mid-screen; the maximum drawdown should be 1.25 feet.) In any case, the water level in the well should not be lowered below the top of the screen/intake zone of the well.

Once the specific well's optimum flow rate, without an In-Line Flow Cell connected, has been determined and documented, connect the In-Line Flow Cell system to be used to the well discharge and determine the control settings required to achieve the well's determined optimum flow rate with the In-Line Flow Cell connected (Due to the system's back-pressure, the flow rate will be decreased by 10-20%). All control settings are to be documented on the gauging and sampling sheet as specific to that particular well's ID and will be utilized for its subsequent purging and sampling events.

Purge and Sampling Events

Prior to the initiation of purging a well, the Static Water Level will be measured and documented. The well's dedicated pump will be started utilizing its documented control settings and its flow rate will be confirmed by volumetric discharge measurement with the In-Line Flow Cell connected. If necessary, any minor modifications to the control settings to achieve the well's optimum flow rate will be documented on the gauging sheet. When the optimum pump flow rate has been established, the SWL drawdown has stabilized within the required range and at least one pump system volume (bladder volume + discharge tubing volume) has been purged, begin taking field measurements for pH, temperature (T), conductivity (Ec), oxygen reduction potential (ORP), dissolved oxygen (DO) and turbidity (TU) using a "QED" model FC5000T in-line flow cell. All water chemistry field measurements will be documented on the gauging sheet. Measurements should be taken every three to five minutes until stabilization has been achieved. Stabilization is achieved after all parameters have stabilized for three consecutive readings. In lieu of measuring all five parameters, a minimum subset would include pH, conductivity and turbidity or dissolved oxygen. Three consecutive measurements indicating stability should be within:

- Temperature ± 3% of reading (minimum of ± 0.2 C)
- pH ± 0.2 units, minimum
- Conductance ± 03-05% of reading
- Dissolved Oxygen ± 0.2 mg/L
- Redox (ORP) ± 20 mv
- Turbidity ± 10% NTU (Turbidity is not a water chemistry indicator parameter but is useful as an indicator of pumping stress on the formation)

When water quality parameters have stabilized, and there has been no change in the stabilized SWL (ie. No continuous drawdown), sampling collection may begin.

Equipment List

The following equipment is needed to conduct low flow purging and sampling:

- Dedicated bladder pump installed within the well's screened interval
- Pump controller and air source set to operate at the specific well's documented optimum flow rate
- In-Line flow cell and meter(s) with connection fittings and tubing to measure water quality
- Water Level Probe or installed dedicated water level measurement system
- Photoionization detector (PID)
- Sample containers appropriate for the analytical requirements
- Field Measurement documentation forms
- 300-500 milliliter graduated cylinder or measuring cup
- 5 gallon bucket(s) for containerizing purge water
- Wristwatch with second hand or stopwatch
- Sufficient cleaning and decontamination supplies if portable Water Level Probe is utilized

Procedure

1. Calibrate all field instruments at the start of each day's deployment per the instrument manufacturer's instructions. Record calibration data on the "Field Instruments Calibration Documentation Form."
2. Drive to the first well scheduled to be sampled (typically the least contaminated). Make notes in the field log book describing the well condition and activity in the vicinity of the well. Decontaminate the portable water gauging probe by washing with phosphate-free detergent, rinsing with potable water and rinsing with deionized water.
3. Remove the wellhead cover and take a measurement of the well vapor space with a PID. Record the measurement on the gauging and sampling sheet.
4. Measure the depth to water from the surveyed reference mark on the wellhead and record the measurement on the gauging and sampling sheet. Lock the water level meter in place so that the level can be monitored during purging and sampling. When placing the probe in the well, take precautions to not disturb or agitate the water.
5. Connect the compressed air source's airline to the pump controller's "AIR IN" connection (If utilizing a gas-engine operated compressor, locate the compressor at least 25 feet, down wind from the wellhead).
6. Connect the pump controller "AIR OUT" air-line to the bladder pump's air supply fitting at the wellhead.
7. Connect the pump discharge line to the In-Line flow cell's "IN" fitting.
8. Connect the Flow Cell's "OUT" line and secure to drain the purge water into the purge water collection container.
9. Start the air supply to the pump. Set the pump controller settings to the documented settings for the specific well. Confirm the flow rate is equal to the well's established optimum flow rate. Modify as necessary (documenting any required modifications).
10. Monitor the water level and confirm that the SWL drawdown has stabilized within the well's allowable limits.
11. After a single pump-system's volume (bladder volume + discharge tubing volume) has been adequately purged, read and record water quality field measurements every three to five minutes until all parameters have stabilized within their allowable ranges for at least three consecutive measurements. When stabilization has been achieved, sample collection may begin.
12. Disconnect the flow cell, and it's tubing, from the pump discharge line before collecting samples. Decrease the pump rate to 100 milliliters per minute or less by lowering the controller's air pressure setting prior to collecting samples for volatiles. Utilize the QED Model 400 Controller's 'MANUAL SAMPLE' button to ensure minimized sample exposure to the ambient air. Refer to the task instructions for the correct order and procedures for filling sample containers. Place the samples in a cooler with enough ice to keep them at 4 degrees Centigrade.
13. Once samples for volatiles have been collected, re-establish pump flow rate to the original purge flow rate by inputting the documented controller settings for the well without the In-Line Flow Cell connected and collect remaining samples.
14. When all sample containers have been filled, make a final measurement of the well's Static Water Level and record the measurement on the gauging and sampling sheet. If the well has a "QED" dedicated bottom sounder, measure the well's Total Depth and record the measurement, as well.
15. Measure and record total purge volume collected. Consolidate generated purge water.
16. Remove and decontaminate the Portable Water Level Probe with phosphate-free detergent, rinsing with potable water and rinsing with deionized water.
17. Disconnect the controller air supply to the pump.
18. Secure the pump's discharge line/discharge adapter in the wellhead.
19. Secure the wellhead cover and secure with its lock. Move equipment to next well to be sampled.
20. At the end of each day, post calibrate all field instruments and record the measurements on the "Field Calibration Documentation Form".

21. Clean and decontaminate the In-Line Flow Cell with phosphate-free detergent, rinsing with potable water and rinsing with deionized water.
22. All data collected will be entered into the project field logbook and groundwater field sampling sheet (if sample is to be collected).

# QED *ENVIRONMENTAL SYSTEMS, INC.*

## QED WEST DATA SHEET

{Dave Corder – 760-247-6305; Fax: 760-247-3240}

**Approximate Tubing (PE) Volumes**

| TUBING OD | TUBING ID | VOL: Gals/FT | VOL: ml/FT |
|---|---|---|---|
| ¼" | 11/64" (0.17"/4.3mm) | 0.0014 Gals/FT | 5.3 ml/FT |
| 3/8" | ¼" (0.25"/6mm) | 0.0025 Gals/FT | 9.5 ml/FT |
| ½" | 3/8" (0.375"/9mm) | 0.0057 Gals/FT | 21.6 ml/FT |
| ¾" | 5/8" (0.625"/15mm) | 0.0159 Gals/FT | 60.2 ml/FT |

**EQUIVALENTS**

**Min Air Pressure Req'd = ~0.434 psi/foot of Vertical Lift**

**1 LITER = 0.2642 GALLONS**

**1 GALLON = 3.785 LITERS**

**QED Pump-Bladder Volumes**

| QED PUMP MODEL # (Max Vertical Lift) | BLADDER VOLUME |
|---|---|
| T1100M (250') | 395 ml |
| P1101M (300') | 395 ml |
| P1101HM (600') | 395 ml |
| ST1101PM (1,000') | 395 ml |
| T1200M (300') | 495 ml |
| T1250 (300') | 100 ml |
| P1150 (300') | 130 ml |
| T1300 (300') | 220 ml |

**APPROXIMATE PVC WELL CASED-VOLUMES**

| DIA. OF PVC CASING | SCH40 WELL | 3 Cased Volumes per 100' Water Column | SCH80 WELL | 3 Cased Volumes per 100' Water Column |
|---|---|---|---|---|
| 1.5" | 0.11 Gals/FT | 33 Gallons | 0.09 Gals/FT | 27 Gallons |
| 2" | 0.17 Gals/FT | 51 Gallons | 0.15 Gals/FT | 45 Gallons |
| 3" | 0.38Gals/FT | 114 Gallons | 0.34 Gals/FT | 102 Gallons |
| 4" | 0.66Gals/FT | 198 Gallons | 0.60 Gals/FT | 180 Gallons |
| 5" | 1.04Gals/FT | 312 Gallons | 0.79 Gals/FT | 237 Gallons |
| 6" | 1.5 Gals/FT | 450 Gallons | 1.35 Gals/FT | 405 Gallons |
| 8" | 2.6 Gals/FT | 780 Gallons | 2.37 Gals/FT | 711 Gallons |

**APPROXIMATE PURGE TIMES [MicroPurge] w/ 3/8" OD DISCHARGE TUBING (9.5 ml/ft)**

| DEPTH OF PUMP INLET | 100 ml/Min FLOW RATE | 500 ml/Min FLOW RATE | 1 LITER/Min FLOW RATE | 1 SYSTEM VOLUME Passive/Low Flow – 3 SYSTEM VOLUMES |
|---|---|---|---|---|
| 50' | 18 Mins | 10.75 Mins | 9.9 Mins | 875 ml/2.62L |
| 100' | 22.8 Mins | 11.7 Mins | 10.4 Mins | 1.35L/4.05 L |
| 200' | 32.3 Mins | 13.6 Mins | 11.3 Mins | 2.3 L/6.9 L |
| 300' | 41.9 Mins | 15.5 Mins | 12.3 Mins | 3.26 L/9.8 L |
| 400' | 51.4 Mins | 17.5 Mins | 13.3 Mins | 4.2 L/12.6 L |
| 500' | 61 Mins | 19.5 Mins | 14.3 Mins | 5.2 L/15.6 L |

**NOTE: Flow rates are determined by specific well's SWL drawdown; Purge times by indicator-parameter stabilization (Typically within 3 intervals of 3 minutes or 9 minutes); To determine Sample Times, divide required Sample Volume by established Flow Rate to determine time for obtaining Sample Volume**

# SOP B-15

# WATER, SOIL, AND WASTE SOLID SAMPLE HANDLING AND TRANSPORT

The interior of the sampling coolers and exterior of soil and groundwater sample containers will be cleaned with deionized water prior to packing samples for transport to the laboratory. Soil, non-soil solid, and groundwater sample packing will follow the general procedures outlined below:

1. Glass sample containers (i.e. volatile organic analysis (VOA) vials, soil jars) will be placed into bubble-wrap bags following labeling, and sealed;
2. Sample containers will be sealed inside an appropriately sized Zip-lock™ or equivalent baggie;
3. VOA vials will be stored inverted, per United States Environmental Protection Agency (USEPA) regulations;
4. Drain plugs on the sample coolers (if present) will be secured, and packing material added to the coolers to protect the VOA vials;
5. The sample cooler will be lined with a new, sealed plastic bag to prevent any ice melt from leaking out of the cooler;
6. Water, soil, and non-soil solid sample containers will be placed on ice in the sample cooler;
7. The remainder of the sample cooler will be filled with packing material to prevent sample containers from making contact with each other or the sample cooler walls;
8. The cooler inner-liner plastic bag will be sealed with packaging tape;
9. Chain-of-custody forms will be placed in a Zip-lock™ bag (or equivalent) that will be sealed within the sample cooler prior to transport;
10. The cooler will be properly closed and sealed with packaging tape, and;
11. Sample coolers will either be hand delivered to the laboratory by field personnel, or transferred to an appropriate shipping service (ex. FedEx™ or UPS™) for delivery to an out-of-town laboratory.

# SOP B-16

# FIELD SCREENING

I. Immediately preserve two representative portions of each soil sample;

A. One portion (for possible laboratory analysis) should be used to fill containers supplied by the analytical laboratory. Note: the number and type(s) of containers will be site-specific. Those containers should be labeled and stored in a cooler on ice.

B. The other portion (for field screening) should be placed into a 1-gallon resealable Ziploc® bag.

1. Seal and label the bag.
2. Allow the bag to equilibrate to ambient temperature. As a cold weather alternative, place the bag inside a heated vehicle. Conversely, on hot days, do not leave the bag in direct sunlight (this mitigates against moisture condensing in the bag).
3. Obtain a measurement of total volatile organic compounds (VOCs) using an organic vapor meter (OVM) equipped with a photoionization detector (PID). Note that some work will require a PID with a specific "lamp energy." Always check the project's Sampling and Analysis Plan (SAP) for such requirements.
4. Calibrate the OVM to 100 parts per million (ppm) isobutylene at the start, middle, and end of each day. Also, calibrate anytime you have reason to question the OVM readings. Note all calibrations in the field log book.

C. Additional field screening methods, such as soil pH, may be used on a project specific basis.

# SOP B-17

# DECONTAMINATION

I. All sampling equipment will be decontaminated in the manner described below. Arrange a line of six large buckets or tubs and brushes. The buckets should be filled as follows:

A. Bucket No. 1 – Alconx® (or similar low phosphate soap) solution.
B. Bucket No. 2 – Potable water rinse.
C. Bucket No. 3 – Alconx® (or similar low phosphate soap) solution.
D. Bucket No. 4 – Potable water rinse.
E. Bucket No. 5 – Alconx® (or similar low phosphate soap) solution.
F. Bucket No. 6 – Distilled water rinse.

II. Drill rigs or Geoprobes® used on Site will be thoroughly steam cleaned prior to their arrival at the Site and prior to initiation of any drilling activities.

III. Following initial decontamination the drilling rig will be thoroughly examined to ensure that there are no significant fuel, hydraulic fluid, transmission oil, and/or motor oil leaks that could create a condition not previously in existence or exacerbate an existing condition.

IV. Once the rig and its equipment (including split-spoon soil samplers and associated drill rods used to obtain soil samples during the drilling of soil borings or monitoring wells) have been thoroughly cleaned and inspected, subsequent decontamination efforts will focus only on those pieces of equipment which actually come into contact with soils or groundwater. No petroleum hydrocarbon based lubricants will be allowed on the drill stems or associated connections. Both the initial comprehensive cleaning of the rig and subsequent decontamination procedures will be performed using either steam cleaning equipment or high-pressure hot water/detergent wash. In addition, casing centralizers and casing handling equipment, if used, will be cleaned prior to use in the construction of monitoring wells.

Decontamination wash solutions and rinsate will be collected and containerized in 5-gallon buckets, 55-gallon drums, or poly tanks. The collected rinsate will be disposed in the existing on-Site water treatment facility.

# SOP B-18

# INSTALLATION OF PERMANENT STEEL CONDUCTOR CASING AND THE USE OF HOLLOW-STEM AUGERS AS TEMPORARY CONDUCTOR

The primary purpose of setting conductor casing in a well bore is to minimize the potential for cross-contamination/communication between impacted soil or water within an overlying aquifer system and the next underlying aquifer. Additionally, use of conductor casing increases well bore integrity and facilitates well construction.

The following SOP outlines the three basic procedures for installation of steel conductor casing in an exploratory well bore. The three basic steps: 1) core and ream; 2) set and seal conductor; and 3) continue coring, ream, and build well as briefly discussed below.

**STEP 1 - Core and Ream:**

Depending on the air-rotary drilling equipment subcontracted and the operator, the conventional coring tool utilized will be the inner-barrel wire-line coring system. The system typically uses HQ standard "Christensen" diamond set bits in conjunction with appropriate drill rods. Table 1 lists the standard diamond bit and reaming shell dimensions that most drillers will be using. Become familiar with the sizes. Discuss exploratory boring sizes with the client, if converted into a monitoring well, the monitoring well could typically be constructed of 2-inch inside-diameter (ID) 2.4-inch outside-diameter (OD) schedule 40 polyvinyl casing (PVC). Based on these dimensions, the following well construction for conductor-cased wells, or wells utilizing air-rotary coring methods, should be adhered to.

If conventional air-rotary drilling techniques are employed, a 96 mm (3.75-inch) OD exploratory bore will be created. Recovered core will be approximately 2.2 inches in diameter. Drill in core runs of 5 feet in length should be initiated and reduce to 2.5-foot intervals depending on core-recovery (i.e., poor recovery = shorter core runs). After appropriate bedrock classifications and engineering properties are logged, pay particular attention to fractures, fracture spacing, presence of non-aqueous phase liquids both light and dense phases. Once the PID and visual methods have determined that the zone of suspect contamination has been passed, continue coring an additional 5-feet to confirm that non-impacted native bedrock has been encountered. If a more permeable unit is encountered during that 5-foot core run, backfill the borehole with bentonite up to the point where the permeable unit was encountered. Remove core barrel and proceed with reaming the hole. A ten inch bore hole will be required to properly set and seal an 8-inch ID (8.5-inch OD) conductor casing.

The hole most likely will require two separate reams. One large diameter ream is not necessarily faster and more productive. First ream will be to approximately 7 inches with a 7-inch tri-cone bit followed by a second ream to the required ten inches. Only ream the hole to approximately 2-feet below the suspected zone of contamination. Once reaming is complete, remove all the drill rod and bits, steam clean and decontaminate all down hole equipment or any associated ancillary equipment.

**STEP 2 - Set and Seal Conductor Casing:**

Driller should have various lengths of pre-cut 8-inch ID steel conductor casing on Site. Twenty and ten-foot segments are advisable as they are easier to hoist and work with, especially if

power lines or any overhead obstructions are of concern. Tag the total depth (TD) of the hole and record depth to water if not already done during initial coring. Hopefully the hole has not caved (sidewall material sloughed into boring). If so, note depth and amount of caved material, call and notify project manager. The 5-foot rat hole and 2-foot of clearance should provide enough void area to accommodate the typical slough that occurs during drill-rod withdrawal.

For the purposes of this SOP, if the TD is 23 feet, have the driller lower a 20 foot segment of 8-inch ID steel conductor casing into the boring but allow enough pipe to remain above ground surface for the driller to begin welding on the next 5-foot joint. Do not weld pipe while pipe is in boring if elevated volatile gas readings have been obtained during PID monitoring. If so, notify project manager for further direction. Once joint(s) is welded, check weld for air-pockets or gaps, lower pipe to TD of boring. Tag and record total depth inside casing. Mix enough grout (typically a 3% bentonite and Portland Type II cement mix) to fill 10 linear feet of the casing. Placement of the cement inside the conductor during this step can be by free-fall methods. However during all other sealing steps the cement must be placed via the tremie pipe method. To ensure that the annular space between the 8-inch conductor and the formation is sealed, raise the conductor approximately 5 feet and wait approximately 3 to 5 minutes then lower the pipe back down to TD. This step will allow the cement inside the conductor to come in direct contact with the formation under a substantial head, given the weight of the grout. The cement should stabilize at a height of approximately 8.5 to 9 feet inside the conductor depending on how much the formation retained. Have the driller pump cement from inside the conductor casing up and into the remaining annular space between the conductor and the formation. Use the tremie method to place the cement to the ground surface. This step will fill the remaining open annular space between the conductor and the formation. However, do not pump so much cement out of the conductor that less than a 5-foot cement seal remains inside the casing. This step will have reduced the amount of seal that will have to be drilled out once the cement has set. Allow the cement to set for a minimum of 24 hours. Move over to new location and start coring of shallow zone while the cement sets.

**STEP 3 - Continue Coring, Ream, and Construct 2-inch PVC Well:**

After 24 hours, driller will lower conventional coring system or small tri-cone bit back down the inside of the conductor to drill through the cement in preparation of coring. The cement must be cured. Non-cured cement has a distinct lime odor and is olive to dark green in color. If this is noticed, stop drilling and allow the hole to set another 12 hours. If cement is gray and dusty during drilling, continue drilling. Tri-cone where continuous core is not required and trip in and out with the coring system when necessary. Once TD is reached the driller will ream the hole to approximately 6 of 7-inches. Allow one or two feet as a rat hole at the bottom of the boring so that during drill-rod withdrawal and PVC installation there is sufficient area for borehole slough to accumulate. Call in to project manager for appropriate well construction and design based on the field geologist's lithologic descriptions. Have drilling inspector (if required) notified of seal placement. Select appropriate screen size and then build and install 2-inch PVC well following standard well construction protocol. Begin placement of appropriate size filter pack. Surge-block filter pack during placement to reduce voids, eliminate partial bridges, improve filter-pack integrity, and enhance removal of fines during subsequent development. Place a minimum 3-foot seal of bentonite chips and hydrate for 15 minutes. Complete surface seal by tremie placement of bentonite or bentonite/cement grout. Have inspector (if required) sign off on well construction. Complete installation of surface monument as recommended by State regulations or owner/operator and keep in mind future Site conditions.

**HOLLOW-STEM AUGERS AS TEMPORARY CONDUCTOR.**

Where hollow-stem augers are being used to advance the exploratory boring, subsurface conditions may be encountered which dictate the used of a temporary conductor (i.e., poor borehole integrity or soil/groundwater contamination). If conventional 8.25-inch OD hollow-stem augers are being used to collect split-spoons or continuous core and contaminated soils are encountered at depth, the exploratory boring may be stopped and additional oversize augers used as a temporary conductor. Basically, the 8-inch hollow-stem augers are left in place while larger inside diameter hollow-stem augers (10-inch ID) are used to overdrill the 8-inch augers to the existing total depth and then one or two additional feet. The large-diameter augers act as a temporary conductor while the wellbore is advanced. The 8-inch hollow-stem augers are then advanced to the desired depth and well construction is completed as described in previous SOPs. Once the 8-inch hollow-stem augers are retracted to the depth of the larger diameter augers, the larger-diameter augers are incrementally removed as the boring is grouted to the ground surface. This practice is a time-saving alternative to setting permanent conductor. However, the practice utilizes larger diameter augers and varies from driller to driller. Additionally, there is a greater quantity of cuttings generated that need to be managed and properly disposed of. If larger diameter augers are not available, then permanent conductor will have to be installed following the SOP for conductor installation.

## OPEN HOLE INSTALLATION OF STEEL CONDUCTOR

Where hollow-stem augers are being used to advance the exploratory boring, subsurface conditions may be encountered which indicate that a steel conductor casing may be placed in an open borehole upon the withdrawal of the hollow-stem augers (i.e. the integrity of the borehole sidewall is sufficient to allow withdrawal of the hollow-stem augers below the desired strata of isolation). If conventional 8.25-inch OD hollow-stem augers are being used to collect split-spoons or continuous core, and contaminated soils are encountered at depth, the exploratory boring may be stopped and additional oversize augers maybe used to ream the boring to the diameter required for installation of the steel conductor. If there is known contamination from the surface to a specific known depth, the boring may be initially advanced with the oversized auger to the desired depth and withdrawn. The steel conductor can be placed in the borehole and grouted in place. The 8-inch hollow-stem augers are then replaced within the conductor and advanced to the desired depth and well construction is completed as described in previous SOPs. The practice utilizes larger diameter augers and varies from driller to driller. Additionally, there is a greater quantity of cuttings generated that need to be managed and properly disposed of. If larger diameter augers are not available, then permanent conductor will have to be installed following the SOP for conductor installation.

# TABLE 1

## Standard Christensen Diamond Set Bit & Reaming Shell Dimensions (+ or - .005)

| SIZE | O.D. | | I.D. | | R. SHELL O.D. | | HOLE VOL. |
|---|---|---|---|---|---|---|---|
| | in. | mm | in. | mm | in. | mm | gal./109 |
| RWT | 1.175 | 29.8 | .735 | 18.7 | | | 5.6 |
| EXBW | 1.485 | 37.7 | *.845 | 21.5 | | | 9.0 |
| EWD3 | 1.485 | 37.7 | .835 | 21.5 | | | 9.0 |
| EXM | 1.485 | 37.7 | *.845 | 21.5 | | | 9.0 |
| EWT | 1.485 | 37.7 | .905 | 23.0 | | | 9.0 |
| AXBW | 1.890 | 48.0 | *1.185 | 30.1 | | | 14.6 |
| AWD4, AWD3 | 1.890 | 48.0 | 1.136 | 28.9 | | | 14.6 |
| AW34 | 1.890 | 48.0 | 1.320 | 33.5 | | | 14.6 |
| AXEWL | 1.844 | 46.8 | 1.016 | 25.8 | 1.859 | 47.2+ | 13.9 |
| AWM | 1.890 | 48.0 | *1.185 | 30.1 | | | 14.6 |
| AXCWL. AWC3 | 1.890 | 48.0 | 1.065 | 27.0 | | | 14.6 |
| AQWL | 1.890 | 48.0 | 1.065 | 27.0 | | | 14.6 |
| 200 Hicor | 2.062 | 52.9 | 1.375 | 34.9 | | | 17.7 |
| BXBW | 2.360 | 59.9 | *1.655 | 42.0 | | | 22.7 |
| BWD4, BWD3 | 2.360 | 59.9 | 1.615 | 41.0 | | | 22.7 |
| BW44 | 2.360 | 59.9 | 1.755 | 44.6 | | | 22.7 |
| BXEWL | 2.359 | 59.9 | 1.437 | 36.5 | 2.375 | 60.3+ | 22.7 |
| BXM | 2.360 | 59.9 | *1.655 | 42.0 | | | 22.7 |
| BXBWL, BWC3 | 2.360 | 59.9 | 1.432 | 36.4 | | | 22.7 |
| BQWL | 2.360 | 59.9 | 1.432 | 36.4 | | | 22.7 |
| BQ3WL | 2.360 | 59.9 | 1.320 | 33.5 | | | 22.7 |
| NXBW | 2.980 | 75.7 | *2.155 | 54.7 | | | 36.2 |
| NWD4, NWD3 | 2.980 | 75.7 | 2.060 | 52.3 | | | 36.2 |
| NXEWL | 2.989 | 75.4 | 2.000 | 50.8 | 2.984 | 75.8+ | 36.0 |
| NXM | 2.980 | 75.7 | *2.155 | 54.7 | | | 36.2 |
| NXBWL, NWC3 | 2.980 | 75.7 | 1.875 | 47.6 | | | 36.2 |
| NQWL, NV | 2.980 | 75.7 | 1.875 | 47.6 | | | 36.2 |
| NQWL, 2" Core, NV2 | 2.980 | 75.7 | 2.000 | 50.8 | | | 36.2 |
| NQ3WL | 2.980 | 75.7 | 1.775 | 45.1 | | | 36.2 |
| HXBW | 3.650 | 92.7 | 2.735 | 69.5 | | | 54.4 |
| HWD4 | 3.650 | 92.7 | 2.400 | 61.1 | | | 54.4 |
| HXBWL, HWD3 | 3.650 | 92.7 | 2.400 | 61.1 | | | 54.4 |
| NCEWL | 3.656 | 92.9 | 2.406 | 61.1 | 3.672 | 93.3+ | 54.6 |
| HQWL | 3.790 | 96.3 | 2.500 | 63.5 | | | 58.6 |
| HQ3WL | 3.790 | 96.3 | 2.406 | 61.1 | | | 58.6 |
| CPWL | 4.827 | 122.6 | 3.345 | 85.0 | | | 95.1 |
| PQWL | 4.827 | 122.6 | 3.345 | 85.0 | | | 95.1 |
| PQ3WL | 4.827 | 122.6 | 3.270 | 83.1 | | | 95.1 |

* Conforms with DCDMA Standards
+ Reaming shell O.D. dimensions conform with O.D. bit dimensions except for these 4 shells

# SOP B-19

# YSI™ Dissolved Oxygen Meter Operation

## 1. Scope & Summary:

This protocol outlines techniques for collecting dissolved oxygen and temperature measurements of freshwater. The system simultaneously displays temperature in °C and dissolved oxygen in either mg/L (milligrams per liter) or % air saturation.

## 2. Reference Documents:

Yellow Springs Incorporated (1997) *YSI Model 55 Handheld Dissolved Oxygen and Temperature System Operations Manual.* Yellow Springs Incorporated, Yellow Springs, OH 21 pp.

## 3. Significance and Use:

Temperature and dissolve oxygen concentrations can be measured in freshwater and seawater. The temperature range for optimal probe function is –5 to +45°C and measurements can be obtained from a depth of 0 to 50 feet depending on cable length. The following table outlines typical performance criteria:

**Table 1. Ranges for Typical Performance**

| | | | | |
|---|---|---|---|---|
| **Temperature** | **Sensor Type** | **Range** | **Accuracy** | **Resolution** |
| | Thermistor | -5 to +45°C | ±0.2°C | 0.1°C |
| **Dissolved Oxygen % Saturation** | **Sensor Type** | **Range** | **Accuracy** | **Resolution** |
| | Membrane covered polarographic | 0 to 200 % air saturation | ±2 % air saturation | 0.1 % air saturation |
| **Dissolved Oxygen mg/L** | **Sensor Type** | **Range** | **Accuracy** | **Resolution** |
| | Calculated from % air saturation, temperature, and salinity | 0 to 20 mg/L | ± 0.3 mg/L | 0.01 mg/L |

## 4. Potential Interferences:

4.1 If the temperature or dissolved oxygen of the water being sampled is above or below any of the performance ranges listed in Table 1, then inaccurate readings could potentially be collected. The water being sampled should have temperature and dissolved oxygen concentrations that are within suggested performance ranges or the YSI Model 55 should not be used to collect the data.

4.2 The YSI Model 55 Probe operates using 6 AA-size alkaline batteries. The batteries should be in good working order before readings are made.

## 5. Apparatus:

The YSI Model 55 Handheld Dissolved Oxygen System is a durable, micro-processor based, digital meter with an attached YSI dissolved oxygen probe. Cable lengths of 12, 25 and 50 feet are available. The body of the probe has been manufactured with stainless steel to add

durability and sinking weight. The large Liquid Crystal Display (LCD) is easy to read and is equipped with a back-light for use in dark or poorly lighted areas.

The system simultaneously displays temperature in °C and dissolved oxygen in either mg/L or % air saturation. The system requires only a single calibration regardless of which dissolved oxygen display you use.

A calibration chamber is built into the instrument. A small sponge in the chamber can be moistened to provide a water saturated air environment, which is ideal for air calibration. This chamber is also designed for transporting and storing the probe. When the probe is stored in the chamber, the moist environment will prolong effective membrane performance and probe life.

The instrument is powered by six AA-size alkaline batteries. A new set of alkaline batteries will provide approximately 100 hours of continuous operation. The instrument case is splash resistant. The meter can be operated in a steady rain without threat of damage.

## 6. Materials:

- YSI Model 55 Temperature and Dissolved Oxygen system with 50-foot cable;
- 6 AA-alkaline batteries;
- Waterproof case to transport meter;
- 1 millimeter membranes for probe;
- KCL solution

## 7. Hazards & Precautions:

7.1 Membranes will last a long time if installed properly and treated with care. Erratic readings are a result of loose, wrinkled, damaged, or fouled membranes, or from large (more than 1/8" diameter) bubbles in the electrolyte reservoir. If erratic readings or evidence of membrane damage occurs, you should replace the membrane and the KCL solution.

7.2 If the membrane is coated with oxygen consuming (e.g. bacteria) or oxygen evolving organisms (e.g. algae), erroneous readings may occur.

7.3 Chlorine, sulfur dioxide, nitric oxide, and nitrous oxide can affect readings by behaving like oxygen at the probe. If the investigator suspects erroneous readings, it may be necessary to determine if these gases are the cause.

7.4 Avoid any environment, which contains substances that may attack the probe materials. Some of these substances are concentrated acids, caustics, and strong solvents. The probe materials that come in contact with the sample include FEP Teflon, acrylic plastic, EPR rubber, stainless steel, epoxy, polyetherimide and polyurethane cable covering.

7.5 For correct probe operation, the gold cathode must always be bright. If it is tarnished (which can result from contact with certain gases), or plated with silver (which can result from extended use with a loose or wrinkled membrane), the gold surface must be restored. To restore the cathode, the investigator may either return the instrument to the factory or clean it using the YSI Model 5680 Probe Reconditioning Kit. Never use chemicals or abrasives not supplied with this kit.

7.6 It is also possible for the silver anode to become contaminated, which will prevent

successful calibration. To clean the anode, remove the O-ring and membrane and soak the probe overnight in 3% ammonium hydroxide. Next, rinse the sensor tip and KCL reservoir with deionized water, add new KCL solution, and install a new membrane and O-ring. Turn the instrument on and allow the system to stabilized for at least 30 minutes. If calibration is not possible after three hours, return the YSI Model 55 system to an authorized service center for service.

7.7 If the sensor O-ring is worn or loose, replace it with the appropriate O-ring provided in the YSI Model 5945 O-ring Pack.

7.8 To keep the electrolyte from drying out, store the probe in the calibration/storage chamber with the wet sponge.

7.9 Caution should always be exercised while sampling near water. A personal floatation device should be worn if the water body being sampled is deep enough for a person to drowned.

7.10 As a result of the potential for electrocution, the investigator should cease sampling if thunder and lightening is present while sampling water bodies for temperature and dissolved oxygen.

## 8. Instrument Preparation:

8.1 PREPARING THE METER

8.1.1 Locate the six AA-size alkaline batteries, which are included with the meter. Use a screwdriver or a small coin to remove the thumbscrew on the bottom of the instrument. This thumbscrew holds the battery-chamber cover in place. The battery-chamber cover is marked with the words "OPEN" and "CLOSE". There is a small label inside each of the two battery-chamber sleeves. These labels illustrate the correct way to install the batteries into each sleeve of the battery-chamber;

8.1.2 Turn the instrument on by pressing and releasing the "ON/OFF" button on the front of the instrument. The instrument will activate all segments of the display for a few seconds, which will be followed by a self-test procedure, which will last for several more seconds. During this power on self-test sequence, the instrument's microprocessor is verifying that the instrument is working. If the instrument were to detect a problem, a continuous error message would be displayed. The information on the display will be meaningless since the probe has not yet been prepared;

8.1.3 The Model 55 has a convenient calibration/storage chamber built into the instrument's side. The chamber provides an ideal storage area for the probe during transport and extended non-use. If the investigator looks into the chamber, he/she should notice a small round sponge in the bottom. Carefully put three to six drops of distilled water into the sponge. Turn the instrument over and allow any excess water to drain out of the chamber. The wet sponge creates a 100% water saturated air environment for the probe, which is ideal for dissolved oxygen calibration.

8.2 PREPARING THE PROBE

8.2.1 The YSI Model 55 dissolved oxygen probe is a non-detachable, polarographic sensor designed specifically for the YSI Mode 55 Handheld Dissolved Oxygen System.

8.2.2 The YSI Model 5775 Standard Membrane Kit is supplied with the YSI Model 55. This kit contains 30 one-millimeter (0.001") membranes and a bottle of KCl solution. YSI recommends the 5775 membranes for most applications. For special conditions, a 0.5 mil (0.0005") membrane is available. Order YSI Model 5776 High Sensitivity Membrane Kit. This half-thickness membrane improves measurement time at low temperatures and helps suppress background current at very low dissolved oxygen levels. When data is routinely collected at sample temperatures below 15°C and at dissolved oxygen levels below 20% air saturation, the low signal current resulting from the use of the standard membranes tends to magnify the probe's inherent constant background signal. Using the high sensitivity membranes in this situation will decrease the percentage of error due to the probe's background current. For long-term monitoring situations ONLY, a half-sensitivity, double-thickness, 2 millimeter (0.002") membrane is available. For these applications, order the YSI Model 5685 Membrane Kit, which includes membranes and electrolyte.

8.2.3 The YSI Model 55 is shipped dry. Before using the Model 55, the protective membrane on the probe tip must be removed, the probe must be filled with KCl solution and a new membrane must be installed. Follow the instructions below to install the KCl solution and membrane.

8.2.3.1 To prepare for installation of a new membrane on the YSI Model 55 dissolved oxygen probe:

- Unscrew the probe sensor guard;
- Remove the old O-ring and membrane;
- Thoroughly rinse the sensor tip and KCl reservoir with distilled water;
- Prepare the electrolyte according to the directions on the KCl solution bottle.

8.2.4 Membrane Installation:

8.2.4.1 Secure a membrane between your thumb and the probe body. Add electrolyte to the probe until a large meniscus completely covers the gold cathode. Handle the membrane material with care, touching it at the ends only;

8.2.4.2 With the thumb and forefinger of your other hand, grasp the free end of the membrane;

8.2.4.3 With a continuous motion, stretch the membrane up, over, and down the other side of the sensor. Stretching forms the membrane to the contour of the sensor tip;

8.2.4.4 Secure the end of the membrane under your forefinger while continuing to hold the probe;

8.2.4.5 Roll the O-ring over the end of the probe, being careful not to touch the membrane surface. There should be no wrinkles in the membrane or trapped air bubbles under the membrane. Some wrinkles may be removed by lightly tugging on the edges of the membrane beyond the O-ring;

8.2.4.6 Trim off excess membrane with scissors or a sharp knife. Check that the stainless steel temperature sensor is not covered by excess membrane;

8.2.4.7 Shake off excess KCl. Rinse the stainless steel thoroughly with distilled water to prevent corrosion. Reinstall the sensor guard. The sensor should

be kept in a humid environment (such as the calibration chamber) between measurements and when not in use.

8.3 Six new AA-alkaline batteries should replace old batteries if the instrument is close to exceeding 100 hours of operation.

8.4 Membranes and KCL solution should be replaced within the probe every two to four weeks. If erratic readings or evidence of membrane damage occurs, replace membrane and KCL solution.

8.5 The instrument should be calibrated each time it is turned off. Also, the instrument should be calibrated at a temperature within $\pm 10^{\circ}C$ of the sample temperature.

## 9. Calibration & Standardization:

The YSI Model 55 must be calibrated according to the manufacturer's manuals.

9.1 Before the meter is calibrated, the investigator will need to know the following information:

- The approximate altitude of the region in which you are located;
- The approximate salinity of the water you will be analyzing. Fresh water has a salinity of approximately zero. Sea water has a salinity of approximately 35 parts per thousand.

9.2 THE CALIBRATION PROCESS

9.2.1 Ensure that the sponge inside the instrument's calibration chamber is wet. Insert the probe into the calibration chamber;

9.2.2 Turn the instrument on by pressing the "ON/OFF" button on the front of the instrument. Wait for the dissolved oxygen and temperature readings to stabilize (usually 15 minutes is required after turning the instrument on);

9.2.3 To enter the calibration menu, use two fingers to press and release both the "UP ARROW" and "DOWN ARROW" keys at the same time;

9.2.4 The LCD will prompt you to enter the local altitude in hundreds of feet. Use the arrow keys to increase or decrease the altitude. Example: Entering the number 12 here indicates 1200 feet;

9.2.5 When the proper altitude appears on the LCD, press the "ENTER" hey. The Model 55 should now display CAL in the lower left of the display, the calibration value should be displayed in the lower right of the display and the current dissolved oxygen reading (before calibration) should be on the main display;

9.2.6 Make sure that the dissolved oxygen reading (large display) is stable, then press the "ENTER" button. The LCD will prompt you to enter the approximate salinity of the water you are about to analyze. You can enter any number from 0 to 40 parts per thousand of salinity. Use the arrow keys to increase or decrease the salinity setting. When the correct salinity appears on the LCD (zero for fresh water), press the "ENTER" key. The instrument will return to normal operation;

9.2.7 Once the calibration process is complete, the only keys which will remain operational are the "MODE" key, the "LIGHT" key and the "ON/OFF" key. You can move back and forth from reading dissolved oxygen in the mg/L mode or the % air saturation mode by pressing the "MODE" key.

## 10. Procedure:

10.1 Before the meter is operated, the investigator should following the instructions described in Section 8 of this SOP under the subsections entitled "PREPARING THE METER" and "PREPARING THE PROBE";

10.2 Identify the sample location from the sampling map;

10.3 Remove the meter from the traveling case and press the "ON/OFF" button. If the meter has already been on and previously calibrated, skip to Section 10.4;

10.4 Calibrate the meter as described in Section 9 of this SOP;

10.5 Lower the probe and cable to the desired depth;

10.6 The meter should be displaying the current dissolved oxygen concentration or temperature depending upon the mode at which the meter is operating. The investigator can switch from the temperature mode to the dissolved oxygen mode by pressing the "MODE" button. If the investigator is working in a dark area and has difficulty reading the LCD, the investigator should press and hold the "LIGHT" button;

10.7 Once the readings are recorded, the investigator can store the meter in the traveling case with the meter on if more readings are to be collected. If no more readings are to be collected, the investigator can turn the machine off by pressing the "ON/OFF" button. Please note that if the meter is turned off, the meter must be re-calibrated before readings are collected again.

## 11. Calculations Not Applicable

***Applicable Forms***
Groundwater Sampling Field Data Sheet

# APPENDIX C

# STANDARD FORMS

# STANDARD FORMS

- Well Completion Detail
- Field Soil Boring Log
- Drafted Soil Boring Log
- Well Development Log
- Groundwater Field Sampling Sheet
- Groundwater Gauging Form
- Sample Label
- Chain-of-Custody (COC)
- Shipping Container Checklist
- Drilling Check List
- CPT Boring Advancement and Groundwater Monitoring Well Installation Field Equipment Checklist
- Slug Test Field Equipment Checklist
- QED Pump Installation Field Equipment Checklist
- Groundwater Monitoring and Sampling Field Equipment Checklist
- Field Instrument Calibration Documentation Form
- Subsurface Clearance Review

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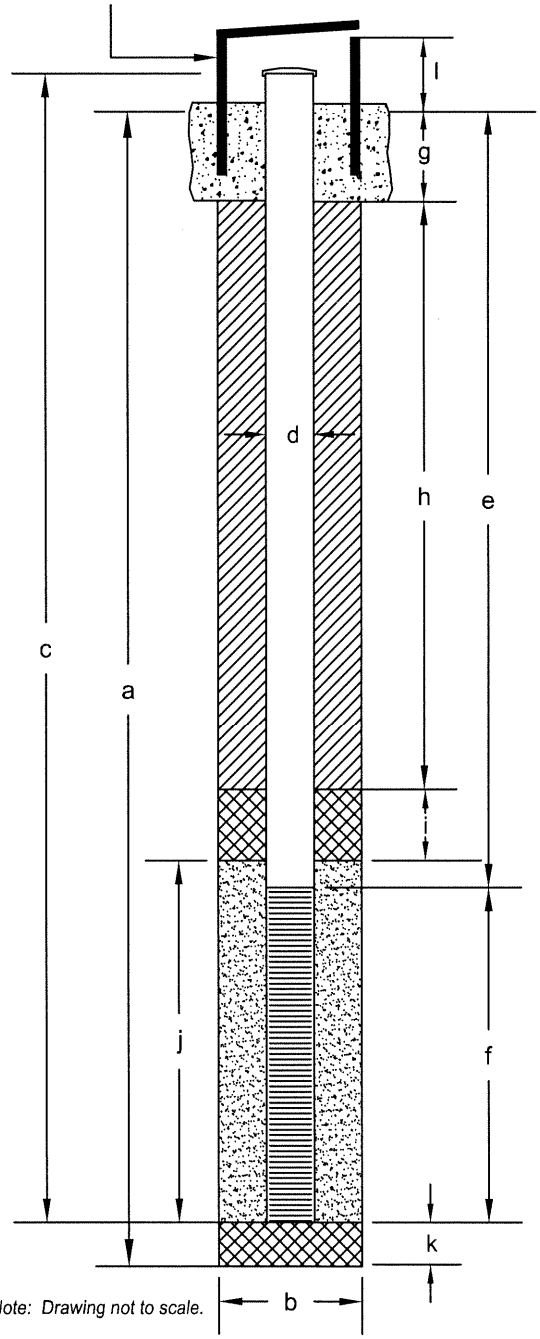
# WELL DETAIL

Boring/ Well No.:

| | |
|---|---|
| Project Name: | Project Number: |
| Location: | Driller: |
| Well Permit No.: | Coordinates: |
| Ground Surface Elevation: | Top of Casing Elevation: |
| | Installation Date: |

Locking Steel Protective Casing




*Note: Drawing not to scale.*

## EXPLORATORY BORING

a. Total Depth: _____ ft.

b. Diameter: _____ In.

Drilling method: _____

## WELL CONSTRUCTION

c. Total Casing Length: _____ ft.

Material _____

Casing joined by: _____

d. Diameter (nominal): _____ In.

e. Depth to top of perforations: _____ ft.

f. Perforated Length: _____ ft.

Perforated Interval from: _____ to _____ ft.

Perforation Type: _____

Perforation Size: _____

g. Surface Seal: _____ ft.

Surface Seal Interval from: _____ to _____ ft.

Material: _____

h. Backfill: _____ ft.

Backfill Interval from: _____ to _____ ft.

Material: _____

i. Seal: _____ ft.

Seal Interval from: _____ to _____ ft.

Material: _____

j. Filter Pack: _____ ft.

Filter Pack Interval from: _____ to _____ ft.

k. Bottom Seal: _____ ft.

Bottom Seal Interval from: _____ to _____ ft.

Material: _____

l. Protective Casing Stick-up: _____ ft.

Comments: Riser stick-up was measured before installation of well pad.

Logged By: _____ Date: _____

Reviewed By: _____ Date: _____

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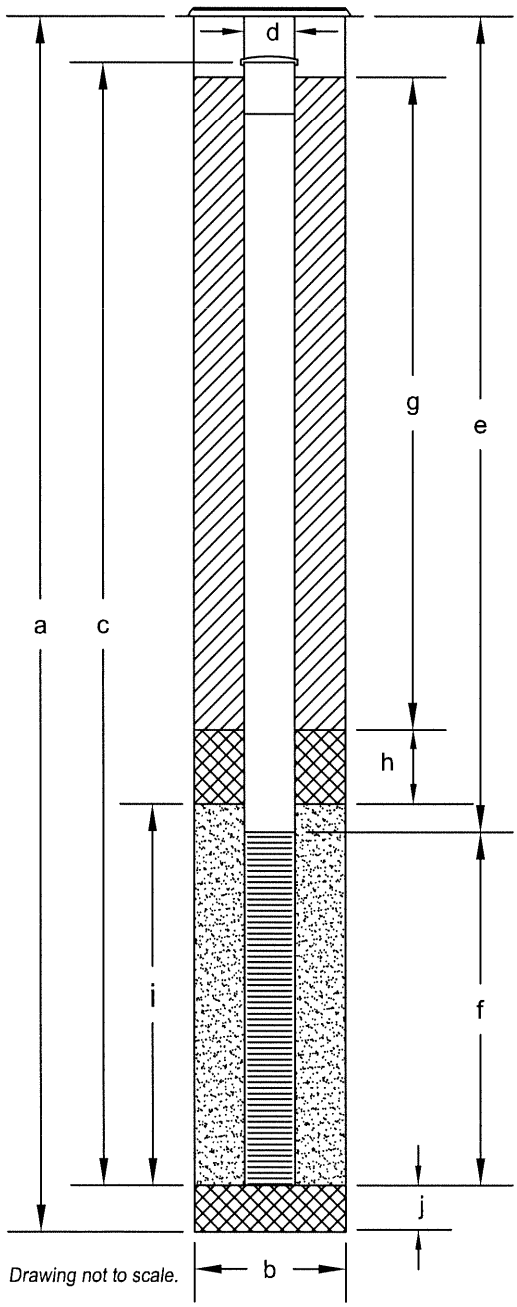
# WELL DETAIL

Boring/ Well No.:

| | |
|---|---|
| Project Name: | Project Number: |
| Location: | Driller: |
| Well Permit No.: | Coordinates: |
| Ground Surface Elevation: | Top of Casing Elevation: |
| | Installation Date: |




*Note: Drawing not to scale.*

Comments:

## EXPLORATORY BORING

a. Total Depth: _____ ft.

b. Diameter: _____ In.

Drilling method: _____

## WELL CONSTRUCTION

c. Total Casing Length: _____ ft.

Material _____

Casing joined by: _____

d. Diameter (nominal): _____ In.

e. Depth to top of perforations: _____ ft.

f. Perforated Length: _____ ft.

Perforated Interval from: _____ to _____ ft.

Perforation Type: _____

Perforation Size: _____

g. Surface Seal: _____ ft.

Surface Seal Interval from: _____ to _____ ft.

Material: _____

h. Seal: _____ ft.

Seal Interval from: _____ to _____ ft.

Material: _____

i. Filter Pack: _____ ft.

Filter Pack Interval from: _____ to _____ ft.

Material: _____

j. Bottom Seal: _____ in.

Bottom Seal Interval from: _____ to _____ ft.

Material: _____

Logged By: _____ Date: _____

Reviewed By: _____ Date: _____

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# FIELD LOG OF EXPLORATORY BORING

PROJECT NO. _____ DATE _____ BORING NO.

CLIENT _____

LOCATION _____ Sheet _____

LOGGED BY _____ of

Field Location of Boring:

Drilling Co. _____

Drilling Rig Model _____

Drilling Method _____

Hole Dia.

Boring Completion Data _____

Ground Elev. Datum

| Depth to ▽ | Depth to ▼ | |
|---|---|---|
| Time | Time | |
| Date | Date | |

| Time | PID/FID (ppm) | Blows/6 in. and/or Pressure (PSI) | Type of Sampler | Recovery (ft/ft) | Sample Number and Container Type | Depth | Sampled Interval | Well Detail | Soil/Rock Symbol | Graphic Log | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | | | | | |
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| | | | | | | 19 | | | | | |
| | | | | | | 20 | | | | | |

# SECOR
*International Incorporated*

| Logged By: | Date Drilled: | Drilling Contractor | Project Name: | Method/Equipment: | Boring Number: |
|---|---|---|---|---|---|
| **Geologist** | **2/18/05** | **Drilling, Inc.** | **Purity Oil Sales<br>Small Town, USA** | **Hollow Stem Auger<br>CME 95** | **SB-05-7** |

| See "Legend to Logs" for sampling method, classifications and laboratory testing methods | Boring Diam.(in.): | Surface Elev.(ft. AMSL): | Groundwater Depth (ft.): | Total Depth (ft.): | Drive wt.(lbs.): | Drop Dist.(in.): |
|---|---|---|---|---|---|---|
| | **8** | | **First Water<br>Static Water** | **20.0** | | |

| Well Construction | Depth, (ft.) | Sample Type | Blows/6" | Description | Time Sample Collected | PID Reading (ppm) | Sample Name |
|---|---|---|---|---|---|---|---|
| Top Cap | | | | Hand cleared boring to 5 feet BGS. | | | |
| Sanitary Seal: Cement/ bentonite grout | | | | Sand (SP); pale brown (10 YR 6/3): About 90% fine sand; about 10% silt and fines; dry; loose. | | | |
| | 5 | | 18<br>17<br>21 | Sand with Silt (SP); yellowish brown (10 YR 5/4): About 80% fine sand; about 20% silt and fines; dry; medium dense. | 0750 | 0.9 | SB-05 -7-5-S |
| | 10 | | 11<br>28<br>30 | Sand with Silt (SP); yellowish brown (10 YR 5/4): About 80% fine sand; about 20% silt and fines; dry; medium dense. | 0800 | 1.1 | SB-05 -7-10-S |
| Seal: Pure gold bentonite chips | | | | | | | |
| Filter Pack: Lonestar #2/16 clean sand | | | | | | | |
| | 15 | | 28<br>30<br>53 | Silty Sand (SM); brown (10 YR 5/3): About 70% fine sand; about 30% silt and fines; moist; dense. | 0805 | 0.8 | SB-05 -7-15-S |
| Screened Interval: 0.020 slotted screen | | | | | | | |
| | 20 | | 17<br>19 | Silty Sand (SM); brown (10 YR 5/3): About 70% fine sand; about 30% silt and fines; moist; dense. | 0810 | 0.7 | SB-05 -7-20-S |
| Lonestar #2/16 clean sand | | | | Boring terminated at 20 feet BGS at 0810. | | | |

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. **0000.00000.00** Date **March 21, 2005**

Log of Boring

COPY OF FFUFTF. SB.GPJ
LOG OF BOREHOLE

Figure

**A-** (sheet 1 of 1)

# WELL DEVELOPMENT LOG

Project Number _____ Well _____

Project Name _____ Development Subcontractor _____

Performed/Supervised _____

Development Method Airlift Sub. Pump Surge Block Bailer Other _____

Development Criteria _____

Equipment Cleaning Method _____

Field Instruments Used _____

Development Water Disposal Method _____

Comments _____

## DEVELOPMENT DATA

Depth to Water: Start _____ End _____ Ref. Point Elev. _____ Height Above Ground Surface _____

Total Depth: Start _____ End _____

| Date | Time | Cumulative Discharge (gallons) | Temperature | EC | DO | ORP | pH | Salinity | Turbidity | Color | Other |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
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**REMARKS:**

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

SECOR

PROJECT NO: _____ WELL ID: _____

SAMPLER: _____ SAMPLE ID: _____

CLIENT NAME: _____ LOCATION: _____

SCREEN INTERVAL: _____

SAMPLE INTAKE DEPTH: _____

WELL TYPE: Monitor ☐ Production ☐ Extraction ☐ Other: _____

CASING DIAMETER (inches) 2 ☐ 4 ☐ 5 ☐ 6 ☐ 8 ☐ Other: _____

WELLHEAD SECURED UPON DEPARTURE? Y N

DEPTH OF WELL (feet): _____ CALCULATED PURGE (gal): _____

DEPTH TO WATER (feet): _____ ACTUAL PURGE VOL. (gal): _____

STANDING WATER IN CASING (feet): _____ COLOR: _____ ODOR: _____

WATER LEVEL ONLY, NO SAMPLE COLLECTED: ☐

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)

DATE PURGED: _____ START (2400 Hr): _____ END (2400 Hr): _____

DATE SAMPLED: _____ TIME (2400 Hr): _____ WATER LEVEL AT SAMPLE: _____

QA SAMPLES COLLECTED AT THIS WELL (IE: Duplicates, Eq. Blanks, Lab MS/MSD) _____

PURGING METHOD

- ☐ 2" Grundfos Pump
- ☐ Centrifugal Pump
- ☐ Submersible Pump
- ☐ Micro-Purge Bladder Pump
- ☐ Other:
- ☐ Bailer (Teflon)
- ☐ Bailer (PVC)
- ☐ Bailer (Stainless Steel)
- ☐ Dedicated Pump

SAMPLING METHOD

- ☐ 2" Grundfos Pump
- ☐ Dedicated Pump
- ☐ Submersible Pump
- ☐ Micro-Purge Bladder Pump
- ☐ Other:
- ☐ Disposable Bailer
- ☐ Bailer (Stainless Steel)
- ☐ Sample Port

REMARKS: _____

LOCK #: _____

REVIEWED BY: _____ DATE: _____

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Salinity (ppt) | Flow Rate (ml/min) | DTW (ft/btoc) | Color (visual) | $Fe^{2+}$/Mn (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
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*SECOR INTERNATIONAL INC.*

# GROUNDWATER GAUGING FORM

**JOB NAME:** PURITY OIL **JOB NUMBER:** _____

**GAUGING INSTRUMENT :** _____ **DATE:** _____

| WELL I.D. | WELL DIA. | TOTAL DEPTH (ft) | DEPTH TO WATER ( ft TOC ) | HEIGHT OF WATER COLUMN (ft) | SAMPLE COLLECTION POINT (TOC) | SYSTEM VOLUME (GAL) | WELL CONDITION & OTHER NOTES |
|---|---|---|---|---|---|---|---|
| MW-2s | 5 | 64.85 | | | 60.0 | 0.116 | |
| MW-2d | 6 | 163.41 | | | 155.0 | 0.485 | |
| MW-3 | 4 | 68.22 | | | NA | NA | |
| MW-5s | 4 | 75.86 | | | NA | NA | |
| MW-5d | 4 | 95.55 | | | 90.0 | 0.321 | |
| MW-6s | 5 | 78.33 | | | 75.0 | 0.137 | |
| MW-6d | 6 | 176.47 | | | 165.0 | 0.51 | |
| MW-7s | 4 | 79.23 | | | 75.0 | 0.137 | |
| MW-7i | 4 | 100.17 | | | 95.0 | 0.334 | |
| MW-8 | 5 | 79.32 | | | 76.0 | 0.138 | |
| MW-9 | 4 | 80.98 | | | 71.0 | 0.274 | |
| MW-10 | 5 | 67.19 | | | 61.0 | 0.117 | |
| MW-11 | 4 | 88.21 | | | 73.0 | 0.279 | |
| MW-12 | 4 | 51.18 | | | NA | NA | |
| MW-13 | 4 | 84.60 | | | 70.0 | 0.271 | |
| MW-14s | 4 | NA | | | NA | NA | |
| MW-14d | 4 | NA | | | NA | NA | |
| MW-15 | NA | NA | | | NA | NA | |
| MW-16 | 5 | 77.83 | | | 73.0 | 0.134 | |
| MW-17 | NA | NA | | | NA | NA | |
| MW-18 | NA | NA | | | NA | NA | |
| MW-19 | 5 | 64.42 | | | 60.0 | 0.116 | |
| MW-20 | 4 | 78.08 | | | 68.0 | 0.266 | |

**TOC - TOP OF CASING** **NA - NOT AVAILABLE**

## Figure B3-1

### Sample Label (Field)

CLIENT

If you do not have an account with us, results will not be released until payment is received.

SAMPLE IDENTIFICATION / LOCATION CL RES:

COLLECTION INFORMATION:

☐ COMPOSITE
☐ GRAB

DATE TIME BY:

TESTING REQUIRED PRESERVATIVE(S) ADDED

Lancaster Laboratories
2425 New Holland Pike, Lancaster, PA 17601-5994

LL #

### Sample Label (Laboratory)

TL **4258264** ASR-000 41B 4/21/04
GRP-892948 EMP-0210

STANDARD_FORM#: 2607
Results_due 04/30/04 15:00
Group_form_#:_2607_Sample_form_#:_1722

00649-Lancaster Labs
14111
Batch# 04111-1457-8782 SPLP Volatile Blank
Extraction Fluid: DI H2O Vessel ID: 60
Tumble Batch Blank
01163 03636

### Outgoing on Cooler or Kit (blue)

Lancaster Laboratories
*Where quality is a science.*

**CUSTODY SEAL**

2425 New Holland Pike, Lancaster, PA 17601-5994 (717) 656-2300

DATE:_____
SIGNATURE:_____

### Incoming on Cooler Containing Samples (yellow)

Lancaster Laboratories
*Where quality is a science.*

**137603**
**CUSTODY SEAL**

2425 New Holland Pike, Lancaster, PA 17601-5994 (717) 656-2300

DATE:_____
SIGNATURE:_____

# Chevron California Region Analysis Request/Chain of Custody

Lancaster Laboratories
*Where quality is a science.*

**For Lancaster Laboratories use only**

Acct. #: _____ Sample #: _____ SCR#: _____

Facility #: _____

Site Address: _____

Chevron PM: _____ Lead Consultant: _____

Consultant/Office: _____

Consultant Prj. Mgr.: _____

Consultant Phone #: _____ Fax #: _____

Sampler: _____

Service Order #: _____ ☐ Non SAR: _____

**Analyses Requested**

**Preservation Codes**

| Field Point Name | Matrix | Repeat Sample | Top Depth | Year Month Day | Time Collected | New Field Pt. | Grab | Composite | Total Number of Containers | BTEX + MTBE 8260 ☐ 8021 ☐ | TPH 8015 MOD GRO | TPH 8015 MOD DRO ☐ Silica Gel Cleanup | 8260 full scan | ___ Oxygenates | Lead 7420 ☐ 7421 ☐ | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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**Preservative Codes**

**H** = HCl **T** = Thiosulfate
**N** = $HNO_3$ **B** = NaOH
**S** = $H_2SO_4$ **O** = Other

☐ J value reporting needed

☐ Must meet lowest detection limits possible for 8260 compounds

8021 MTBE Confirmation

☐ Confirm highest hit by 8260

☐ Confirm all hits by 8260

☐ Run ____ oxy's on highest hit

☐ Run ____ oxy's on all hits

**Comments / Remarks**

**Turnaround Time Requested (TAT)** (please circle)

STD. TAT 72 hour 48 hour
24 hour 4 day 5 day

**Data Package Options** (please circle if required)

QC Summary Type I – Full
Type VI (Raw Data) ☐ Coelt Deliverable not needed
WIP (RWQCB)
Disk

| Relinquished by: | Date | Time | Received by: | Date | Time |
|---|---|---|---|---|---|
| Relinquished by: | Date | Time | Received by: | Date | Time |
| Relinquished by: | Date | Time | Received by: | Date | Time |
| Relinquished by Commercial Carrier: UPS FedEx Other _____ | | | Received by: | Date | Time |
| Temperature Upon Receipt _____ C° | | | Custody Seals Intact? Yes No | | |

# SHIPPING CONTAINER CHECKLIST

Prior to sending this cooler to the project specific laboratory at the address shown below, please check the following items:

- Is the project clearly identified on the Chain-of-Custody Record (official project name, project location, project phase)?
- Are all enclosed sample containers clearly labeled with waterproof (permanent) ink and enclosed in a plastic bag?
- Are the desired analyses indicated on the bottle labels and Chain-of-Custody record? Are the metals defined on the Chain-of-Custody record?
- Are the sample labels complete, including the identification of appropriate method numbers for both the preparatory and analysis procedures?
- Does the information on the Chain-of-Custody record match the information on the sample container labels?
- Have you placed the Chain-of-Custody record in a plastic bag and attached it to the inside of the cooler lid?
- Have the samples been properly preserved (acid or base and cooling to 4°C $\pm$ 2°C)?
- Have custody seals been placed on sample containers?
- Is there a contractor point of contact, including name and phone number, clearly shown on the Chain-of-Custody?
- Is there sufficient ice (double bagged in zip-locks) or "blue ice" in the cooler? It is recommended that the samples be placed on ice as soon as possible after sampling and repacked on new ice in shipping cooler.
- Has a custody seal be placed on the cooler once packing has been complete?
- Has the shipping information (i.e., Federal Express shipping bill number) been documented in the field logbook?

Laboratory Name: _____

Laboratory Contact Name: _____

Laboratory Phone #: _____

Shipping Address: _____

_____

# Drilling Checklist

## Pre-Field Activities

**Site:**_____

- ☐ Field Service Request Form
  - General work Instructions
  - USA Ticket number
  - Contact phone numbers
  - Equipment Needed
- ☐ Work Plan
  - Detailed Work Instructions
  - Current Site Map with Proposed Borehole Locations
- ☐ HASP
- ☐ Borehole Checklist
- ☐ Field Equipment
- ☐ Permits
- ☐ As builts
- ☐ Laboratory Supplies
- ☐ Field Note Instructions
- ☐ Field Forms
  - LPO
  - Field Notes
  - Chain of Custody
  - Field Equipment Rental Sheet
  - Boring Log Form
- ☐ Call Station/Terminal Manager and Regulator for Scheduling

Note: Do not depart for site until all of the above pre-field activities are checked off and/or in hand.

# CPT BORING ADVANCEMENT AND GROUNDWATER MONITORING WELL INSTALLATION FIELD EQUIPMENT CHECKLIST

- PPE
  - hard hat
  - nitrile gloves
  - safety vest
  - steel toe boots
  - safety glasses
- Ice chest for samples collected
- Photo-ionization detector (PID)
- Sounder
- Sample containers
  - Soil
  - Water
- Hand auger
- CPT or Drill rig (augers, CPT)
- Steam cleaner for drilling equipment decontamination
- Decontamination equipment for other equipment
  - Alconox or equivalent low phosphate soap
  - distilled water
  - clean buckets
- Containment for investigation derived waste (55-gallon DOT approved drums)

# SLUG TEST
# FIELD EQUIPMENT CHECKLIST

- Decontamination equipment
  - Alconox or equivalent low phosphate soap
  - distilled water
  - clean buckets
- slug
- transducer
- cables
- data logger

# QED PUMP INSTALLATION
# FIELD EQUIPMENT CHECKLIST

- Sounder
- QED pumps
- Dedicated tubing

# GROUNDWATER MONITORING AND SAMPLING
# FIELD EQUIPMENT CHECKLIST

- PPE
  - nitrile gloves
  - safety vest
  - steel toe boots
  - safety glasses
- Sounder
- Interface probe
- Submersible pump (if not dedicated pump)
- Flow cell
- Teflon disposable bailers
- Groundwater parameter meter (pH, temperature, specific conductance, ORP, DO)
- Bucket, drums for collection of purged groundwater
- Ice chest for samples
- Sample containers
- Decontamination equipment
  - Alconox or equivalent low phosphate soap
  - distilled water
  - clean buckets
- Containment for investigation derived waste (55-gallon DOT approved drums)

*SECOR INTERNATIONAL INC.*

# Purity Oil QM&S Equipment Calibration Log

| Instrument # 1 ( make/model ) | | Parameters | | Calibration Standard ( solution ) | |
|---|---|---|---|---|---|
| QED MP - 20 | | SP. Conductivity | | 1,000 µS/cm | |
| Hanna 9143 | | Turbidity | | Water | |
| YSI 6920 | | D.O. | | pH 4 | |
| Notes : | | pH | | pH 7 | |
| | | Other | | Other | |
| Technician | | | Date | | |

| Instrument # 2 ( make/model ) | | Parameters | | Calibration Standard ( solution ) | |
|---|---|---|---|---|---|
| QED MP - 20 | | SP. Conductivity | | 1,000 µS/cm | |
| Hanna 9143 | | Turbidity | | Water | |
| YSI 6920 | | D.O. | | pH 4 | |
| Notes : | | pH | | pH 7 | |
| | | Other | | Other | |
| Technician | | | Date | | |

| Instrument # 3 ( make/model ) | | Parameters | | Calibration Standard ( solution ) | |
|---|---|---|---|---|---|
| QED MP - 20 | | SP. Conductivity | | 1,000 µS/cm | |
| Hanna 9143 | | Turbidity | | Water | |
| YSI 6920 | | D.O. | | pH 4 | |
| Notes : | | pH | | pH 7 | |
| | | Other | | Other | |
| Technician | | | Date | | |

**SUBSURFACE CLEARANCE REVIEW (To Be Used For ANY Invasive Work)**

Client Site #: _____ Borehole #s/Excavation Reviewed: _____

Address: _____

Clearance Performed by (SECOR Rep): _____ Date: _____

**Pre-Mobilization**

| Yes | No | |
|---|---|---|
| ☐ | ☐ | 1. Is a scaled site plan showing the proposed borehole locations attached to this form? |
| ☐ | ☐ | 2. Does each borehole location allow for clear entry and exit, adequate workspace, and a clear path for raising the mast and operating the drill rig and all support equipment? |
| ☐ | ☐ | 3. Are all of the proposed borehole locations and associated areas of pavement cutting at least 3 feet from any subsurface utilities shown on client's building plans? PM check here ☐ if plans not provided by client (therefore not applicable to this job) |
| ☐ | ☐ | 4. Are all of the proposed borehole locations and associated areas of pavement cutting at least 3 feet from any subsurface utilities shown on public right-of-way street improvement or other public property engineering plans? PM check here ☐ if plans not provided by client (therefore not applicable to this job) |
| ☐ | ☐ | 5. Has the Station Manager indicated no knowledge of any subsurface utilities within 3 feet of the proposed borehole locations? (Review locations with the Station Manager/Dealer). |
| ☐ | ☐ | 6. Are all of the proposed borehole locations and associated areas of pavement cutting at least 3 feet from any subsurface utilities identified during a geophysical survey? PM check here ☐ if plans not provided by client (therefore not applicable to this job) |
| ☐ | ☐ | 7. Have all Underground Service Alert providers notified by USA marked out their facilities in the vicinity of the borehole locations or otherwise notified us that they do not have any facilities near the proposed borehole locations? Ticket No. _____ |
| ☐ | ☐ | 8. Are all proposed borehole locations and associated areas of pavement cutting at least 3 feet from a visual line connecting two similar looking manhole covers? |
| ☐ | ☐ | 9. Are all proposed borehole locations and associated areas of pavement cutting at least 3 feet from a visual line perpendicular to the street from the water, gas, and electrical meters? |
| ☐ | ☐ | 10. Are all proposed boring locations and associated areas of pavement cutting clear of pavement joints, curbs, crash posts, or other engineered structure |
| ☐ | ☐ | 11. Does the pavement in the vicinity of each proposed borehole location lack signs of previous excavation (e.g. no pavement subsidence, no differences in pavement texture or relief, no pavement patching)? |
| ☐ | ☐ | 12. Field Person to meet with Project Manager prior to entering the field. |
| ☐ | ☐ | 13. Utility Locator Service |

**SUBSURFACE CLEARANCE REVIEW cont. (To Be Used For ANY Invasive Work)**

Client Site #: _____ Borehole #s/Excavation Reviewed: _____

**Pre-Drilling**

| Yes | No | |
|---|---|---|
| ☐ | ☐ | 14. Before drilling did you hand dig a hole to 5 feet below grade that is greater in diameter than the outer diameter of the drilling auger (i.e. "hand-clear")? *SECOR rep. hereby certifies that hand-clearing was completed:* _____ |
| ☐ | ☐ | 15. Before drilling did you evaluate the soil you encountered in the hand-dug hole regarding whether it appears to be native material (i.e. free of clean gravel, clean sand, aggregate bas [gravelly sand with ~10% fines], or other non-native looking material)? If evidence of non-na material is encountered during hand clearing, immediately discontinue drilling activities and notify SECOR PM and Client prior to continuing any drilling activities. *SECOR rep. hereby certifies that the hand-dug soil was evaluated to be native material:* _____ |

**If you answered "NO" to any of the above questions, DO NOT DRILL or EXCAVATE, without written approval from BOTH the Client and the SECOR PM specifically allowing work to proceed despite those exceptions – as noted and signed below.**

Following Client and SECOR safety protocols, we have completed the required subsurface clearance activities with the following exception(s):

_____

_____

_____

_____

_____

By signing below, Chevron authorizes SECOR to proceed with the work described and will hold SECOR harmless from any damages resulting from drilling or excavation activities in the presence of unknown underground utilities, assuming that pre-drilling clearance efforts outlined above are completed. By signing below, the SECOR PM acknowledges that, based on the above information, appropriate pre-mobilization effort was made to evaluate safety issues as they relate to underground utilities and hereby authorizes the work to proceed (i.e. mobilization).

| | |
|---|---|
| _____ | _____ |
| Client | Project Manager<br>SECOR International Incorporated |
| _____ | _____ |
| Date | Date |

# APPENDIX D

# LANCASTER LABORATORIES, INC.
# LANCASTER, PENNSYLVANIA

# LABORATORY ORGANIZATION

## A4. Project/Task Organization

The objectives of the laboratory Quality Assurance Program are to establish procedures which will ensure that data generated in the laboratory are within acceptable limits of accuracy and precision, to ensure that quality control measures are being carried out, and to ensure accountability of the data through sample and data management procedures. To this end, a Quality Assurance Department has been established. The Quality Assurance Officer reports directly to the President of Lancaster Laboratories and has no direct responsibilities for data production, thus avoiding any conflict of interest. The Quality Assurance Officer is the responsible party for maintaining the official, approved QA project plan.

The attached organizational charts show key managerial personnel. Resumes of key individuals may be found in the *Environmental Quality Policy Manual.*

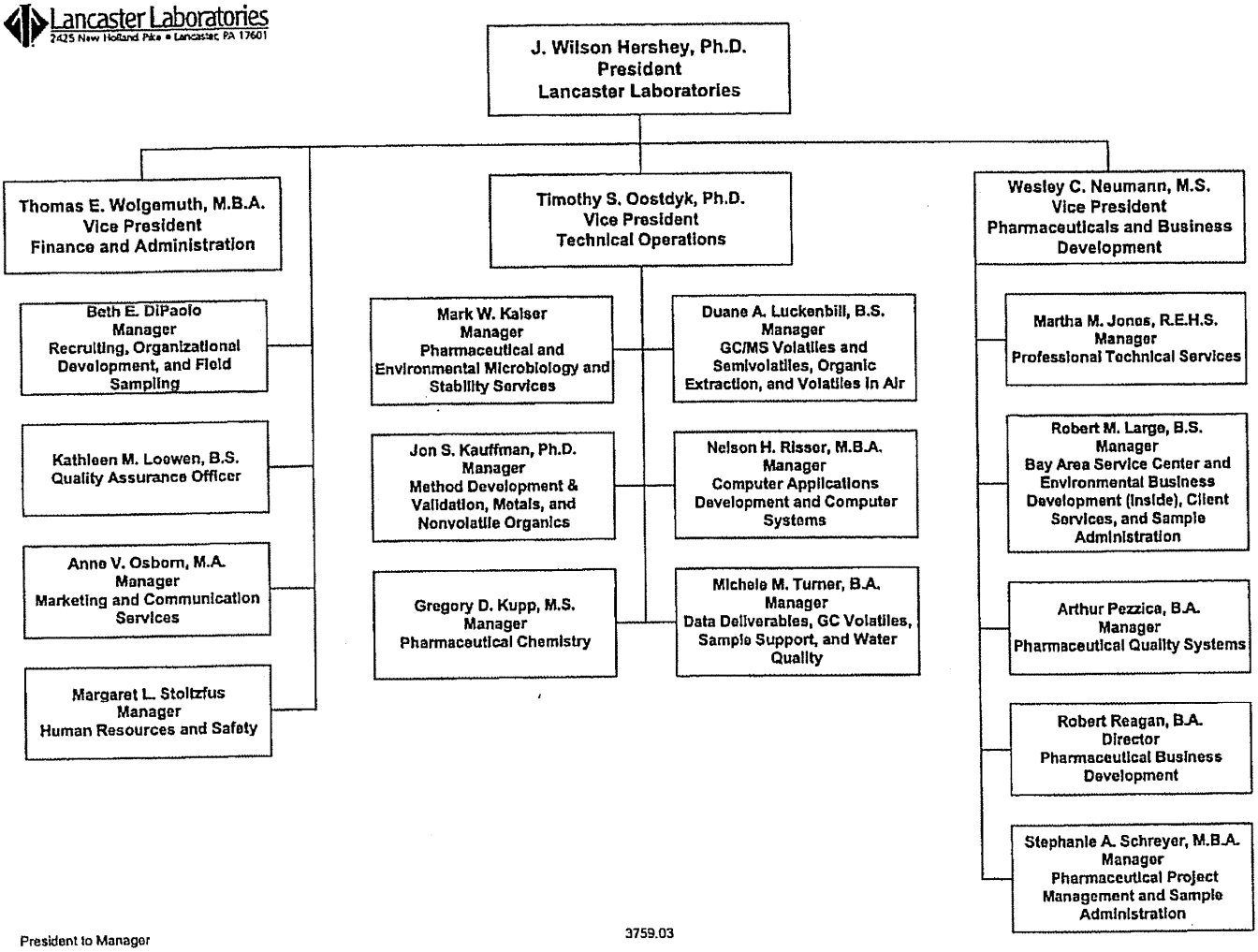
The Sample Administration Group will be responsible for receiving samples, signing the external chain of custody, checking sample condition, assigning unique laboratory sample identification numbers, and initiating internal chain-of-custody forms. Sample Support personnel will be responsible for assigning storage locations, checking and adjusting preservation, homogenizing the sample as needed, and discarding samples. The Bottles Group is responsible for pre-preserving bottles as required by the method, preparing trip blanks and field blanks when required, and packing the bottle kits, then sending them to the client's requested location.

Group leaders listed in each technical area are responsible for performing laboratory analyses, quality control as specified in the methods, instrument calibration, and technical data review. Data is reported using a computerized sample management system, which tracks sample progress through the laboratory and generates client reports when all analyses are complete. Quality control data is entered onto the same system for purposes of charting and monitoring data quality.

The Quality Assurance Department is responsible for reviewing quality control data, conducting audits in the laboratory and reporting findings to management, maintaining current copies of all analytical methods, reviewing and approving Standard Operating Procedures (SOPs), submitting blind samples to the laboratory, and ensuring that appropriate corrective action is taken when quality problems are observed.

Data package deliverables are available upon request. The Quality Assurance Department reviews a representative sampling of the deliverables for completeness and to ensure that all quality control checks were performed and met specifications. This step includes a review of holding times, calibrations, instrument tuning, blank results, duplicate results, matrix spike results, surrogate results, and laboratory control samples (where applicable). Every attempt to meet specifications will be made, and any item outside of the specifications will be noted in the narrative. The laboratory will not validate data with regard to usability since this generally requires specific knowledge about the site. All data is archived according to corporate procedures.

Lancaster Laboratories
2425 New Holland Pike • Lancaster PA 17601

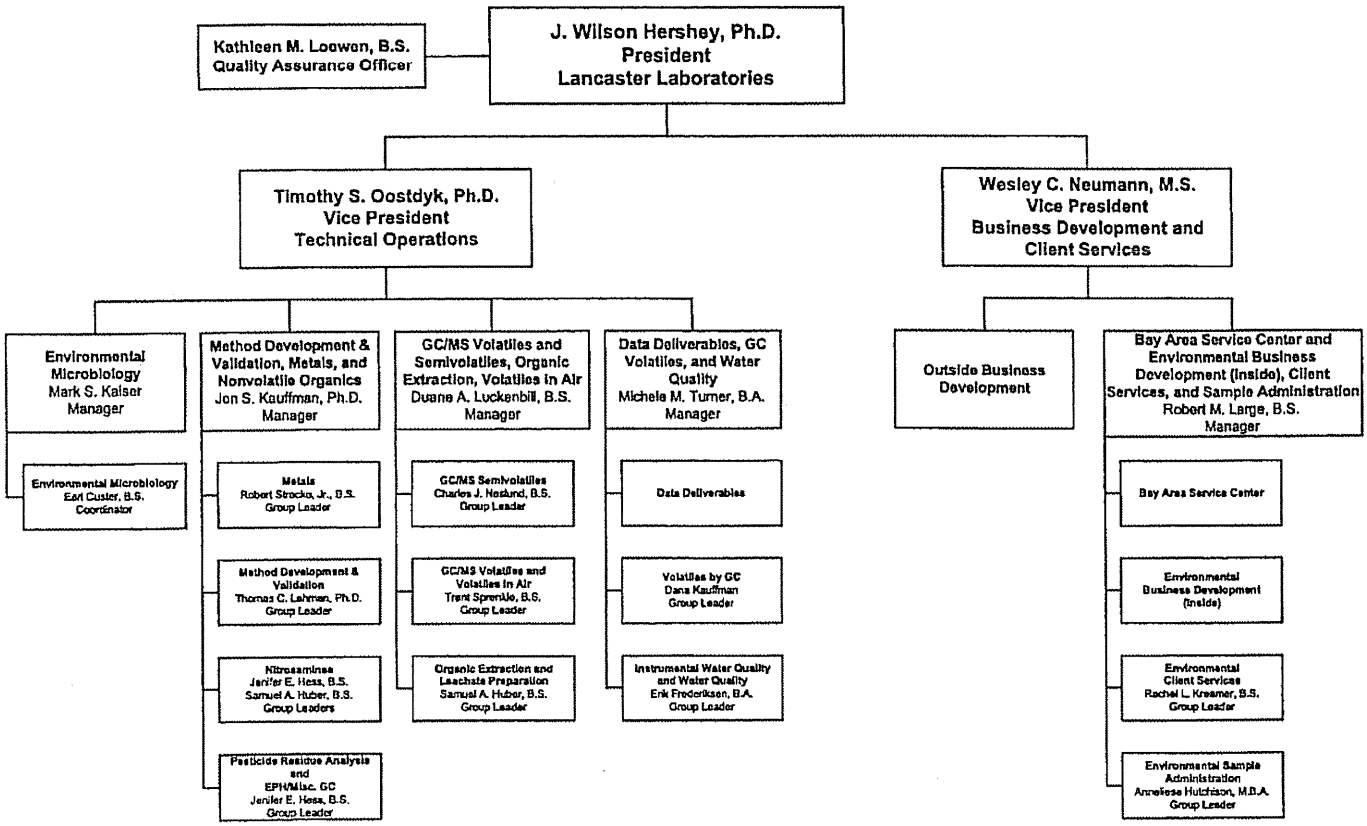



President to Manager

3759.03

Lancaster Laboratories
2425 New Holland Pike • Lancaster, PA 17601

## Environmental Sciences

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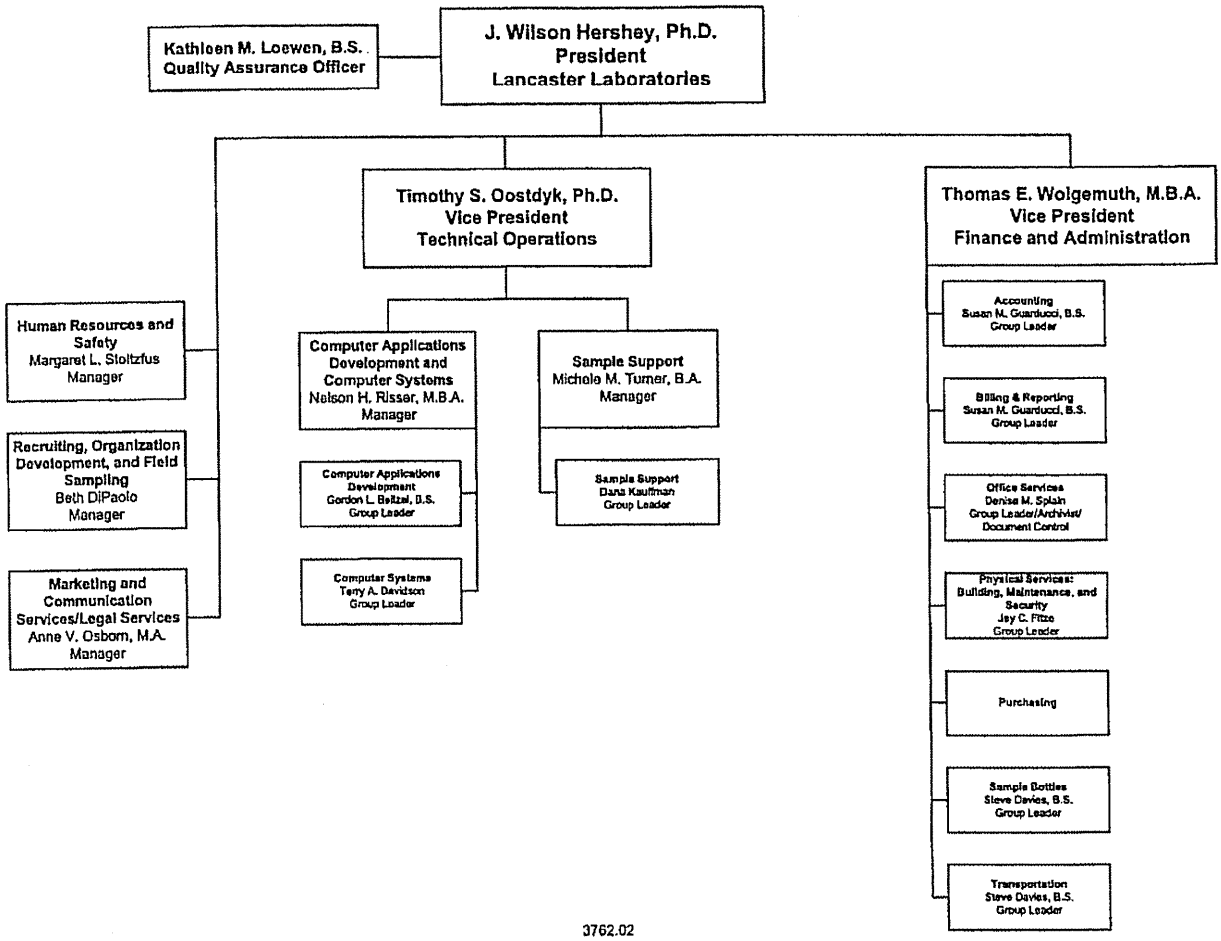
Lancaster Laboratories
2425 New Holland Pike • Lancaster, PA 17601

## Support Services

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# APPENDIX E

## *DEHALOCOCCOIDES* TECHNICAL MEMORANDUM
## SiREM TECHNICAL NOTE 1.1

130 Research Lane, Suite 2 Guelph, Ontario • N1G 5G3 • Canada • Tel: (519) 822-2265 • Fax: (519) 822-3151

## SiREM Technical Note 1.1:

## Gene-Trac *Dehalococcoides* Assay: Applications/ Test Features/ Overview

### Contents of this Document

The purpose of this document is to provide technical information to environmental professionals:

(1) about *Dehalococcoides* role in reductive dechlorination, and how to apply this powerful technique to improve the success of your enhanced *in situ* bioremediation (EISB) or monitored natural attenuation (MNA) project;
(2) about the technical features of the Gene-Trac test including issues surrounding quantification, sensitivity and PCR primer sets;
(3) to understand the Gene-Trac assay, and more generally the PCR process; and
(4) about the analysis process used to arrive at positive/negative and quantitative results

### Background

Members of the *Dehalococcoides* group are the only known microorganisms that can further dechlorinate *cis*-DCE (cDCE), and several strains from this group are able to cause complete dechlorination to ethene. All mixed cultures that dechlorinate PCE/TCE past cDCE to ethene have been found to contain microorganisms related to *Dehalococcoides.* Hendrickson *et al.* (2002) demonstrated that *Dehalococcoides* species were detected at sites where complete dechlorination to ethene was being observed, but not detected at "partially dechlorinating" sites. Gene-Trac uses the polymerase chain reaction (PCR) to determine the presence or absence of members of *Dehalococcoides* in groundwater and soil) (Hendrickson et al., 2002; Löffler *et al.* 2000). PCR is a method for amplifying specific target sequences of DNA, in this case sequences of DNA that are unique to the 16 S rRNA gene of *Dehalococcoides.* The 16S gene is the most commonly used gene for the identification and differentiation of bacteria as it contains variable regions that facilitate species identification/differentiation (Ludwig and Scheifler, 1994). The power of Gene-Trac *Dehalococcoides* testing is derived from using patented "PCR primers" developed by DuPont. Direct detection of *Dehalococcoides* can add significant benefit to your MNA or bioremediation project as discussed below.

- **Selecting Your Enhanced in situ Bioremediation Approach**
  Is addition of electron donor sufficient? Is bioaugmentation with cultures containing *Dehalococcoides* required to achieve your remedial goal? Gene-Trac can be used to help you decide. Positive Gene-Trac results indicate a higher probability of achieving complete dechlorination to ethene through electron donor addition. Whereas, negative Gene-Trac test results typically indicate that only incomplete dechlorination would be achieved. Gene-Trac testing can also be used to assess the distribution of *Dehalococcoides* populations; are they present but poorly distributed and/or exist at very low population densities? This type of information can be used to assess the length of time you may need to wait to stimulate indigenous *Dehalococcoides* to grow to effective population densities, or if you should bioaugment to reduce the required time frames.

- **Monitored Natural Attenuation (MNA) Remedies**
  The direct detection of *Dehalococcoides* provides the third line of evidence as stated in various protocols developed by U.S. EPA, and U.S. Air Force. One of the major challenges of MNA studies and remedies is to demonstrate that reductive dechlorination will occur, or is occurring, through the entire contaminant plume, particularly at the distal end of plumes. All of the biological indicators parameters used in MNA assessments are advected and dispersed in groundwater, which can make assessment of the spatial distribution of biodegradation processes difficult. Correlating the presence of *Dehalococcoides* with measured groundwater parameters provides powerful evidence that reductive dechlorination is occurring or can occur throughout the contaminated zone. It can also be used to assess if there is microbial capacity further downgradient to dechlorinate expanding plumes.

- **Monitoring the Progress of Bioremediation/Bioaugmentation**
  Gene-Trac can be used to assess the, spread and growth of indigenous or augmented *Dehalococcoides*. In combination with geochemical data Gene-Trac increases confidence in the ongoing success and progression of your EISB project. Major *et al.,* 2002 demonstrated the use of PCR based tracking to assess the spread of *Dehalococcoides* through a pilot test cell at Kelly AFB.

## Technical Features of the Gene-Trac Test

- **Gene-Trac Primers**

The sensitivity and accuracy of the Gene-Trac assay results from the use of multiple PCR primer sets (see Gene-Trac process described below for a description of PCR and PCR primers) available to SiREM thorough an exclusive licensing agreement with DuPont. Each test uses three *Dehalococcoides* -specific primer sets in duplicate (for a total of six reactions per test). The use of multiple primer sets provides replication and greater ability to detect variants in the *Dehalococcoides* group. The importance of the ability to detect variant organisms is becoming clearer as the known diversity and biodegradation capacity of the *Dehalococcoides* group expands to include organisms that preferentially degrade vinyl chloride (He *et al.*, 2003 ) chlorinated dibenzodioxins (Bunge *et al.*, 2003) and chlorobenzenes (Adrian *et al.* 2002). Using multiple primer sets increases the chances of detecting known and previously undiscovered "variant" *Dehalococcoides* organisms in samples. Each of the primer sets used has distinct features outlined in Table 1.

**Table 1, Specific Properties of Gene-Trac DHC PCR Primer Sets**

| Primer Set Designation | Feature of Primer Set |
|---|---|
| DHC-1 | Extremely specific for the DHC group |
| DHC-2 | Extremely efficient, lower detection limit for detecting positives where other primers sets may fail |
| DHC-3 | Provides full length sequence for strain identification and detects some recently discovered VC degrading DHC variants |

- **Quality Control/ Control Reactions**

Three types of control reactions are used in the Gene-Trac procedure these are outlined in Table 2. A negative control (or "DNA blank") is performed with each test and involves processing sterile water through the DNA extraction procedure as with groundwater samples. This control ensures that contamination of samples does not occur via the DNA extraction process, PCR setup, or performance of the reactions. The positive control consists of a PCR containing DNA of a *Dehalococcoides* 16S rRNA gene. This control ensures that all reagents and equipment performing properly and is also used as a reference standard for scoring the intensity of test samples. The DNA extraction control is used to determine whether DNA was extracted from the sample and if this DNA is suitable for PCR amplification. The DNA extraction control consists of PCR performed using a Universal Bacterial PCR primer set. This primer set amplifies DNA from most *Bacteria* and will be positive if any bacterial DNA is present, even if *Dehalococcoides* are not present. If the DNA extraction control is negative it suggests the possibility that little biomass was present, or inhibition of the PCR by contaminants e.g. excessive humic compounds.

If the universal primer produces a PCR product, it indicates that the DNA extraction from a sample was successful, thereby adding increased credibility to any negative *Dehalococcoides* test results.

**Table 2: Controls Used in Gene-Trac Assay**

| Control | Method | Purpose | Comments |
|---|---|---|---|
| "Negative Control" | PCR + sterile H2O passed through DNA extraction protocol | detect exogenous DNA contamination in reagents /PCR setup/ DNA extraction process | negative if no contamination |
| "Positive control" | PCR + cloned Dehalococcoides 16S rRNA gene | detect exogenous DNA contamination in reagents and from PCR setup and DNA extraction process | positive if reagents/control DNA /equipment functioning correctly |
| "DNA Extraction Control" | PCR performed with non-specific PCR primers | confirms Bacterial DNA extraction successful | negative if field sample has no DNA, useful where negative DHC results obtained |

- **Additional Information related to Gene-Trac PCR amplification:**

***Sensitivity***: The detection limit of the Gene-Trac PCR method is estimated to be 200-300 gene-copies per liter of groundwater. Due to inefficiencies of cell lysis and DNA extraction (which can vary from sample to sample) this does always not necessarily equal 200-300 microorganism per liter and therefore the detection limit may be somewhat higher in certain cases.

***Quantification:*** PCR methods are not considered fully quantitative unless performed by specific quantitative approaches such as competitive PCR (Messarch *et al.*, 2000) and more commonly Real-time PCR (Hristova *et al.*, 2001). While the Standard Gene-Trac process is not a fully quantitative method, the approach and reporting format does provide so called "semi-quantitative" information, which can be useful to detect significant changes in *Dehalococcoides* population densities. While truly quantitative PCR is a useful and powerful method for quantifying target DNA in samples, and is offered by SiREM, its use and interpretation on environmental samples should be approached with care. There are a variety of factors that affect the interpretation of quantitative PCR. For example,

- the groundwater sampling method can greatly effect the amount of microorganisms that are obtained between wells, and over time;
- microbial population densities can be higher in wells and sand packs and may not represent real changes in population densities in the aquifer and over time;
- changes in geochemistry at the site (e.g., changes in ionic strength, humic acids) can affect the extraction efficiency and sensitivity of PCR, making it difficult to assess the relevance of variations in population densities;

- different PCR primers may result in different amplification of different Dehalococcoides strains. This can be overcome by using multiple primer sets, but may result in different estimates of DHC population densities.

The standard Gene-Trac assay provides a relative signal-strength to an internal control, and is sensitive enough to distinguish significant population changes (i.e., order of magnitude responses), which is a relevant measure at field scale. If quantitative PCR is required for your project, we recommend that you first screen your site using our standard Gene-Trac test to assess sampling protocols, determine which primer set is optimal, and which samples/locations require more quantitative analysis. This can be followed by our Real-Time Quantitative PCR Gene-Trac test. Technical assistance in planning the sampling approach and data interpretation is recommended for Quantitative Gene-Trac analysis. Contact SiREM for more information.

## The Gene-Trac Process

### Overview of Protocol

The *Standard Gene-Trac assay consists of four steps:

1. Extraction of bacterial DNA from site groundwater/ soil samples;
2. Polymerase chain reaction (PCR) amplification of segments of the *Dehalococcoides* 16S ribosomal ribonucleic acid (rRNA) gene using PCR primers specific for these sequences;
3. Gel electrophoresis of PCR products to visualize and confirm size of gel bands (or lack thereof); and
4. Interpretation of results Issuance of Test Certificate.

**Note The process for quantitative Real time Gene-Trac is similar with the exception that Gel electrophoresis is not performed. Instead quantitative data is provided directly by the instrument.*

An overview of each of the Gene-Trac Test steps is provided below.

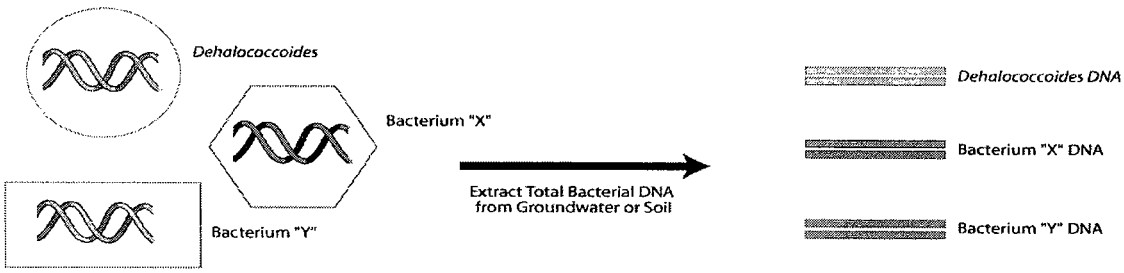
### 1. Site Sampling /Bacterial DNA Extraction

Site groundwater or soil samples are used for the extraction of bacterial DNA, which is used as a template for the PCR reaction. Typically, 1 liter of groundwater or 50 grams of soil are required. (For more detailed information on sampling for Gene-Trac see www.siremlab.com). Typically, 1 liter of groundwater is filtered to capture bacteria; lesser amounts may be used depending on the degree of suspended solid material present in the groundwater. The biomass is removed collected from the filter, and DNA is extracted by a "Bead-mill" homogenization that physically breaks open bacterial cells, releasing the DNA. DNA is then purified for use as a template in the PCR reaction using a spin-column.

## 2a. Polymerase Chain Reaction (PCR) Amplification (standard-Gene-Trac)

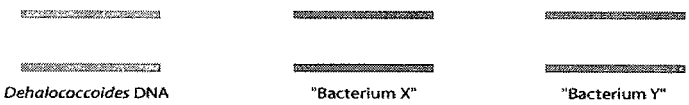
PCR is a DNA amplification method that takes advantage of DNA replication enzymes and the complementary binding properties of DNA. Figure 1 provides an overview of the PCR process. Bacterial DNA extracted from a sample is used as a "template" in a PCR reaction. The first step in the PCR process is heating the bacterial DNA to 96° C to "denature" or split DNA ladder along its length exposing the bases on each strand. Short pieces of chemically synthesized DNA (called PCR primers), which have a known sequence, will bind to a target sequence in the bacterial DNA. The second step in the reaction is cooling so that these PCR primers can bind (or "anneal") to their complementary target sequence on each strand of the template DNA. The final step called "extension" involves the addition of DNA building blocks (A, T, C and G deoxynucleotides) downstream of the binding location of the PCR primer by an enzyme called DNA polymerase. The extension step effectively adds DNA building blocks onto the end of the primer and creates a copy of the target sequence. The sequential process of denaturing, annealing and extension when repeated numerous times results in the exponential growth in the copy number of the of the targeted gene fragment until there is enough DNA mass to view by electrophoresis (described later in this section).

**Step 1: Extraction of Total Bacterial DNA From *Dehalococcoides* (DHC) & Other Organisms**

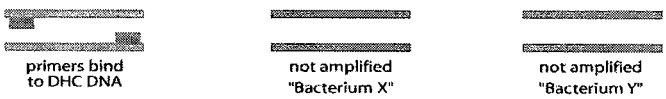



**Step 2: PCR Amplification of 16S rRNA Gene using *Dehalococcoides* Specific Primers**

**a) "Denaturation"** Heat Denature DNA at 95°C, strands separate




**b) "Annealing"** Reaction Cooled , Gene-Trac PCR Primers Specifically Bind only *Dehalococcoides* DNA, Other DNA Remains but not Amplified




**c) "Extension"** Warming reaction to 72°C allows DNA copying enzyme to extend new DNA strand from primer. DNA copy number doubled with each temperature cycle performed.

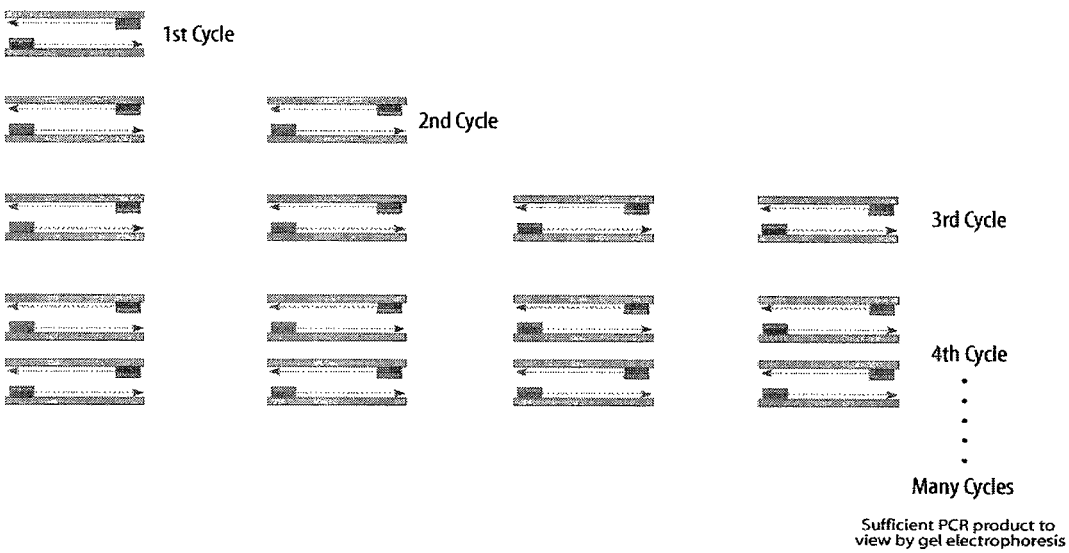



**Figure 1, Overview of the Gene-Trac *Dehalococcoides* –Specific PCR Process**

### 2b. Real-Time PCR for Quantitative Gene-Trac Analysis

Real-time PCR does not involve the use of gel electrophoresis (see below) but still makes use of the same principles of amplification as standard PCR. In real-time PCR amplification a fluorescent dye is activated during "extension" allowing "real-time" monitoring of the accumulation of the replicated DNA by the instrument. The number of cycles that are required to accumulate a certain amount or so-called "threshold" concentration of copied DNA is used to quantitatively determine the starting concentration of DNA. The lower the number of cycles required to surpass the threshold fluorescence value the greater the DNA copy number in the sample. The key aspect allowing real-time PCR to be quantitative is the ability to quantify the accumulation of product during the actual amplification process, while still in the linear range, instead of after the completion of the entire number of cycles as with standard semi-quantitative or "endpoint PCR" (Hristova *et al.*, 2001).

### 3. Gel Electrophoresis (for Standard Gene-Trac)

The presence of successfully amplified PCR target sequences is verified by gel-electrophoresis. The PCR products are transferred to a gel that is then subjected to a current of electricity (gel electrophoresis). The PCR products have a known base-pair size, and will migrate to a location based on its molecular size (as verified by an internal "ladder" of DNA of known size). If the PCR product is present it will form a visible band when exposed to ultraviolet light. Gel bands of expected size indicate a positive result for *Dehalococcoides*, whereas the absence of bands indicates that *Dehalococcoides* is not present. Gel bands representing positive Gene-Trac results for a number of samples are shown in Figure 2. "Sample A" represents a strong positive reaction, "Sample B" a negative reaction, and "Sample C" a weak positive with only one primer set (indicated by arrow. Note DNA size standards (far left and right), negative (-VE) controls exhibit no bands (top right), and positive (+VE) controls exhibit strong bands with three primer sets (top left right).

### 4. Issuance of Test Certificate

Upon completion of electrophoresis an electronic image of the gel is captured and used for assessment of the test results

In order for a Gene-Trac test to be valid the following conditions must be met:

1) negative control lanes for *Dehalococcoides* specific primers exhibit no visible bands; (or signal intensities in the case of Real-time) PCR
2) positive control lanes exhibit strong bands (above a defined intensity threshold) with all 3 *Dehalococcoides* specific primers;

- To declare a sample reaction positive at least one of the three *Dehalococcoides* specific primer sets must produce a PCR product of the expected size

- To declare a test negative all *Dehalococcoides* specific primer sets must produce no PCR product

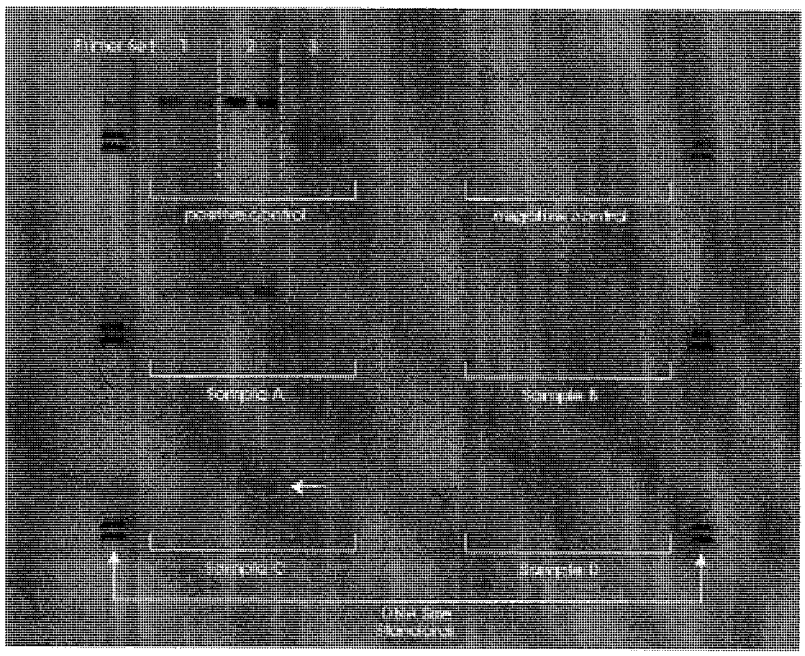


**Figure 2, DNA Gel Demonstrating Gene-Trac Test Results and Controls**

### Quantifying Standard Gene-Trac

The Intensity of bands is assessed relative to the intensity of corresponding positive control which consists of $10^5$ gene-copies using GeneTools™ software. Results are recorded as positive or negative and a band intensity score is assigned as a percentage of the positive control. For example, if the positive control reading were 3000 counts and a samples reading was 1500 counts the band intensity percentage would be recorded as 50% and the test given a score of "++" .

### Quantifying Real-Time Gene-Trac PCR

The number of PCR cycles required for a particular PCR to reach the threshold is compared to a standard curve of threshold values. From this standard curve the starting target concentration of DHC 16S rRNA gene copies is calculated. The result is reported as a number of DHC 16S Gene copy numbers/L of groundwater, which is then used to estimate the number of DHC organism per liter of groundwater.

Results of both standard and quantitative Gene-Trac are recorded on a Test Certificate for record keeping and communication of results to the client.

## Interpreting Gene-Trac Test Results

Please see our website www.siremlab.com under headings "Gene-Trac" "Detailed Information" "Interpretation of Gene-Trac Test Results" or our document "Interpretation of Gene-Trac *Dehalococcoides* Tests Results" for guidance on making the most effective use of Gene-Trac data.

## References

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SiREM
Site Recovery & Management

# SAMPLING AND SHIPPING PROTOCOL FOR GENE-TRAC *DEHALOCOCCOIDES* TESTING

**Sample Containers:**
Clean, new, wide-mouth screw cap 1-liter (L) high-density polyethylene (HDPE) bottles (e.g., Nalgene or equivalent) should be used for Gene-Trac samples. Pre-cleaned, 40-milliliter (mL) volatile organic analysis (VOA) vials should be used for "companion" volatile organic compound (VOC) samples. For your convenience, SiREM can ship appropriate containers to your location at cost. Please provide a minimum of three business days notice for this service.

**Sample Collection:**
Groundwater samples should not be collected until oxidation/reduction potential (ORP) measurements of the purged water stabilizes to within about 10% of the previous reading. Turbidity in the Gene-Trac samples is desirable as it increases the likelihood of capturing microorganisms. One 1L groundwater sample should be collected from each well for Gene-Trac analysis. Samples should be collected without headspace or preservatives. In addition, one 40 mL VOA vial (adjust pH to less than 2 with HCl as preservative) for each sample location can be included for companion VOC analysis.

**Quality Assurance/Quality Control (QA/QC):**
Gene-Trac testing is extremely sensitive, so care must be taken to prevent contamination of the samples with any foreign material, including groundwater from other sampling points. QA/QC samples consist of field blanks and equipment blanks (if non-dedicated equipment is used). A field blank is used to determine if sample contamination in the field or in transit has occurred. The field blank consists of 1L of commercially available distilled water (customer to provide) placed in a 1L sample bottle at one sampling location. Where non-dedicated sampling equipment is used, equipment should be thoroughly decontaminated between sampling locations using standard procedures for VOC analysis. An equipment blank should be prepared by passing distilled water through non-dedicated equipment after the cleaning process, to determine if decontamination procedures were effective.

**Sample Custody, Shipping and Handling:**
Samples should be clearly labeled and individually sealed in re-sealable freezer bags then placed in a plastic cooler with cool packs (not ice). Ship the samples priority overnight courier under chain-of-custody to SiREM for analysis. Label samples on waybill "groundwater samples to be destroyed upon analysis". **Samples from all locations should be given a nominal value of $1; otherwise a 15% duty will be applied to the stated value (to be paid by customer).** No special regulations apply to the shipping of groundwater samples to Canada. Holding time for Gene-Trac samples is 30 days at 4°C.

**Send Coolers to:**

**SiREM Laboratory**
**130 Research Lane, Suite 2**
**Guelph, Ontario**
**Canada, N1G 5G3**

**Direct Inquiries to:**

**Phil Dennis**
**Phone: 1-877-279-6832/519-822-2265 ext. 238**
**Fax: 519-822-3151**
**E-mail: pdennis@siremlab.com**

# APPENDIX C

## Field Data Sheets

Techs: Heather Tauscher
Trevor Darragh

Purity Oil
Fresno Ca.

Date: 01/28/20

| | Well ID | Casing Dia. (in) | Total Depth | Sample collection Point | Depth to Water | Date | Time | Comments |
|---|---|---|---|---|---|---|---|---|
| ✓ | MW-2D | 6 | 163.41 | 155.0 | 78.52 | 1/28/20 | 1528 | |
| ✓ | MW-9 | 4 | 80.98 | 71.0 | dry | 1/28/20 | 1255 | |
| ✓ | MW-11 | 5 | 88.21 | 73.0 | 80.39 | 1/28/20 | 1245 | SP/IP |
| ✓ | MW-13 | 4 | 84.60 | 70.0 | 80.17 | 1/28/20 | 1458 | |
| | ~~MW-20~~ | ~~4~~ | ~~78.08~~ | ~~68.0~~ | | | | Buried |
| ✓ | MW-21 | 4 | 82.25 | 70.0 | — | 1/28/20 | 1415 | Backfilled ✓ |
| ✓ | MW-23 | 4 | 112.98 | 105.0 | 81.91 | 1/28/20 | 1424 | |
| ✓ | MW-24I | 4 | 98.22 | 97.0 | 79.72 | 1/28/20 | 1407 | |
| ✓ | MW-25I | 4 | 103.17 | 102.0 | 83.92 | 1/28/20 | 1333 | |
| | ~~MW-26P~~ | ~~8~~ | ~~184.00~~ | ~~N/A~~ | | | | Broken pump |
| | ~~MW-28P~~ | ~~6~~ | ~~195.00~~ | ~~N/A~~ | | | | |
| | ~~MW-29P~~ | ~~6~~ | ~~N/A~~ | ~~N/A~~ | | | | |
| | ~~MW-31P~~ | ~~6~~ | ~~82.50~~ | ~~N/A~~ | | | | |
| | ~~MW-32P~~ | ~~6~~ | ~~195.00~~ | ~~N/A~~ | | | | Broken pump |
| | ~~MW-33P~~ | ~~6~~ | ~~N/A~~ | ~~N/A~~ | | | | |
| ✓ | MW-34I | 6 | 121.96 | 110.0 | 81.82 | 1/28/20 | 1347 | |
| ✓ | MW-34D | 6 | 170.22 | 160.0 | 81.79 | 1/28/20 | 1349 | |
| ✓ | MW-39 | 4 | 82.45 | 81.4 | dry | 1/28/20 | 1440 | no reading at 89' |
| ✓ | MW-40 | 4 | 82.41 | 81.4 | 78.99 | 1/28/20 | 1556 | |
| ✓ | MW-41 | 4 | 83.25 | 82.2 | 79.84 | 1/28/20 | 1552 | |
| ✓ | MW-42 | 4 | 74.07 | 73.0 | dry | 1/28/20 | 1615 | |
| ✓ | MW-43 | 4 | 75.15 | 74.0 | dry | 1/28/20 | 1622 | |
| ✓ | MW-44S | 4 | 75.85 | 74.8 | dry | 1/28/20 | 1225 | |
| ✓ | MW-44I | 4 | 110.07 | 109.0 | 79.74 | 1/28/20 | 1215 | |
| ✓ | MW-44D | 4 | 134.77 | 133.7 | 79.67 | 1/28/20 | 1220 | |
| ✓ | MW-45 | 4 | 76.00 | 75.0 | 75.23 | 1/28/20 | 1607 | |
| ✓ | MW-46 | 4 | 91.40 | 90.4 | dry | 1/28/20 | 1628 | |
| ✓ | MW-47 | 4 | 73.80 | 72.8 | 73.04 | 1/28/20 | 1305 | |
| ✓ | MW-48S | 4 | 90.72 | 89.7 | 90.12 | 1/28/20 | 1635 | |
| ✓ | MW-48I | 4 | 117.03 | 116.0 | 96.03 | 1/28/20 | 1638 | |
| ✓ | MW-48D | 4 | 137.57 | 136.5 | 96.21 | 1/28/20 | 1632 | |
| ✓ | MW-49 | 4 | 75.17 | 74.1 | dry | 1/28/20 | 1643 | |
| ✓ | MW-50 | 4 | 82.90 | | 82.72 | 1/28/20 | 165 | |
| ✓ | MW-51 | 4 | 81.96 | | 81.29 | 1/28/20 | 1320 | |
| ✓ | MW-52 | 4 | 83.20 | | 81.73 | 1/28/20 | 1330 | |
| ✓ | MW-53 | 4 | 85.18 | | 83.52 | 1/28/20 | 1433 | |
| ✓ | MW-54 | 4 | 77.28 | | dry | 1/28/20 | 1534 | |
| ✓ | PT3A | 2 | | | dry | 1/28/20 | 1240 | 67.25 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 30006271
SAMPLER: HT-TD
CLIENT NAME: Chevron

WELL ID: MW-51
SAMPLE ID:
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH:

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:

CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 81.96
DEPTH TO WATER (feet): 81.29
STANDING WATER IN CASING (feet):

CALCULATED PURGE (gal):
ACTUAL PURGE VOL. (gal):

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [X]

DATE PURGED: 01/29/20
DATE SAMPLED:

START (2400 Hr):
END (2400 Hr):
TIME (2400 Hr):
WATER LEVEL AT SAMPLE:

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)
Good

PURGING METHOD

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

SAMPLING METHOD

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

REMARKS:

LOCK #:

REVIEWED BY: DATE:

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Insufficient water for purge considered dry | | | | | | | | | | |

Mn (mg/L)

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 360006271
SAMPLER: HT-TD
CLIENT NAME: Chevron
WELL ID: MW-50
SAMPLE ID:
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH:

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:
CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 82.90
DEPTH TO WATER (feet): (DRY) 82.72
STANDING WATER IN CASING (feet):
CALCULATED PURGE (gal):
ACTUAL PURGE VOL. (gal):

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [X]

DATE PURGED: 01/29/20
DATE SAMPLED:
START (2400 Hr):
END (2400 Hr):
TIME (2400 Hr):
WATER LEVEL AT SAMPLE:

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)
Good

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

PURGING METHOD

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

SAMPLING METHOD

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

REMARKS:

LOCK #:

REVIEWED BY: DATE:

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Mn (mg/L)

Constant DTW, insufficient H2O for purge

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 30006271
SAMPLER: HT-TD
CLIENT NAME: Chevron
WELL ID: MW-21
SAMPLE ID:
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH:

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:

CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? Y N

DEPTH OF WELL (feet):
DEPTH TO WATER (feet):
STANDING WATER IN CASING (feet):
CALCULATED PURGE (gal):
ACTUAL PURGE VOL. (gal):

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [ ]

DATE PURGED:
START (2400 Hr):
END (2400 Hr):
DATE SAMPLED:
TIME (2400 Hr):
WATER LEVEL AT SAMPLE:

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)

PURGING METHOD

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

SAMPLING METHOD

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

REMARKS:

LOCK #:

REVIEWED BY: DATE:

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Mn (mg/L)

Backfilled borehole with cement to surface level. Water level passed 4 feet.

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 30006271
SAMPLER: HT-TD
CLIENT NAME: Chevron

WELL ID: MW-54
SAMPLE ID:
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH:

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:

CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 77.28
DEPTH TO WATER (feet): DRY
STANDING WATER IN CASING (feet):

CALCULATED PURGE (gal):
ACTUAL PURGE VOL. (gal):

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [X]

DATE PURGED: 01/29/20
DATE SAMPLED:

START (2400 Hr):
END (2400 Hr):
TIME (2400 Hr):
WATER LEVEL AT SAMPLE:

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)

REMARKS:

LOCK #:

REVIEWED BY: DATE:

**PURGING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

**SAMPLING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | DRY | | | | | | | | | | |

Mn (mg/L)

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 30006271
SAMPLER: HT - TD
CLIENT NAME: Chevron

WELL ID: MW-49
SAMPLE ID:
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH:

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:

CASING DIAMETER (inches): 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 75.17
DEPTH TO WATER (feet): DRY
STANDING WATER IN CASING (feet):

CALCULATED PURGE (gal):
ACTUAL PURGE VOL. (gal):

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [X]

DATE PURGED: 01/29/20
DATE SAMPLED:

START (2400 Hr):
END (2400 Hr):
TIME (2400 Hr):
WATER LEVEL AT SAMPLE:

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)
good

REMARKS:

LOCK #:

REVIEWED BY: DATE:

**PURGING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

**SAMPLING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) | Mn (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | DRY | | | | | | | | | | |

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 30006271
SAMPLER: HT - TD
CLIENT NAME: Chevron

WELL ID: MW-485
SAMPLE ID:
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH:

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:

CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 90.72
DEPTH TO WATER (feet): 90.12
STANDING WATER IN CASING (feet):

CALCULATED PURGE (gal):
ACTUAL PURGE VOL. (gal):

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [X]

DATE PURGED: 01/29/20 START (2400 Hr): END (2400 Hr):
DATE SAMPLED: TIME (2400 Hr): WATER LEVEL AT SAMPLE:
QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)
Good

PURGING METHOD

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

SAMPLING METHOD

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

REMARKS:

LOCK #:

REVIEWED BY: DATE:

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Insufficient water Considered dry

Mn (mg/L)

GW sample field data sheet

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 30006271
SAMPLER: HT-TD
CLIENT NAME: Chevron

WELL ID: MW-47
SAMPLE ID:
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH:

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:

CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 73.80
DEPTH TO WATER (feet): 73.04
STANDING WATER IN CASING (feet):

CALCULATED PURGE (gal):
ACTUAL PURGE VOL. (gal):

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [X]

DATE PURGED: 01/29/20
START (2400 Hr):
END (2400 Hr):
DATE SAMPLED:
TIME (2400 Hr):
WATER LEVEL AT SAMPLE:

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)
Good

PURGING METHOD

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

SAMPLING METHOD

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

REMARKS:

LOCK #:

REVIEWED BY: DATE:

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Mn (mg/L) |

Well is considered dry insufficient $H_2O$

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 30006271
SAMPLER: HT-TD
CLIENT NAME: Chevron

WELL ID: MW-42
SAMPLE ID:
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH:

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:

CASING DIAMETER (inches): 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? Y N

DEPTH OF WELL (feet): 74.07
DEPTH TO WATER (feet): DRY
STANDING WATER IN CASING (feet):

CALCULATED PURGE (gal):
ACTUAL PURGE VOL. (gal):

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [X]

DATE PURGED: 01/29/20
DATE SAMPLED:

START (2400 Hr):
END (2400 Hr):
TIME (2400 Hr):
WATER LEVEL AT SAMPLE:

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)
Good

PURGING METHOD

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

SAMPLING METHOD

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

REMARKS:

LOCK #:

REVIEWED BY: DATE:

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | DRY | | | | | | | | | | |

Mn (mg/L)

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 300006271
SAMPLER: HH - TD
CLIENT NAME: Chevron
WELL ID: PT-3A
SAMPLE ID:
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH:

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:
CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): ~ 75'
DEPTH TO WATER (feet): DRY
STANDING WATER IN CASING (feet):
CALCULATED PURGE (gal):
ACTUAL PURGE VOL. (gal):

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [X]

DATE PURGED: 01/29/20
DATE SAMPLED:
START (2400 Hr):
END (2400 Hr):
TIME (2400 Hr):
WATER LEVEL AT SAMPLE:

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)

REMARKS:

LOCK #:

REVIEWED BY: DATE:

**PURGING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

**SAMPLING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

**FIELD MEASUREMENTS**

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | DRY | | | | | | | | | | |

Mn (mg/L)

Water level below pump intake - Insufficient amount of H20

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 30006271
SAMPLER: HT - TD
CLIENT NAME: Chevron
WELL ID: MW-53
SAMPLE ID:
LOCATION: Malaga, California
SCREEN INTERVAL:
SAMPLE INTAKE DEPTH:

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:
CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:
WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 85.18
DEPTH TO WATER (feet): 83.52
STANDING WATER IN CASING (feet):
CALCULATED PURGE (gal):
ACTUAL PURGE VOL. (gal):
WATER LEVEL ONLY, NO SAMPLE COLLECTED: [X]

DATE PURGED: 01/29/20
DATE SAMPLED:
START (2400 Hr):
END (2400 Hr):
TIME (2400 Hr):
WATER LEVEL AT SAMPLE:
QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)
Good

PURGING METHOD
- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

SAMPLING METHOD
- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

REMARKS:
LOCK #:
REVIEWED BY: DATE:

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Constant | | | | | | | | | |
| | | | | | | | | | | | | Mn (mg/L) |

Insufficient Water

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 300060271
SAMPLER: HT-TD
CLIENT NAME: Chevron

WELL ID: MW-52
SAMPLE ID:
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH:

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:

CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 83.20
DEPTH TO WATER (feet): 81.73
STANDING WATER IN CASING (feet):

CALCULATED PURGE (gal):
ACTUAL PURGE VOL. (gal):

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [X]

DATE PURGED: 01/29/20
START (2400 Hr):
END (2400 Hr):

DATE SAMPLED:
TIME (2400 Hr):
WATER LEVEL AT SAMPLE:

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)
Good

REMARKS:

LOCK #:

REVIEWED BY: DATE:

PURGING METHOD

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

SAMPLING METHOD

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

Insufficient H2O for purge

Mn (mg/L)

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 30006271
SAMPLER: HT - TD
CLIENT NAME: Chevron

WELL ID: MW-46
SAMPLE ID:
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH:

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:

CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 91.40
DEPTH TO WATER (feet): DRY
STANDING WATER IN CASING (feet):

CALCULATED PURGE (gal):
ACTUAL PURGE VOL. (gal):

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [X]

DATE PURGED: 01/29/20
START (2400 Hr):
END (2400 Hr):

DATE SAMPLED:
TIME (2400 Hr):
WATER LEVEL AT SAMPLE:

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)
Good

REMARKS:

LOCK #:

REVIEWED BY: DATE:

**PURGING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

**SAMPLING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

**FIELD MEASUREMENTS**

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | DRY | | | | | | | | | | |

Mn (mg/L)

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 30006271
SAMPLER: HT - TD
CLIENT NAME: Chevron

WELL ID: MW-445
SAMPLE ID:
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH:

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:

CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 75.85
DEPTH TO WATER (feet): DRY
STANDING WATER IN CASING (feet):

CALCULATED PURGE (gal):
ACTUAL PURGE VOL. (gal):

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [X]

DATE PURGED: 01/29/20
DATE SAMPLED:

START (2400 Hr):
END (2400 Hr):
TIME (2400 Hr):
WATER LEVEL AT SAMPLE:

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)
Good

REMARKS:

LOCK #:

REVIEWED BY: DATE:

**PURGING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

**SAMPLING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

**FIELD MEASUREMENTS**

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) | Mn (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | DRY | | | | | | | | | | | |

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 300627.1
SAMPLER: HK-TD
CLIENT NAME: Chevron

WELL ID: MW-43
SAMPLE ID:
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH:

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:

CASING DIAMETER (inches): 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 75.15
DEPTH TO WATER (feet): DRY
STANDING WATER IN CASING (feet):

CALCULATED PURGE (gal):
ACTUAL PURGE VOL. (gal):

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [X]

DATE PURGED: 01/29/20
START (2400 Hr):
END (2400 Hr):

DATE SAMPLED:
TIME (2400 Hr):
WATER LEVEL AT SAMPLE:

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)
Good

REMARKS:

LOCK #:

REVIEWED BY: DATE:

PURGING METHOD

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

SAMPLING METHOD

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) | Mn (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | DRY | | | | | | | | | | |

Insufficient water

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 30006271
SAMPLER: HT-TD
CLIENT NAME: Chevron

WELL ID: MW-45
SAMPLE ID:
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH:

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:

CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 76.00
DEPTH TO WATER (feet): 75.23
STANDING WATER IN CASING (feet):

CALCULATED PURGE (gal):
ACTUAL PURGE VOL. (gal):

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [X]

DATE PURGED: 01/29/20
START (2400 Hr):
END (2400 Hr):

DATE SAMPLED:
TIME (2400 Hr):
WATER LEVEL AT SAMPLE:

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)
Good

REMARKS:

LOCK #:

REVIEWED BY: DATE:

**PURGING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

**SAMPLING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Insufficient amount H2O | | | of | to purge | | | | | | | |

Mn (mg/L)

Considered Dry

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 300062.71
SAMPLER: HT - TD
CLIENT NAME: Chevron

WELL ID: MW-13
SAMPLE ID:
LOCATION: Malaga, California

SCREEN INTERVAL: 54.6-84.0
SAMPLE INTAKE DEPTH: 70.10

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:

CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 84.60
DEPTH TO WATER (feet): 80.17
STANDING WATER IN CASING (feet):

CALCULATED PURGE (gal):
ACTUAL PURGE VOL. (gal):
Pump set @ 70.0'

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [X]

DATE PURGED:
START (2400 Hr):
END (2400 Hr):

DATE SAMPLED:
TIME (2400 Hr):
WATER LEVEL AT SAMPLE:

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)
good

REMARKS:

LOCK #:

REVIEWED BY: DATE:

**PURGING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

**SAMPLING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

**FIELD MEASUREMENTS**

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) | Mn (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Pump above water level | | | | | | | | | | | |

Considered Dry

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 30006271
SAMPLER: HT - TD
CLIENT NAME: Chevron

WELL ID: MW-11SP
SAMPLE ID:
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH:

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:

CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet):
DEPTH TO WATER (feet): 80.39
STANDING WATER IN CASING (feet):

CALCULATED PURGE (gal):
ACTUAL PURGE VOL. (gal):

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [X]

DATE PURGED: 01/29/20 START (2400 Hr): END (2400 Hr):
DATE SAMPLED: TIME (2400 Hr): WATER LEVEL AT SAMPLE:

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)
Good

**PURGING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

**SAMPLING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

REMARKS:

LOCK #:

REVIEWED BY: DATE:

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pump above water level | | | | | | | | | | | |
| | | | | | | | | | | | | Mn (mg/L) |

GW sample field data sheet

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 30006271
SAMPLER: HT-TD
CLIENT NAME: Chevron

WELL ID: MW-9
SAMPLE ID:
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH:

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:

CASING DIAMETER (inches): 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 80.98
DEPTH TO WATER (feet): DRY
STANDING WATER IN CASING (feet):

CALCULATED PURGE (gal):
ACTUAL PURGE VOL. (gal):

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [ ]

DATE PURGED: 01/29/20
START (2400 Hr):
END (2400 Hr):

DATE SAMPLED:
TIME (2400 Hr):
WATER LEVEL AT SAMPLE:

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

WELL CONDITION (cap, cement, padlock, screws, lid, etc.): Good

REMARKS:

LOCK #:

REVIEWED BY: DATE:

**PURGING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

**SAMPLING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) | Mn (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | DRY | | | | | | | | | | |

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 3006 ~~6241~~ 4761
SAMPLER: HT / TD
CLIENT NAME: Chevron

WELL ID: MW-23
SAMPLE ID: MW-23
LOCATION: Malaga, California

SCREEN INTERVAL: 99.6-115.0
SAMPLE INTAKE DEPTH: 105.0

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:
CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 112.98
DEPTH TO WATER (feet): 81.91
STANDING WATER IN CASING (feet): NO

CALCULATED PURGE (gal): MIS
ACTUAL PURGE VOL. (gal): MIS 5100

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [ ]

DATE PURGED: 01/30/20
DATE SAMPLED: 01/30/20

START (2400 Hr): 1040
END (2400 Hr): 1113
TIME (2400 Hr): 1101
WATER LEVEL AT SAMPLE: 82.05

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)
okay

PURGING METHOD

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

SAMPLING METHOD

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

REMARKS:

LOCK #:

REVIEWED BY: DATE:

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1043 | flow all | 300 | 81.95 | 24.4 | 0.470 | 6.26 | 192.3 | 2.95 | 4.65 | clear | none | X |
| 1047 | 1700 | 300 | 82.03 | 22.2 | 0.465 | 6.90 | 132.4 | 3.01 | 3.88 | clear | none | |
| 1051 | 3900 | 300 | 82.05 | 22.0 | 0.460 | 7.07 | 111.4 | 4.35 | 3.19 | clear | none | |
| 1055 | 5100 | 300 | 82.05 | 21.9 | 0.458 | 7.07 | 109.9 | 3.80 | 3.52 | clear | none | |
| | | | | | sampling | | | | | | | |

Mn (mg/L) X

Sample time = 1101

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 300047611
SAMPLER: HJ / TD
CLIENT NAME: Chevron

WELL ID: MW-24I
SAMPLE ID: MW-24I
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH: 97.0

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:
CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 98.22
DEPTH TO WATER (feet): 79.72
STANDING WATER IN CASING (feet): ND

CALCULATED PURGE (gal): 4"
ACTUAL PURGE VOL. (gal): 3800

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [ ]

DATE PURGED: 01/30/20
DATE SAMPLED: 01/30/20

START (2400 Hr): 0900
TIME (2400 Hr): 0949
END (2400 Hr): 1002
WATER LEVEL AT SAMPLE:

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD) NO

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)
Okay

REMARKS: VOC's, Metals, MNA

LOCK #:
REVIEWED BY: DATE:

PURGING METHOD

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

SAMPLING METHOD

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0930 | Flow Cell | 275 | 79.92 | 20.6 | 0.74 | 7.18 | 172.2 | 22.9 | 7.92 | clear | none | / |
| 0934 | 1600 | 275 | 79.92 | 21.0 | 0.73 | 7.24 | 90.2 | 10.1 | 4.09 | clear | none | |
| 0938 | 2700 | 275 | 79.92 | 21.0 | 0.73 | 7.22 | 88.1 | 9.91 | 3.96 | clear | none | |
| 0942 | 3800 | 275 | 79.92 | 21.1 | 0.72 | 7.16 | 90.5 | 0.58 | 4.04 | clear | none | |
| | | | | Sampling | | | | | | | | Mn (mg/L) |
| | | | | | | | | | | | | / |

GW sample field data sheet

Sample time - 0949

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 300047761
SAMPLER: Heather Taussher/Trevor Darragh
CLIENT NAME: Chevron
WELL ID: MW-34I
SAMPLE ID: MW-34I
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH: 110.0

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:
CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 121.96
DEPTH TO WATER (feet): 81.92
STANDING WATER IN CASING (feet): NO

CALCULATED PURGE ~~(gal)~~ M/S: Minimum 2000
ACTUAL PURGE VOL. ~~(gal)~~ M/S: 3500 M/S

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [ ]

DATE PURGED: 01/30/20
DATE SAMPLED: 01/30/20
START (2400 Hr): 1121
TIME (2400 Hr): 1147
END (2400 Hr): 1155
WATER LEVEL AT SAMPLE: 81.92

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)
Okay

REMARKS: VOC's

LOCK #:
REVIEWED BY: DATE:

PURGING METHOD
- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

SAMPLING METHOD
- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1127 | Flow cell | 350 | 81.92 | 22.4 | 0.87 | 7.73 | 150.2 | 9.86 | 4.91 | clear | none | X |
| 1131 | 1700 | 350 | 81.92 | 21.8 | 1.09 | 7.35 | 109.3 | 2.49 | 3.16 | clear | none | |
| 1135 | 2300 | 350 | 81.92 | 21.7 | 1.09 | 7.40 | 99.2 | 1.65 | 2.03 | clear | none | |
| 1139 | 2900 | 350 | 81.92 | 21.7 | 1.08 | 7.37 | 89.7 | 2.02 | 3.22 | clear | none | |
| 1143 | 3500 | 350 | 81.92 | 21.6 | 1.08 | 7.39 | 79.9 | 1.98 | 3.03 | clear | none | |

Mn ~~(mg/L)~~

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 30004761
SAMPLER: HT/TD
CLIENT NAME: Chevron

WELL ID: MW-25I
SAMPLE ID: MW-25I
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH:

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:
CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 103.17
DEPTH TO WATER (feet): 83.92
STANDING WATER IN CASING (feet): ND

CALCULATED PURGE (gal): 4"
ACTUAL PURGE VOL. (gal): 2900

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [ ]

DATE PURGED: 01/30/20
DATE SAMPLED: 01/30/20

START (2400 Hr): 1200
TIME (2400 Hr): 1239
END (2400 Hr): 1305
WATER LEVEL AT SAMPLE: 83.97

WELL CONDITION (cap, cement, padlock, screws, lid, etc.): OKay

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

REMARKS: VOC's, Metals, MNA

LOCK #:

REVIEWED BY: DATE:

PURGING METHOD

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

SAMPLING METHOD

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1215 | Flow cell | 350 | 83.97 | 20.2 | 0.426 | 7.80 | 113.3 | 10.61 | 5.23 | clear | none | X |
| 1219 | 1700 | 350 | 83.97 | 20.4 | 0.424 | 7.77 | 94.0 | 9.27 | 3.91 | clear | none | |
| 1223 | 2300 | 350 | 83.97 | 20.5 | 0.420 | 7.73 | 89.1 | 9.59 | 3.38 | clear | none | |
| 1227 | 2900 | 350 | 83.97 | 20.5 | 0.419 | 7.64 | 79.7 | 9.89 | 3.15 | clear | none | |
| | | | | Sampling | | | | | | | | |

Mn (mg/L): X

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 300047.61 | WELL ID: MW-44I | SCREEN INTERVAL:

SAMPLER: HT / TD | SAMPLE ID: MW-44I | SAMPLE INTAKE DEPTH:

CLIENT NAME: Chevron | LOCATION: Malaga, California

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:

CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 110.07

DEPTH TO WATER (feet): 79.71

STANDING WATER IN CASING (feet): NO

CALCULATED PURGE ~~(gal)~~ M/S: 2000 minimum

ACTUAL PURGE VOL. ~~(gal)~~: 4100

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [ ]

DATE PURGED: 01/30/20 | START (2400 Hr): 1341 | END (2400 Hr): 1425

DATE SAMPLED: 01/30/20 | TIME (2400 Hr): 1411 | WATER LEVEL AT SAMPLE: 79.84

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD) DUP1 Sample time = 1419

WELL CONDITION (cap, cement, padlock, screws, lid, etc.): good

REMARKS:

LOCK #:

REVIEWED BY: DATE:

**PURGING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

**SAMPLING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

**FIELD MEASUREMENTS**

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1351 | Flow cell | 300 | 79.84 | 22.6 | 0.250 | 7.76 | 75.8 | 5.36 | 3.73 | Clear | None | X |
| 1355 | 1700 | 300 | 79.84 | 22.9 | 0.220 | 7.72 | 54.5 | 2.59 | 4.81 | Clear | none | |
| 1359 | 2900 | 300 | 79.84 | 22.9 | 0.214 | 7.69 | 50.7 | 2.52 | 4.49 | Clear | none | |
| 1403 | 4100 | 300 | 79.84 | 22.8 | 0.203 | 7.67 | 49.2 | 3.11 | 4.35 | Clear | none | |
| | | | | | | | Sampling | | | | | |

Mn (mg/L): X

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 30004761
SAMPLER: HT / TD
CLIENT NAME: Chevron
WELL ID: MW-44D
SAMPLE ID: MW-44D
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH: 133.7

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:
CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 134.77
DEPTH TO WATER (feet): 79.67
STANDING WATER IN CASING (feet): ND

CALCULATED PURGE ~~(gal)~~: 4"
ACTUAL PURGE VOL. ~~(gal)~~: 5300 mls

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [ ]

DATE PURGED: 01/30/20
START (2400 Hr): 1429
END (2400 Hr): 1505
DATE SAMPLED: 01/30/20
TIME (2400 Hr): 1457
WATER LEVEL AT SAMPLE: 79.71

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD) N/A

WELL CONDITION (cap, cement, padlock, screws, lid, etc.) Okay

PURGING METHOD

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

SAMPLING METHOD

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

REMARKS:

LOCK #:

REVIEWED BY: DATE:

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1433 | Flow cell | 300 | 79.71 | 23.2 | 0.243 | 8.07 | 86.8 | 9.91 | 5.59 | clear | none | |
| 1437 | 1700 | 300 | 79.71 | 23.1 | 0.248 | 8.12 | 42.2 | 4.90 | 5.77 | clear | none | |
| 1441 | 2900 | 300 | 79.71 | 22.8 | 0.238 | 8.19 | 47.9 | 3.33 | 116 | cloudy | none | |
| 1445 | 4100 | 300 | 79.71 | 22.8 | 0.236 | 8.19 | 42.6 | 3.62 | 115 | clear | none | |
| 1449 | 5300 | 300 | 79.71 | 22.8 | 0.232 | 8.19 | 39.4 | 3.74 | 111 | cloudy | none | |
| ~~1453~~ | | ~~300~~ | sampling | | | | | | | | | |

Mn (mg/L)

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 300047611
SAMPLER: HT/TD
CLIENT NAME: Chevron

WELL ID: MW-11IP
SAMPLE ID: MW-11IP
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH:

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:
CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 88.21
DEPTH TO WATER (feet): 80.39
STANDING WATER IN CASING (feet): NO

CALCULATED PURGE ~~(gal)~~ M/S: 2000 Minimum
ACTUAL PURGE VOL. ~~(gal)~~ M/S: 4100 M/S

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [ ]

DATE PURGED: 01/30/20
START (2400 Hr): 1507
END (2400 Hr): 1531
DATE SAMPLED: 01/30/20
TIME (2400 Hr): 1525
WATER LEVEL AT SAMPLE:

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD) NO

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)
Okay

PURGING METHOD

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

SAMPLING METHOD

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

REMARKS: VOC's, metals, MNA

LOCK #:

REVIEWED BY: DATE:

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1509 | Flow cell | 300 | 80.44 | 21.3 | 0.417 | 7.87 | 76.6 | 8.75 | 7.94 | clear | none | X |
| 1513 | 1700 | 300 | 80.44 | 21.4 | 0.521 | 7.69 | 72.5 | 7.13 | 3.91 | clear | none | |
| 1517 | 2900 | 300 | 80.44 | 21.4 | 0.540 | 7.64 | 69.6 | 7.27 | 3.48 | clear | none | |
| 1521 | 4100 | 300 | 80.44 | 21.5 | 0.540 | 7.59 | 67.6 | 6.99 | 3.25 | clear | none | |
| | | | | | | | | | | | | Mn (mg/L) |
| | | | | | | | | | | | | X |

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 30004761
SAMPLER: HT / TD
CLIENT NAME: Chevron

WELL ID: MW-2D
SAMPLE ID: MW-2D
LOCATION: Malaga, California

SCREEN INTERVAL: ~~155.0~~ (N/A)
SAMPLE INTAKE DEPTH: 155.0

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:
CASING DIAMETER (inches): 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? Y N

DEPTH OF WELL (feet): 163.41
DEPTH TO WATER (feet): 78.52
STANDING WATER IN CASING (feet):

CALCULATED PURGE (gal): 6"
ACTUAL PURGE VOL. (gal): M/S 5300 M/S

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [ ]

DATE PURGED: 01/30/20
DATE SAMPLED: 01/30/20

START (2400 Hr): 1544
TIME (2400 Hr): 1609
END (2400 Hr): 1615
WATER LEVEL AT SAMPLE: 78.61

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD): NO

WELL CONDITION (cap, cement, padlock, screws, lid, etc.): Okay

REMARKS: Metals, MNA

LOCK #:

REVIEWED BY: DATE:

PURGING METHOD

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

SAMPLING METHOD

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1545 | Flow cell | 300 | 78.61 | 21.3 | 0.181 | 7.55 | 115.6 | 7.88 | 4.74 | clear | none | X |
| 1549 | 1700 | 300 | 78.61 | 20.2 | 0.180 | 7.93 | 81.2 | 1.84 | 5.09 | clear | none | |
| 1553 | 2900 | 300 | 78.61 | 19.9 | 0.179 | 8.01 | 61.7 | 0.80 | 6.35 | clear | none | |
| 1557 | 4100 | 300 | 78.61 | 19.8 | 0.179 | 8.02 | 58.0 | 1.16 | 5.42 | clear | none | |
| 1601 | 5300 | 300 | 78.61 | 19.8 | 0.179 | 8.02 | 54.8 | 0.77 | 5.03 | clear | none | |
| | | | | | | Sampling | | | | | | Mn (mg/L) |
| | | | | | | | | | | | | X |

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 3000476l
SAMPLER: HT/TD
CLIENT NAME: Chevron

WELL ID: MW-48D
SAMPLE ID: MW-48D
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH: 136.5

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:

CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? Y N

DEPTH OF WELL (feet): 137.57
DEPTH TO WATER (feet): 96.21
STANDING WATER IN CASING (feet): NO

CALCULATED PURGE (gal): MLS 411
ACTUAL PURGE VOL. (gal): MLS 6500 MLS

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [ ]

DATE PURGED: 01/30/20
DATE SAMPLED: 01/30/20

START (2400 Hr): 1619
END (2400 Hr): 1704
TIME (2400 Hr): ~~1650~~ (6TH) 1651
WATER LEVEL AT SAMPLE: 96.27

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD) MS/MSD

WELL CONDITION (cap, cement, padlock, screws, lid, etc.)

REMARKS: VOC's, Metals, MNA

LOCK #:

REVIEWED BY: DATE:

**PURGING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

**SAMPLING METHOD**

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1621 | Flow cell | 300 | 96.27 | 21.6 | 0.297 | 8.08 | 122.5 | 10.21 | 25.3 | cloudy | none | |
| 1625 | 1200 | 300 | 96.27 | 21.7 | 0.301 | 7.95 | 90.9 | 6.14 | 30.1 | cloudy | none | |
| 1629 | 2900 | 300 | 96.27 | 21.6 | 0.320 | 7.85 | 52.0 | 3.02 | 15.8 | clear | none | |
| 1633 | 4100 | 300 | 96.27 | 21.5 | 0.330 | 7.83 | 26.1 | 1.75 | 16.1 | clear | none | |
| 1637 | 5300 | 300 | 96.27 | 21.5 | 0.329 | 7.84 | 19.3 | 1.57 | 18.2 | clear | none | |
| 1641 | 6500 | 300 | 96.27 | 21.2 | 0.329 | 7.85 | 15.7 | 1.39 | 20.10 | clear | none | |
| | | | | | sampling | | | | | | | |
| | | | | | | | | | | | | Mn (mg/L) |

# PURITY OIL GROUNDWATER SAMPLE FIELD DATA SHEET

PROJECT NO: 300047601
SAMPLER: HT / TD
CLIENT NAME: Chevron

WELL ID: MW-48I
SAMPLE ID: MW-48I
LOCATION: Malaga, California

SCREEN INTERVAL:
SAMPLE INTAKE DEPTH: 116.0

WELL TYPE: Monitor [X] Production [ ] Extraction [ ] Other:
CASING DIAMETER (inches) 2 [ ] 4 [X] 5 [ ] 6 [ ] 8 [ ] Other:

WELLHEAD SECURED UPON DEPARTURE? (Y) N

DEPTH OF WELL (feet): 117.03
DEPTH TO WATER (feet): 96.03
STANDING WATER IN CASING (feet): NO

CALCULATED PURGE (gal): M/S 4"
ACTUAL PURGE VOL. (gal): M/S 4100 M/S

WATER LEVEL ONLY, NO SAMPLE COLLECTED: [ ]

DATE PURGED: 01/30/20
DATE SAMPLED: 01/30/20

START (2400 Hr): 1705
TIME (2400 Hr): 1727
END (2400 Hr): 1739
WATER LEVEL AT SAMPLE: AM 96.13

WELL CONDITION (cap, cement, padlock, screws, lid, etc.): clear

QA SAMPLES COLLECTED AT THIS WELL (e.g.: FD, EB, MS/MSD)

PURGING METHOD

- [ ] 2" Grundfos Pump
- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other: Pump is continuously run.
- [ ] Bailer (Teflon)
- [ ] Bailer (PVC)
- [ ] Bailer (Stainless Steel)
- [ ] Dedicated Pump

SAMPLING METHOD

- [ ] 2" Grundfos Pump
- [ ] Dedicated Pump
- [ ] Submersible Pump
- [X] Micro-Purge Bladder Pump
- [ ] Other:
- [ ] Disposable Bailer
- [ ] Bailer (Stainless Steel)
- [X] Sample Port

REMARKS:

LOCK #:

REVIEWED BY: DATE:

## FIELD MEASUREMENTS

| Time (hours) | Volume (ml) | Flow Rate (ml/min) | DTW (ft btoc) | Temp (celcius) | Sp. Cond. (mS/cm) | pH | ORP (mV) | DO (mg/L) | Turbidity (NTU) | Color (visual) | Odor: | $Fe^{2+}$ (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1707 | Flow Cell | 300 | 96.13 | 21.3 | ~~1.27~~ 0.369 | 8.14 | 96.2 | 10.64 | 5.60 | clear | none | |
| 1711 | 1700 | 300 | 96.13 | 21.5 | 0.378 | 8.14 | 68.5 | 6.95 | 3.46 | clear | none | |
| 1715 | 2900 | 300 | 96.13 | 21.4 | 0.398 | 8.06 | 60.7 | 5.62 | 3.62 | clear | none | |
| 1719 | 4100 | 300 | 96.13 | 21.3 | 0.409 | 7.99 | 52.9 | 4.43 | 3.41 | clear | none | |
| | | | | | | | | | | | | Mn (mg/L) |

# Chevron Generic Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

Acct. # _____ For Eurofins Lancaster Laboratories Environmental use only Group # _____ Sample # _____ 1182

SCR #: _____

## Client Information

Facility # Purity Oil WBS

Site Address 3281 South Maple Avenue Fresno CA

Chevron PM Nate Bloomgren Lead Consultant ARCADIS

Consultant/Office ARCADIS 3109 W. Dr. Martin Luther King Rd. Tampa Florida 33607

Consultant Project Mgr. Sam Miles

Sampler Heather Tauscher / Trevor Darragh

State where samples were collected: California

For Compliance: Yes ☒ No ☐

## Matrix

Sediment ☐ Ground ☒ Surface ☐

Soil ☐ Potable ☐ NPDES ☐ Water ☐ Air ☐ Oil ☐

## Analyses Requested

Preservation and Filtration Codes

Preservation Codes: H = HCl; T = Thiosulfate; N = $HNO_3$; B = NaOH; S = $H_2SO_4$; P = $H_3PO_4$; F = Field Filtered; O = Other

☐ Results in Dry Weight

☐ J value reporting needed

☐ Must meet lowest detection limits possible for 8260 compounds

| Sample Identification | Collected Date | Collected Time | Grab | Composite | Total Number of Containers | BTEX + MTBE 8021 ☐ 8260 ☐ Naphth ☐ | 8260 full scan | Oxygenates ____ | TPH-GRO 8015 ☐ 8260 ☐ | TPH-DRO without Silica Gel Cleanup ☐ | TPH-DRO with Silica Gel Cleanup ☐ | VPH ☐ EPH ☐ Method ____ | Lead Total ☐ Diss. ☐ Method ____ | Arsenic 6020 / Field Filtered 6010 (Filtered) | Fe + Mn 6010 (Filtered) | Methane | MNA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-24I | 01/30/20 | 0949 | X | | 12 | | X | | | | | | | X | X | | X |
| MW-23 | 01/30/20 | 1101 | X | | 12 | | X | | | | | | | X | X | | X |
| MW-34I | 01/30/20 | 1147 | X | | 3 | | X | | | | | | | X | X | | |
| MW-25I | 01/30/20 | 1239 | X | | 12 | | X | | | | | | | X | X | | X |
| MW-44I | 01/30/20 | 1411 | X | | 12 | | X | | | | | | | X | X | | X |
| DUP1 | 01/30/20 | 1419 | X | | 12 | | X | | | | | | | X | X | | X |
| MW-44D | 01/30/20 | 1457 | X | | 12 | | X | | | | | | | X | X | | X |
| MW-11IP | 01/30/20 | 1525 | X | | 12 | | X | | | | | | | X | X | | X |
| MW-2D | 01/30/20 | 1609 | X | | 9 | | | | | | | | | X | X | | X |
| MW-48D | 01/30/20 | 1651 | X | | 36 | | X | | | | | | | X | X | | X |

## Remarks

MS/MSD

**Turnaround Time Requested (TAT)** (please circle)

Standard | 5 day | 4 day | 72 hour | 48 hour | 24 hour

**Data Package** (circle if required)

Type I - Full | Type III | Type VI (Raw Data)

**EDD** (circle if required)

CVX-RTBU-FI_05 (default) | Other: _____

| Relinquished by | Date | Time | Received by | Date | Time |
|---|---|---|---|---|---|
| Heather Tauscher | 01/31/20 | 0930 | FED EX | 01/31/20 | 0930 |
| | | | | | |
| | | | | | |
| Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____ | | | | | |

Temperature Upon Receipt _____ °C

Custody Seals Intact? Yes No

# Chevron Generic Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # _____ Group # _____ Sample # _____

2 of 2

SCR #: _____

## Client Information

Facility # Purity Oil

WBS

Site Address 3281 South Maple Avenue Fresno, CA

Chevron PM Nate Bloomgren

Lead Consultant ARCADIS

Consultant/Office 3109 W. Dr. Martin Luther King Road Tampa, Florida

Consultant Project Mgr. Sam Miles

Sampler Heather Tauscher / Trevor Darragh

State where samples were collected: California

For Compliance: Yes ☒ No ☐

## Matrix

Soil ☐ Sediment ☐ Water: Potable ☐ Ground ☒ NPDES ☐ Surface ☐ Oil ☐ Air ☐

## Analyses Requested

Preservation and Filtration Codes

| Sample Identification | Collected Date | Collected Time | Grab | Composite | Soil | Water | Oil | Total Number of Containers | BTEX + MTBE 8021 ☐ 8260 ☐ Naphth ☐ | 8260 full scan VOC'S (H) | Oxygenates | TPH-GRO 8015 ☐ 8260 ☐ | TPH-DRO without Silica Gel Cleanup ☐ | TPH-DRO with Silica Gel Cleanup ☐ | VPH ☐ EPH ☐ Method | Lead Total ☐ Diss. ☐ Method | Arsenic 6020 (Field) (N) | Fe + Mn 6010 (Filtered) (N) | MNA | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-48I | 01/30/20 | 1727 | X | | | | | 12 | | X | | | | | | (HN) | ~~X~~ | X | X | |
| TB01302020 | 01/30/20 | 0730 | X | | | | | 2 | | X | | | | | | | | | | |
| EB01302020 | 01/30/20 | 0745 | X | | | | | 3 | | X | | | | | | | | | | |

### Preservation Codes

H = HCl T = Thiosulfate
N = $HNO_3$ B = NaOH
S = $H_2SO_4$ P = $H_3PO_4$
F = Field Filtered O = Other

☐ Results in Dry Weight

☐ J value reporting needed

☐ Must meet lowest detection limits possible for 8260 compounds

### Remarks

**Turnaround Time Requested (TAT)** (please circle)

Standard 5 day 4 day
72 hour 48 hour 24 hour

**Data Package** (circle if required)

Type I - Full Type III Type VI (Raw Data)

**EDD** (circle if required)

CVX-RTBU-FI_05 (default) Other: _____

| Relinquished by | Date | Time | Received by | Date | Time |
|---|---|---|---|---|---|
| Heather Tauscher | 01/31/20 | 0930 | FED EX | 01/31/20 | 0930 |
| | | | | | |
| | | | | | |
| | | | | | |

Relinquished by Commercial Carrier: UPS ____ FedEx X Other _____

Temperature Upon Receipt _____ °C

Custody Seals Intact? Yes No

# APPENDIX D

## Laboratory Analytical Reports

eurofins | Lancaster Laboratories Environmental

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

# ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Env Management Company
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: February 25, 2020 11:22

**Project: Purity Oil**

Account #: 11408
Group Number: 2085883
SDG: PUP93
PO Number: 0015318774
Release Number: BLOMGREN
State of Sample Origin: CA

| | | |
|---|---|---|
| Electronic Copy To | Arcadis | Attn: Ryan Mattson |
| Electronic Copy To | Arcadis | Attn: Bryan Fong |
| Electronic Copy To | Arcadis | Attn: Samuel Miles |

Respectfully Submitted,

Katherine A. Klinefelter

Katherine A. Klinefelter
Principal Specialist

(717) 556-7256

To view our laboratory's current scopes of accreditation please go to https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/ . Historical copies may be requested through your project manager.

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

## SAMPLE INFORMATION

| Client Sample Description | Sample Collection Date/Time | ELLE# |
|---|---|---|
| MW-24I-W-200130 Grab Groundwater | 01/30/2020 09:49 | 1251371 |
| MW-24I-W-200130 Filtered Grab Groundwater | 01/30/2020 09:49 | 1251372 |
| MW-23-W-200130 Grab Groundwater | 01/30/2020 11:01 | 1251373 |
| MW-23-W-200130 Filtered Grab Groundwater | 01/30/2020 11:01 | 1251374 |
| MW-34I-W-200130 Grab Groundwater | 01/30/2020 11:47 | 1251375 |
| MW-25I-W-200130 Grab Groundwater | 01/30/2020 12:39 | 1251376 |
| MW-25I-W-200130 Filtered Grab Groundwater | 01/30/2020 12:39 | 1251377 |
| MW-44I-W-200130 Grab Groundwater | 01/30/2020 14:11 | 1251378 |
| MW-44I-W-200130 Filtered Grab Groundwater | 01/30/2020 14:11 | 1251379 |
| DUP1-WD-200130 Grab Groundwater | 01/30/2020 14:19 | 1251380 |
| DUP1-WD-200130 Filtered Grab Groundwater | 01/30/2020 14:19 | 1251381 |
| MW-44D-W-200130 Grab Groundwater | 01/30/2020 14:57 | 1251382 |
| MW-44D-W-200130 Filtered Grab Groundwater | 01/30/2020 14:57 | 1251383 |
| MW-11IP-W-200130 Grab Groundwater | 01/30/2020 15:25 | 1251384 |
| MW-11IP-W-200130 Filtered Grab Groundwater | 01/30/2020 15:25 | 1251385 |
| MW-2D-W-200130 Grab Groundwater | 01/30/2020 16:09 | 1251386 |
| MW-2D-W-200130 Filtered Grab Groundwater | 01/30/2020 16:09 | 1251387 |
| MW-48D-W-200130 Grab Groundwater | 01/30/2020 16:51 | 1251388 |
| MW-48DMS-W-200130 Grab Groundwater | 01/30/2020 16:51 | 1251389 |
| MW-48DMSD-W-200130 Grab Groundwater | 01/30/2020 16:51 | 1251390 |
| MW-48DDUP-W-200130 Grab Groundwater | 01/30/2020 16:51 | 1251391 |
| MW-48D-W-200130 Filtered Grab Groundwater | 01/30/2020 16:51 | 1251392 |
| MW-48DMS-W-200130 Filtered Grab Groundwater | 01/30/2020 16:51 | 1251393 |
| MW-48DMSD-W-200130 Filtered Grab Groundwater | 01/30/2020 16:51 | 1251394 |
| MW-48DDUP-W-200130 Filtered Grab Groundwater | 01/30/2020 16:51 | 1251395 |
| MW-48I-W-200130 Grab Groundwater | 01/30/2020 17:27 | 1251396 |
| MW-48I-W-200130 Filtered Grab Groundwater | 01/30/2020 17:27 | 1251397 |
| TB-T-200130 NA Water | 01/30/2020 07:30 | 1251398 |
| EB-R-200130 Grab Water | 01/30/2020 07:45 | 1251399 |

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

**Sample Description:** **MW-24I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 09:49
SDG#: PUP93-01

**Chevron Env Management Company**
**ELLE Sample #: GW 1251371**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-24I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 09:49
SDG#: PUP93-01

**Chevron Env Management Company**
**ELLE Sample #: GW 1251371**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 12,000 | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 16,800 | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 5,600 | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 49,500 | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-24I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 09:49
SDG#: PUP93-01

**Chevron Env Management Company**
**ELLE Sample #: GW 1251371**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 288,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 22:14 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 22:13 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:05 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 15:09 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 2 | 20032720113A | 02/04/2020 06:25 | Drew M Gerhart | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:26 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/04/2020 06:25 | Drew M Gerhart | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 12:22 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005202A | 02/11/2020 00:14 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005202A | 02/11/2020 00:14 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-24I-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 09:49
SDG#: PUP93-02

**Chevron Env Management Company**
**ELLE Sample #: GW 1251372**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | | **SW-846 6010B** | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | 39.9 | 3.1 | 10.3 | 1 |
| | | **SW-846 6020** | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 1.4 J | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:27 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:27 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200351511401A | 02/04/2020 18:19 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200351511401 | 02/04/2020 05:50 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-23-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 11:01
SDG#: PUP93-03

**Chevron Env Management Company**
**ELLE Sample #: GW 1251373**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-23-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 11:01
SDG#: PUP93-03

**Chevron Env Management Company**
**ELLE Sample #: GW 1251373**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 9,300 | J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | 4.4 | J | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 14,000 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 2,900 | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 34,900 | | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-23-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 11:01
SDG#: PUP93-03

**Chevron Env Management Company**
**ELLE Sample #: GW 1251373**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 169,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 22:36 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 22:35 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:13 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 15:27 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:41 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:41 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:41 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 12:35 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005202A | 02/11/2020 00:20 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005202A | 02/11/2020 00:20 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-23-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 11:01
SDG#: PUP93-04

**Chevron Env Management Company**
**ELLE Sample #: GW 1251374**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | N.D. | 3.1 | 10.3 | 1 |
| | **SW-846 6020** | | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 2.3 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:30 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:30 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200351511401A | 02/04/2020 18:08 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200351511401 | 02/04/2020 05:50 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-34I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 11:47
SDG#: PUP93-05

**Chevron Env Management Company**
**ELLE Sample #: GW 1251375**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-34I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 11:47
SDG#: PUP93-05

**Chevron Env Management Company**
**ELLE Sample #: GW 1251375**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | 0.05 | 0.5 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 22:59 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 22:58 | Miranda Campbell | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-25I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 12:39
SDG#: PUP93-06

**Chevron Env Management Company**
**ELLE Sample #: GW 1251376**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-25I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 12:39
SDG#: PUP93-06

**Chevron Env Management Company**
**ELLE Sample #: GW 1251376**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | 0.1 | J | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 5,200 | J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 9,400 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 3,600 | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 22,100 | | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-25I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 12:39
SDG#: PUP93-06

**Chevron Env Management Company**
**ELLE Sample #: GW 1251376**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 166,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 23:21 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 23:20 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:21 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 15:45 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:56 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:56 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:56 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 12:49 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:56 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:56 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-25I-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 12:39
SDG#: PUP93-07

**Chevron Env Management Company**
**ELLE Sample #: GW 1251377**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | N.D. | 3.1 | 10.3 | 1 |
| | **SW-846 6020** | | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 2.6 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:33 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:33 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200371511402A | 02/11/2020 10:35 | Janeyah Rivers-Hamilton | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200371511402 | 02/06/2020 16:20 | JoElla L Rice | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:11
SDG#: PUP93-08

**Chevron Env Management Company**
**ELLE Sample #: GW 1251378**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:11
SDG#: PUP93-08

**Chevron Env Management Company**
**ELLE Sample #: GW 1251378**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 3,700 | J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 3,800 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 1,300 | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 9,600 | | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:11
SDG#: PUP93-08

**Chevron Env Management Company**
**ELLE Sample #: GW 1251378**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 80,500 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 23:43 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 23:42 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:36 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 16:03 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:12 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:12 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:12 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 13:02 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:29 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:29 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44I-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:11
SDG#: PUP93-09

**Chevron Env Management Company**
**ELLE Sample #: GW 1251379**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | 10.6 | 3.1 | 10.3 | 1 |
| | **SW-846 6020** | | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 2.5 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:37 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:37 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200351511401A | 02/04/2020 18:02 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200351511401 | 02/04/2020 05:50 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **DUP1-WD-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:19
SDG#: PUP93-10FD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251380**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **DUP1-WD-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:19
SDG#: PUP93-10FD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251380**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 4,900 | J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 3,700 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 1,300 | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 9,000 | | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **DUP1-WD-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:19
SDG#: PUP93-10FD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251380**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 80,100 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/06/2020 01:35 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/06/2020 01:34 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:44 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 16:21 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:27 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:27 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:27 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 13:15 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:23 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:23 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **DUP1-WD-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:19
SDG#: PUP93-11FD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251381**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | 13.1 | 3.1 | 10.3 | 1 |
| | **SW-846 6020** | | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 2.5 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:40 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:40 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200351511401A | 02/04/2020 18:12 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200351511401 | 02/04/2020 05:50 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:57
SDG#: PUP93-12

**Chevron Env Management Company**
**ELLE Sample #: GW 1251382**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:57
SDG#: PUP93-12

**Chevron Env Management Company**
**ELLE Sample #: GW 1251382**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | N.D. | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 2,800 | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 1,600 | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 7,900 | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:57
SDG#: PUP93-12

**Chevron Env Management Company**
**ELLE Sample #: GW 1251382**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 102,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/06/2020 01:57 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/06/2020 01:56 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:52 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 16:40 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:42 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:42 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:42 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 13:29 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:43 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:43 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44D-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:57
SDG#: PUP93-13

**Chevron Env Management Company**
**ELLE Sample #: GW 1251383**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | N.D. | 3.1 | 10.3 | 1 |
| | **SW-846 6020** | | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 9.6 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:43 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:43 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200351511401A | 02/04/2020 18:04 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200351511401 | 02/04/2020 05:50 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-11IP-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 15:25
SDG#: PUP93-14

**Chevron Env Management Company**
**ELLE Sample #: GW 1251384**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-11IP-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 15:25
SDG#: PUP93-14

**Chevron Env Management Company**
**ELLE Sample #: GW 1251384**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | 0.05 J | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | 0.1 J | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 8,600 J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 16,400 | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 3,800 | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 82,800 | 3,000 | 10,000 | 10 |
| | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-11IP-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 15:25
SDG#: PUP93-14

**Chevron Env Management Company**
**ELLE Sample #: GW 1251384**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 145,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/06/2020 02:19 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/06/2020 02:18 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:59 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 16:57 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:57 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:57 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/04/2020 07:17 | Drew M Gerhart | 10 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 13:42 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:36 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:36 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-11IP-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 15:25
SDG#: PUP93-15

**Chevron Env Management Company**
**ELLE Sample #: GW 1251385**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | | **SW-846 6010B** | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | N.D. | 3.1 | 10.3 | 1 |
| | | **SW-846 6020** | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 2.0 J | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:46 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:46 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200371511402A | 02/11/2020 10:37 | Janeyah Rivers-Hamilton | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200371511402 | 02/06/2020 16:20 | JoElla L Rice | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-2D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:09
SDG#: PUP93-16

**Chevron Env Management Company**
**ELLE Sample #: GW 1251386**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | N.D. | | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 6,100 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 760 | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 4,800 | J | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | | 500 | 1,000 | 1 |
| | **SM 2320 B-1997** | | **ug/l as CaCO3** | | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 75,300 | | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 13:07 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 17:15 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:12 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:12 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:12 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 13:56 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:49 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:49 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-2D-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:09
SDG#: PUP93-17

**Chevron Env Management Company**
**ELLE Sample #: GW 1251387**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | | **SW-846 6010B** | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | 5.3 J | 3.1 | 10.3 | 1 |
| | | **SW-846 6020** | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 3.5 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:49 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:49 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200351511401A | 02/04/2020 17:58 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200351511401 | 02/04/2020 05:50 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18BKG

**Chevron Env Management Company**
**ELLE Sample #: GW 1251388**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18BKG

**Chevron Env Management Company**
**ELLE Sample #: GW 1251388**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 5,400 | J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | 1,000 | | 15 | 25 | 5 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 3,900 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | N.D. | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 6,600 | | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18BKG

**Chevron Env Management Company**
**ELLE Sample #: GW 1251388**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 142,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/06/2020 00:06 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/06/2020 00:05 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 11:27 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 12:13 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/04/2020 16:39 | Esther Kathryn Lane | 5 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:27 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:27 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:27 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 14:37 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005202A | 02/10/2020 23:34 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005202A | 02/10/2020 23:34 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DMS-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18MS

**Chevron Env Management Company**
**ELLE Sample #: GW 1251389**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | 35 | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | 4.7 | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | 4.4 | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | 4.9 | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | 35 | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | 54 | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | 5.0 | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | 5.0 | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | 5.5 | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | 5.1 | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | 5.2 | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | 4.7 | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | 4.8 | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | 4.8 | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | 4.5 | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | 4.7 | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | 4.8 | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | 4.9 | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | 4.2 | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | 5.2 | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | 5.2 | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | 5.3 | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | 5.2 | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | 4.8 | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | 5.1 | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | 5.3 | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | 4.6 | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | 4.3 | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DMS-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18MS

**Chevron Env Management Company**
**ELLE Sample #: GW 1251389**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | 5.2 | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | 5.2 | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | 4.7 | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | 25 | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | 5.1 | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | 4.4 | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | 4.6 | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | 5.4 | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | 4.5 | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | 4.7 | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | 5.2 | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | 5.3 | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | 6.2 | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | 4.7 | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | 4.8 | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | 5.2 | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | 10 | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | 4.9 | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 29,000 | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | 34 | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | 36 | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | 790 E | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 13,500 | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 2,600 | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 30,500 | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DMS-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18MS

**Chevron Env Management Company**
**ELLE Sample #: GW 1251389**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | 10,400 | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 319,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | 101,000 | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/06/2020 00:28 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/06/2020 00:27 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 11:34 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 12:31 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:42 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:42 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:42 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 14:51 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005202A | 02/10/2020 23:41 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005202A | 02/10/2020 23:41 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DMSD-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18MSD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251390**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | 38 | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | 4.7 | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | 4.4 | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | 5.0 | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | 38 | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | 56 | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | 5.1 | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | 5.1 | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | 5.5 | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | 5.1 | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | 5.3 | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | 4.9 | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | 4.8 | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | 4.7 | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | 4.8 | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | 5.0 | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | 4.5 | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | 5.2 | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | 5.2 | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | 5.3 | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | 5.2 | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | 5.1 | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | 5.3 | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | 4.6 | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | 4.3 | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DMSD-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18MSD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251390**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | 5.2 | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | 5.3 | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | 4.8 | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | 25 | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | 5.0 | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | 4.5 | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | 4.6 | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | 5.4 | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | 4.6 | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | 4.8 | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | 5.2 | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | 5.3 | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | 6.4 | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | 4.8 | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | 4.8 | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | 5.3 | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | 10 | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | 5.0 | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 41,000 | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | 36 | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | 38 | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | 750 E | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 314,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | 98,600 | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DMSD-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18MSD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251390**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/06/2020 00:50 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/06/2020 00:49 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 11:42 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 12:49 | Esther Kathryn Lane | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005202A | 02/10/2020 23:47 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005202A | 02/10/2020 23:47 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DDUP-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18DUP

**Chevron Env Management Company**
**ELLE Sample #: GW 1251391**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 4,100 | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | N.D. | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 6,500 | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 141,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 14:27 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 14:27 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 14:27 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 15:05 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005202A | 02/10/2020 23:54 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005202A | 02/10/2020 23:54 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48D-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-19BKG

**Chevron Env Management Company**
**ELLE Sample #: GW 1251392**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **Metals Dissolved** | | **SW-846 6010B** | **ug/l** | | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | 58.4 | J | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | 539 | | 3.1 | 10.3 | 1 |
| | | **SW-846 6020** | **ug/l** | | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 7.9 | | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 21:52 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 21:52 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200341511401A | 02/04/2020 16:34 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200341511401 | 02/03/2020 19:55 | JoElla L Rice | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DMS-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Chevron Env Management Company**
**ELLE Sample #: GW 1251393**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-19MS

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | 379 | 41.8 | 209 | 1 |
| 07058 | Manganese | 7439-96-5 | 589 | 3.1 | 10.4 | 1 |
| | **SW-846 6020** | | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 19.1 | 0.71 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:02 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:02 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200341511401A | 02/04/2020 16:40 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200341511401 | 02/03/2020 19:55 | JoElla L Rice | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DMSD-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-19MSD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251394**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | 381 | 41.8 | 209 | 1 |
| 07058 | Manganese | 7439-96-5 | 577 | 3.1 | 10.4 | 1 |
| | **SW-846 6020** | | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 19.1 | 0.71 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:05 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:05 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200341511401A | 02/04/2020 16:41 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200341511401 | 02/03/2020 19:55 | JoElla L Rice | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DDUP-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-19DUP

**Chevron Env Management Company**
**ELLE Sample #: GW 1251395**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **Metals Dissolved** | | **SW-846 6010B** | **ug/l** | | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | 62.7 | J | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | 542 | | 3.1 | 10.3 | 1 |
| | | **SW-846 6020** | **ug/l** | | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 7.8 | | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 21:59 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 21:59 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200341511401A | 02/04/2020 16:38 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200341511401 | 02/03/2020 19:55 | JoElla L Rice | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 17:27
SDG#: PUP93-20

**Chevron Env Management Company**
**ELLE Sample #: GW 1251396**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 17:27
SDG#: PUP93-20

**Chevron Env Management Company**
**ELLE Sample #: GW 1251396**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 5,300 | J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 10,500 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 3,300 | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 16,400 | | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 17:27
SDG#: PUP93-20

**Chevron Env Management Company**
**ELLE Sample #: GW 1251396**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 169,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/06/2020 02:42 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/06/2020 02:41 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 13:15 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 17:34 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 14:42 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 14:42 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 14:42 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 15:19 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 23:02 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 23:02 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48I-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 17:27
SDG#: PUP93-21

**Chevron Env Management Company**
**ELLE Sample #: GW 1251397**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | | **SW-846 6010B** | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | N.D. | 3.1 | 10.3 | 1 |
| | | **SW-846 6020** | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 2.3 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:52 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:52 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200371511402A | 02/11/2020 10:24 | Janeyah Rivers-Hamilton | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200371511402 | 02/06/2020 16:20 | JoElla L Rice | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **TB-T-200130 NA Water**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 07:30
SDG#: PUP93-22TB

**Chevron Env Management Company**
**ELLE Sample #: GW 1251398**
**ELLE Group #: 2085883**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **TB-T-200130 NA Water**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 07:30
SDG#: PUP93-22TB

**Chevron Env Management Company**
**ELLE Sample #: GW 1251398**
**ELLE Group #: 2085883**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | 0.05 | 0.5 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 21:29 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 21:28 | Miranda Campbell | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **EB-R-200130 Grab Water**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 07:45
SDG#: PUP93-23EB

**Chevron Env Management Company**
**ELLE Sample #: GW 1251399**
**ELLE Group #: 2085883**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **EB-R-200130 Grab Water**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 07:45
SDG#: PUP93-23EB

**Chevron Env Management Company**
**ELLE Sample #: GW 1251399**
**ELLE Group #: 2085883**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | 0.05 | 0.5 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 21:52 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 21:51 | Miranda Campbell | 1 |

*=This limit was used in the evaluation of the final result

# Quality Control Summary

Client Name: Chevron Env Management Company Group Number: 2085883
Reported: 02/25/2020 11:22

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

## Method Blank

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ug/l | ug/l | ug/l |
| Batch number: C200361AA | Sample number(s): 1251371,1251373,1251375-1251376,1251378,1251380,1251382,1251384,1251388-1251390,1251396,1251398-1251399 | | |
| Acetone | N.D. | 1.1 | 5.0 |
| Benzene | N.D. | 0.05 | 0.5 |
| Bromobenzene | N.D. | 0.05 | 0.5 |
| Bromochloromethane | N.D. | 0.05 | 0.5 |
| Bromodichloromethane | N.D. | 0.05 | 0.5 |
| Bromoform | N.D. | 0.3 | 1.0 |
| Bromomethane | N.D. | 0.1 | 0.5 |
| 2-Butanone | N.D. | 0.7 | 5.0 |
| t-Butyl Alcohol | N.D. | 1.6 | 10 |
| n-Butylbenzene | N.D. | 0.07 | 0.5 |
| sec-Butylbenzene | N.D. | 0.05 | 0.5 |
| tert-Butylbenzene | N.D. | 0.05 | 0.5 |
| Carbon Disulfide | N.D. | 0.09 | 1.0 |
| Carbon Tetrachloride | N.D. | 0.06 | 0.5 |
| Chlorobenzene | N.D. | 0.05 | 0.5 |
| Chloroethane | N.D. | 0.09 | 0.5 |
| Chloroform | N.D. | 0.05 | 0.5 |
| Chloromethane | N.D. | 0.09 | 0.5 |
| 2-Chlorotoluene | N.D. | 0.05 | 0.5 |
| 4-Chlorotoluene | N.D. | 0.05 | 0.5 |
| 1,2-Dibromo-3-chloropropane | N.D. | 0.2 | 0.5 |
| Dibromochloromethane | N.D. | 0.06 | 0.5 |
| 1,2-Dibromoethane | N.D. | 0.05 | 0.5 |
| Dibromomethane | N.D. | 0.05 | 0.5 |
| 1,2-Dichlorobenzene | N.D. | 0.05 | 0.5 |
| 1,3-Dichlorobenzene | N.D. | 0.05 | 0.5 |
| 1,4-Dichlorobenzene | N.D. | 0.06 | 0.5 |
| Dichlorodifluoromethane | N.D. | 0.1 | 0.5 |
| 1,1-Dichloroethane | N.D. | 0.05 | 0.5 |
| 1,2-Dichloroethane | N.D. | 0.05 | 0.5 |
| 1,1-Dichloroethene | N.D. | 0.05 | 0.5 |
| cis-1,2-Dichloroethene | N.D. | 0.05 | 0.5 |
| trans-1,2-Dichloroethene | N.D. | 0.05 | 0.5 |
| 1,2-Dichloropropane | N.D. | 0.05 | 0.5 |
| 1,3-Dichloropropane | N.D. | 0.05 | 0.5 |
| 2,2-Dichloropropane | N.D. | 0.06 | 0.5 |
| 1,1-Dichloropropene | N.D. | 0.05 | 0.5 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company
Reported: 02/25/2020 11:22

Group Number: 2085883

## Method Blank (continued)

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ug/l | ug/l | ug/l |
| cis-1,3-Dichloropropene | N.D. | 0.05 | 0.5 |
| trans-1,3-Dichloropropene | N.D. | 0.05 | 0.5 |
| Ethylbenzene | N.D. | 0.05 | 0.5 |
| Hexachlorobutadiene | N.D. | 0.1 | 0.5 |
| Isopropylbenzene | N.D. | 0.05 | 0.5 |
| p-Isopropyltoluene | N.D. | 0.05 | 0.5 |
| Methyl Tertiary Butyl Ether | N.D. | 0.05 | 0.5 |
| 4-Methyl-2-pentanone | N.D. | 0.6 | 5.0 |
| Methylene Chloride | N.D. | 0.06 | 0.5 |
| Naphthalene | N.D. | 0.09 | 0.5 |
| n-Propylbenzene | N.D. | 0.05 | 0.5 |
| Styrene | N.D. | 0.05 | 0.5 |
| 1,1,1,2-Tetrachloroethane | N.D. | 0.05 | 0.5 |
| 1,1,2,2-Tetrachloroethane | N.D. | 0.06 | 0.5 |
| Tetrachloroethene | N.D. | 0.05 | 0.5 |
| Toluene | N.D. | 0.05 | 0.5 |
| 1,2,3-Trichlorobenzene | N.D. | 0.1 | 0.5 |
| 1,2,4-Trichlorobenzene | N.D. | 0.09 | 0.5 |
| 1,1,1-Trichloroethane | N.D. | 0.06 | 0.5 |
| 1,1,2-Trichloroethane | N.D. | 0.05 | 0.5 |
| Trichloroethene | N.D. | 0.05 | 0.5 |
| Trichlorofluoromethane | N.D. | 0.1 | 0.5 |
| 1,2,3-Trichloropropane | N.D. | 0.06 | 1.0 |
| 1,2,4-Trimethylbenzene | N.D. | 0.05 | 0.5 |
| 1,3,5-Trimethylbenzene | N.D. | 0.05 | 0.5 |
| Vinyl Chloride | N.D. | 0.08 | 0.5 |
| m+p-Xylene | N.D. | 0.08 | 0.5 |
| o-Xylene | N.D. | 0.05 | 0.5 |
| Batch number: 200340009A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251390,1251396 | | |
| Ethane | N.D. | 1.0 | 5.0 |
| Ethene | N.D. | 1.0 | 5.0 |
| Methane | N.D. | 3.0 | 5.0 |
| Batch number: 200340011A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251390,1251396 | | |
| CO2 by Headspace | N.D. | 2,600 | 12,000 |
| Batch number: 200341486603 | Sample number(s): 1251372,1251374,1251377,1251379,1251381,1251383,1251385,1251387,1251392-1251395,1251397 | | |
| Iron | N.D. | 41.2 | 206 |
| Manganese | N.D. | 3.1 | 10.3 |
| Batch number: 200341511401A | Sample number(s): 1251392-1251395 | | |
| Arsenic | N.D. | 0.70 | 2.1 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company
Reported: 02/25/2020 11:22

Group Number: 2085883

## Method Blank (continued)

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ug/l | ug/l | ug/l |
| Batch number: 200351511401A | Sample number(s): 1251372,1251374,1251379,1251381,1251383,1251387 | | |
| Arsenic | N.D. | 0.70 | 2.1 |
| Batch number: 200371511402A | Sample number(s): 1251377,1251385,1251397 | | |
| Arsenic | N.D. | 0.70 | 2.1 |
| Batch number: 20032720113A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251389,1251391,1251396 | | |
| Chloride | N.D. | 200 | 400 |
| Nitrate Nitrogen | N.D. | 50 | 100 |
| Sulfate | N.D. | 300 | 1,000 |
| Batch number: 20035304501A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251389,1251391,1251396 | | |
| Total Organic Carbon | N.D. | 500 | 1,000 |
| | ug/l as CaCO3 | ug/l as CaCO3 | ug/l as CaCO3 |
| Batch number: 20041005201A | Sample number(s): 1251376,1251378,1251380,1251382,1251384,1251386,1251396 | | |
| Total Alkalinity to pH 4.5 | N.D. | 2,600 | 8,000 |
| Batch number: 20041005202A | Sample number(s): 1251371,1251373,1251388-1251391 | | |
| Total Alkalinity to pH 4.5 | N.D. | 2,600 | 8,000 |

## LCS/LCSD

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Batch number: C200361AA | Sample number(s): 1251371,1251373,1251375-1251376,1251378,1251380,1251382,1251384,1251388-1251390,1251396,1251398-1251399 | | | | | | | | |
| Acetone | 37.5 | 34.76 | | | 93 | | 60-146 | | |
| Benzene | 5.00 | 4.66 | | | 93 | | 80-120 | | |
| Bromobenzene | 5.00 | 4.65 | | | 93 | | 80-120 | | |
| Bromochloromethane | 5.00 | 4.59 | | | 92 | | 80-120 | | |
| Bromodichloromethane | 5.00 | 4.82 | | | 96 | | 73-124 | | |
| Bromoform | 5.00 | 4.58 | | | 92 | | 49-144 | | |
| Bromomethane | 5.00 | 4.50 | | | 90 | | 60-136 | | |
| 2-Butanone | 37.5 | 36.59 | | | 98 | | 59-141 | | |
| t-Butyl Alcohol | 50 | 53.02 | | | 106 | | 62-138 | | |
| n-Butylbenzene | 5.00 | 4.60 | | | 92 | | 74-123 | | |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company
Reported: 02/25/2020 11:22

Group Number: 2085883

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| sec-Butylbenzene | 5.00 | 4.54 | | | 91 | | 80-120 | | |
| tert-Butylbenzene | 5.00 | 4.40 | | | 88 | | 79-120 | | |
| Carbon Disulfide | 5.00 | 4.36 | | | 87 | | 67-130 | | |
| Carbon Tetrachloride | 5.00 | 4.79 | | | 96 | | 64-141 | | |
| Chlorobenzene | 5.00 | 4.76 | | | 95 | | 80-120 | | |
| Chloroethane | 5.00 | 4.49 | | | 90 | | 63-120 | | |
| Chloroform | 5.00 | 4.90 | | | 98 | | 80-120 | | |
| Chloromethane | 5.00 | 4.35 | | | 87 | | 56-124 | | |
| 2-Chlorotoluene | 5.00 | 4.47 | | | 89 | | 80-120 | | |
| 4-Chlorotoluene | 5.00 | 4.49 | | | 90 | | 80-120 | | |
| 1,2-Dibromo-3-chloropropane | 5.00 | 4.68 | | | 94 | | 56-148 | | |
| Dibromochloromethane | 5.00 | 4.86 | | | 97 | | 64-138 | | |
| 1,2-Dibromoethane | 5.00 | 4.84 | | | 97 | | 80-120 | | |
| Dibromomethane | 5.00 | 5.09 | | | 102 | | 80-122 | | |
| 1,2-Dichlorobenzene | 5.00 | 4.74 | | | 95 | | 80-120 | | |
| 1,3-Dichlorobenzene | 5.00 | 4.65 | | | 93 | | 80-120 | | |
| 1,4-Dichlorobenzene | 5.00 | 4.71 | | | 94 | | 80-120 | | |
| Dichlorodifluoromethane | 5.00 | 3.64 | | | 73 | | 43-123 | | |
| 1,1-Dichloroethane | 5.00 | 4.75 | | | 95 | | 74-120 | | |
| 1,2-Dichloroethane | 5.00 | 5.01 | | | 100 | | 69-122 | | |
| 1,1-Dichloroethene | 5.00 | 4.51 | | | 90 | | 80-131 | | |
| cis-1,2-Dichloroethene | 5.00 | 4.94 | | | 99 | | 80-122 | | |
| trans-1,2-Dichloroethene | 5.00 | 4.60 | | | 92 | | 80-122 | | |
| 1,2-Dichloropropane | 5.00 | 4.96 | | | 99 | | 80-120 | | |
| 1,3-Dichloropropane | 5.00 | 4.80 | | | 96 | | 80-120 | | |
| 2,2-Dichloropropane | 5.00 | 4.57 | | | 91 | | 61-141 | | |
| 1,1-Dichloropropene | 5.00 | 4.64 | | | 93 | | 74-120 | | |
| cis-1,3-Dichloropropene | 5.00 | 4.62 | | | 92 | | 67-121 | | |
| trans-1,3-Dichloropropene | 5.00 | 4.48 | | | 90 | | 61-129 | | |
| Ethylbenzene | 5.00 | 4.67 | | | 93 | | 80-120 | | |
| Hexachlorobutadiene | 5.00 | 4.68 | | | 94 | | 72-132 | | |
| Isopropylbenzene | 5.00 | 4.69 | | | 94 | | 80-120 | | |
| p-Isopropyltoluene | 5.00 | 4.51 | | | 90 | | 80-120 | | |
| Methyl Tertiary Butyl Ether | 5.00 | 4.92 | | | 98 | | 69-120 | | |
| 4-Methyl-2-pentanone | 25 | 26.17 | | | 105 | | 55-140 | | |
| Methylene Chloride | 5.00 | 4.74 | | | 95 | | 80-120 | | |
| Naphthalene | 5.00 | 4.55 | | | 91 | | 64-122 | | |
| n-Propylbenzene | 5.00 | 4.58 | | | 92 | | 74-122 | | |
| Styrene | 5.00 | 4.66 | | | 93 | | 80-120 | | |
| 1,1,1,2-Tetrachloroethane | 5.00 | 4.77 | | | 95 | | 71-134 | | |
| 1,1,2,2-Tetrachloroethane | 5.00 | 4.72 | | | 94 | | 75-123 | | |
| Tetrachloroethene | 5.00 | 4.79 | | | 96 | | 80-120 | | |
| Toluene | 5.00 | 4.64 | | | 93 | | 80-120 | | |
| 1,2,3-Trichlorobenzene | 5.00 | 4.52 | | | 90 | | 68-125 | | |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company
Reported: 02/25/2020 11:22

Group Number: 2085883

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| 1,2,4-Trichlorobenzene | 5.00 | 4.68 | | | 94 | | 68-122 | | |
| 1,1,1-Trichloroethane | 5.00 | 4.62 | | | 92 | | 78-126 | | |
| 1,1,2-Trichloroethane | 5.00 | 4.98 | | | 100 | | 80-120 | | |
| Trichloroethene | 5.00 | 4.74 | | | 95 | | 80-120 | | |
| Trichlorofluoromethane | 5.00 | 5.35 | | | 107 | | 62-136 | | |
| 1,2,3-Trichloropropane | 5.00 | 4.72 | | | 94 | | 80-125 | | |
| 1,2,4-Trimethylbenzene | 5.00 | 4.44 | | | 89 | | 80-120 | | |
| 1,3,5-Trimethylbenzene | 5.00 | 4.49 | | | 90 | | 80-120 | | |
| Vinyl Chloride | 5.00 | 4.54 | | | 91 | | 60-125 | | |
| m+p-Xylene | 10 | 9.40 | | | 94 | | 80-120 | | |
| o-Xylene | 5.00 | 4.71 | | | 94 | | 80-120 | | |
| | **ug/l** | **ug/l** | **ug/l** | **ug/l** | | | | | |
| Batch number: 200340009A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251390,1251396 | | | | | | | | |
| Ethane | 59.39 | 58.74 | | | 99 | | 85-115 | | |
| Ethene | 60.4 | 60.21 | | | 100 | | 83-115 | | |
| Methane | 59.42 | 61.75 | | | 104 | | 85-115 | | |
| Batch number: 200340011A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251390,1251396 | | | | | | | | |
| CO2 by Headspace | 35820 | 32508.95 | | | 91 | | 72-116 | | |
| | **ug/l** | **ug/l** | **ug/l** | **ug/l** | | | | | |
| Batch number: 200341486603 | Sample number(s): 1251372,1251374,1251377,1251379,1251381,1251383,1251385,1251387,1251392-1251395,1251397 | | | | | | | | |
| Iron | 400 | 338.79 | | | 85 | | 80-120 | | |
| Manganese | 20 | 17.01 | | | 85 | | 80-120 | | |
| Batch number: 200341511401A | Sample number(s): 1251392-1251395 | | | | | | | | |
| Arsenic | 10 | 10.76 | | | 108 | | 85-120 | | |
| Batch number: 200351511401A | Sample number(s): 1251372,1251374,1251379,1251381,1251383,1251387 | | | | | | | | |
| Arsenic | 10 | 10.72 | | | 107 | | 85-120 | | |
| Batch number: 200371511402A | Sample number(s): 1251377,1251385,1251397 | | | | | | | | |
| Arsenic | 10 | 10.18 | | | 102 | | 85-120 | | |
| | **ug/l** | **ug/l** | **ug/l** | **ug/l** | | | | | |
| Batch number: 20032720113A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251389,1251391,1251396 | | | | | | | | |
| Chloride | 3000 | 2861.52 | | | 95 | | 90-110 | | |
| Nitrate Nitrogen | 750 | 734.77 | | | 98 | | 90-110 | | |
| Sulfate | 7500 | 7328.63 | | | 98 | | 90-110 | | |

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(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company
Reported: 02/25/2020 11:22

Group Number: 2085883

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Batch number: 20035304501A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251389,1251391,1251396 | | | | | | | | |
| Total Organic Carbon | 25000 | 24350.5 | | | 97 | | 91-113 | | |
| | ug/l as CaCO3 | ug/l as CaCO3 | ug/l as CaCO3 | ug/l as CaCO3 | | | | | |
| Batch number: 20041005201A | Sample number(s): 1251376,1251378,1251380,1251382,1251384,1251386,1251396 | | | | | | | | |
| Total Alkalinity to pH 4.5 | 188000 | 182230 | | | 97 | | 82-106 | | |
| Batch number: 20041005202A | Sample number(s): 1251371,1251373,1251388-1251391 | | | | | | | | |
| Total Alkalinity to pH 4.5 | 188000 | 182100 | | | 97 | | 82-106 | | |

## MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

| Analysis Name | Unspiked Conc ug/l | MS Spike Added ug/l | MS Conc ug/l | MSD Spike Added ug/l | MSD Conc ug/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Batch number: C200361AA | Sample number(s): 1251371,1251373,1251375-1251376,1251378,1251380,1251382,1251384,1251388-1251390,1251396,1251398-1251399 UNSPK: 1251388 | | | | | | | | | |
| Acetone | N.D. | 37.5 | 34.74 | 37.5 | 37.66 | 93 | 100 | 60-146 | 8 | 30 |
| Benzene | N.D. | 5.00 | 5.15 | 5.00 | 5.10 | 103 | 102 | 80-120 | 1 | 30 |
| Bromobenzene | N.D. | 5.00 | 4.91 | 5.00 | 4.95 | 98 | 99 | 80-120 | 1 | 30 |
| Bromochloromethane | N.D. | 5.00 | 4.73 | 5.00 | 4.73 | 95 | 95 | 80-120 | 0 | 30 |
| Bromodichloromethane | N.D. | 5.00 | 4.96 | 5.00 | 4.97 | 99 | 99 | 73-124 | 0 | 30 |
| Bromoform | N.D. | 5.00 | 4.39 | 5.00 | 4.42 | 88 | 88 | 49-144 | 1 | 30 |
| Bromomethane | N.D. | 5.00 | 4.86 | 5.00 | 4.97 | 97 | 99 | 60-136 | 2 | 30 |
| 2-Butanone | N.D. | 37.5 | 34.78 | 37.5 | 37.6 | 93 | 100 | 59-141 | 8 | 30 |
| t-Butyl Alcohol | N.D. | 50 | 53.59 | 50 | 56.4 | 107 | 113 | 62-138 | 5 | 30 |
| n-Butylbenzene | N.D. | 5.00 | 5.04 | 5.00 | 5.11 | 101 | 102 | 74-123 | 1 | 30 |
| sec-Butylbenzene | N.D. | 5.00 | 5.04 | 5.00 | 5.13 | 101 | 103 | 80-120 | 2 | 30 |
| tert-Butylbenzene | N.D. | 5.00 | 4.99 | 5.00 | 5.12 | 100 | 102 | 79-120 | 3 | 30 |
| Carbon Disulfide | N.D. | 5.00 | 5.05 | 5.00 | 5.06 | 101 | 101 | 67-130 | 0 | 30 |
| Carbon Tetrachloride | N.D. | 5.00 | 5.45 | 5.00 | 5.51 | 109 | 110 | 64-141 | 1 | 30 |
| Chlorobenzene | N.D. | 5.00 | 5.03 | 5.00 | 5.01 | 101 | 100 | 80-120 | 1 | 30 |
| Chloroethane | N.D. | 5.00 | 5.05 | 5.00 | 5.12 | 101 | 102 | 63-120 | 1 | 30 |
| Chloroform | N.D. | 5.00 | 5.23 | 5.00 | 5.28 | 105 | 106 | 80-120 | 1 | 30 |
| Chloromethane | N.D. | 5.00 | 4.72 | 5.00 | 4.87 | 94 | 97 | 56-124 | 3 | 30 |
| 2-Chlorotoluene | N.D. | 5.00 | 4.82 | 5.00 | 4.87 | 96 | 97 | 80-120 | 1 | 30 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company
Reported: 02/25/2020 11:22

Group Number: 2085883

## MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

| Analysis Name | Unspiked Conc ug/l | MS Spike Added ug/l | MS Conc ug/l | MSD Spike Added ug/l | MSD Conc ug/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| 4-Chlorotoluene | N.D. | 5.00 | 4.81 | 5.00 | 4.84 | 96 | 97 | 80-120 | 1 | 30 |
| 1,2-Dibromo-3-chloropropane | N.D. | 5.00 | 4.45 | 5.00 | 4.72 | 89 | 94 | 56-148 | 6 | 30 |
| Dibromochloromethane | N.D. | 5.00 | 4.74 | 5.00 | 4.77 | 95 | 95 | 64-138 | 1 | 30 |
| 1,2-Dibromoethane | N.D. | 5.00 | 4.84 | 5.00 | 4.86 | 97 | 97 | 80-120 | 0 | 30 |
| Dibromomethane | N.D. | 5.00 | 5.11 | 5.00 | 5.14 | 102 | 103 | 80-122 | 1 | 30 |
| 1,2-Dichlorobenzene | N.D. | 5.00 | 4.92 | 5.00 | 4.94 | 98 | 99 | 80-120 | 1 | 30 |
| 1,3-Dichlorobenzene | N.D. | 5.00 | 4.92 | 5.00 | 4.97 | 98 | 99 | 80-120 | 1 | 30 |
| 1,4-Dichlorobenzene | N.D. | 5.00 | 4.91 | 5.00 | 4.97 | 98 | 99 | 80-120 | 1 | 30 |
| Dichlorodifluoromethane | N.D. | 5.00 | 4.21 | 5.00 | 4.45 | 84 | 89 | 43-123 | 5 | 30 |
| 1,1-Dichloroethane | N.D. | 5.00 | 5.18 | 5.00 | 5.20 | 104 | 104 | 74-120 | 0 | 30 |
| 1,2-Dichloroethane | N.D. | 5.00 | 5.01 | 5.00 | 4.99 | 100 | 100 | 69-122 | 0 | 30 |
| 1,1-Dichloroethene | N.D. | 5.00 | 5.19 | 5.00 | 5.19 | 104 | 104 | 80-131 | 0 | 30 |
| cis-1,2-Dichloroethene | N.D. | 5.00 | 5.30 | 5.00 | 5.25 | 106 | 105 | 80-120 | 1 | 30 |
| trans-1,2-Dichloroethene | N.D. | 5.00 | 5.10 | 5.00 | 5.10 | 102 | 102 | 80-120 | 0 | 30 |
| 1,2-Dichloropropane | N.D. | 5.00 | 5.21 | 5.00 | 5.18 | 104 | 104 | 80-120 | 1 | 30 |
| 1,3-Dichloropropane | N.D. | 5.00 | 4.78 | 5.00 | 4.90 | 96 | 98 | 80-120 | 3 | 30 |
| 2,2-Dichloropropane | N.D. | 5.00 | 5.09 | 5.00 | 5.07 | 102 | 101 | 61-141 | 0 | 30 |
| 1,1-Dichloropropene | N.D. | 5.00 | 5.30 | 5.00 | 5.31 | 106 | 106 | 74-120 | 0 | 30 |
| cis-1,3-Dichloropropene | N.D. | 5.00 | 4.58 | 5.00 | 4.59 | 92 | 92 | 67-121 | 0 | 30 |
| trans-1,3-Dichloropropene | N.D. | 5.00 | 4.30 | 5.00 | 4.34 | 86 | 87 | 61-129 | 1 | 30 |
| Ethylbenzene | N.D. | 5.00 | 5.10 | 5.00 | 5.13 | 102 | 103 | 80-120 | 1 | 30 |
| Hexachlorobutadiene | N.D. | 5.00 | 5.18 | 5.00 | 5.19 | 104 | 104 | 72-132 | 0 | 30 |
| Isopropylbenzene | N.D. | 5.00 | 5.16 | 5.00 | 5.27 | 103 | 105 | 80-120 | 2 | 30 |
| p-Isopropyltoluene | N.D. | 5.00 | 4.96 | 5.00 | 5.00 | 99 | 100 | 80-120 | 1 | 30 |
| Methyl Tertiary Butyl Ether | N.D. | 5.00 | 4.74 | 5.00 | 4.82 | 95 | 96 | 69-120 | 2 | 30 |
| 4-Methyl-2-pentanone | N.D. | 25 | 24.95 | 25 | 25.04 | 100 | 100 | 55-140 | 0 | 30 |
| Methylene Chloride | N.D. | 5.00 | 5.08 | 5.00 | 5.02 | 102 | 100 | 80-120 | 1 | 30 |
| Naphthalene | N.D. | 5.00 | 4.35 | 5.00 | 4.49 | 87 | 90 | 64-122 | 3 | 30 |
| n-Propylbenzene | N.D. | 5.00 | 5.07 | 5.00 | 5.05 | 101 | 101 | 74-122 | 0 | 30 |
| Styrene | N.D. | 5.00 | 4.95 | 5.00 | 4.95 | 99 | 99 | 80-120 | 0 | 30 |
| 1,1,1,2-Tetrachloroethane | N.D. | 5.00 | 4.89 | 5.00 | 4.98 | 98 | 100 | 71-134 | 2 | 30 |
| 1,1,2,2-Tetrachloroethane | N.D. | 5.00 | 4.55 | 5.00 | 4.56 | 91 | 91 | 75-123 | 0 | 30 |
| Tetrachloroethene | N.D. | 5.00 | 5.40 | 5.00 | 5.35 | 108 | 107 | 80-120 | 1 | 30 |
| Toluene | N.D. | 5.00 | 5.04 | 5.00 | 5.10 | 101 | 102 | 80-120 | 1 | 30 |
| 1,2,3-Trichlorobenzene | N.D. | 5.00 | 4.50 | 5.00 | 4.62 | 90 | 92 | 68-125 | 3 | 30 |
| 1,2,4-Trichlorobenzene | N.D. | 5.00 | 4.69 | 5.00 | 4.81 | 94 | 96 | 68-122 | 3 | 30 |
| 1,1,1-Trichloroethane | N.D. | 5.00 | 5.20 | 5.00 | 5.24 | 104 | 105 | 78-126 | 1 | 30 |
| 1,1,2-Trichloroethane | N.D. | 5.00 | 4.98 | 5.00 | 5.02 | 100 | 100 | 80-120 | 1 | 30 |
| Trichloroethene | N.D. | 5.00 | 5.29 | 5.00 | 5.25 | 106 | 105 | 80-120 | 1 | 30 |
| Trichlorofluoromethane | N.D. | 5.00 | 6.18 | 5.00 | 6.38 | 124 | 128 | 62-136 | 3 | 30 |
| 1,2,3-Trichloropropane | N.D. | 5.00 | 4.69 | 5.00 | 4.84 | 94 | 97 | 80-125 | 3 | 30 |
| 1,2,4-Trimethylbenzene | N.D. | 5.00 | 4.75 | 5.00 | 4.79 | 95 | 96 | 80-120 | 1 | 30 |
| 1,3,5-Trimethylbenzene | N.D. | 5.00 | 4.85 | 5.00 | 4.92 | 97 | 98 | 80-120 | 1 | 30 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company
Reported: 02/25/2020 11:22

Group Number: 2085883

## MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

| Analysis Name | Unspiked Conc ug/l | MS Spike Added ug/l | MS Conc ug/l | MSD Spike Added ug/l | MSD Conc ug/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | N.D. | 5.00 | 5.22 | 5.00 | 5.35 | 104 | 107 | 60-125 | 3 | 30 |
| m+p-Xylene | N.D. | 10 | 10.29 | 10 | 10.31 | 103 | 103 | 80-120 | 0 | 30 |
| o-Xylene | N.D. | 5.00 | 4.94 | 5.00 | 5.03 | 99 | 101 | 80-120 | 2 | 30 |
| | **ug/l** | **ug/l** | **ug/l** | **ug/l** | **ug/l** | | | | | |
| Batch number: 200340009A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251390,1251396 UNSPK: 1251388 | | | | | | | | | |
| Ethane | N.D. | 59.39 | 34 | 59.39 | 36.16 | 57* | 61* | 74-131 | 6 | 30 |
| Ethene | N.D. | 60.4 | 36.44 | 60.4 | 38.36 | 60* | 64* | 72-133 | 5 | 30 |
| Methane | 1042.61 | 59.42 | 791.43 | 59.42 | 748.34 | -422 (2) | -494 (2) | 73-125 | 6 | 30 |
| Batch number: 200340011A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251390,1251396 UNSPK: 1251388 | | | | | | | | | |
| CO2 by Headspace | 5399.76 | 35820 | 29204.38 | 35820 | 40620.22 | 66* | 98 | 72-116 | 33* | 20 |
| | **ug/l** | **ug/l** | **ug/l** | **ug/l** | **ug/l** | | | | | |
| Batch number: 200341486603 | Sample number(s): 1251372,1251374,1251377,1251379,1251381,1251383,1251385,1251387,1251392-1251395,1251397 UNSPK: 1251392 | | | | | | | | | |
| Iron | 58.44 | 417.6 | 379.17 | 417.6 | 380.53 | 77 | 77 | 75-125 | 0 | 20 |
| Manganese | 539.35 | 20.88 | 589.45 | 20.88 | 576.94 | 240 (2) | 180 (2) | 75-125 | 2 | 20 |
| Batch number: 200341511401A | Sample number(s): 1251392-1251395 UNSPK: 1251392 | | | | | | | | | |
| Arsenic | 7.93 | 10.4 | 19.11 | 10.4 | 19.14 | 108 | 108 | 75-125 | 0 | 20 |
| Batch number: 200371511402A | Sample number(s): 1251377,1251385,1251397 UNSPK: 1251397 | | | | | | | | | |
| Arsenic | 2.32 | 10.4 | 13.69 | 10.4 | 13.12 | 109 | 104 | 75-125 | 4 | 20 |
| | **ug/l** | **ug/l** | **ug/l** | **ug/l** | **ug/l** | | | | | |
| Batch number: 20032720113A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251389,1251391,1251396 UNSPK: 1251388 | | | | | | | | | |
| Chloride | 3891.07 | 10000 | 13455.81 | | | 96 | | 90-110 | | |
| Nitrate Nitrogen | N.D. | 2500 | 2566.37 | | | 103 | | 90-110 | | |
| Sulfate | 6551.52 | 25000 | 30531.88 | | | 96 | | 90-110 | | |
| Batch number: 20035304501A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251389,1251391,1251396 UNSPK: 1251388 | | | | | | | | | |
| Total Organic Carbon | N.D. | 10000 | 10402.5 | | | 104 | | 91-113 | | |

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company
Reported: 02/25/2020 11:22

Group Number: 2085883

## MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

| Analysis Name | Unspiked Conc ug/l as CaCO3 | MS Spike Added ug/l as CaCO3 | MS Conc ug/l as CaCO3 | MSD Spike Added ug/l as CaCO3 | MSD Conc ug/l as CaCO3 | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Batch number: 20041005202A | Sample number(s): 1251371,1251373,1251388-1251391 UNSPK: 1251388 | | | | | | | | | |
| Total Alkalinity to pH 4.5 | 141620 | 188000 | 319080 | 188000 | 314370 | 94 | 92 | 82-106 | 1 | 10 |

## Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

| Analysis Name | BKG Conc | DUP Conc | DUP RPD | DUP RPD Max |
|---|---|---|---|---|
| | ug/l | ug/l | | |
| Batch number: 200341486603 | Sample number(s): 1251372,1251374,1251377,1251379,1251381,1251383,1251385,1251387,1251392-1251395,1251397 BKG: 1251392 | | | |
| Iron | 58.44 | 62.75 | 7 (1) | 20 |
| Manganese | 539.35 | 542.32 | 1 | 20 |
| Batch number: 200341511401A | Sample number(s): 1251392-1251395 BKG: 1251392 | | | |
| Arsenic | 7.93 | 7.83 | 1 (1) | 20 |
| Batch number: 200371511402A | Sample number(s): 1251377,1251385,1251397 BKG: 1251397 | | | |
| Arsenic | 2.32 | 2.42 | 4 (1) | 20 |
| | ug/l | ug/l | | |
| Batch number: 20032720113A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251389,1251391,1251396 BKG: 1251388 | | | |
| Chloride | 3891.07 | 4076.58 | 5 (1) | 15 |
| Nitrate Nitrogen | N.D. | N.D. | 0 (1) | 15 |
| Sulfate | 6551.52 | 6463.35 | 1 (1) | 15 |
| Batch number: 20035304501A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251389,1251391,1251396 BKG: 1251388 | | | |
| Total Organic Carbon | N.D. | N.D. | 0 (1) | 9 |
| | ug/l as CaCO3 | ug/l as CaCO3 | | |
| Batch number: 20041005202A | Sample number(s): 1251371,1251373,1251388-1251391 BKG: 1251388 | | | |
| Total Alkalinity to pH 4.5 | 141620 | 141280 | 0 | 5 |
| Phenolphthalein Alk. to pH 8.3 | N.D. | N.D. | 0 (1) | 5 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company
Group Number: 2085883
Reported: 02/25/2020 11:22

## Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: VOCs 25 ml purge 8260
Batch number: C200361AA

| | Dibromofluoromethane | 1,2-Dichloroethane-d4 | Toluene-d8 | 4-Bromofluorobenzene |
|---|---|---|---|---|
| 1251371 | 103 | 103 | 99 | 97 |
| 1251373 | 103 | 103 | 100 | 99 |
| 1251375 | 103 | 102 | 99 | 97 |
| 1251376 | 103 | 102 | 99 | 97 |
| 1251378 | 104 | 104 | 99 | 97 |
| 1251380 | 103 | 100 | 99 | 97 |
| 1251382 | 103 | 102 | 99 | 97 |
| 1251384 | 104 | 103 | 100 | 97 |
| 1251388 | 104 | 102 | 100 | 97 |
| 1251389 | 103 | 101 | 100 | 99 |
| 1251390 | 102 | 102 | 101 | 99 |
| 1251396 | 103 | 103 | 100 | 97 |
| 1251398 | 104 | 101 | 99 | 98 |
| 1251399 | 102 | 102 | 99 | 98 |
| Blank | 103 | 102 | 100 | 98 |
| LCS | 103 | 104 | 100 | 100 |
| MS | 103 | 101 | 100 | 99 |
| MSD | 102 | 102 | 101 | 99 |
| Limits: | 80-120 | 80-120 | 80-120 | 80-120 |

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 200340009A

| | Propene |
|---|---|
| 1251371 | 51 |
| 1251373 | 51 |
| 1251376 | 59 |
| 1251378 | 74 |
| 1251380 | 79 |
| 1251382 | 71 |
| 1251384 | 52 |
| 1251386 | 55 |
| 1251388 | 68 |
| 1251389 | 49 |
| 1251390 | 52 |
| 1251396 | 50 |
| Blank | 87 |
| LCS | 85 |
| MS | 49 |
| MSD | 52 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company Group Number: 2085883
Reported: 02/25/2020 11:22

## Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 200340009A

Limits: 46-135

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Chevron Generic Analysis Request/Chain of Custody

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Acct. # 11408 For Eurofins Lancaster Laboratories Environmental use only Group # 2085883 Sample # 125137-99

1 of 2

## Client Information

Facility # Purity Oil WBS

Site Address 3281 South Maple Avenue Fresno, CA

Chevron PM Nate Bloomgren Lead Consultant ARCADIS

Consultant/Office ARCADIS 3109 W. Dr. Martin Luther King Rd. Tampa Florida 33607

Consultant Project Mgr. Sam Miles

Sampler Heather Tauscher / Trevor Darraugh

State where samples were collected: California For Compliance: Yes ☒ No ☐

SCR #:

## Matrix

Soil ☐ Sediment ☐ Water ☒ Ground ☐ Potable ☐ NPDES ☐ Surface ☐ Oil ☐ Air ☐

## Analyses Requested

Preservation and Filtration Codes

| Sample Identification | Collected Date | Collected Time | Grab | Composite | Total Number of Containers | BTEX + MTBE 8021 ☐ 8260 ☐ Naphth ☐ | 8260 full scan VOC's | Oxygenates ____ | TPH-GRO 8015 ☐ 8260 ☐ | TPH-DRO without Silica Gel Cleanup ☐ | TPH-DRO with Silica Gel Cleanup ☐ | VPH ☐ EPH ☐ Method ____ | Lead Total ☐ Diss. ☐ Method ____ | Arsenic 6020 (Field Filtered) | Fe + Mn 6010 (Field Filtered) | Nitrate | MNA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-24I | 01/30/20 | 0949 | X | | 12 | | X | | | | | | | X | X | | X |
| MW-23 | 01/30/20 | 1161 | X | | 12 | | X | | | | | | | X | X | | X |
| MW-34I | 01/30/20 | 1147 | X | | 3 | | X | | | | | | | X | X | | |
| MW-25I | 01/30/20 | 1239 | X | | 12 | | X | | | | | | | X | X | | X |
| MW-44I | 01/30/20 | 1411 | X | | 12 | | X | | | | | | | X | X | | X |
| DUP1 | 01/30/20 | 1419 | X | | 12 | | X | | | | | | | X | X | | X |
| MW-44D | 01/30/20 | 1457 | X | | 12 | | X | | | | | | | X | X | | X |
| MW-11IP | 01/30/20 | 1525 | X | | 12 | | X | | | | | | | X | X | | X |
| MW-2D | 01/30/20 | 1609 | X | | 9 | | | | | | | | | X | X | | X |
| MW-48D | 01/30/20 | 1651 | X | | 36 | | X | | | | | | | X | X | | X |

Preservation Codes: H = HCl, T = Thiosulfate, N = $HNO_3$, B = NaOH, S = $H_2SO_4$, P = $H_3PO_4$, F = Field Filtered, O = Other

☐ Results in Dry Weight

☐ J value reporting needed

☐ Must meet lowest detection limits possible for 8260 compounds

Remarks: MS/MSD

**Turnaround Time Requested (TAT)** (please circle)

Standard | 5 day | 4 day | 72 hour | 48 hour | 24 hour

**Data Package** (circle if required)

Type I - Full | Type III | Type VI (Raw Data)

**EDD** (circle if required)

CVX-RTBU-FI_05 (default) Other: ____

| Relinquished by | Date | Time | Received by | Date | Time |
|---|---|---|---|---|---|
| Heather Tauscher | 01/31/20 | 0930 | FED EX | 01/31/20 | 0930 |
| Relinquished by | Date | Time | Received by | Date | Time |
| Relinquished by | Date | Time | Received by | Date | Time |
| Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____ | | | Received by | Date 2/1/2020 | Time 942 |

Temperature Upon Receipt 0.9/0.1 °C

Custody Seals Intact? Yes No

# Chevron Generic Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

Acct. # 11408 Group # 2085883 For Eurofins Lancaster Laboratories Environmental use only 251371-99

202

SCR #:

**Client Information**

Facility # Purity Oil WBS

Site Address 3281 South Maple Avenue Fresno, CA

Chevron PM Nate Bloomgren Lead Consultant ARCADIS

Consultant/Office 3109 W. Dr. Martin Luther King Road Tampa, Florida

Consultant Project Mgr. Sam Miles

Sampler Heather Tauscher / Trevor Darragh

State where samples were collected: California For Compliance: Yes ☒ No ☐

**Matrix**

Soil ☐ Sediment ☐ Water ☐ Potable ☒ Ground ☐ NPDES ☐ Surface ☐ Oil ☐ Air ☐

**Analyses Requested**

Preservation and Filtration Codes

| Sample Identification | Collected Date | Collected Time | Grab | Composite | Total Number of Containers | BTEX + MTBE 8021 ☐ 8260 ☐ Naphth ☐ | 8260 full scan VOC's | Oxygenates ___ | TPH-GRO 8015 ☐ 8260 ☐ | TPH-DRO without Silica Gel Cleanup ☐ | TPH-DRO with Silica Gel Cleanup ☐ | VPH ☐ EPH ☐ Method ___ | Lead Total ☐ Diss. ☐ Method ___ | Arsenic 6020 (Field Filtered) N | Fe + Mn 6010 N | MNA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-48I | 01/30/20 | 1727 | X | | 12 | | X | | | | | | (4) | X | X | X |
| TB01302020 | 01/30/20 | 0730 | X | | 2 | | X | | | | | | | | | |
| EB01302020 | 01/30/20 | 0745 | X | | 3 | | X | | | | | | | | | |

**Preservation Codes**

H = HCl T = Thiosulfate
N = $HNO_3$ B = NaOH
S = $H_2SO_4$ P = $H_3PO_4$
F = Field Filtered O = Other

☐ Results in Dry Weight

☐ J value reporting needed

☐ Must meet lowest detection limits possible for 8260 compounds

**Remarks**

**Turnaround Time Requested (TAT)** (please circle)

Standard 5 day 4 day
72 hour 48 hour 24 hour

**Data Package** (circle if required)

Type I - Full Type III Type VI (Raw Data)

**EDD** (circle if required)

CVX-RTBU-FI_05 (default) Other: ___

| Relinquished by | Date | Time | Received by | Date | Time |
|---|---|---|---|---|---|
| Heather Tauscher | 01/31/20 | 0930 | FED EX | 01/31/20 | 0930 |
| Relinquished by | Date | Time | Received by | Date | Time |
| Relinquished by | Date | Time | Received by | Date | Time |

Relinquished by Commercial Carrier: UPS ___ FedEx X Other ___

Received by Date 2/1/2020 Time 942

Temperature Upon Receipt 0.9 °C

Custody Seals Intact? Yes No

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The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

7047 1117

2085883

## Katherine Klinefelter

**From:** Fong, Bryan <Bryan.Fong@arcadis.com>
**Sent:** Wednesday, February 05, 2020 11:47 AM
**To:** Katherine Klinefelter
**Cc:** Miles, Samuel; Mattson, Ryan
**Subject:** FW: 2085883-Purity Oil-02/01/2020 9:42:00 Acknowledgement
**Attachments:** EAcknow_2085883.xls; 2085883c.pdf; 2085883d.pdf

EXTERNAL EMAIL*

Hi Katherine,

I reviewed the attached acknowledgement and see a few changes needed.
Please also analyze samples MW25I, MW-11IP, and MW-48I for arsenic.

Thank you,

Bryan A. Fong | Project Scientist | Bryan.Fong@arcadis.com Arcadis
100 Smith Ranch Road, Suite 328 | San Rafael, California 94903
Direct: 415.915.8089
Mobile: 415.202.3898
www.arcadis.com

Please consider the environment before printing this email.

-----Original Message-----
From: LLAutomatedReportingSystem@eurofins.com <LLAutomatedReportingSystem@eurofins.com>
Sent: Wednesday, February 5, 2020 7:32 AM
To: Mattson, Ryan <Ryan.Mattson@arcadis.com>; Fong, Bryan <Bryan.Fong@arcadis.com>; Miles, Samuel <Samuel.Miles@arcadis.com>
Subject: 2085883-Purity Oil-02/01/2020 9:42:00 Acknowledgement

The following is an acknowledgement of the receipt of samples by Eurofins Lancaster Laboratories Environmental, LLC. Please review this acknowledgement and contact your Client Service Representative if you have concerns.

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# Sample Administration Receipt Documentation Log

Doc Log ID: 274194

Group Number(s): 2085883

Client: PURITY OIL

## Delivery and Receipt Information

| | | | |
|---|---|---|---|
| Delivery Method: | Fed Ex | Arrival Date: | 02/01/2020 |
| Number of Packages: | 2 | Number of Projects: | 1 |
| State/Province of Origin: | CA | | |

## Arrival Condition Summary

| | | | |
|---|---|---|---|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | Yes | Sample Date/Times match COC: | Yes |
| Custody Seal Intact: | Yes | Total Trip Blank Qty: | 2 |
| Samples Chilled: | Yes | Trip Blank Type: | HCl |
| Paperwork Enclosed: | Yes | Air Quality Samples Present: | No |
| Samples Intact: | Yes | | |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

*Unpacked by Jessenia Colon Martinez*

## Samples Chilled Details

*Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.*

| Cooler # | Thermometer ID | Corrected Temp | Therm. Type | Ice Type | Ice Present? | Ice Container | Elevated Temp? |
|---|---|---|---|---|---|---|---|
| 1 | 192050133 | 0.9 | IR | Wet | Y | Bagged | N |
| 2 | 192050133 | 0.1 | IR | Wet | Y | Bagged | N |



2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

# Explanation of Symbols and Abbreviations

*The following defines common symbols and abbreviations used in reporting technical data:*

| | | | |
|---|---|---|---|
| **BMQL** | Below Minimum Quantitation Level | **mL** | milliliter(s) |
| **C** | degrees Celsius | **MPN** | Most Probable Number |
| **cfu** | colony forming units | **N.D.** | non-detect |
| **CP Units** | cobalt-chloroplatinate units | **ng** | nanogram(s) |
| **F** | degrees Fahrenheit | **NTU** | nephelometric turbidity units |
| **g** | gram(s) | **pg/L** | picogram/liter |
| **IU** | International Units | **RL** | Reporting Limit |
| **kg** | kilogram(s) | **TNTC** | Too Numerous To Count |
| **L** | liter(s) | **µg** | microgram(s) |
| **lb.** | pound(s) | **µL** | microliter(s) |
| **m3** | cubic meter(s) | **umhos/cm** | micromhos/cm |
| **meq** | milliequivalents | **MCL** | Maximum Contamination Limit |
| **mg** | milligram(s) | | |

| | |
|---|---|
| **<** | less than |
| **>** | greater than |
| **ppm** | parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas. |
| **ppb** | parts per billion |
| **Dry weight basis** | Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis. |

**Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.**

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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# Data Qualifiers

| Qualifier | Definition |
|---|---|
| C | Result confirmed by reanalysis |
| D1 | Indicates for dual column analyses that the result is reported from column 1 |
| D2 | Indicates for dual column analyses that the result is reported from column 2 |
| E | Concentration exceeds the calibration range |
| K1 | Initial Calibration Blank is above the QC limit and the sample result is ND |
| K2 | Continuing Calibration Blank is above the QC limit and the sample result is ND |
| K3 | Initial Calibration Verification is above the QC limit and the sample result is ND |
| K4 | Continuing Calibration Verification is above the QC limit and the sample result is ND |
| J (or G, I, X) | Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL) |
| P | Concentration difference between the primary and confirmation column >40%. The lower result is reported. |
| P^ | Concentration difference between the primary and confirmation column > 40%. The higher result is reported. |
| U | Analyte was not detected at the value indicated |
| V | Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference. |
| W | The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L. |
| Z | Laboratory Defined - see analysis report |

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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# Type I Data Package

**Prepared for:**

**Chevron Env Management Company**
6101 Bollinger Canyon Road
San Ramon CA 94583

Project: Purity Oil
Groundwater and Water Samples
Collected on 01/30/20

## SDG# PUP93

| GROUP | SAMPLE NUMBERS |
|---|---|
| 2085883 | 1251371-1251399 |

PA Cert. # 36-00037
NY Cert. # 10670
NJ Cert. # PA011
NC Cert. # 521
TX Cert. # T104704194-20-35
AZ Cert. # AZ0780

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client.

**Authorized by:** Dana M Kauffman **Date:** **03/04/2020**

Dana M. Kauffman
Manager

Any questions or concerns you might have regarding this data package should be directed to your client representative, Katherine Klinefelter at (717) 556-7256.

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# Table of Contents for SDG# PUP93

1. Sample Reference List .....4
2. Preservation Data .....5
3. Methodology Summary/Reference .....8
4. Analysis Reports / Field Chain of Custody .....10
5. Volatiles by GC/MS Data .....85
    a. Case Narrative/Conformance Summary .....86
    b. Quality Control and Calibration Summary Forms .....89
    c. Sample Data .....116
    d. Standards Data .....180
    e. Raw QC Data .....406
6. CO2 by Headspace Data .....461
    a. Case Narrative/Conformance Summary .....462
    b. Quality Control and Calibration Summary Forms .....465
    c. Sample Data .....480
    d. Standards Data .....511
    e. Raw QC Data .....528
    f. Extraction/Distillation/Digestion Logs .....541
7. Volatile Headspace Hydrocarbons by GC Data .....543
    a. Case Narrative/Conformance Summary .....544
    b. Quality Control and Calibration Summary Forms .....547
    c. Sample Data .....574
    d. Standards Data .....610
    e. Raw QC Data .....632
    f. Extraction/Distillation/Digestion Logs .....651
8. Metals in Liquid Data .....654
    a. Case Narrative/Conformance Summary .....655
    b. Sample Data .....658
    c. Quality Control and Calibration Summary Forms .....672
    d. Raw Data .....728
        i. ICP Data .....729
        ii. ICP-MS Data .....776
    e. Extraction/Distillation/Digestion Logs .....902
9. Instrumental Wet Chemistry Data .....917
    a. Case Narrative/Conformance Summary .....918

b. Quality Control and Calibration Summary Forms .....921
c. Raw Data .....932
10. Wet Chemistry Data .....1007
a. Case Narrative/Conformance Summary .....1008
b. QC Summary .....1011
c. Raw Data .....1018

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## Sample Reference List for SDG Number PUP93
## with a Data Package Type of I

**11408 - Chevron Env Management Company**

Project: Purity Oil

| Lab Sample Number | Client Sample ID | Collection Date | Date Received |
|---|---|---|---|
| 1251371 | MW-24I-W-200130 | 01/30/2020 09:49 | 02/01/2020 09:42 |
| 1251372 | MW-24I-W-200130 | 01/30/2020 09:49 | 02/01/2020 09:42 |
| 1251373 | MW-23-W-200130 | 01/30/2020 11:01 | 02/01/2020 09:42 |
| 1251374 | MW-23-W-200130 | 01/30/2020 11:01 | 02/01/2020 09:42 |
| 1251375 | MW-34I-W-200130 | 01/30/2020 11:47 | 02/01/2020 09:42 |
| 1251376 | MW-25I-W-200130 | 01/30/2020 12:39 | 02/01/2020 09:42 |
| 1251377 | MW-25I-W-200130 | 01/30/2020 12:39 | 02/01/2020 09:42 |
| 1251378 | MW-44I-W-200130 | 01/30/2020 14:11 | 02/01/2020 09:42 |
| 1251379 | MW-44I-W-200130 | 01/30/2020 14:11 | 02/01/2020 09:42 |
| 1251380 | DUP1-WD-200130 | 01/30/2020 14:19 | 02/01/2020 09:42 |
| 1251381 | DUP1-WD-200130 | 01/30/2020 14:19 | 02/01/2020 09:42 |
| 1251382 | MW-44D-W-200130 | 01/30/2020 14:57 | 02/01/2020 09:42 |
| 1251383 | MW-44D-W-200130 | 01/30/2020 14:57 | 02/01/2020 09:42 |
| 1251384 | MW-11IP-W-200130 | 01/30/2020 15:25 | 02/01/2020 09:42 |
| 1251385 | MW-11IP-W-200130 | 01/30/2020 15:25 | 02/01/2020 09:42 |
| 1251386 | MW-2D-W-200130 | 01/30/2020 16:09 | 02/01/2020 09:42 |
| 1251387 | MW-2D-W-200130 | 01/30/2020 16:09 | 02/01/2020 09:42 |
| 1251388 | MW-48D-W-200130 | 01/30/2020 16:51 | 02/01/2020 09:42 |
| 1251389 | MW-48DMS-W-200130 | 01/30/2020 16:51 | 02/01/2020 09:42 |
| 1251390 | MW-48DMSD-W-200130 | 01/30/2020 16:51 | 02/01/2020 09:42 |
| 1251391 | MW-48DDUP-W-200130 | 01/30/2020 16:51 | 02/01/2020 09:42 |
| 1251392 | MW-48D-W-200130 | 01/30/2020 16:51 | 02/01/2020 09:42 |
| 1251393 | MW-48DMS-W-200130 | 01/30/2020 16:51 | 02/01/2020 09:42 |
| 1251394 | MW-48DMSD-W-200130 | 01/30/2020 16:51 | 02/01/2020 09:42 |
| 1251395 | MW-48DDUP-W-200130 | 01/30/2020 16:51 | 02/01/2020 09:42 |
| 1251396 | MW-48I-W-200130 | 01/30/2020 17:27 | 02/01/2020 09:42 |
| 1251397 | MW-48I-W-200130 | 01/30/2020 17:27 | 02/01/2020 09:42 |
| 1251398 | TB-T-200130 | 01/30/2020 07:30 | 02/01/2020 09:42 |
| 1251399 | EB-R-200130 | 01/30/2020 07:45 | 02/01/2020 09:42 |

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# Sample pH Log

## SDG: PUP93

| LLI Sample Number | Bottle Code | Actual pH | Exp. pH | *pH Check Code | Adj. pH | Adjusted Date | Adjusted Time | Preservative Added | Preservative Lot # | LLI Supplied Bottle? | Sulfide Present? | Corrective Substance | CS Lot # | **Chlorine Present? | Corrective Substance | CS Lot # | Record Date | Employee |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1251371 | 038A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/6/2020 9:08:22AM | 9052 |
| 1251371 | 057A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/7/2020 12:26:01PM | 32136 |
| 1251371 | 070A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:28:50PM | 12190 |
| 1251371 | 091A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:37:59PM | 12190 |
| 1251371 | 091B | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:38:13PM | 12190 |
| 1251371 | 332A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:28:50PM | 12190 |
| 1251372 | 008A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 9:25:37AM | 16577 |
| 1251373 | 038A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/6/2020 9:08:16AM | 9052 |
| 1251373 | 057A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/7/2020 12:26:01PM | 32136 |
| 1251373 | 070A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:30:15PM | 12190 |
| 1251373 | 091A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:35:57PM | 12190 |
| 1251373 | 091B | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:36:06PM | 12190 |
| 1251373 | 332A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:30:15PM | 12190 |
| 1251374 | 008A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 9:36:14AM | 16577 |
| 1251375 | 038A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | N | NA | NA | 2/6/2020 9:08:16AM | 9052 |
| 1251376 | 038A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/6/2020 9:08:16AM | 9052 |
| 1251376 | 057A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/7/2020 12:26:01PM | 32136 |
| 1251376 | 070A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:19:43PM | 12190 |
| 1251376 | 091A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:35:37PM | 12190 |
| 1251376 | 091B | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:35:47PM | 12190 |
| 1251376 | 332A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:19:43PM | 12190 |
| 1251377 | 008A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 9:26:33AM | 16577 |
| 1251378 | 038A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/6/2020 9:08:16AM | 9052 |
| 1251378 | 057A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/7/2020 12:26:01PM | 32136 |
| 1251378 | 070A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:15:59PM | 12190 |
| 1251378 | 091A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:34:02PM | 12190 |
| 1251378 | 091B | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:34:12PM | 12190 |
| 1251378 | 332A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:15:59PM | 12190 |
| 1251379 | 008A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 9:43:13AM | 16577 |
| 1251380 | 038A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/6/2020 9:08:16AM | 9052 |
| 1251380 | 057A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/7/2020 12:26:01PM | 32136 |
| 1251380 | 070A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:18:54PM | 12190 |
| 1251380 | 091A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:33:42PM | 12190 |
| 1251380 | 091B | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:33:52PM | 12190 |
| 1251380 | 332A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:18:54PM | 12190 |
| 1251381 | 008A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 9:55:34AM | 16577 |
| 1251382 | 038A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/6/2020 9:08:16AM | 9052 |
| 1251382 | 057A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/7/2020 12:26:01PM | 32136 |

| LLI Sample Number | Bottle Code | Actual pH | Exp. pH | *pH Check Code | Adj. pH | Adjusted Date | Adjusted Time | Preservative Added | Preservative Lot # | LLI Supplied Bottle? | Sulfide Present? | Corrective Substance | CS Lot # | **Chlorine Present? | Corrective Substance | CS Lot # | Record Date | Employee |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1251382 | 070A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:22:58PM | 12190 |
| 1251382 | 091A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:44:15PM | 12190 |
| 1251382 | 091B | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:44:26PM | 12190 |
| 1251382 | 332A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:22:58PM | 12190 |
| 1251383 | 008A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 9:56:36AM | 16577 |
| 1251384 | 038A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/6/2020 9:08:16AM | 9052 |
| 1251384 | 057A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/7/2020 12:26:01PM | 32136 |
| 1251384 | 070A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:06:27PM | 12190 |
| 1251384 | 091A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:43:52PM | 12190 |
| 1251384 | 091B | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:44:04PM | 12190 |
| 1251384 | 332A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:06:27PM | 12190 |
| 1251385 | 008A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 9:46:00AM | 16577 |
| 1251386 | 057A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/7/2020 12:26:01PM | 32136 |
| 1251386 | 070A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:23:41PM | 12190 |
| 1251386 | 091A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:41:47PM | 12190 |
| 1251386 | 091B | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:41:57PM | 12190 |
| 1251386 | 332A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:23:41PM | 12190 |
| 1251387 | 008A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 9:46:45AM | 16577 |
| 1251388 | 038A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/6/2020 9:08:16AM | 9052 |
| 1251388 | 057A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/7/2020 12:26:01PM | 32136 |
| 1251388 | 057B | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/7/2020 12:26:01PM | 32136 |
| 1251388 | 070A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:25:38PM | 12190 |
| 1251388 | 091A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:42:07PM | 12190 |
| 1251388 | 091B | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:42:19PM | 12190 |
| 1251388 | 332A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:25:38PM | 12190 |
| 1251389 | 038A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/6/2020 9:08:16AM | 9052 |
| 1251389 | 057A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/7/2020 12:26:01PM | 32136 |
| 1251389 | 070A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:24:58PM | 12190 |
| 1251389 | 091A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:40:10PM | 12190 |
| 1251389 | 091B | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:40:20PM | 12190 |
| 1251389 | 332A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:24:58PM | 12190 |
| 1251390 | 038A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/6/2020 9:08:16AM | 9052 |
| 1251390 | 057A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/7/2020 12:26:02PM | 32136 |
| 1251390 | 070A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:28:07PM | 12190 |
| 1251390 | 332A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:28:07PM | 12190 |
| 1251391 | 091A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:39:46PM | 12190 |
| 1251391 | 091B | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:39:59PM | 12190 |
| 1251392 | 008A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 9:53:38AM | 16577 |
| 1251393 | 008A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 9:23:18AM | 16577 |
| 1251394 | 008A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 9:57:40AM | 16577 |
| 1251396 | 038A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/6/2020 9:08:16AM | 9052 |
| 1251396 | 057A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/7/2020 12:26:02PM | 32136 |
| 1251396 | 070A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:31:39PM | 12190 |
| 1251396 | 091A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:37:33PM | 12190 |

| LLI Sample Number | Bottle Code | Actual pH | Exp. pH | *pH Check Code | Adj. pH | Adjusted Date | Adjusted Time | Preservative Added | Preservative Lot # | LLI Supplied Bottle? | Sulfide Present? | Corrective Substance | CS Lot # | **Chlorine Present? | Corrective Substance | CS Lot # | Record Date | Employee |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1251396 | 091B | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:37:44PM | 12190 |
| 1251396 | 332A | 7 | 5-9 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 5:31:39PM | 12190 |
| 1251397 | 008A | <2 | <2 | PK | NA | NA | NA | NA | NA | Y | NA | NA | NA | NA | NA | NA | 2/3/2020 9:24:57AM | 16577 |
| 1251398 | 038A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | N | NA | NA | 2/6/2020 9:08:16AM | 9052 |
| 1251399 | 038A | <2 | <2 | NA | NA | NA | NA | NA | NA | Y | NA | NA | NA | N | NA | NA | 2/6/2020 9:08:16AM | 9052 |

| ***pH Check Code Key** |
|---|
| **PK** = Original container checked - pH is within the correct range. (No preservative was added) |
| **PA** = Original container checked - pH adjusted to correct range. (Preservative was added) |
| **PV** = Volatile container checked |
| **PC** = pH checked (unpreserved container) |
| **SPK** = Subsampled from an original container. Original container checked - pH is within correct range |
| **SPA** = Subsampled from an original container. Subsample container checked - pH adjusted to correct range. |
| **SPC** = Subsampled from an original container. pH checked (unpreserved container). |
| **SUP** = Subsampled from original container. Unable to be preserved due to the matrix of the sample. |
| **UP** = Unable to preserve due to matrix of the sample. |
| **NA** = Not applicable |

| ****Chlorine Present Code Key** |
|---|
| **NA** = Chlorine Not Checked |
| **Y** = Chlorine Present |
| **N** = Chlorine Not Present |

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**01163 GC/MS VOA Water Prep**

An undiluted aliquot of the water sample or a dilution of the sample is purged with an inert gas and the volatiles are collected on an adsorbent trap that is subsequently desorbed onto a gas chromatographic column.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 5030B, December 1996.

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**02898 VOCs- 25ml Water by 8260B**

The water sample is purged and the volatile compounds are collected on a sorbent trap that is subsequently desorbed onto the GC/MS system for chromatographic and mass spectral analysis.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 8260B, December 1996.

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**14866 ICP filtered no-digest SW-846**

The sample is digested with nitric acid and hydrochloric acid.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 3005A, July 1992

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**01754 Iron**
**07058 Manganese**

The solution resulting from the metals digestion is analyzed by Trace ICP.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 6010B, December 1996.

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**06025 Arsenic**

The solution resulting from the metals digestion is analyzed by ICP/MS.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 6020, September 1994.

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**15114 ICPMS filtered no digest SW846**

The sample is digested with nitric acid.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 3020A, July 1992

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**00224 Chloride**
**00368 Nitrate Nitrogen**
**00228 Sulfate**

A small volume of sample is introduced into an ion chromatograph. The anions are then separated and measured by a system consisting of a guard column, separator column, suppressor, and conductivity detector.

Reference: Method 300.0, Revision 2.1 (1993), Methods for Chemical Analysis of Water and Wastes USEPA 600.

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### 00273 Total Organic Carbon

TOC is determined by first removing the inorganic carbon from a sample. The remaining carbon is then oxidized to carbon dioxide, which is measured by a nondispersive infrared detector. The mass of carbon dioxide detected is proportional to the mass of TOC in the sample.

Reference: Standard Methods for the Examination of Water and Wastewater, 21st Edition, 2005, Method 5310 C-2000

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### 12707 Phenolphthalein Alk. to pH 8.3

Alkalinity is determined by titrating the sample with standardized sulfuric acid to pH of 8.3 for the phenolphthalein alkalinity.

Reference: Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998, Method 2320 B-1997

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### 12150 Total Alkalinity to pH 4.5

Alkalinity is determined by titrating the sample with standardized sulfuric acid to a pH of 4.5 for the total alkalinity.

Reference: Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998, Method 2320 B-1997

---

### 07105 Volatile Headspace Hydrocarbon

An aliquot of sample is place in a headspace vial and warmed to 35C. A portion of the headspace is analyzed on a gas chromatograph with megabore column and flame ionization detection.

Reference: Test Methods for Evaluating Solid Wastes SW-846, Method 8015B Modified, December 1996.

---

### 08097 CO2 by Headspace

An aliquot of sample is placed in a headspace vial and warmed to 35C. A portion of the headspace is analyzed on a gas chromatograph and thermal conductivity detector.

Reference: Test Methods for Evaluating Solid Wastes SW-846, Method 8015B Modified, December 1996.

# Analysis Reports / Field Chain of Custody

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# ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Env Management Company
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: February 25, 2020 11:22

**Project: Purity Oil**

Account #: 11408
Group Number: 2085883
SDG: PUP93
PO Number: 0015318774
Release Number: BLOMGREN
State of Sample Origin: CA

| | | |
|---|---|---|
| Electronic Copy To | Arcadis | Attn: Ryan Mattson |
| Electronic Copy To | Arcadis | Attn: Bryan Fong |
| Electronic Copy To | Arcadis | Attn: Samuel Miles |

Respectfully Submitted,

Katherine A. Klinefelter

Katherine A. Klinefelter
Principal Specialist

(717) 556-7256

To view our laboratory's current scopes of accreditation please go to https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/ . Historical copies may be requested through your project manager.

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## SAMPLE INFORMATION

| Client Sample Description | Sample Collection Date/Time | ELLE# |
|---|---|---|
| MW-24I-W-200130 Grab Groundwater | 01/30/2020 09:49 | 1251371 |
| MW-24I-W-200130 Filtered Grab Groundwater | 01/30/2020 09:49 | 1251372 |
| MW-23-W-200130 Grab Groundwater | 01/30/2020 11:01 | 1251373 |
| MW-23-W-200130 Filtered Grab Groundwater | 01/30/2020 11:01 | 1251374 |
| MW-34I-W-200130 Grab Groundwater | 01/30/2020 11:47 | 1251375 |
| MW-25I-W-200130 Grab Groundwater | 01/30/2020 12:39 | 1251376 |
| MW-25I-W-200130 Filtered Grab Groundwater | 01/30/2020 12:39 | 1251377 |
| MW-44I-W-200130 Grab Groundwater | 01/30/2020 14:11 | 1251378 |
| MW-44I-W-200130 Filtered Grab Groundwater | 01/30/2020 14:11 | 1251379 |
| DUP1-WD-200130 Grab Groundwater | 01/30/2020 14:19 | 1251380 |
| DUP1-WD-200130 Filtered Grab Groundwater | 01/30/2020 14:19 | 1251381 |
| MW-44D-W-200130 Grab Groundwater | 01/30/2020 14:57 | 1251382 |
| MW-44D-W-200130 Filtered Grab Groundwater | 01/30/2020 14:57 | 1251383 |
| MW-11IP-W-200130 Grab Groundwater | 01/30/2020 15:25 | 1251384 |
| MW-11IP-W-200130 Filtered Grab Groundwater | 01/30/2020 15:25 | 1251385 |
| MW-2D-W-200130 Grab Groundwater | 01/30/2020 16:09 | 1251386 |
| MW-2D-W-200130 Filtered Grab Groundwater | 01/30/2020 16:09 | 1251387 |
| MW-48D-W-200130 Grab Groundwater | 01/30/2020 16:51 | 1251388 |
| MW-48DMS-W-200130 Grab Groundwater | 01/30/2020 16:51 | 1251389 |
| MW-48DMSD-W-200130 Grab Groundwater | 01/30/2020 16:51 | 1251390 |
| MW-48DDUP-W-200130 Grab Groundwater | 01/30/2020 16:51 | 1251391 |
| MW-48D-W-200130 Filtered Grab Groundwater | 01/30/2020 16:51 | 1251392 |
| MW-48DMS-W-200130 Filtered Grab Groundwater | 01/30/2020 16:51 | 1251393 |
| MW-48DMSD-W-200130 Filtered Grab Groundwater | 01/30/2020 16:51 | 1251394 |
| MW-48DDUP-W-200130 Filtered Grab Groundwater | 01/30/2020 16:51 | 1251395 |
| MW-48I-W-200130 Grab Groundwater | 01/30/2020 17:27 | 1251396 |
| MW-48I-W-200130 Filtered Grab Groundwater | 01/30/2020 17:27 | 1251397 |
| TB-T-200130 NA Water | 01/30/2020 07:30 | 1251398 |
| EB-R-200130 Grab Water | 01/30/2020 07:45 | 1251399 |

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

**Sample Description:** **MW-24I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 09:49
SDG#: PUP93-01

**Chevron Env Management Company**
**ELLE Sample #: GW 1251371**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-24I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 09:49
SDG#: PUP93-01

**Chevron Env Management Company**
**ELLE Sample #: GW 1251371**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 12,000 | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 16,800 | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 5,600 | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 49,500 | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-24I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 09:49
SDG#: PUP93-01

**Chevron Env Management Company**
**ELLE Sample #: GW 1251371**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 288,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 22:14 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 22:13 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:05 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 15:09 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 2 | 20032720113A | 02/04/2020 06:25 | Drew M Gerhart | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:26 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/04/2020 06:25 | Drew M Gerhart | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 12:22 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005202A | 02/11/2020 00:14 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005202A | 02/11/2020 00:14 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-24I-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 09:49
SDG#: PUP93-02

**Chevron Env Management Company**
**ELLE Sample #: GW 1251372**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | | **SW-846 6010B** | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | 39.9 | 3.1 | 10.3 | 1 |
| | | **SW-846 6020** | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 1.4 J | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:27 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:27 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200351511401A | 02/04/2020 18:19 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200351511401 | 02/04/2020 05:50 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-23-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 11:01
SDG#: PUP93-03

**Chevron Env Management Company**
**ELLE Sample #: GW 1251373**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-23-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 11:01
SDG#: PUP93-03

**Chevron Env Management Company**
**ELLE Sample #: GW 1251373**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 9,300 | J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | 4.4 | J | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 14,000 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 2,900 | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 34,900 | | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-23-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 11:01
SDG#: PUP93-03

**Chevron Env Management Company**
**ELLE Sample #: GW 1251373**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 169,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 22:36 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 22:35 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:13 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 15:27 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:41 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:41 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:41 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 12:35 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005202A | 02/11/2020 00:20 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005202A | 02/11/2020 00:20 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-23-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 11:01
SDG#: PUP93-04

**Chevron Env Management Company**
**ELLE Sample #: GW 1251374**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | N.D. | 3.1 | 10.3 | 1 |
| | **SW-846 6020** | | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 2.3 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:30 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:30 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200351511401A | 02/04/2020 18:08 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200351511401 | 02/04/2020 05:50 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-34I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 11:47
SDG#: PUP93-05

**Chevron Env Management Company**
**ELLE Sample #: GW 1251375**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-34I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 11:47
SDG#: PUP93-05

**Chevron Env Management Company**
**ELLE Sample #: GW 1251375**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | 0.05 | 0.5 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 22:59 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 22:58 | Miranda Campbell | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-25I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 12:39
SDG#: PUP93-06

**Chevron Env Management Company**
**ELLE Sample #: GW 1251376**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-25I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 12:39
SDG#: PUP93-06

**Chevron Env Management Company**
**ELLE Sample #: GW 1251376**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | 0.1 | J | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 5,200 | J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 9,400 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 3,600 | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 22,100 | | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-25I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 12:39
SDG#: PUP93-06

**Chevron Env Management Company**
**ELLE Sample #: GW 1251376**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 166,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 23:21 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 23:20 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:21 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 15:45 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:56 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:56 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:56 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 12:49 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:56 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:56 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-25I-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 12:39
SDG#: PUP93-07

**Chevron Env Management Company**
**ELLE Sample #: GW 1251377**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | | **SW-846 6010B** | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | N.D. | 3.1 | 10.3 | 1 |
| | | **SW-846 6020** | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 2.6 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:33 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:33 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200371511402A | 02/11/2020 10:35 | Janeyah Rivers-Hamilton | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200371511402 | 02/06/2020 16:20 | JoElla L Rice | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:11
SDG#: PUP93-08

**Chevron Env Management Company**
**ELLE Sample #: GW 1251378**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:11
SDG#: PUP93-08

**Chevron Env Management Company**
**ELLE Sample #: GW 1251378**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 3,700 | J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 3,800 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 1,300 | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 9,600 | | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:11
SDG#: PUP93-08

**Chevron Env Management Company**
**ELLE Sample #: GW 1251378**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 80,500 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 23:43 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 23:42 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:36 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 16:03 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:12 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:12 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:12 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 13:02 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:29 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:29 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44I-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:11
SDG#: PUP93-09

**Chevron Env Management Company**
**ELLE Sample #: GW 1251379**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | 10.6 | 3.1 | 10.3 | 1 |
| | **SW-846 6020** | | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 2.5 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:37 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:37 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200351511401A | 02/04/2020 18:02 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200351511401 | 02/04/2020 05:50 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **DUP1-WD-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:19
SDG#: PUP93-10FD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251380**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **DUP1-WD-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:19
SDG#: PUP93-10FD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251380**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 4,900 | J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 3,700 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 1,300 | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 9,000 | | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **DUP1-WD-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:19
SDG#: PUP93-10FD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251380**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 80,100 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/06/2020 01:35 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/06/2020 01:34 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:44 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 16:21 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:27 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:27 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:27 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 13:15 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:23 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:23 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **DUP1-WD-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:19
SDG#: PUP93-11FD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251381**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | 13.1 | 3.1 | 10.3 | 1 |
| | **SW-846 6020** | | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 2.5 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:40 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:40 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200351511401A | 02/04/2020 18:12 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200351511401 | 02/04/2020 05:50 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:57
SDG#: PUP93-12

**Chevron Env Management Company**
**ELLE Sample #: GW 1251382**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:57
SDG#: PUP93-12

**Chevron Env Management Company**
**ELLE Sample #: GW 1251382**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | N.D. | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 2,800 | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 1,600 | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 7,900 | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:57
SDG#: PUP93-12

**Chevron Env Management Company**
**ELLE Sample #: GW 1251382**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 102,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/06/2020 01:57 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/06/2020 01:56 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:52 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 16:40 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:42 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:42 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:42 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 13:29 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:43 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:43 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44D-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:57
SDG#: PUP93-13

**Chevron Env Management Company**
**ELLE Sample #: GW 1251383**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | | **SW-846 6010B** | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | N.D. | 3.1 | 10.3 | 1 |
| | | **SW-846 6020** | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 9.6 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:43 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:43 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200351511401A | 02/04/2020 18:04 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200351511401 | 02/04/2020 05:50 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-11IP-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 15:25
SDG#: PUP93-14

**Chevron Env Management Company**
**ELLE Sample #: GW 1251384**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-11IP-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 15:25
SDG#: PUP93-14

**Chevron Env Management Company**
**ELLE Sample #: GW 1251384**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | 0.05 J | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | 0.1 J | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 8,600 J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 16,400 | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 3,800 | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 82,800 | 3,000 | 10,000 | 10 |
| | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-11IP-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 15:25
SDG#: PUP93-14

**Chevron Env Management Company**
**ELLE Sample #: GW 1251384**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 145,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/06/2020 02:19 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/06/2020 02:18 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:59 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 16:57 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:57 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:57 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/04/2020 07:17 | Drew M Gerhart | 10 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 13:42 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:36 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:36 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-11IP-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 15:25
SDG#: PUP93-15

**Chevron Env Management Company**
**ELLE Sample #: GW 1251385**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | | **SW-846 6010B** | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | N.D. | 3.1 | 10.3 | 1 |
| | | **SW-846 6020** | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 2.0 J | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:46 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:46 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200371511402A | 02/11/2020 10:37 | Janeyah Rivers-Hamilton | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200371511402 | 02/06/2020 16:20 | JoElla L Rice | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-2D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:09
SDG#: PUP93-16

**Chevron Env Management Company**
**ELLE Sample #: GW 1251386**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | N.D. | | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 6,100 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 760 | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 4,800 | J | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | | 500 | 1,000 | 1 |
| | **SM 2320 B-1997** | | **ug/l as CaCO3** | | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 75,300 | | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 13:07 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 17:15 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:12 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:12 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:12 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 13:56 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:49 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:49 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-2D-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:09
SDG#: PUP93-17

**Chevron Env Management Company**
**ELLE Sample #: GW 1251387**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | | **SW-846 6010B** | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | 5.3 J | 3.1 | 10.3 | 1 |
| | | **SW-846 6020** | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 3.5 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:49 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:49 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200351511401A | 02/04/2020 17:58 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200351511401 | 02/04/2020 05:50 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18BKG

**Chevron Env Management Company**
**ELLE Sample #: GW 1251388**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18BKG

**Chevron Env Management Company**
**ELLE Sample #: GW 1251388**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 5,400 | J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | 1,000 | | 15 | 25 | 5 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 3,900 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | N.D. | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 6,600 | | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18BKG

**Chevron Env Management Company**
**ELLE Sample #: GW 1251388**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 142,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/06/2020 00:06 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/06/2020 00:05 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 11:27 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 12:13 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/04/2020 16:39 | Esther Kathryn Lane | 5 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:27 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:27 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:27 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 14:37 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005202A | 02/10/2020 23:34 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005202A | 02/10/2020 23:34 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DMS-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18MS

**Chevron Env Management Company**
**ELLE Sample #: GW 1251389**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | 35 | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | 4.7 | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | 4.4 | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | 4.9 | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | 35 | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | 54 | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | 5.0 | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | 5.0 | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | 5.5 | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | 5.1 | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | 5.2 | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | 4.7 | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | 4.8 | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | 4.8 | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | 4.5 | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | 4.7 | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | 4.8 | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | 4.9 | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | 4.2 | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | 5.2 | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | 5.2 | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | 5.3 | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | 5.2 | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | 4.8 | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | 5.1 | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | 5.3 | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | 4.6 | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | 4.3 | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DMS-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18MS

**Chevron Env Management Company**
**ELLE Sample #: GW 1251389**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | 5.2 | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | 5.2 | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | 4.7 | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | 25 | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | 5.1 | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | 4.4 | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | 4.6 | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | 5.4 | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | 4.5 | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | 4.7 | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | 5.2 | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | 5.3 | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | 6.2 | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | 4.7 | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | 4.8 | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | 5.2 | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | 10 | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | 4.9 | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 29,000 | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | 34 | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | 36 | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | 790 E | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 13,500 | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 2,600 | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 30,500 | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DMS-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18MS

**Chevron Env Management Company**
**ELLE Sample #: GW 1251389**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | 10,400 | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 319,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | 101,000 | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/06/2020 00:28 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/06/2020 00:27 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 11:34 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 12:31 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:42 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:42 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:42 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 14:51 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005202A | 02/10/2020 23:41 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005202A | 02/10/2020 23:41 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DMSD-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18MSD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251390**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | 38 | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | 4.7 | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | 4.4 | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | 5.0 | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | 38 | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | 56 | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | 5.1 | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | 5.1 | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | 5.5 | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | 5.1 | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | 5.3 | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | 4.9 | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | 4.8 | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | 4.7 | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | 4.8 | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | 5.0 | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | 4.5 | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | 5.2 | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | 5.2 | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | 5.3 | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | 5.2 | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | 5.1 | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | 5.3 | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | 4.6 | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | 4.3 | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DMSD-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18MSD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251390**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | 5.2 | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | 5.3 | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | 4.8 | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | 25 | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | 5.0 | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | 4.5 | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | 4.6 | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | 5.4 | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | 5.1 | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | 4.6 | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | 4.8 | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | 5.2 | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | 5.0 | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | 5.3 | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | 6.4 | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | 4.8 | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | 4.8 | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | 4.9 | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | 5.3 | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | 10 | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | 5.0 | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 41,000 | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | 36 | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | 38 | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | 750 E | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 314,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | 98,600 | 2,600 | 8,000 | 1 |

**Sample Comments**

CA ELAP Lab Certification No. 2792

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DMSD-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18MSD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251390**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/06/2020 00:50 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/06/2020 00:49 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 11:42 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 12:49 | Esther Kathryn Lane | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005202A | 02/10/2020 23:47 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005202A | 02/10/2020 23:47 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DDUP-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18DUP

**Chevron Env Management Company**
**ELLE Sample #: GW 1251391**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 4,100 | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | N.D. | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 6,500 | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 141,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 14:27 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 14:27 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 14:27 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 15:05 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005202A | 02/10/2020 23:54 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005202A | 02/10/2020 23:54 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48D-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-19BKG

**Chevron Env Management Company**
**ELLE Sample #: GW 1251392**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **ug/l** | | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | 58.4 | J | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | 539 | | 3.1 | 10.3 | 1 |
| | **SW-846 6020** | | **ug/l** | | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 7.9 | | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 21:52 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 21:52 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200341511401A | 02/04/2020 16:34 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200341511401 | 02/03/2020 19:55 | JoElla L Rice | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DMS-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-19MS

**Chevron Env Management Company**
**ELLE Sample #: GW 1251393**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | | **SW-846 6010B** | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | 379 | 41.8 | 209 | 1 |
| 07058 | Manganese | 7439-96-5 | 589 | 3.1 | 10.4 | 1 |
| | | **SW-846 6020** | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 19.1 | 0.71 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:02 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:02 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200341511401A | 02/04/2020 16:40 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200341511401 | 02/03/2020 19:55 | JoElla L Rice | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DMSD-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-19MSD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251394**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | 381 | 41.8 | 209 | 1 |
| 07058 | Manganese | 7439-96-5 | 577 | 3.1 | 10.4 | 1 |
| | **SW-846 6020** | | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 19.1 | 0.71 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:05 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:05 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200341511401A | 02/04/2020 16:41 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200341511401 | 02/03/2020 19:55 | JoElla L Rice | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48DDUP-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-19DUP

**Chevron Env Management Company**
**ELLE Sample #: GW 1251395**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **Metals Dissolved** | | **SW-846 6010B** | **ug/l** | | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | 62.7 | J | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | 542 | | 3.1 | 10.3 | 1 |
| | | **SW-846 6020** | **ug/l** | | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 7.8 | | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 21:59 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 21:59 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200341511401A | 02/04/2020 16:38 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200341511401 | 02/03/2020 19:55 | JoElla L Rice | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 17:27
SDG#: PUP93-20

**Chevron Env Management Company**
**ELLE Sample #: GW 1251396**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 17:27
SDG#: PUP93-20

**Chevron Env Management Company**
**ELLE Sample #: GW 1251396**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 5,300 | J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 10,500 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 3,300 | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 16,400 | | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 17:27
SDG#: PUP93-20

**Chevron Env Management Company**
**ELLE Sample #: GW 1251396**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 169,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/06/2020 02:42 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/06/2020 02:41 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 13:15 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 17:34 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 14:42 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 14:42 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 14:42 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 15:19 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 23:02 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 23:02 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48I-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 17:27
SDG#: PUP93-21

**Chevron Env Management Company**
**ELLE Sample #: GW 1251397**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | | **SW-846 6010B** | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | N.D. | 3.1 | 10.3 | 1 |
| | | **SW-846 6020** | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 2.3 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:52 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:52 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200371511402A | 02/11/2020 10:24 | Janeyah Rivers-Hamilton | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200371511402 | 02/06/2020 16:20 | JoElla L Rice | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **TB-T-200130 NA Water**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 07:30
SDG#: PUP93-22TB

**Chevron Env Management Company**
**ELLE Sample #: GW 1251398**
**ELLE Group #: 2085883**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **TB-T-200130 NA Water**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 07:30
SDG#: PUP93-22TB

**Chevron Env Management Company**
**ELLE Sample #: GW 1251398**
**ELLE Group #: 2085883**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | 0.05 | 0.5 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 21:29 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 21:28 | Miranda Campbell | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **EB-R-200130 Grab Water**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 07:45
SDG#: PUP93-23EB

**Chevron Env Management Company**
**ELLE Sample #: GW 1251399**
**ELLE Group #: 2085883**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **EB-R-200130 Grab Water**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 07:45
SDG#: PUP93-23EB

**Chevron Env Management Company**
**ELLE Sample #: GW 1251399**
**ELLE Group #: 2085883**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | 0.05 | 0.5 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 21:52 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 21:51 | Miranda Campbell | 1 |

*=This limit was used in the evaluation of the final result

# Quality Control Summary

Client Name: Chevron Env Management Company Group Number: 2085883
Reported: 02/25/2020 11:22

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

## Method Blank

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ug/l | ug/l | ug/l |
| Batch number: C200361AA | Sample number(s): 1251371,1251373,1251375-1251376,1251378,1251380,1251382,1251384,1251388-1251390,1251396,1251398-1251399 | | |
| Acetone | N.D. | 1.1 | 5.0 |
| Benzene | N.D. | 0.05 | 0.5 |
| Bromobenzene | N.D. | 0.05 | 0.5 |
| Bromochloromethane | N.D. | 0.05 | 0.5 |
| Bromodichloromethane | N.D. | 0.05 | 0.5 |
| Bromoform | N.D. | 0.3 | 1.0 |
| Bromomethane | N.D. | 0.1 | 0.5 |
| 2-Butanone | N.D. | 0.7 | 5.0 |
| t-Butyl Alcohol | N.D. | 1.6 | 10 |
| n-Butylbenzene | N.D. | 0.07 | 0.5 |
| sec-Butylbenzene | N.D. | 0.05 | 0.5 |
| tert-Butylbenzene | N.D. | 0.05 | 0.5 |
| Carbon Disulfide | N.D. | 0.09 | 1.0 |
| Carbon Tetrachloride | N.D. | 0.06 | 0.5 |
| Chlorobenzene | N.D. | 0.05 | 0.5 |
| Chloroethane | N.D. | 0.09 | 0.5 |
| Chloroform | N.D. | 0.05 | 0.5 |
| Chloromethane | N.D. | 0.09 | 0.5 |
| 2-Chlorotoluene | N.D. | 0.05 | 0.5 |
| 4-Chlorotoluene | N.D. | 0.05 | 0.5 |
| 1,2-Dibromo-3-chloropropane | N.D. | 0.2 | 0.5 |
| Dibromochloromethane | N.D. | 0.06 | 0.5 |
| 1,2-Dibromoethane | N.D. | 0.05 | 0.5 |
| Dibromomethane | N.D. | 0.05 | 0.5 |
| 1,2-Dichlorobenzene | N.D. | 0.05 | 0.5 |
| 1,3-Dichlorobenzene | N.D. | 0.05 | 0.5 |
| 1,4-Dichlorobenzene | N.D. | 0.06 | 0.5 |
| Dichlorodifluoromethane | N.D. | 0.1 | 0.5 |
| 1,1-Dichloroethane | N.D. | 0.05 | 0.5 |
| 1,2-Dichloroethane | N.D. | 0.05 | 0.5 |
| 1,1-Dichloroethene | N.D. | 0.05 | 0.5 |
| cis-1,2-Dichloroethene | N.D. | 0.05 | 0.5 |
| trans-1,2-Dichloroethene | N.D. | 0.05 | 0.5 |
| 1,2-Dichloropropane | N.D. | 0.05 | 0.5 |
| 1,3-Dichloropropane | N.D. | 0.05 | 0.5 |
| 2,2-Dichloropropane | N.D. | 0.06 | 0.5 |
| 1,1-Dichloropropene | N.D. | 0.05 | 0.5 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company
Reported: 02/25/2020 11:22

Group Number: 2085883

## Method Blank (continued)

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ug/l | ug/l | ug/l |
| cis-1,3-Dichloropropene | N.D. | 0.05 | 0.5 |
| trans-1,3-Dichloropropene | N.D. | 0.05 | 0.5 |
| Ethylbenzene | N.D. | 0.05 | 0.5 |
| Hexachlorobutadiene | N.D. | 0.1 | 0.5 |
| Isopropylbenzene | N.D. | 0.05 | 0.5 |
| p-Isopropyltoluene | N.D. | 0.05 | 0.5 |
| Methyl Tertiary Butyl Ether | N.D. | 0.05 | 0.5 |
| 4-Methyl-2-pentanone | N.D. | 0.6 | 5.0 |
| Methylene Chloride | N.D. | 0.06 | 0.5 |
| Naphthalene | N.D. | 0.09 | 0.5 |
| n-Propylbenzene | N.D. | 0.05 | 0.5 |
| Styrene | N.D. | 0.05 | 0.5 |
| 1,1,1,2-Tetrachloroethane | N.D. | 0.05 | 0.5 |
| 1,1,2,2-Tetrachloroethane | N.D. | 0.06 | 0.5 |
| Tetrachloroethene | N.D. | 0.05 | 0.5 |
| Toluene | N.D. | 0.05 | 0.5 |
| 1,2,3-Trichlorobenzene | N.D. | 0.1 | 0.5 |
| 1,2,4-Trichlorobenzene | N.D. | 0.09 | 0.5 |
| 1,1,1-Trichloroethane | N.D. | 0.06 | 0.5 |
| 1,1,2-Trichloroethane | N.D. | 0.05 | 0.5 |
| Trichloroethene | N.D. | 0.05 | 0.5 |
| Trichlorofluoromethane | N.D. | 0.1 | 0.5 |
| 1,2,3-Trichloropropane | N.D. | 0.06 | 1.0 |
| 1,2,4-Trimethylbenzene | N.D. | 0.05 | 0.5 |
| 1,3,5-Trimethylbenzene | N.D. | 0.05 | 0.5 |
| Vinyl Chloride | N.D. | 0.08 | 0.5 |
| m+p-Xylene | N.D. | 0.08 | 0.5 |
| o-Xylene | N.D. | 0.05 | 0.5 |
| Batch number: 200340009A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251390,1251396 | | |
| Ethane | N.D. | 1.0 | 5.0 |
| Ethene | N.D. | 1.0 | 5.0 |
| Methane | N.D. | 3.0 | 5.0 |
| Batch number: 200340011A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251390,1251396 | | |
| CO2 by Headspace | N.D. | 2,600 | 12,000 |
| Batch number: 200341486603 | Sample number(s): 1251372,1251374,1251377,1251379,1251381,1251383,1251385,1251387,1251392-1251395,1251397 | | |
| Iron | N.D. | 41.2 | 206 |
| Manganese | N.D. | 3.1 | 10.3 |
| Batch number: 200341511401A | Sample number(s): 1251392-1251395 | | |
| Arsenic | N.D. | 0.70 | 2.1 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company Group Number: 2085883
Reported: 02/25/2020 11:22

## Method Blank (continued)

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ug/l | ug/l | ug/l |
| Batch number: 200351511401A | Sample number(s): 1251372,1251374,1251379,1251381,1251383,1251387 | | |
| Arsenic | N.D. | 0.70 | 2.1 |
| Batch number: 200371511402A | Sample number(s): 1251377,1251385,1251397 | | |
| Arsenic | N.D. | 0.70 | 2.1 |
| Batch number: 20032720113A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251389,1251391,1251396 | | |
| Chloride | N.D. | 200 | 400 |
| Nitrate Nitrogen | N.D. | 50 | 100 |
| Sulfate | N.D. | 300 | 1,000 |
| Batch number: 20035304501A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251389,1251391,1251396 | | |
| Total Organic Carbon | N.D. | 500 | 1,000 |
| | ug/l as CaCO3 | ug/l as CaCO3 | ug/l as CaCO3 |
| Batch number: 20041005201A | Sample number(s): 1251376,1251378,1251380,1251382,1251384,1251386,1251396 | | |
| Total Alkalinity to pH 4.5 | N.D. | 2,600 | 8,000 |
| Batch number: 20041005202A | Sample number(s): 1251371,1251373,1251388-1251391 | | |
| Total Alkalinity to pH 4.5 | N.D. | 2,600 | 8,000 |

## LCS/LCSD

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Batch number: C200361AA | Sample number(s): 1251371,1251373,1251375-1251376,1251378,1251380,1251382,1251384,1251388-1251390,1251396,1251398-1251399 | | | | | | | | |
| Acetone | 37.5 | 34.76 | | | 93 | | 60-146 | | |
| Benzene | 5.00 | 4.66 | | | 93 | | 80-120 | | |
| Bromobenzene | 5.00 | 4.65 | | | 93 | | 80-120 | | |
| Bromochloromethane | 5.00 | 4.59 | | | 92 | | 80-120 | | |
| Bromodichloromethane | 5.00 | 4.82 | | | 96 | | 73-124 | | |
| Bromoform | 5.00 | 4.58 | | | 92 | | 49-144 | | |
| Bromomethane | 5.00 | 4.50 | | | 90 | | 60-136 | | |
| 2-Butanone | 37.5 | 36.59 | | | 98 | | 59-141 | | |
| t-Butyl Alcohol | 50 | 53.02 | | | 106 | | 62-138 | | |
| n-Butylbenzene | 5.00 | 4.60 | | | 92 | | 74-123 | | |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company
Reported: 02/25/2020 11:22

Group Number: 2085883

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| sec-Butylbenzene | 5.00 | 4.54 | | | 91 | | 80-120 | | |
| tert-Butylbenzene | 5.00 | 4.40 | | | 88 | | 79-120 | | |
| Carbon Disulfide | 5.00 | 4.36 | | | 87 | | 67-130 | | |
| Carbon Tetrachloride | 5.00 | 4.79 | | | 96 | | 64-141 | | |
| Chlorobenzene | 5.00 | 4.76 | | | 95 | | 80-120 | | |
| Chloroethane | 5.00 | 4.49 | | | 90 | | 63-120 | | |
| Chloroform | 5.00 | 4.90 | | | 98 | | 80-120 | | |
| Chloromethane | 5.00 | 4.35 | | | 87 | | 56-124 | | |
| 2-Chlorotoluene | 5.00 | 4.47 | | | 89 | | 80-120 | | |
| 4-Chlorotoluene | 5.00 | 4.49 | | | 90 | | 80-120 | | |
| 1,2-Dibromo-3-chloropropane | 5.00 | 4.68 | | | 94 | | 56-148 | | |
| Dibromochloromethane | 5.00 | 4.86 | | | 97 | | 64-138 | | |
| 1,2-Dibromoethane | 5.00 | 4.84 | | | 97 | | 80-120 | | |
| Dibromomethane | 5.00 | 5.09 | | | 102 | | 80-122 | | |
| 1,2-Dichlorobenzene | 5.00 | 4.74 | | | 95 | | 80-120 | | |
| 1,3-Dichlorobenzene | 5.00 | 4.65 | | | 93 | | 80-120 | | |
| 1,4-Dichlorobenzene | 5.00 | 4.71 | | | 94 | | 80-120 | | |
| Dichlorodifluoromethane | 5.00 | 3.64 | | | 73 | | 43-123 | | |
| 1,1-Dichloroethane | 5.00 | 4.75 | | | 95 | | 74-120 | | |
| 1,2-Dichloroethane | 5.00 | 5.01 | | | 100 | | 69-122 | | |
| 1,1-Dichloroethene | 5.00 | 4.51 | | | 90 | | 80-131 | | |
| cis-1,2-Dichloroethene | 5.00 | 4.94 | | | 99 | | 80-122 | | |
| trans-1,2-Dichloroethene | 5.00 | 4.60 | | | 92 | | 80-122 | | |
| 1,2-Dichloropropane | 5.00 | 4.96 | | | 99 | | 80-120 | | |
| 1,3-Dichloropropane | 5.00 | 4.80 | | | 96 | | 80-120 | | |
| 2,2-Dichloropropane | 5.00 | 4.57 | | | 91 | | 61-141 | | |
| 1,1-Dichloropropene | 5.00 | 4.64 | | | 93 | | 74-120 | | |
| cis-1,3-Dichloropropene | 5.00 | 4.62 | | | 92 | | 67-121 | | |
| trans-1,3-Dichloropropene | 5.00 | 4.48 | | | 90 | | 61-129 | | |
| Ethylbenzene | 5.00 | 4.67 | | | 93 | | 80-120 | | |
| Hexachlorobutadiene | 5.00 | 4.68 | | | 94 | | 72-132 | | |
| Isopropylbenzene | 5.00 | 4.69 | | | 94 | | 80-120 | | |
| p-Isopropyltoluene | 5.00 | 4.51 | | | 90 | | 80-120 | | |
| Methyl Tertiary Butyl Ether | 5.00 | 4.92 | | | 98 | | 69-120 | | |
| 4-Methyl-2-pentanone | 25 | 26.17 | | | 105 | | 55-140 | | |
| Methylene Chloride | 5.00 | 4.74 | | | 95 | | 80-120 | | |
| Naphthalene | 5.00 | 4.55 | | | 91 | | 64-122 | | |
| n-Propylbenzene | 5.00 | 4.58 | | | 92 | | 74-122 | | |
| Styrene | 5.00 | 4.66 | | | 93 | | 80-120 | | |
| 1,1,1,2-Tetrachloroethane | 5.00 | 4.77 | | | 95 | | 71-134 | | |
| 1,1,2,2-Tetrachloroethane | 5.00 | 4.72 | | | 94 | | 75-123 | | |
| Tetrachloroethene | 5.00 | 4.79 | | | 96 | | 80-120 | | |
| Toluene | 5.00 | 4.64 | | | 93 | | 80-120 | | |
| 1,2,3-Trichlorobenzene | 5.00 | 4.52 | | | 90 | | 68-125 | | |

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company
Reported: 02/25/2020 11:22

Group Number: 2085883

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added | LCS Conc | LCSD Spike Added | LCSD Conc | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| | ug/l | ug/l | ug/l | ug/l | | | | | |
| 1,2,4-Trichlorobenzene | 5.00 | 4.68 | | | 94 | | 68-122 | | |
| 1,1,1-Trichloroethane | 5.00 | 4.62 | | | 92 | | 78-126 | | |
| 1,1,2-Trichloroethane | 5.00 | 4.98 | | | 100 | | 80-120 | | |
| Trichloroethene | 5.00 | 4.74 | | | 95 | | 80-120 | | |
| Trichlorofluoromethane | 5.00 | 5.35 | | | 107 | | 62-136 | | |
| 1,2,3-Trichloropropane | 5.00 | 4.72 | | | 94 | | 80-125 | | |
| 1,2,4-Trimethylbenzene | 5.00 | 4.44 | | | 89 | | 80-120 | | |
| 1,3,5-Trimethylbenzene | 5.00 | 4.49 | | | 90 | | 80-120 | | |
| Vinyl Chloride | 5.00 | 4.54 | | | 91 | | 60-125 | | |
| m+p-Xylene | 10 | 9.40 | | | 94 | | 80-120 | | |
| o-Xylene | 5.00 | 4.71 | | | 94 | | 80-120 | | |
| | ug/l | ug/l | ug/l | ug/l | | | | | |
| Batch number: 200340009A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251390,1251396 | | | | | | | | |
| Ethane | 59.39 | 58.74 | | | 99 | | 85-115 | | |
| Ethene | 60.4 | 60.21 | | | 100 | | 83-115 | | |
| Methane | 59.42 | 61.75 | | | 104 | | 85-115 | | |
| Batch number: 200340011A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251390,1251396 | | | | | | | | |
| CO2 by Headspace | 35820 | 32508.95 | | | 91 | | 72-116 | | |
| | ug/l | ug/l | ug/l | ug/l | | | | | |
| Batch number: 200341486603 | Sample number(s): 1251372,1251374,1251377,1251379,1251381,1251383,1251385,1251387,1251392-1251395,1251397 | | | | | | | | |
| Iron | 400 | 338.79 | | | 85 | | 80-120 | | |
| Manganese | 20 | 17.01 | | | 85 | | 80-120 | | |
| Batch number: 200341511401A | Sample number(s): 1251392-1251395 | | | | | | | | |
| Arsenic | 10 | 10.76 | | | 108 | | 85-120 | | |
| Batch number: 200351511401A | Sample number(s): 1251372,1251374,1251379,1251381,1251383,1251387 | | | | | | | | |
| Arsenic | 10 | 10.72 | | | 107 | | 85-120 | | |
| Batch number: 200371511402A | Sample number(s): 1251377,1251385,1251397 | | | | | | | | |
| Arsenic | 10 | 10.18 | | | 102 | | 85-120 | | |
| | ug/l | ug/l | ug/l | ug/l | | | | | |
| Batch number: 20032720113A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251389,1251391,1251396 | | | | | | | | |
| Chloride | 3000 | 2861.52 | | | 95 | | 90-110 | | |
| Nitrate Nitrogen | 750 | 734.77 | | | 98 | | 90-110 | | |
| Sulfate | 7500 | 7328.63 | | | 98 | | 90-110 | | |

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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company
Reported: 02/25/2020 11:22

Group Number: 2085883

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Batch number: 20035304501A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251389,1251391,1251396 | | | | | | | | |
| Total Organic Carbon | 25000 | 24350.5 | | | 97 | | 91-113 | | |
| | ug/l as CaCO3 | ug/l as CaCO3 | ug/l as CaCO3 | ug/l as CaCO3 | | | | | |
| Batch number: 20041005201A | Sample number(s): 1251376,1251378,1251380,1251382,1251384,1251386,1251396 | | | | | | | | |
| Total Alkalinity to pH 4.5 | 188000 | 182230 | | | 97 | | 82-106 | | |
| Batch number: 20041005202A | Sample number(s): 1251371,1251373,1251388-1251391 | | | | | | | | |
| Total Alkalinity to pH 4.5 | 188000 | 182100 | | | 97 | | 82-106 | | |

## MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

| Analysis Name | Unspiked Conc ug/l | MS Spike Added ug/l | MS Conc ug/l | MSD Spike Added ug/l | MSD Conc ug/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Batch number: C200361AA | Sample number(s): 1251371,1251373,1251375-1251376,1251378,1251380,1251382,1251384,1251388-1251390,1251396,1251398-1251399 UNSPK: 1251388 | | | | | | | | | |
| Acetone | N.D. | 37.5 | 34.74 | 37.5 | 37.66 | 93 | 100 | 60-146 | 8 | 30 |
| Benzene | N.D. | 5.00 | 5.15 | 5.00 | 5.10 | 103 | 102 | 80-120 | 1 | 30 |
| Bromobenzene | N.D. | 5.00 | 4.91 | 5.00 | 4.95 | 98 | 99 | 80-120 | 1 | 30 |
| Bromochloromethane | N.D. | 5.00 | 4.73 | 5.00 | 4.73 | 95 | 95 | 80-120 | 0 | 30 |
| Bromodichloromethane | N.D. | 5.00 | 4.96 | 5.00 | 4.97 | 99 | 99 | 73-124 | 0 | 30 |
| Bromoform | N.D. | 5.00 | 4.39 | 5.00 | 4.42 | 88 | 88 | 49-144 | 1 | 30 |
| Bromomethane | N.D. | 5.00 | 4.86 | 5.00 | 4.97 | 97 | 99 | 60-136 | 2 | 30 |
| 2-Butanone | N.D. | 37.5 | 34.78 | 37.5 | 37.6 | 93 | 100 | 59-141 | 8 | 30 |
| t-Butyl Alcohol | N.D. | 50 | 53.59 | 50 | 56.4 | 107 | 113 | 62-138 | 5 | 30 |
| n-Butylbenzene | N.D. | 5.00 | 5.04 | 5.00 | 5.11 | 101 | 102 | 74-123 | 1 | 30 |
| sec-Butylbenzene | N.D. | 5.00 | 5.04 | 5.00 | 5.13 | 101 | 103 | 80-120 | 2 | 30 |
| tert-Butylbenzene | N.D. | 5.00 | 4.99 | 5.00 | 5.12 | 100 | 102 | 79-120 | 3 | 30 |
| Carbon Disulfide | N.D. | 5.00 | 5.05 | 5.00 | 5.06 | 101 | 101 | 67-130 | 0 | 30 |
| Carbon Tetrachloride | N.D. | 5.00 | 5.45 | 5.00 | 5.51 | 109 | 110 | 64-141 | 1 | 30 |
| Chlorobenzene | N.D. | 5.00 | 5.03 | 5.00 | 5.01 | 101 | 100 | 80-120 | 1 | 30 |
| Chloroethane | N.D. | 5.00 | 5.05 | 5.00 | 5.12 | 101 | 102 | 63-120 | 1 | 30 |
| Chloroform | N.D. | 5.00 | 5.23 | 5.00 | 5.28 | 105 | 106 | 80-120 | 1 | 30 |
| Chloromethane | N.D. | 5.00 | 4.72 | 5.00 | 4.87 | 94 | 97 | 56-124 | 3 | 30 |
| 2-Chlorotoluene | N.D. | 5.00 | 4.82 | 5.00 | 4.87 | 96 | 97 | 80-120 | 1 | 30 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company
Reported: 02/25/2020 11:22

Group Number: 2085883

## MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

| Analysis Name | Unspiked Conc ug/l | MS Spike Added ug/l | MS Conc ug/l | MSD Spike Added ug/l | MSD Conc ug/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| 4-Chlorotoluene | N.D. | 5.00 | 4.81 | 5.00 | 4.84 | 96 | 97 | 80-120 | 1 | 30 |
| 1,2-Dibromo-3-chloropropane | N.D. | 5.00 | 4.45 | 5.00 | 4.72 | 89 | 94 | 56-148 | 6 | 30 |
| Dibromochloromethane | N.D. | 5.00 | 4.74 | 5.00 | 4.77 | 95 | 95 | 64-138 | 1 | 30 |
| 1,2-Dibromoethane | N.D. | 5.00 | 4.84 | 5.00 | 4.86 | 97 | 97 | 80-120 | 0 | 30 |
| Dibromomethane | N.D. | 5.00 | 5.11 | 5.00 | 5.14 | 102 | 103 | 80-122 | 1 | 30 |
| 1,2-Dichlorobenzene | N.D. | 5.00 | 4.92 | 5.00 | 4.94 | 98 | 99 | 80-120 | 1 | 30 |
| 1,3-Dichlorobenzene | N.D. | 5.00 | 4.92 | 5.00 | 4.97 | 98 | 99 | 80-120 | 1 | 30 |
| 1,4-Dichlorobenzene | N.D. | 5.00 | 4.91 | 5.00 | 4.97 | 98 | 99 | 80-120 | 1 | 30 |
| Dichlorodifluoromethane | N.D. | 5.00 | 4.21 | 5.00 | 4.45 | 84 | 89 | 43-123 | 5 | 30 |
| 1,1-Dichloroethane | N.D. | 5.00 | 5.18 | 5.00 | 5.20 | 104 | 104 | 74-120 | 0 | 30 |
| 1,2-Dichloroethane | N.D. | 5.00 | 5.01 | 5.00 | 4.99 | 100 | 100 | 69-122 | 0 | 30 |
| 1,1-Dichloroethene | N.D. | 5.00 | 5.19 | 5.00 | 5.19 | 104 | 104 | 80-131 | 0 | 30 |
| cis-1,2-Dichloroethene | N.D. | 5.00 | 5.30 | 5.00 | 5.25 | 106 | 105 | 80-120 | 1 | 30 |
| trans-1,2-Dichloroethene | N.D. | 5.00 | 5.10 | 5.00 | 5.10 | 102 | 102 | 80-120 | 0 | 30 |
| 1,2-Dichloropropane | N.D. | 5.00 | 5.21 | 5.00 | 5.18 | 104 | 104 | 80-120 | 1 | 30 |
| 1,3-Dichloropropane | N.D. | 5.00 | 4.78 | 5.00 | 4.90 | 96 | 98 | 80-120 | 3 | 30 |
| 2,2-Dichloropropane | N.D. | 5.00 | 5.09 | 5.00 | 5.07 | 102 | 101 | 61-141 | 0 | 30 |
| 1,1-Dichloropropene | N.D. | 5.00 | 5.30 | 5.00 | 5.31 | 106 | 106 | 74-120 | 0 | 30 |
| cis-1,3-Dichloropropene | N.D. | 5.00 | 4.58 | 5.00 | 4.59 | 92 | 92 | 67-121 | 0 | 30 |
| trans-1,3-Dichloropropene | N.D. | 5.00 | 4.30 | 5.00 | 4.34 | 86 | 87 | 61-129 | 1 | 30 |
| Ethylbenzene | N.D. | 5.00 | 5.10 | 5.00 | 5.13 | 102 | 103 | 80-120 | 1 | 30 |
| Hexachlorobutadiene | N.D. | 5.00 | 5.18 | 5.00 | 5.19 | 104 | 104 | 72-132 | 0 | 30 |
| Isopropylbenzene | N.D. | 5.00 | 5.16 | 5.00 | 5.27 | 103 | 105 | 80-120 | 2 | 30 |
| p-Isopropyltoluene | N.D. | 5.00 | 4.96 | 5.00 | 5.00 | 99 | 100 | 80-120 | 1 | 30 |
| Methyl Tertiary Butyl Ether | N.D. | 5.00 | 4.74 | 5.00 | 4.82 | 95 | 96 | 69-120 | 2 | 30 |
| 4-Methyl-2-pentanone | N.D. | 25 | 24.95 | 25 | 25.04 | 100 | 100 | 55-140 | 0 | 30 |
| Methylene Chloride | N.D. | 5.00 | 5.08 | 5.00 | 5.02 | 102 | 100 | 80-120 | 1 | 30 |
| Naphthalene | N.D. | 5.00 | 4.35 | 5.00 | 4.49 | 87 | 90 | 64-122 | 3 | 30 |
| n-Propylbenzene | N.D. | 5.00 | 5.07 | 5.00 | 5.05 | 101 | 101 | 74-122 | 0 | 30 |
| Styrene | N.D. | 5.00 | 4.95 | 5.00 | 4.95 | 99 | 99 | 80-120 | 0 | 30 |
| 1,1,1,2-Tetrachloroethane | N.D. | 5.00 | 4.89 | 5.00 | 4.98 | 98 | 100 | 71-134 | 2 | 30 |
| 1,1,2,2-Tetrachloroethane | N.D. | 5.00 | 4.55 | 5.00 | 4.56 | 91 | 91 | 75-123 | 0 | 30 |
| Tetrachloroethene | N.D. | 5.00 | 5.40 | 5.00 | 5.35 | 108 | 107 | 80-120 | 1 | 30 |
| Toluene | N.D. | 5.00 | 5.04 | 5.00 | 5.10 | 101 | 102 | 80-120 | 1 | 30 |
| 1,2,3-Trichlorobenzene | N.D. | 5.00 | 4.50 | 5.00 | 4.62 | 90 | 92 | 68-125 | 3 | 30 |
| 1,2,4-Trichlorobenzene | N.D. | 5.00 | 4.69 | 5.00 | 4.81 | 94 | 96 | 68-122 | 3 | 30 |
| 1,1,1-Trichloroethane | N.D. | 5.00 | 5.20 | 5.00 | 5.24 | 104 | 105 | 78-126 | 1 | 30 |
| 1,1,2-Trichloroethane | N.D. | 5.00 | 4.98 | 5.00 | 5.02 | 100 | 100 | 80-120 | 1 | 30 |
| Trichloroethene | N.D. | 5.00 | 5.29 | 5.00 | 5.25 | 106 | 105 | 80-120 | 1 | 30 |
| Trichlorofluoromethane | N.D. | 5.00 | 6.18 | 5.00 | 6.38 | 124 | 128 | 62-136 | 3 | 30 |
| 1,2,3-Trichloropropane | N.D. | 5.00 | 4.69 | 5.00 | 4.84 | 94 | 97 | 80-125 | 3 | 30 |
| 1,2,4-Trimethylbenzene | N.D. | 5.00 | 4.75 | 5.00 | 4.79 | 95 | 96 | 80-120 | 1 | 30 |
| 1,3,5-Trimethylbenzene | N.D. | 5.00 | 4.85 | 5.00 | 4.92 | 97 | 98 | 80-120 | 1 | 30 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company
Reported: 02/25/2020 11:22

Group Number: 2085883

## MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

| Analysis Name | Unspiked Conc ug/l | MS Spike Added ug/l | MS Conc ug/l | MSD Spike Added ug/l | MSD Conc ug/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | N.D. | 5.00 | 5.22 | 5.00 | 5.35 | 104 | 107 | 60-125 | 3 | 30 |
| m+p-Xylene | N.D. | 10 | 10.29 | 10 | 10.31 | 103 | 103 | 80-120 | 0 | 30 |
| o-Xylene | N.D. | 5.00 | 4.94 | 5.00 | 5.03 | 99 | 101 | 80-120 | 2 | 30 |
| | **ug/l** | **ug/l** | **ug/l** | **ug/l** | **ug/l** | | | | | |
| Batch number: 200340009A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251390,1251396 UNSPK: 1251388 | | | | | | | | | |
| Ethane | N.D. | 59.39 | 34 | 59.39 | 36.16 | 57* | 61* | 74-131 | 6 | 30 |
| Ethene | N.D. | 60.4 | 36.44 | 60.4 | 38.36 | 60* | 64* | 72-133 | 5 | 30 |
| Methane | 1042.61 | 59.42 | 791.43 | 59.42 | 748.34 | -422 (2) | -494 (2) | 73-125 | 6 | 30 |
| Batch number: 200340011A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251390,1251396 UNSPK: 1251388 | | | | | | | | | |
| CO2 by Headspace | 5399.76 | 35820 | 29204.38 | 35820 | 40620.22 | 66* | 98 | 72-116 | 33* | 20 |
| | **ug/l** | **ug/l** | **ug/l** | **ug/l** | **ug/l** | | | | | |
| Batch number: 200341486603 | Sample number(s): 1251372,1251374,1251377,1251379,1251381,1251383,1251385,1251387,1251392-1251395,1251397 UNSPK: 1251392 | | | | | | | | | |
| Iron | 58.44 | 417.6 | 379.17 | 417.6 | 380.53 | 77 | 77 | 75-125 | 0 | 20 |
| Manganese | 539.35 | 20.88 | 589.45 | 20.88 | 576.94 | 240 (2) | 180 (2) | 75-125 | 2 | 20 |
| Batch number: 200341511401A | Sample number(s): 1251392-1251395 UNSPK: 1251392 | | | | | | | | | |
| Arsenic | 7.93 | 10.4 | 19.11 | 10.4 | 19.14 | 108 | 108 | 75-125 | 0 | 20 |
| Batch number: 200371511402A | Sample number(s): 1251377,1251385,1251397 UNSPK: 1251397 | | | | | | | | | |
| Arsenic | 2.32 | 10.4 | 13.69 | 10.4 | 13.12 | 109 | 104 | 75-125 | 4 | 20 |
| | **ug/l** | **ug/l** | **ug/l** | **ug/l** | **ug/l** | | | | | |
| Batch number: 20032720113A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251389,1251391,1251396 UNSPK: 1251388 | | | | | | | | | |
| Chloride | 3891.07 | 10000 | 13455.81 | | | 96 | | 90-110 | | |
| Nitrate Nitrogen | N.D. | 2500 | 2566.37 | | | 103 | | 90-110 | | |
| Sulfate | 6551.52 | 25000 | 30531.88 | | | 96 | | 90-110 | | |
| Batch number: 20035304501A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251389,1251391,1251396 UNSPK: 1251388 | | | | | | | | | |
| Total Organic Carbon | N.D. | 10000 | 10402.5 | | | 104 | | 91-113 | | |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company
Reported: 02/25/2020 11:22

Group Number: 2085883

## MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

| Analysis Name | Unspiked Conc ug/l as CaCO3 | MS Spike Added ug/l as CaCO3 | MS Conc ug/l as CaCO3 | MSD Spike Added ug/l as CaCO3 | MSD Conc ug/l as CaCO3 | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Batch number: 20041005202A | Sample number(s): 1251371,1251373,1251388-1251391 UNSPK: 1251388 | | | | | | | | | |
| Total Alkalinity to pH 4.5 | 141620 | 188000 | 319080 | 188000 | 314370 | 94 | 92 | 82-106 | 1 | 10 |

## Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

| Analysis Name | BKG Conc | DUP Conc | DUP RPD | DUP RPD Max |
|---|---|---|---|---|
| | ug/l | ug/l | | |
| Batch number: 200341486603 | Sample number(s): 1251372,1251374,1251377,1251379,1251381,1251383,1251385,1251387,1251392-1251395,1251397 BKG: 1251392 | | | |
| Iron | 58.44 | 62.75 | 7 (1) | 20 |
| Manganese | 539.35 | 542.32 | 1 | 20 |
| Batch number: 200341511401A | Sample number(s): 1251392-1251395 BKG: 1251392 | | | |
| Arsenic | 7.93 | 7.83 | 1 (1) | 20 |
| Batch number: 200371511402A | Sample number(s): 1251377,1251385,1251397 BKG: 1251397 | | | |
| Arsenic | 2.32 | 2.42 | 4 (1) | 20 |
| | ug/l | ug/l | | |
| Batch number: 20032720113A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251389,1251391,1251396 BKG: 1251388 | | | |
| Chloride | 3891.07 | 4076.58 | 5 (1) | 15 |
| Nitrate Nitrogen | N.D. | N.D. | 0 (1) | 15 |
| Sulfate | 6551.52 | 6463.35 | 1 (1) | 15 |
| Batch number: 20035304501A | Sample number(s): 1251371,1251373,1251376,1251378,1251380,1251382,1251384,1251386,1251388-1251389,1251391,1251396 BKG: 1251388 | | | |
| Total Organic Carbon | N.D. | N.D. | 0 (1) | 9 |
| | ug/l as CaCO3 | ug/l as CaCO3 | | |
| Batch number: 20041005202A | Sample number(s): 1251371,1251373,1251388-1251391 BKG: 1251388 | | | |
| Total Alkalinity to pH 4.5 | 141620 | 141280 | 0 | 5 |
| Phenolphthalein Alk. to pH 8.3 | N.D. | N.D. | 0 (1) | 5 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company Group Number: 2085883
Reported: 02/25/2020 11:22

## Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: VOCs 25 ml purge 8260
Batch number: C200361AA

| | Dibromofluoromethane | 1,2-Dichloroethane-d4 | Toluene-d8 | 4-Bromofluorobenzene |
|---|---|---|---|---|
| 1251371 | 103 | 103 | 99 | 97 |
| 1251373 | 103 | 103 | 100 | 99 |
| 1251375 | 103 | 102 | 99 | 97 |
| 1251376 | 103 | 102 | 99 | 97 |
| 1251378 | 104 | 104 | 99 | 97 |
| 1251380 | 103 | 100 | 99 | 97 |
| 1251382 | 103 | 102 | 99 | 97 |
| 1251384 | 104 | 103 | 100 | 97 |
| 1251388 | 104 | 102 | 100 | 97 |
| 1251389 | 103 | 101 | 100 | 99 |
| 1251390 | 102 | 102 | 101 | 99 |
| 1251396 | 103 | 103 | 100 | 97 |
| 1251398 | 104 | 101 | 99 | 98 |
| 1251399 | 102 | 102 | 99 | 98 |
| Blank | 103 | 102 | 100 | 98 |
| LCS | 103 | 104 | 100 | 100 |
| MS | 103 | 101 | 100 | 99 |
| MSD | 102 | 102 | 101 | 99 |
| Limits: | 80-120 | 80-120 | 80-120 | 80-120 |

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 200340009A

| | Propene |
|---|---|
| 1251371 | 51 |
| 1251373 | 51 |
| 1251376 | 59 |
| 1251378 | 74 |
| 1251380 | 79 |
| 1251382 | 71 |
| 1251384 | 52 |
| 1251386 | 55 |
| 1251388 | 68 |
| 1251389 | 49 |
| 1251390 | 52 |
| 1251396 | 50 |
| Blank | 87 |
| LCS | 85 |
| MS | 49 |
| MSD | 52 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: Chevron Env Management Company Group Number: 2085883
Reported: 02/25/2020 11:22

## Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 200340009A

Limits: 46-135

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Chevron Generic Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

Acct. # 11408 For Eurofins Lancaster Laboratories Environmental use only Group # 2085883 Sample # 125137-99

1 of 2

SCR #:

**Client Information**

Facility # Purity Oil WBS

Site Address 3281 South Maple Avenue Fresno, CA

Chevron PM Nate Bloomgren Lead Consultant ARCADIS

Consultant/Office ARCADIS 3109 W. Dr. Martin Luther King Rd. Tampa Florida 33607

Consultant Project Mgr. Sam Miles

Sampler Heather Tauscher / Trevor Darraugh

State where samples were collected: California For Compliance: Yes ☒ No ☐

**Matrix**: Soil ☐ Sediment ☐ Water ☒ Ground ☐ Potable ☐ NPDES ☐ Surface ☐ Oil ☐ Air ☐

**Analyses Requested** — Preservation and Filtration Codes

**Preservation Codes**: H = HCl; T = Thiosulfate; N = $HNO_3$; B = NaOH; S = $H_2SO_4$; P = $H_3PO_4$; F = Field Filtered; O = Other

☐ Results in Dry Weight

☐ J value reporting needed

☐ Must meet lowest detection limits possible for 8260 compounds

| Sample Identification | Collected Date | Collected Time | Grab | Composite | Total Number of Containers | BTEX + MTBE 8021 ☐ 8260 ☐ Naphth ☐ | 8260 full scan VOC's | Oxygenates ____ | TPH-GRO 8015 ☐ 8260 ☐ | TPH-DRO without Silica Gel Cleanup ☐ | TPH-DRO with Silica Gel Cleanup ☐ | VPH ☐ EPH ☐ Method ____ | Lead Total ☐ Diss. ☐ Method ____ | ARSENIC 6020 (Field Filtered) | Fe + Mn 6010 (Field Filtered) | Acetate | MNA | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-24I | 01/30/20 | 0949 | X | | 12 | | X | | | | | | | X | X | | X | |
| MW-23 | 01/30/20 | 1161 | X | | 12 | | X | | | | | | | X | X | | X | |
| MW-34I | 01/30/20 | 1147 | X | | 3 | | X | | | | | | | X | X | | | |
| MW-25I | 01/30/20 | 1239 | X | | 12 | | X | | | | | | | X | X | | X | |
| MW-44I | 01/30/20 | 1411 | X | | 12 | | X | | | | | | | X | X | | X | |
| DUP1 | 01/30/20 | 1419 | X | | 12 | | X | | | | | | | X | X | | X | |
| MW-44D | 01/30/20 | 1457 | X | | 12 | | X | | | | | | | X | X | | X | |
| MW-11IP | 01/30/20 | 1525 | X | | 12 | | X | | | | | | | X | X | | X | |
| MW-2D | 01/30/20 | 1609 | X | | 9 | | | | | | | | | X | X | | X | |
| MW-48D | 01/30/20 | 1651 | X | | 36 | | X | | | | | | | X | X | | X | MS/MSD |

**Turnaround Time Requested (TAT)** (please circle)

Standard 5 day 4 day

72 hour 48 hour 24 hour

**Data Package** (circle if required)

Type I - Full Type III Type VI (Raw Data)

**EDD** (circle if required)

CVX-RTBU-FI_05 (default) Other: ____

| Relinquished by | Date | Time | Received by | Date | Time |
|---|---|---|---|---|---|
| Heather Tauscher | 01/31/20 | 0930 | FED EX | 01/31/20 | 0930 |
| Relinquished by | Date | Time | Received by | Date | Time |
| Relinquished by | Date | Time | Received by | Date | Time |
| Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____ | | | Received by | Date 2/1/2020 | Time 0912 |

Temperature Upon Receipt 0.9/0.1 °C — Custody Seals Intact? Yes No

# Chevron Generic Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

Acct. # 11408 For Eurofins Lancaster Laboratories Environmental use only Group # 2085883 Sample # 1251371-99

2 of 2

SCR #: _____

**Client Information**

Facility # Purity Oil WBS

Site Address 3281 South Maple Avenue Fresno, CA

Chevron PM Nate Bloomgren Lead Consultant ARCADIS

Consultant/Office 3109 W. Dr. Martin Luther King Road Tampa, Florida

Consultant Project Mgr. Sam Miles

Sampler Heather Tauscher / Trevor Darragh

State where samples were collected: California For Compliance: Yes ☒ No ☐

**Matrix**: Soil ☐ Sediment ☐ Water: Potable ☐ Ground ☒ NPDES ☐ Surface ☐ Oil ☐ Air ☐

**Analyses Requested** — Preservation and Filtration Codes

| Sample Identification | Collected Date | Collected Time | Grab | Composite | Soil | Water | Oil | Total Number of Containers | BTEX + MTBE 8021 ☐ 8260 ☐ Naphth ☐ | 8260 full scan VOC'S (H) | Oxygenates | TPH-GRO 8015 ☐ 8260 ☐ | TPH-DRO without Silica Gel Cleanup ☐ | TPH-DRO with Silica Gel Cleanup ☐ | VPH ☐ EPH ☐ Method | Lead Total ☐ Diss. ☐ Method | Arsenic 6020 (Field) (N) | Fe + Mn 6010 (Filtered) (N) | MNA | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-48I | 01/30/20 | 1727 | X | | | | | 12 | | X | | | | | | (W) | X | X | X | |
| TB01302020 | 01/30/20 | 0730 | X | | | | | 2 | | X | | | | | | | | | | |
| EB01302020 | 01/30/20 | 0745 | X | | | | | 3 | | X | | | | | | | | | | |

**Preservation Codes**

H = HCl T = Thiosulfate
N = $HNO_3$ B = NaOH
S = $H_2SO_4$ P = $H_3PO_4$
F = Field Filtered O = Other

☐ Results in Dry Weight
☐ J value reporting needed
☐ Must meet lowest detection limits possible for 8260 compounds

**Remarks**

**Turnaround Time Requested (TAT)** (please circle)

Standard 5 day 4 day
72 hour 48 hour 24 hour

**Data Package** (circle if required)

Type I - Full Type III Type VI (Raw Data)

**EDD** (circle if required)

CVX-RTBU-FI_05 (default) Other: _____

| Relinquished by | Date | Time | Received by | Date | Time |
|---|---|---|---|---|---|
| Heather Tauscher | 01/31/20 | 0930 | FED EX | 01/31/20 | 0930 |
| | | | | | |
| | | | | | |

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Received by [signature] Date 2/1/2020 Time 942

Temperature Upon Receipt 0.9/0.1 C

Custody Seals Intact? Yes No

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300

The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

7047 1117

2085883

## Katherine Klinefelter

**From:** Fong, Bryan <Bryan.Fong@arcadis.com>
**Sent:** Wednesday, February 05, 2020 11:47 AM
**To:** Katherine Klinefelter
**Cc:** Miles, Samuel; Mattson, Ryan
**Subject:** FW: 2085883-Purity Oil-02/01/2020 9:42:00 Acknowledgement
**Attachments:** EAcknow_2085883.xls; 2085883c.pdf; 2085883d.pdf

EXTERNAL EMAIL*

Hi Katherine,

I reviewed the attached acknowledgement and see a few changes needed.
Please also analyze samples MW25I, MW-11IP, and MW-48I for arsenic.

Thank you,

Bryan A. Fong | Project Scientist | Bryan.Fong@arcadis.com Arcadis
100 Smith Ranch Road, Suite 328 | San Rafael, California 94903
Direct: 415.915.8089
Mobile: 415.202.3898
www.arcadis.com

Please consider the environment before printing this email.

-----Original Message-----
From: LLAutomatedReportingSystem@eurofins.com <LLAutomatedReportingSystem@eurofins.com>
Sent: Wednesday, February 5, 2020 7:32 AM
To: Mattson, Ryan <Ryan.Mattson@arcadis.com>; Fong, Bryan <Bryan.Fong@arcadis.com>; Miles, Samuel <Samuel.Miles@arcadis.com>
Subject: 2085883-Purity Oil-02/01/2020 9:42:00 Acknowledgement

The following is an acknowledgement of the receipt of samples by Eurofins Lancaster Laboratories Environmental, LLC. Please review this acknowledgement and contact your Client Service Representative if you have concerns.

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eurofins | Lancaster Laboratories Environmental

# Sample Administration Receipt Documentation Log

Doc Log ID: 274194

Group Number(s): 2085883

Client: PURITY OIL

## Delivery and Receipt Information

| | | | |
|---|---|---|---|
| Delivery Method: | Fed Ex | Arrival Date: | 02/01/2020 |
| Number of Packages: | 2 | Number of Projects: | 1 |
| State/Province of Origin: | CA | | |

## Arrival Condition Summary

| | | | |
|---|---|---|---|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | Yes |
| Custody Seal Present: | Yes | Sample Date/Times match COC: | Yes |
| Custody Seal Intact: | Yes | Total Trip Blank Qty: | 2 |
| Samples Chilled: | Yes | Trip Blank Type: | HCl |
| Paperwork Enclosed: | Yes | Air Quality Samples Present: | No |
| Samples Intact: | Yes | | |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

*Unpacked by Jessenia Colon Martinez*

## Samples Chilled Details

*Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.*

| Cooler # | Thermometer ID | Corrected Temp | Therm. Type | Ice Type | Ice Present? | Ice Container | Elevated Temp? |
|---|---|---|---|---|---|---|---|
| 1 | 192050133 | 0.9 | IR | Wet | Y | Bagged | N |
| 2 | 192050133 | 0.1 | IR | Wet | Y | Bagged | N |



2425 New Holland Pike
Lancaster, PA 17601-5421
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

# Explanation of Symbols and Abbreviations

*The following defines common symbols and abbreviations used in reporting technical data:*

| | | | |
|---|---|---|---|
| **BMQL** | Below Minimum Quantitation Level | **mL** | milliliter(s) |
| **C** | degrees Celsius | **MPN** | Most Probable Number |
| **cfu** | colony forming units | **N.D.** | non-detect |
| **CP Units** | cobalt-chloroplatinate units | **ng** | nanogram(s) |
| **F** | degrees Fahrenheit | **NTU** | nephelometric turbidity units |
| **g** | gram(s) | **pg/L** | picogram/liter |
| **IU** | International Units | **RL** | Reporting Limit |
| **kg** | kilogram(s) | **TNTC** | Too Numerous To Count |
| **L** | liter(s) | **µg** | microgram(s) |
| **lb.** | pound(s) | **µL** | microliter(s) |
| **m3** | cubic meter(s) | **umhos/cm** | micromhos/cm |
| **meq** | milliequivalents | **MCL** | Maximum Contamination Limit |
| **mg** | milligram(s) | | |

| | |
|---|---|
| **<** | less than |
| **>** | greater than |
| **ppm** | parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas. |
| **ppb** | parts per billion |
| **Dry weight basis** | Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis. |

**Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.**

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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# Data Qualifiers

| Qualifier | Definition |
|---|---|
| C | Result confirmed by reanalysis |
| D1 | Indicates for dual column analyses that the result is reported from column 1 |
| D2 | Indicates for dual column analyses that the result is reported from column 2 |
| E | Concentration exceeds the calibration range |
| K1 | Initial Calibration Blank is above the QC limit and the sample result is ND |
| K2 | Continuing Calibration Blank is above the QC limit and the sample result is ND |
| K3 | Initial Calibration Verification is above the QC limit and the sample result is ND |
| K4 | Continuing Calibration Verification is above the QC limit and the sample result is ND |
| J (or G, I, X) | Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL) |
| P | Concentration difference between the primary and confirmation column >40%. The lower result is reported. |
| P^ | Concentration difference between the primary and confirmation column > 40%. The higher result is reported. |
| U | Analyte was not detected at the value indicated |
| V | Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference. |
| W | The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L. |
| Z | Laboratory Defined - see analysis report |

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

# Volatiles by GC/MS Data

# Case Narrative/Conformance Summary

# Volatiles by GC/MS

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# Case Narrative/Conformance Summary

**CLIENT: Chevron Env Management Company**
**SDG: PUP93**

## GC/MS Volatiles

**Fraction: Volatiles by GC/MS**

| Sample # | Client ID | Matrix Liquid | Matrix Solid | DF | Comments |
|---|---|---|---|---|---|
| 1251371 | MW-24I-W-200130 | X | | 1 | |
| 1251373 | MW-23-W-200130 | X | | 1 | |
| 1251375 | MW-34I-W-200130 | X | | 1 | |
| 1251376 | MW-25I-W-200130 | X | | 1 | |
| 1251378 | MW-44I-W-200130 | X | | 1 | |
| 1251380 | DUP1-WD-200130 | X | | 1 | Field Duplicate Sample |
| 1251382 | MW-44D-W-200130 | X | | 1 | |
| 1251384 | MW-11IP-W-200130 | X | | 1 | |
| 1251388 | MW-48D-W-200130 | X | | 1 | Unspiked |
| 1251389 | MW-48DMS-W-200130 | X | | 1 | Matrix Spike |
| 1251390 | MW-48DMSD-W-200130 | X | | 1 | Matrix Spike Duplicate |
| 1251396 | MW-48I-W-200130 | X | | 1 | |
| 1251398 | TB-T-200130 | X | | 1 | Trip Blank |
| 1251399 | EB-R-200130 | X | | 1 | Equipment Blank |

See QC Reference List for Associated Batch QC Samples

### SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

### HOLDING TIME:

All holding times were met.

### PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

### CALIBRATION/STANDARDIZATION:

All criteria were met.

### QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

All QC is within specification.

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# Case Narrative/Conformance Summary

**CLIENT: Chevron Env Management Company**
**SDG: PUP93**

## GC/MS Volatiles

**Fraction: Volatiles by GC/MS**

### SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

**Abbreviation Key**

| | |
|---|---|
| UNSPK = Unspiked (for MS/MSD) | LOQ = Limit of Quantitation |
| +MS = Matrix Spike | MDL = Method Detection Limit |
| MSD = Matrix Spike Duplicate | ND = Not Detected |
| BKG = Background (for Duplicate) | J = Estimated Value |
| D = Duplicate (DUP) | E= out of calibration range |
| LCS = Lab Control Sample | RE = Repreparation/Reanalysis |
| LCSD = Lab Control Sample Duplicate | * = Out of Specification |

# Quality Control and Calibration Summary Forms

# Volatiles by GC/MS

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# Quality Control Reference List
## GC/MS Volatiles

**CLIENT: Chevron Env Management Company**
**SDG: PUP93**

**Fraction: Volatiles by GC/MS**

| Analysis | Batch Number | Sample Number | Analysis Date |
|---|---|---|---|
| VOCs 25 ml purge 8260 | C200361AA | VBLKC92 | 02/05/2020 20:53 |
| | | LCSC92 | 02/05/2020 20:08 |
| | | 1251371 | 02/05/2020 22:14 |
| | | 1251373 | 02/05/2020 22:36 |
| | | 1251375 | 02/05/2020 22:59 |
| | | 1251376 | 02/05/2020 23:21 |
| | | 1251378 | 02/05/2020 23:43 |
| | | 1251380 | 02/06/2020 01:35 |
| | | 1251382 | 02/06/2020 01:57 |
| | | 1251384 | 02/06/2020 02:19 |
| | | 1251388 UNSPK | 02/06/2020 00:06 |
| | | 1251389 MS | 02/06/2020 00:28 |
| | | 1251390 MSD | 02/06/2020 00:50 |
| | | 1251396 | 02/06/2020 02:42 |
| | | 1251398 | 02/05/2020 21:29 |
| | | 1251399 | 02/05/2020 21:52 |

**Quality Control Summary**
**Method Blank**
**GC/MS Volatiles**
**SDG: PUP93**
**Matrix: LIQUID**

**Fraction: Volatiles by GC/MS**

| C200361AA / VBLKC92<br>Analyte | Analysis Date | Blank Results | Units | MDL | LOQ |
|---|---|---|---|---|---|
| Dichlorodifluoromethane | 02/05/20 | N.D. | ug/l | 0.1 | 0.5 |
| Chloromethane | 02/05/20 | N.D. | ug/l | 0.09 | 0.5 |
| Vinyl Chloride | 02/05/20 | N.D. | ug/l | 0.08 | 0.5 |
| Bromomethane | 02/05/20 | N.D. | ug/l | 0.1 | 0.5 |
| Chloroethane | 02/05/20 | N.D. | ug/l | 0.09 | 0.5 |
| Trichlorofluoromethane | 02/05/20 | N.D. | ug/l | 0.1 | 0.5 |
| 1,1-Dichloroethene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| Acetone | 02/05/20 | N.D. | ug/l | 1.1 | 5.0 |
| Carbon Disulfide | 02/05/20 | N.D. | ug/l | 0.09 | 1.0 |
| Methylene Chloride | 02/05/20 | N.D. | ug/l | 0.06 | 0.5 |
| t-Butyl Alcohol | 02/05/20 | N.D. | ug/l | 1.6 | 10 |
| trans-1,2-Dichloroethene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| Methyl Tertiary Butyl Ether | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| 1,1-Dichloroethane | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| 2-Butanone | 02/05/20 | N.D. | ug/l | 0.7 | 5.0 |
| cis-1,2-Dichloroethene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| 2,2-Dichloropropane | 02/05/20 | N.D. | ug/l | 0.06 | 0.5 |
| Bromochloromethane | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| Chloroform | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| 1,1,1-Trichloroethane | 02/05/20 | N.D. | ug/l | 0.06 | 0.5 |
| 1,1-Dichloropropene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| Carbon Tetrachloride | 02/05/20 | N.D. | ug/l | 0.06 | 0.5 |
| Benzene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| 1,2-Dichloroethane | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| Trichloroethene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| 1,2-Dichloropropane | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| Dibromomethane | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| Bromodichloromethane | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| cis-1,3-Dichloropropene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| 4-Methyl-2-pentanone | 02/05/20 | N.D. | ug/l | 0.6 | 5.0 |
| Toluene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| trans-1,3-Dichloropropene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| 1,1,2-Trichloroethane | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| Tetrachloroethene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| 1,3-Dichloropropane | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| Dibromochloromethane | 02/05/20 | N.D. | ug/l | 0.06 | 0.5 |
| 1,2-Dibromoethane | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| Chlorobenzene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| 1,1,1,2-Tetrachloroethane | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| Ethylbenzene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| m+p-Xylene | 02/05/20 | N.D. | ug/l | 0.08 | 0.5 |
| o-Xylene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| Styrene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| Bromoform | 02/05/20 | N.D. | ug/l | 0.3 | 1.0 |
| Isopropylbenzene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |

**Quality Control Summary**
**Method Blank**
**GC/MS Volatiles**
**SDG: PUP93**
**Matrix: LIQUID**

**Fraction: Volatiles by GC/MS**

| C200361AA / VBLKC92<br>Analyte | Analysis Date | Blank Results | Units | MDL | LOQ |
|---|---|---|---|---|---|
| 1,1,2,2-Tetrachloroethane | 02/05/20 | N.D. | ug/l | 0.06 | 0.5 |
| Bromobenzene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| 1,2,3-Trichloropropane | 02/05/20 | N.D. | ug/l | 0.06 | 1.0 |
| n-Propylbenzene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| 2-Chlorotoluene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| 1,3,5-Trimethylbenzene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| 4-Chlorotoluene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| tert-Butylbenzene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| 1,2,4-Trimethylbenzene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| sec-Butylbenzene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| 1,3-Dichlorobenzene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| p-Isopropyltoluene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| 1,4-Dichlorobenzene | 02/05/20 | N.D. | ug/l | 0.06 | 0.5 |
| n-Butylbenzene | 02/05/20 | N.D. | ug/l | 0.07 | 0.5 |
| 1,2-Dichlorobenzene | 02/05/20 | N.D. | ug/l | 0.05 | 0.5 |
| 1,2-Dibromo-3-chloropropane | 02/05/20 | N.D. | ug/l | 0.2 | 0.5 |
| 1,2,4-Trichlorobenzene | 02/05/20 | N.D. | ug/l | 0.09 | 0.5 |
| Hexachlorobutadiene | 02/05/20 | N.D. | ug/l | 0.1 | 0.5 |
| Naphthalene | 02/05/20 | N.D. | ug/l | 0.09 | 0.5 |
| 1,2,3-Trichlorobenzene | 02/05/20 | N.D. | ug/l | 0.1 | 0.5 |

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**Quality Control Summary**
**Surrogates**
**GC/MS Volatiles**
**SDG: PUP93**
**Matrix: LIQUID**

**Fraction: Volatiles by GC/MS**

| C200361AA | 1,2-Dichloroethane-d4 | | 4-Bromofluorobenzene | | Dibromofluoromethane | | Toluene-d8 | |
|---|---|---|---|---|---|---|---|---|
| | Spike Added | 10 ug/l | Spike Added | 10 ug/l | Spike Added | 10 ug/l | Spike Added | 10 ug/l |
| Sample | % Recovery | Limits | % Recovery | Limits | % Recovery | Limits | % Recovery | Limits |
| VBLKC92 | 102 | 80 - 120 | 98 | 80 - 120 | 103 | 80 - 120 | 100 | 80 - 120 |
| LCSC92 | 104 | 80 - 120 | 100 | 80 - 120 | 103 | 80 - 120 | 100 | 80 - 120 |
| 1251371 | 103 | 80 - 120 | 97 | 80 - 120 | 103 | 80 - 120 | 99 | 80 - 120 |
| 1251373 | 103 | 80 - 120 | 99 | 80 - 120 | 103 | 80 - 120 | 100 | 80 - 120 |
| 1251375 | 102 | 80 - 120 | 97 | 80 - 120 | 103 | 80 - 120 | 99 | 80 - 120 |
| 1251376 | 102 | 80 - 120 | 97 | 80 - 120 | 103 | 80 - 120 | 99 | 80 - 120 |
| 1251378 | 104 | 80 - 120 | 97 | 80 - 120 | 104 | 80 - 120 | 99 | 80 - 120 |
| 1251380 | 100 | 80 - 120 | 97 | 80 - 120 | 103 | 80 - 120 | 99 | 80 - 120 |
| 1251382 | 102 | 80 - 120 | 97 | 80 - 120 | 103 | 80 - 120 | 99 | 80 - 120 |
| 1251384 | 103 | 80 - 120 | 97 | 80 - 120 | 104 | 80 - 120 | 100 | 80 - 120 |
| 1251388 UNSPK | 102 | 80 - 120 | 97 | 80 - 120 | 104 | 80 - 120 | 100 | 80 - 120 |
| 1251389 MS | 101 | 80 - 120 | 99 | 80 - 120 | 103 | 80 - 120 | 100 | 80 - 120 |
| 1251390 MSD | 102 | 80 - 120 | 99 | 80 - 120 | 102 | 80 - 120 | 101 | 80 - 120 |
| 1251396 | 103 | 80 - 120 | 97 | 80 - 120 | 103 | 80 - 120 | 100 | 80 - 120 |
| 1251398 | 101 | 80 - 120 | 98 | 80 - 120 | 104 | 80 - 120 | 99 | 80 - 120 |
| 1251399 | 102 | 80 - 120 | 98 | 80 - 120 | 102 | 80 - 120 | 99 | 80 - 120 |

## GC/MS Volatiles

**Fraction: Volatiles by GC/MS**

| UNSPK: 1251388<br>MS: 1251389<br>MSD: 1251390<br>**Analyte** | Batch: **C200361AA** (Sample number(s): 1251371, 1251373, 1251375-1251376, 1251378, 1251380, 1251382, 1251384, 1251388-1251390, 1251396, 1251398-1251399 ) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Spike Added ug/l** | **Unspiked Conc ug/l** | **MS Conc ug/l** | **MSD Conc ug/l** | **MS %Rec** | **MSD %Rec** | **%Rec Limits** | **%RPD** | **%RPD Limits** |
| Dichlorodifluoromethane | 5.00 | N.D. | 4.21 | 4.45 | 84 | 89 | 43-123 | 5 | 30 |
| Chloromethane | 5.00 | N.D. | 4.72 | 4.87 | 94 | 97 | 56-124 | 3 | 30 |
| Vinyl Chloride | 5.00 | N.D. | 5.22 | 5.35 | 104 | 107 | 60-125 | 3 | 30 |
| Bromomethane | 5.00 | N.D. | 4.86 | 4.97 | 97 | 99 | 60-136 | 2 | 30 |
| Chloroethane | 5.00 | N.D. | 5.05 | 5.12 | 101 | 102 | 63-120 | 1 | 30 |
| Trichlorofluoromethane | 5.00 | N.D. | 6.18 | 6.38 | 124 | 128 | 62-136 | 3 | 30 |
| 1,1-Dichloroethene | 5.00 | N.D. | 5.19 | 5.19 | 104 | 104 | 80-131 | 0 | 30 |
| Acetone | 37.5 | N.D. | 34.74 | 37.66 | 93 | 100 | 60-146 | 8 | 30 |
| Carbon Disulfide | 5.00 | N.D. | 5.05 | 5.06 | 101 | 101 | 67-130 | 0 | 30 |
| Methylene Chloride | 5.00 | N.D. | 5.08 | 5.02 | 102 | 100 | 80-120 | 1 | 30 |
| t-Butyl Alcohol | 50 | N.D. | 53.59 | 56.4 | 107 | 113 | 62-138 | 5 | 30 |
| Methyl Tertiary Butyl Ether | 5.00 | N.D. | 4.74 | 4.82 | 95 | 96 | 69-120 | 2 | 30 |
| trans-1,2-Dichloroethene | 5.00 | N.D. | 5.10 | 5.10 | 102 | 102 | 80-120 | 0 | 30 |
| 1,1-Dichloroethane | 5.00 | N.D. | 5.18 | 5.20 | 104 | 104 | 74-120 | 0 | 30 |
| 2-Butanone | 37.5 | N.D. | 34.78 | 37.6 | 93 | 100 | 59-141 | 8 | 30 |
| cis-1,2-Dichloroethene | 5.00 | N.D. | 5.30 | 5.25 | 106 | 105 | 80-120 | 1 | 30 |
| 2,2-Dichloropropane | 5.00 | N.D. | 5.09 | 5.07 | 102 | 101 | 61-141 | 0 | 30 |
| Bromochloromethane | 5.00 | N.D. | 4.73 | 4.73 | 95 | 95 | 80-120 | 0 | 30 |
| Chloroform | 5.00 | N.D. | 5.23 | 5.28 | 105 | 106 | 80-120 | 1 | 30 |
| 1,1,1-Trichloroethane | 5.00 | N.D. | 5.20 | 5.24 | 104 | 105 | 78-126 | 1 | 30 |
| 1,1-Dichloropropene | 5.00 | N.D. | 5.30 | 5.31 | 106 | 106 | 74-120 | 0 | 30 |
| Carbon Tetrachloride | 5.00 | N.D. | 5.45 | 5.51 | 109 | 110 | 64-141 | 1 | 30 |
| Benzene | 5.00 | N.D. | 5.15 | 5.10 | 103 | 102 | 80-120 | 1 | 30 |
| 1,2-Dichloroethane | 5.00 | N.D. | 5.01 | 4.99 | 100 | 100 | 69-122 | 0 | 30 |
| Trichloroethene | 5.00 | N.D. | 5.29 | 5.25 | 106 | 105 | 80-120 | 1 | 30 |
| 1,2-Dichloropropane | 5.00 | N.D. | 5.21 | 5.18 | 104 | 104 | 80-120 | 1 | 30 |
| Dibromomethane | 5.00 | N.D. | 5.11 | 5.14 | 102 | 103 | 80-122 | 1 | 30 |
| Bromodichloromethane | 5.00 | N.D. | 4.96 | 4.97 | 99 | 99 | 73-124 | 0 | 30 |
| cis-1,3-Dichloropropene | 5.00 | N.D. | 4.58 | 4.59 | 92 | 92 | 67-121 | 0 | 30 |
| 4-Methyl-2-pentanone | 25 | N.D. | 24.95 | 25.04 | 100 | 100 | 55-140 | 0 | 30 |
| Toluene | 5.00 | N.D. | 5.04 | 5.10 | 101 | 102 | 80-120 | 1 | 30 |
| trans-1,3-Dichloropropene | 5.00 | N.D. | 4.30 | 4.34 | 86 | 87 | 61-129 | 1 | 30 |
| 1,1,2-Trichloroethane | 5.00 | N.D. | 4.98 | 5.02 | 100 | 100 | 80-120 | 1 | 30 |
| Tetrachloroethene | 5.00 | N.D. | 5.40 | 5.35 | 108 | 107 | 80-120 | 1 | 30 |
| 1,3-Dichloropropane | 5.00 | N.D. | 4.78 | 4.90 | 96 | 98 | 80-120 | 3 | 30 |
| Dibromochloromethane | 5.00 | N.D. | 4.74 | 4.77 | 95 | 95 | 64-138 | 1 | 30 |
| 1,2-Dibromoethane | 5.00 | N.D. | 4.84 | 4.86 | 97 | 97 | 80-120 | 0 | 30 |

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

## GC/MS Volatiles

**Fraction: Volatiles by GC/MS**

| UNSPK: 1251388<br>MS: 1251389<br>MSD: 1251390<br>**Analyte** | Batch: **C200361AA** (Sample number(s): 1251371, 1251373, 1251375-1251376, 1251378, 1251380, 1251382, 1251384, 1251388-1251390, 1251396, 1251398-1251399 ) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Spike Added ug/l** | **Unspiked Conc ug/l** | **MS Conc ug/l** | **MSD Conc ug/l** | **MS %Rec** | **MSD %Rec** | **%Rec Limits** | **%RPD** | **%RPD Limits** |
| Chlorobenzene | 5.00 | N.D. | 5.03 | 5.01 | 101 | 100 | 80-120 | 1 | 30 |
| 1,1,1,2-Tetrachloroethane | 5.00 | N.D. | 4.89 | 4.98 | 98 | 100 | 71-134 | 2 | 30 |
| Ethylbenzene | 5.00 | N.D. | 5.10 | 5.13 | 102 | 103 | 80-120 | 1 | 30 |
| m+p-Xylene | 10 | N.D. | 10.29 | 10.31 | 103 | 103 | 80-120 | 0 | 30 |
| o-Xylene | 5.00 | N.D. | 4.94 | 5.03 | 99 | 101 | 80-120 | 2 | 30 |
| Styrene | 5.00 | N.D. | 4.95 | 4.95 | 99 | 99 | 80-120 | 0 | 30 |
| Bromoform | 5.00 | N.D. | 4.39 | 4.42 | 88 | 88 | 49-144 | 1 | 30 |
| Isopropylbenzene | 5.00 | N.D. | 5.16 | 5.27 | 103 | 105 | 80-120 | 2 | 30 |
| 1,1,2,2-Tetrachloroethane | 5.00 | N.D. | 4.55 | 4.56 | 91 | 91 | 75-123 | 0 | 30 |
| Bromobenzene | 5.00 | N.D. | 4.91 | 4.95 | 98 | 99 | 80-120 | 1 | 30 |
| 1,2,3-Trichloropropane | 5.00 | N.D. | 4.69 | 4.84 | 94 | 97 | 80-125 | 3 | 30 |
| n-Propylbenzene | 5.00 | N.D. | 5.07 | 5.05 | 101 | 101 | 74-122 | 0 | 30 |
| 2-Chlorotoluene | 5.00 | N.D. | 4.82 | 4.87 | 96 | 97 | 80-120 | 1 | 30 |
| 1,3,5-Trimethylbenzene | 5.00 | N.D. | 4.85 | 4.92 | 97 | 98 | 80-120 | 1 | 30 |
| 4-Chlorotoluene | 5.00 | N.D. | 4.81 | 4.84 | 96 | 97 | 80-120 | 1 | 30 |
| tert-Butylbenzene | 5.00 | N.D. | 4.99 | 5.12 | 100 | 102 | 79-120 | 3 | 30 |
| 1,2,4-Trimethylbenzene | 5.00 | N.D. | 4.75 | 4.79 | 95 | 96 | 80-120 | 1 | 30 |
| sec-Butylbenzene | 5.00 | N.D. | 5.04 | 5.13 | 101 | 103 | 80-120 | 2 | 30 |
| 1,3-Dichlorobenzene | 5.00 | N.D. | 4.92 | 4.97 | 98 | 99 | 80-120 | 1 | 30 |
| p-Isopropyltoluene | 5.00 | N.D. | 4.96 | 5.00 | 99 | 100 | 80-120 | 1 | 30 |
| 1,4-Dichlorobenzene | 5.00 | N.D. | 4.91 | 4.97 | 98 | 99 | 80-120 | 1 | 30 |
| n-Butylbenzene | 5.00 | N.D. | 5.04 | 5.11 | 101 | 102 | 74-123 | 1 | 30 |
| 1,2-Dichlorobenzene | 5.00 | N.D. | 4.92 | 4.94 | 98 | 99 | 80-120 | 1 | 30 |
| 1,2-Dibromo-3-chloropropane | 5.00 | N.D. | 4.45 | 4.72 | 89 | 94 | 56-148 | 6 | 30 |
| 1,2,4-Trichlorobenzene | 5.00 | N.D. | 4.69 | 4.81 | 94 | 96 | 68-122 | 3 | 30 |
| Hexachlorobutadiene | 5.00 | N.D. | 5.18 | 5.19 | 104 | 104 | 72-132 | 0 | 30 |
| Naphthalene | 5.00 | N.D. | 4.35 | 4.49 | 87 | 90 | 64-122 | 3 | 30 |
| 1,2,3-Trichlorobenzene | 5.00 | N.D. | 4.50 | 4.62 | 90 | 92 | 68-125 | 3 | 30 |

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

**Quality Control Summary**
**Laboratory Control Standard (LCS)**
**Laboratory Control Standard Duplicate(LCSD)**

**SDG: PUP93**
**Matrix: LIQUID**

## GC/MS Volatiles
**Fraction: Volatiles by GC/MS**

| LCS: LCSC92 | Batch: **C200361AA** (Sample number(s): 1251371, 1251373, 1251375-1251376, 1251378, 1251380, 1251382, 1251384, 1251388-1251390, 1251396, 1251398-1251399 ) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Analyte** | **Spike Added ug/l** | **LCS Conc ug/l** | **LCSD Conc ug/l** | **LCS %Rec** | **LCSD %Rec** | **%Rec Limits** | **%RPD** | **%RPD Limits** |
| Dichlorodifluoromethane | 5.00 | 3.64 | NA | 73 | NA | 43-123 | NA | NA |
| Chloromethane | 5.00 | 4.35 | NA | 87 | NA | 56-124 | NA | NA |
| Vinyl Chloride | 5.00 | 4.54 | NA | 91 | NA | 60-125 | NA | NA |
| Bromomethane | 5.00 | 4.50 | NA | 90 | NA | 60-136 | NA | NA |
| Chloroethane | 5.00 | 4.49 | NA | 90 | NA | 63-120 | NA | NA |
| Trichlorofluoromethane | 5.00 | 5.35 | NA | 107 | NA | 62-136 | NA | NA |
| 1,1-Dichloroethene | 5.00 | 4.51 | NA | 90 | NA | 80-131 | NA | NA |
| Acetone | 37.5 | 34.76 | NA | 93 | NA | 60-146 | NA | NA |
| Carbon Disulfide | 5.00 | 4.36 | NA | 87 | NA | 67-130 | NA | NA |
| Methylene Chloride | 5.00 | 4.74 | NA | 95 | NA | 80-120 | NA | NA |
| t-Butyl Alcohol | 50 | 53.02 | NA | 106 | NA | 62-138 | NA | NA |
| Methyl Tertiary Butyl Ether | 5.00 | 4.92 | NA | 98 | NA | 69-120 | NA | NA |
| trans-1,2-Dichloroethene | 5.00 | 4.60 | NA | 92 | NA | 80-122 | NA | NA |
| 1,1-Dichloroethane | 5.00 | 4.75 | NA | 95 | NA | 74-120 | NA | NA |
| 2-Butanone | 37.5 | 36.59 | NA | 98 | NA | 59-141 | NA | NA |
| cis-1,2-Dichloroethene | 5.00 | 4.94 | NA | 99 | NA | 80-122 | NA | NA |
| 2,2-Dichloropropane | 5.00 | 4.57 | NA | 91 | NA | 61-141 | NA | NA |
| Bromochloromethane | 5.00 | 4.59 | NA | 92 | NA | 80-120 | NA | NA |
| Chloroform | 5.00 | 4.90 | NA | 98 | NA | 80-120 | NA | NA |
| 1,1,1-Trichloroethane | 5.00 | 4.62 | NA | 92 | NA | 78-126 | NA | NA |
| 1,1-Dichloropropene | 5.00 | 4.64 | NA | 93 | NA | 74-120 | NA | NA |
| Carbon Tetrachloride | 5.00 | 4.79 | NA | 96 | NA | 64-141 | NA | NA |
| Benzene | 5.00 | 4.66 | NA | 93 | NA | 80-120 | NA | NA |
| 1,2-Dichloroethane | 5.00 | 5.01 | NA | 100 | NA | 69-122 | NA | NA |
| Trichloroethene | 5.00 | 4.74 | NA | 95 | NA | 80-120 | NA | NA |
| 1,2-Dichloropropane | 5.00 | 4.96 | NA | 99 | NA | 80-120 | NA | NA |
| Dibromomethane | 5.00 | 5.09 | NA | 102 | NA | 80-122 | NA | NA |
| Bromodichloromethane | 5.00 | 4.82 | NA | 96 | NA | 73-124 | NA | NA |
| cis-1,3-Dichloropropene | 5.00 | 4.62 | NA | 92 | NA | 67-121 | NA | NA |
| 4-Methyl-2-pentanone | 25 | 26.17 | NA | 105 | NA | 55-140 | NA | NA |
| Toluene | 5.00 | 4.64 | NA | 93 | NA | 80-120 | NA | NA |
| trans-1,3-Dichloropropene | 5.00 | 4.48 | NA | 90 | NA | 61-129 | NA | NA |
| 1,1,2-Trichloroethane | 5.00 | 4.98 | NA | 100 | NA | 80-120 | NA | NA |
| Tetrachloroethene | 5.00 | 4.79 | NA | 96 | NA | 80-120 | NA | NA |
| 1,3-Dichloropropane | 5.00 | 4.80 | NA | 96 | NA | 80-120 | NA | NA |
| Dibromochloromethane | 5.00 | 4.86 | NA | 97 | NA | 64-138 | NA | NA |
| 1,2-Dibromoethane | 5.00 | 4.84 | NA | 97 | NA | 80-120 | NA | NA |
| Chlorobenzene | 5.00 | 4.76 | NA | 95 | NA | 80-120 | NA | NA |
| 1,1,1,2-Tetrachloroethane | 5.00 | 4.77 | NA | 95 | NA | 71-134 | NA | NA |
| Ethylbenzene | 5.00 | 4.67 | NA | 93 | NA | 80-120 | NA | NA |
| m+p-Xylene | 10 | 9.40 | NA | 94 | NA | 80-120 | NA | NA |

## GC/MS Volatiles

**Fraction: Volatiles by GC/MS**

| LCS: LCSC92 | Batch: **C200361AA** (Sample number(s): 1251371, 1251373, 1251375-1251376, 1251378, 1251380, 1251382, 1251384, 1251388-1251390, 1251396, 1251398-1251399 ) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Analyte** | **Spike Added ug/l** | **LCS Conc ug/l** | **LCSD Conc ug/l** | **LCS %Rec** | **LCSD %Rec** | **%Rec Limits** | **%RPD** | **%RPD Limits** |
| o-Xylene | 5.00 | 4.71 | NA | 94 | NA | 80-120 | NA | NA |
| Styrene | 5.00 | 4.66 | NA | 93 | NA | 80-120 | NA | NA |
| Bromoform | 5.00 | 4.58 | NA | 92 | NA | 49-144 | NA | NA |
| Isopropylbenzene | 5.00 | 4.69 | NA | 94 | NA | 80-120 | NA | NA |
| 1,1,2,2-Tetrachloroethane | 5.00 | 4.72 | NA | 94 | NA | 75-123 | NA | NA |
| Bromobenzene | 5.00 | 4.65 | NA | 93 | NA | 80-120 | NA | NA |
| 1,2,3-Trichloropropane | 5.00 | 4.72 | NA | 94 | NA | 80-125 | NA | NA |
| n-Propylbenzene | 5.00 | 4.58 | NA | 92 | NA | 74-122 | NA | NA |
| 2-Chlorotoluene | 5.00 | 4.47 | NA | 89 | NA | 80-120 | NA | NA |
| 1,3,5-Trimethylbenzene | 5.00 | 4.49 | NA | 90 | NA | 80-120 | NA | NA |
| 4-Chlorotoluene | 5.00 | 4.49 | NA | 90 | NA | 80-120 | NA | NA |
| tert-Butylbenzene | 5.00 | 4.40 | NA | 88 | NA | 79-120 | NA | NA |
| 1,2,4-Trimethylbenzene | 5.00 | 4.44 | NA | 89 | NA | 80-120 | NA | NA |
| sec-Butylbenzene | 5.00 | 4.54 | NA | 91 | NA | 80-120 | NA | NA |
| 1,3-Dichlorobenzene | 5.00 | 4.65 | NA | 93 | NA | 80-120 | NA | NA |
| p-Isopropyltoluene | 5.00 | 4.51 | NA | 90 | NA | 80-120 | NA | NA |
| 1,4-Dichlorobenzene | 5.00 | 4.71 | NA | 94 | NA | 80-120 | NA | NA |
| n-Butylbenzene | 5.00 | 4.60 | NA | 92 | NA | 74-123 | NA | NA |
| 1,2-Dichlorobenzene | 5.00 | 4.74 | NA | 95 | NA | 80-120 | NA | NA |
| 1,2-Dibromo-3-chloropropane | 5.00 | 4.68 | NA | 94 | NA | 56-148 | NA | NA |
| 1,2,4-Trichlorobenzene | 5.00 | 4.68 | NA | 94 | NA | 68-122 | NA | NA |
| Hexachlorobutadiene | 5.00 | 4.68 | NA | 94 | NA | 72-132 | NA | NA |
| Naphthalene | 5.00 | 4.55 | NA | 91 | NA | 64-122 | NA | NA |
| 1,2,3-Trichlorobenzene | 5.00 | 4.52 | NA | 90 | NA | 68-125 | NA | NA |

**Fraction: Volatiles by GC/MS**

| 02898: VOCs 25 ml purge 8260<br>Analyte Name | Default<br>MDL | Default<br>LOQ | Units |
|---|---|---|---|
| Dichlorodifluoromethane | 0.1 | 0.5 | ug/l |
| Chloromethane | 0.09 | 0.5 | ug/l |
| Vinyl Chloride | 0.08 | 0.5 | ug/l |
| Bromomethane | 0.1 | 0.5 | ug/l |
| Chloroethane | 0.09 | 0.5 | ug/l |
| Trichlorofluoromethane | 0.1 | 0.5 | ug/l |
| 1,1-Dichloroethene | 0.05 | 0.5 | ug/l |
| Acetone | 1.1 | 5.0 | ug/l |
| Carbon Disulfide | 0.09 | 1.0 | ug/l |
| Methylene Chloride | 0.06 | 0.5 | ug/l |
| t-Butyl Alcohol | 1.6 | 10 | ug/l |
| trans-1,2-Dichloroethene | 0.05 | 0.5 | ug/l |
| Methyl Tertiary Butyl Ether | 0.05 | 0.5 | ug/l |
| 1,1-Dichloroethane | 0.05 | 0.5 | ug/l |
| 2-Butanone | 0.7 | 5.0 | ug/l |
| cis-1,2-Dichloroethene | 0.05 | 0.5 | ug/l |
| 2,2-Dichloropropane | 0.06 | 0.5 | ug/l |
| Bromochloromethane | 0.05 | 0.5 | ug/l |
| Chloroform | 0.05 | 0.5 | ug/l |
| 1,1,1-Trichloroethane | 0.06 | 0.5 | ug/l |
| 1,1-Dichloropropene | 0.05 | 0.5 | ug/l |
| Carbon Tetrachloride | 0.06 | 0.5 | ug/l |
| Benzene | 0.05 | 0.5 | ug/l |
| 1,2-Dichloroethane | 0.05 | 0.5 | ug/l |
| Trichloroethene | 0.05 | 0.5 | ug/l |
| 1,2-Dichloropropane | 0.05 | 0.5 | ug/l |
| Dibromomethane | 0.05 | 0.5 | ug/l |
| Bromodichloromethane | 0.05 | 0.5 | ug/l |
| cis-1,3-Dichloropropene | 0.05 | 0.5 | ug/l |
| 4-Methyl-2-pentanone | 0.6 | 5.0 | ug/l |
| Toluene | 0.05 | 0.5 | ug/l |
| trans-1,3-Dichloropropene | 0.05 | 0.5 | ug/l |
| 1,1,2-Trichloroethane | 0.05 | 0.5 | ug/l |
| Tetrachloroethene | 0.05 | 0.5 | ug/l |
| 1,3-Dichloropropane | 0.05 | 0.5 | ug/l |
| Dibromochloromethane | 0.06 | 0.5 | ug/l |
| 1,2-Dibromoethane | 0.05 | 0.5 | ug/l |
| Chlorobenzene | 0.05 | 0.5 | ug/l |
| 1,1,1,2-Tetrachloroethane | 0.05 | 0.5 | ug/l |
| Ethylbenzene | 0.05 | 0.5 | ug/l |
| m+p-Xylene | 0.08 | 0.5 | ug/l |
| o-Xylene | 0.05 | 0.5 | ug/l |
| Styrene | 0.05 | 0.5 | ug/l |
| Bromoform | 0.3 | 1.0 | ug/l |
| Isopropylbenzene | 0.05 | 0.5 | ug/l |
| 1,1,2,2-Tetrachloroethane | 0.06 | 0.5 | ug/l |
| Bromobenzene | 0.05 | 0.5 | ug/l |

**Fraction: Volatiles by GC/MS**

| 02898: VOCs 25 ml purge 8260<br>Analyte Name | Default<br>MDL | Default<br>LOQ | Units |
|---|---|---|---|
| 1,2,3-Trichloropropane | 0.06 | 1.0 | ug/l |
| n-Propylbenzene | 0.05 | 0.5 | ug/l |
| 2-Chlorotoluene | 0.05 | 0.5 | ug/l |
| 1,3,5-Trimethylbenzene | 0.05 | 0.5 | ug/l |
| 4-Chlorotoluene | 0.05 | 0.5 | ug/l |
| tert-Butylbenzene | 0.05 | 0.5 | ug/l |
| 1,2,4-Trimethylbenzene | 0.05 | 0.5 | ug/l |
| sec-Butylbenzene | 0.05 | 0.5 | ug/l |
| 1,3-Dichlorobenzene | 0.05 | 0.5 | ug/l |
| p-Isopropyltoluene | 0.05 | 0.5 | ug/l |
| 1,4-Dichlorobenzene | 0.06 | 0.5 | ug/l |
| n-Butylbenzene | 0.07 | 0.5 | ug/l |
| 1,2-Dichlorobenzene | 0.05 | 0.5 | ug/l |
| 1,2-Dibromo-3-chloropropane | 0.2 | 0.5 | ug/l |
| 1,2,4-Trichlorobenzene | 0.09 | 0.5 | ug/l |
| Hexachlorobutadiene | 0.1 | 0.5 | ug/l |
| Naphthalene | 0.09 | 0.5 | ug/l |
| 1,2,3-Trichlorobenzene | 0.1 | 0.5 | ug/l |

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID: cj06t01.d BFB Injection Date: 01/06/20

Instrument ID: HP10193 BFB Injection Time: 13:56

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 17.42 |
| 75 | 30.0 - 60.0% of mass 95 | 47.38 |
| 95 | Base peak, 100% relative abundance | 100.00 |
| 96 | 5.0 - 9.0% of mass 95 | 6.89 |
| 173 | Less than 2.0% of mass 174 | 0.25 ( 0.32)1 |
| 174 | Greater than 50.0% of mass 95 | 79.05 |
| 175 | 5.0 - 9.0% of mass 174 | 5.99 ( 7.57)1 |
| 176 | Greater than 95.0%, but less than 101.0% of mass 174 | 76.39 (96.63)1 |
| 177 | 5.0 - 9.0% of mass 176 | 4.78 ( 6.26)2 |

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

| | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|
| 01 | VSTD25 | cj06i11.d | 01/06/20 | 15:18 |
| 02 | VSTD10 | cj06i12.d | 01/06/20 | 15:40 |
| 03 | VSTD5 | cj06i13.d | 01/06/20 | 16:02 |
| 04 | VSTD2 | cj06i14.d | 01/06/20 | 16:25 |
| 05 | VSTD1 | cj06i15.d | 01/06/20 | 16:47 |
| 06 | VSTD.5 | cj06i16.d | 01/06/20 | 17:09 |
| 07 | VSTD.2 | cj06i17.d | 01/06/20 | 17:32 |
| 08 | LCSSM | cj06v11.d | 01/06/20 | 17:54 |
| 09 | VSTD25 | cj06i01.d | 01/06/20 | 18:38 |
| 10 | VSTD10 | cj06i02.d | 01/06/20 | 19:01 |
| 11 | VSTD5 | cj06i03.d | 01/06/20 | 19:23 |
| 12 | VSTD2 | cj06i04.d | 01/06/20 | 19:45 |
| 13 | VSTD1 | cj06i05.d | 01/06/20 | 20:08 |
| 14 | VSTD.5 | cj06i06.d | 01/06/20 | 20:30 |
| 15 | VSTD.2 | cj06i07.d | 01/06/20 | 20:52 |
| 16 | LCSLG | cj06v01.d | 01/06/20 | 21:14 |



FORM V VOA

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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID: cf05t01.d BFB Injection Date: 02/05/20

Instrument ID: HP10193 BFB Injection Time: 19:09

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 17.47 |
| 75 | 30.0 - 60.0% of mass 95 | 47.34 |
| 95 | Base peak, 100% relative abundance | 100.00 |
| 96 | 5.0 - 9.0% of mass 95 | 6.48 |
| 173 | Less than 2.0% of mass 174 | 0.94 ( 1.08)1 |
| 174 | Greater than 50.0% of mass 95 | 87.11 |
| 175 | 5.0 - 9.0% of mass 174 | 6.69 ( 7.69)1 |
| 176 | Greater than 95.0%, but less than 101.0% of mass 174 | 83.30 (95.62)1 |
| 177 | 5.0 - 9.0% of mass 176 | 5.52 ( 6.63)2 |

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

| | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|
| 01 | VSTD10 | cf05c01.d | 02/05/20 | 19:46 |
| 02 | LCSC92 | cf05l01.d | 02/05/20 | 20:08 |
| 03 | VBLKC92 | cf05b01.d | 02/05/20 | 20:53 |
| 04 | 1251398 | cf05s02.d | 02/05/20 | 21:29 |
| 05 | 1251399 | cf05s03.d | 02/05/20 | 21:52 |
| 06 | 1251371 | cf05s04.d | 02/05/20 | 22:14 |
| 07 | 1251373 | cf05s05.d | 02/05/20 | 22:36 |
| 08 | 1251375 | cf05s06.d | 02/05/20 | 22:59 |
| 09 | 1251376 | cf05s07.d | 02/05/20 | 23:21 |
| 10 | 1251378 | cf05s08.d | 02/05/20 | 23:43 |
| 11 | 1251388 | cf05s09.d | 02/06/20 | 00:06 |
| 12 | 1251389MS | cf05s10.d | 02/06/20 | 00:28 |
| 13 | 1251390MSD | cf05s11.d | 02/06/20 | 00:50 |
| 14 | 1251380 | cf05s12.d | 02/06/20 | 01:35 |
| 15 | 1251382 | cf05s13.d | 02/06/20 | 01:57 |
| 16 | 1251384 | cf05s14.d | 02/06/20 | 02:19 |
| 17 | 1251396 | cf05s15.d | 02/06/20 | 02:42 |
| 18 | 1251549DL2 | cf05s16.d | 02/06/20 | 03:04 |



FORM V VOA

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6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10193 Calibration Date(s): 01/06/20 01/06/20

Heated Purge: (Y/N) Y Calibration Times: 18:38 20:52

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF0.2= cj06i07.d RRF0.5= cj06i06.d RRF 1 = cj06i05.d
RRF 2 = cj06i04.d RRF 5 = cj06i03.d RRF 10= cj06i02.d RRF 25= cj06i01.d

| COMPOUND | RRF0.2 | RRF0.5 | RRF 1 | RRF 2 | RRF 5 | RRF 10 | RRF 25 | RRF | % RSD | CAL. METHOD | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dichlorodifluoromethane | 0.3331 | 0.3619 | 0.3537 | 0.3517 | 0.3466 | 0.3438 | 0.3405 | 0.3473 | 3 | AVG | |
| Chloromethane | #0.4034 | 0.3738 | 0.3769 | 0.3764 | 0.3744 | 0.3742 | 0.3714 | 0.3786 | 3 | AVG | # |
| Vinyl Chloride | *0.3318 | 0.3503 | 0.3631 | 0.3601 | 0.3614 | 0.3615 | 0.3585 | 0.3552 | 3 | AVG | * |
| 1,3-Butadiene | 0.3746 | 0.2899 | 0.3456 | 0.3196 | 0.3105 | 0.2924 | 0.2948 | 0.3182 | 10 | AVG | |
| Bromomethane | 0.2612 | 0.2446 | 0.2394 | 0.2350 | 0.2330 | 0.2292 | 0.2266 | 0.2384 | 5 | AVG | |
| Chloroethane | 0.2456 | 0.2162 | 0.2127 | 0.2050 | 0.2010 | 0.1986 | 0.1961 | 0.2107 | 8 | AVG | |
| Dichlorofluoromethane | 0.5611 | 0.4446 | 0.4653 | 0.4443 | 0.4388 | 0.4321 | 0.4305 | 0.4595 | 10 | AVG | |
| Trichlorofluoromethane | 0.3101 | 0.3495 | 0.3575 | 0.3649 | 0.3663 | 0.3582 | 0.3523 | 0.3512 | 5 | AVG | |
| Ethyl ether | 0.2310 | 0.2336 | 0.2288 | 0.2326 | 0.2316 | 0.2266 | 0.2293 | 0.2305 | 1 | AVG | |
| Freon 123a | 0.3481 | 0.2853 | 0.3095 | 0.2964 | 0.2974 | 0.2926 | 0.2900 | 0.3028 | 7 | AVG | |
| Acrolein | 2.0601 | 1.8588 | 2.1132 | 1.9964 | 2.1330 | 2.1546 | 2.1597 | 2.0680 | 5 | AVG | |
| 1,1-Dichloroethene | *0.2405 | 0.2118 | 0.2432 | 0.2371 | 0.2428 | 0.2331 | 0.2316 | 0.2343 | 5 | AVG | * |
| Freon 113 | 0.2157 | 0.1982 | 0.2435 | 0.2377 | 0.2431 | 0.2399 | 0.2372 | 0.2307 | 7 | AVG | |
| Acetone | 3.3508 | 2.8026 | 2.8064 | 2.4865 | 2.5024 | 2.4441 | 2.4447 | 2.6911 | 12 | AVG | |
| Methyl Iodide | 0.4378 | 0.4105 | 0.4577 | 0.4426 | 0.4493 | 0.4416 | 0.4365 | 0.4394 | 3 | AVG | |
| Bromoethane | 0.2023 | 0.1972 | 0.2028 | 0.2033 | 0.2044 | 0.2011 | 0.1985 | 0.2014 | 1 | AVG | |
| Carbon Disulfide | 0.9003 | 0.7523 | 0.8785 | 0.8433 | 0.8460 | 0.8347 | 0.8289 | 0.8406 | 6 | AVG | |
| Allyl Chloride | 0.4575 | 0.4192 | 0.4285 | 0.4298 | 0.4353 | 0.4265 | 0.4229 | 0.4314 | 3 | AVG | |
| Methyl Acetate | 0.1847 | 0.1531 | 0.1404 | 0.1589 | 0.1453 | 0.1377 | 0.1565 | 0.1538 | 10 | AVG | |
| Methylene Chloride | 0.2806 | 0.2509 | 0.2746 | 0.2671 | 0.2666 | 0.2636 | 0.2595 | 0.2661 | 4 | AVG | |
| t-Butyl Alcohol | 1.0874 | 0.9750 | 1.0406 | 0.9679 | 1.0743 | 1.0226 | 0.9980 | 1.0237 | 5 | AVG | |
| Acrylonitrile | 3.3731 | 3.1552 | 3.3960 | 3.1086 | 3.4833 | 3.4454 | 3.4396 | 3.3430 | 4 | AVG | |
| trans-1,2-Dichloroethene | 0.2781 | 0.2497 | 0.2723 | 0.2652 | 0.2670 | 0.2621 | 0.2604 | 0.2650 | 3 | AVG | |
| Methyl Tertiary Butyl Ether | 0.7197 | 0.6832 | 0.7066 | 0.7144 | 0.7088 | 0.6932 | 0.6824 | 0.7012 | 2 | AVG | |
| n-Hexane | 0.4391 | 0.3503 | 0.4256 | 0.3977 | 0.4104 | 0.3980 | 0.3889 | 0.4014 | 7 | AVG | |
| 1,1-Dichloroethane | #0.4937 | 0.4481 | 0.4976 | 0.4913 | 0.4977 | 0.4855 | 0.4838 | 0.4854 | 4 | AVG | # |
| di-Isopropyl Ether | 0.9387 | 0.8668 | 0.9282 | 0.9219 | 0.9164 | 0.9096 | 0.9014 | 0.9119 | 3 | AVG | |
| 2-Chloro-1,3-Butadiene | 0.4140 | 0.3784 | 0.4447 | 0.4274 | 0.4349 | 0.4293 | 0.4236 | 0.4218 | 5 | AVG | |
| Ethyl t-butyl ether | 0.8634 | 0.8395 | 0.9090 | 0.8987 | 0.8799 | 0.8634 | 0.8435 | 0.8711 | 3 | AVG | |
| cis-1,2-Dichloroethene | 0.3189 | 0.2822 | 0.3040 | 0.2965 | 0.2984 | 0.2961 | 0.2914 | 0.2982 | 4 | AVG | |
| 2,2-Dichloropropane | 0.4295 | 0.3916 | 0.4305 | 0.4028 | 0.3998 | 0.3923 | 0.3849 | 0.4045 | 5 | AVG | |
| 2-Butanone | 4.9895 | 4.3782 | 4.8517 | 4.5145 | 4.8588 | 4.7314 | 4.7317 | 4.7222 | 4 | AVG | |
| Propionitrile | 1.0569 | 1.0130 | 1.1759 | 1.1662 | 1.2473 | 1.2121 | 1.2295 | 1.1573 | 8 | AVG | |
| Methacrylonitrile | 4.4817 | 4.0093 | 4.4575 | 4.1397 | 4.5672 | 4.5390 | 4.5233 | 4.3882 | 5 | AVG | |
| Bromochloromethane | 0.1279 | 0.1363 | 0.1331 | 0.1337 | 0.1355 | 0.1333 | 0.1324 | 0.1332 | 2 | AVG | |
| Tetrahydrofuran | 1.5019 | 1.3529 | 1.4408 | 1.3386 | 1.4120 | 1.3920 | 1.3950 | 1.4047 | 4 | AVG | |
| Chloroform | *0.4508 | 0.4256 | 0.4710 | 0.4582 | 0.4552 | 0.4498 | 0.4455 | 0.4509 | 3 | AVG | * |
| 1,1,1-Trichloroethane | 0.4111 | 0.3620 | 0.4212 | 0.4047 | 0.4096 | 0.3993 | 0.3955 | 0.4005 | 5 | AVG | |
| Cyclohexane | 0.5101 | 0.4452 | 0.5083 | 0.4932 | 0.4966 | 0.4915 | 0.4816 | 0.4895 | 4 | AVG | |
| Cyclohexane(2) | 0.3862 | 0.3513 | 0.4292 | 0.4114 | 0.4240 | 0.4159 | 0.4084 | 0.4038 | 7 | AVG | |
| Cyclohexane(3) | 0.0246 | 0.0029 | 0.0025 | 0.0016 | 0.0003 | 0.0003 | 0.0003 | 0.0046 | 191 | AVG | |
| 1,1-Dichloropropene | 0.3768 | 0.3395 | 0.3912 | 0.3776 | 0.3868 | 0.3807 | 0.3775 | 0.3757 | 4 | AVG | |
| Carbon Tetrachloride | 0.3202 | 0.3000 | 0.3516 | 0.3402 | 0.3496 | 0.3453 | 0.3423 | 0.3356 | 6 | AVG | |
| Isobutyl Alcohol | 0.3729 | 0.3104 | 0.3410 | 0.3285 | 0.3548 | 0.3411 | 0.3409 | 0.3414 | 6 | AVG | |
| Benzene | 1.1369 | 1.0085 | 1.1478 | 1.1161 | 1.1282 | 1.1197 | 1.1090 | 1.1094 | 4 | AVG | |
| 1,2-Dichloroethane | 0.3451 | 0.3009 | 0.3261 | 0.3088 | 0.3048 | 0.3038 | 0.3011 | 0.3129 | 5 | AVG | |
| 1,2-Dichloroethane(2) | 0.0362 | 0.0326 | 0.0340 | 0.0298 | 0.0293 | 0.0293 | 0.0288 | 0.0314 | 9 | AVG | |
| t-Amyl methyl ether | 0.7975 | 0.7500 | 0.8107 | 0.8035 | 0.8078 | 0.7938 | 0.7761 | 0.7913 | 3 | AVG | |
| n-Heptane | 0.4341 | 0.3657 | 0.4503 | 0.4280 | 0.4165 | 0.4104 | 0.4054 | 0.4158 | 6 | AVG | |
| n-Butanol | 0.2840 | 0.2890 | 0.2984 | 0.3100 | 0.3228 | 0.3121 | 0.3112 | 0.3039 | 5 | AVG | |
| Trichloroethene | 0.2833 | 0.2611 | 0.2860 | 0.2766 | 0.2822 | 0.2779 | 0.2737 | 0.2772 | 3 | AVG | |
| Methylcyclohexane | 0.4263 | 0.4871 | 0.5098 | 0.5138 | 0.5239 | 0.5122 | 0.5068 | 0.4971 | 7 | AVG | |

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%



FORM VI VOA

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10193 Calibration Date(s): 01/06/20 01/06/20

Heated Purge: (Y/N) Y Calibration Times: 18:38 20:52

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF0.2= cj06i07.d RRF0.5= cj06i06.d RRF 1 = cj06i05.d
RRF 2 = cj06i04.d RRF 5 = cj06i03.d RRF 10= cj06i02.d RRF 25= cj06i01.d

| COMPOUND | RRF0.2 | RRF0.5 | RRF 1 | RRF 2 | RRF 5 | RRF 10 | RRF 25 | RRF | % RSD | CAL. METHOD | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dichloropropane | *0.2719 | 0.2662 | 0.2964 | 0.2924 | 0.2904 | 0.2912 | 0.2886 | 0.2853 | 4 | AVG | * |
| Methyl Methacrylate | 9.1079 | 8.6339 | 8.8263 | 8.6157 | 9.1775 | 9.1955 | 9.1920 | 8.9641 | 3 | AVG | |
| Dibromomethane | 0.1315 | 0.1252 | 0.1356 | 0.1357 | 0.1381 | 0.1343 | 0.1351 | 0.1337 | 3 | AVG | |
| 1,4-Dioxane | | 0.0574 | 0.0564 | 0.0599 | 0.0563 | 0.0551 | 0.0541 | 0.0565 | 4 | AVG | |
| 1,4-Dioxane(2) | 0.0367 | 0.0451 | 0.0437 | 0.0438 | 0.0406 | 0.0400 | 0.0398 | 0.0414 | 7 | AVG | |
| Bromodichloromethane | 0.3570 | 0.3085 | 0.3514 | 0.3459 | 0.3472 | 0.3413 | 0.3416 | 0.3418 | 5 | AVG | |
| 2-Nitropropane | 2.9171 | 2.5345 | 2.8252 | 2.6415 | 2.8595 | 2.8338 | 2.8110 | 2.7747 | 5 | AVG | |
| 1-Bromo-2-chloroethane | 0.3010 | 0.3074 | 0.3100 | 0.3094 | 0.3149 | 0.3066 | 0.3045 | 0.3077 | 1 | AVG | |
| cis-1,3-Dichloropropene | 0.4290 | 0.4069 | 0.4507 | 0.4480 | 0.4509 | 0.4497 | 0.4492 | 0.4406 | 4 | AVG | |
| 4-Methyl-2-Pentanone | 0.2028 | 0.1995 | 0.2146 | 0.2192 | 0.2181 | 0.2126 | 0.2140 | 0.2115 | 4 | AVG | |
| Toluene | *0.9834 | 0.8677 | 0.9870 | 0.9593 | 0.9719 | 0.9510 | 0.9456 | 0.9523 | 4 | AVG | * |
| trans-1,3-Dichloropropene | 0.5011 | 0.4688 | 0.5299 | 0.5254 | 0.5290 | 0.5238 | 0.5260 | 0.5149 | 4 | AVG | |
| Ethyl Methacrylate | 0.4719 | 0.4471 | 0.4705 | 0.4585 | 0.4646 | 0.4568 | 0.4559 | 0.4608 | 2 | AVG | |
| 1,1,2-Trichloroethane | 0.2719 | 0.2542 | 0.2831 | 0.2817 | 0.2758 | 0.2702 | 0.2688 | 0.2722 | 4 | AVG | |
| Tetrachloroethene | 0.4102 | 0.3723 | 0.4271 | 0.4160 | 0.4174 | 0.4144 | 0.4076 | 0.4093 | 4 | AVG | |
| 1,3-Dichloropropane | 0.4768 | 0.4589 | 0.4892 | 0.4870 | 0.4886 | 0.4856 | 0.4806 | 0.4809 | 2 | AVG | |
| 2-Hexanone | 0.2084 | 0.1997 | 0.2136 | 0.2102 | 0.2099 | 0.2046 | 0.2056 | 0.2074 | 2 | AVG | |
| Dibromochloromethane | 0.3176 | 0.2998 | 0.3326 | 0.3348 | 0.3413 | 0.3415 | 0.3395 | 0.3296 | 5 | AVG | |
| 1,2-Dibromoethane | 0.2551 | 0.2467 | 0.2754 | 0.2664 | 0.2713 | 0.2660 | 0.2646 | 0.2636 | 4 | AVG | |
| 1-Chlorohexane | 0.6239 | 0.5194 | 0.5669 | 0.5398 | 0.5488 | 0.5414 | 0.5289 | 0.5527 | 6 | AVG | |
| Chlorobenzene | #1.0821 | 0.9990 | 1.1126 | 1.0755 | 1.0918 | 1.0758 | 1.0676 | 1.0720 | 3 | AVG | # |
| 1,1,1,2-Tetrachloroethane | 0.3510 | 0.3362 | 0.3857 | 0.3712 | 0.3832 | 0.3791 | 0.3777 | 0.3692 | 5 | AVG | |
| Ethylbenzene | *1.8494 | 1.6532 | 1.8951 | 1.8593 | 1.8879 | 1.8615 | 1.8541 | 1.8372 | 5 | AVG | * |
| m+p-Xylene | 0.7160 | 0.6521 | 0.7513 | 0.7275 | 0.7417 | 0.7303 | 0.7266 | 0.7208 | 4 | AVG | |
| o-Xylene | 0.7316 | 0.6527 | 0.7387 | 0.7192 | 0.7347 | 0.7192 | 0.7161 | 0.7160 | 4 | AVG | |
| Styrene | 1.1888 | 1.0984 | 1.2461 | 1.2276 | 1.2486 | 1.2315 | 1.2255 | 1.2095 | 4 | AVG | |
| Bromoform | #0.1870 | 0.1883 | 0.2038 | 0.2042 | 0.2131 | 0.2112 | 0.2134 | 0.2030 | 6 | AVG | # |
| Isopropylbenzene | 1.8377 | 1.6594 | 1.8998 | 1.8696 | 1.9131 | 1.8757 | 1.8496 | 1.8435 | 5 | AVG | |
| 1,1,2,2-Tetrachloroethane | #0.6484 | 0.6254 | 0.6745 | 0.6644 | 0.6697 | 0.6525 | 0.6519 | 0.6553 | 3 | AVG | # |
| Bromobenzene | 0.8192 | 0.7833 | 0.8550 | 0.8493 | 0.8544 | 0.8419 | 0.8275 | 0.8329 | 3 | AVG | |
| trans-1,4-Dichloro-2-butene | 3.8706 | 3.6458 | 4.1995 | 3.9245 | 4.3829 | 4.4697 | 4.4627 | 4.1365 | 8 | AVG | |
| 1,2,3-Trichloropropane | 0.1716 | 0.1747 | 0.1817 | 0.1740 | 0.1760 | 0.1692 | 0.1710 | 0.1740 | 2 | AVG | |
| n-Propylbenzene | 3.9109 | 3.5204 | 4.0410 | 4.0237 | 4.0978 | 4.0248 | 3.9379 | 3.9367 | 5 | AVG | |
| 2-Chlorotoluene | 0.8299 | 0.7548 | 0.8495 | 0.8313 | 0.8398 | 0.8266 | 0.8133 | 0.8207 | 4 | AVG | |
| 1,3,5-Trimethylbenzene | 2.8393 | 2.6255 | 2.9461 | 2.9652 | 3.0182 | 2.9840 | 2.9482 | 2.9038 | 5 | AVG | |
| 4-Chlorotoluene | 0.8543 | 0.8126 | 0.8911 | 0.8625 | 0.8725 | 0.8553 | 0.8434 | 0.8559 | 3 | AVG | |
| tert-Butylbenzene | 0.6149 | 0.5515 | 0.6284 | 0.6399 | 0.6434 | 0.6288 | 0.6254 | 0.6189 | 5 | AVG | |
| Pentachloroethane | 0.5425 | 0.5004 | 0.5188 | 0.5311 | 0.5540 | 0.5389 | 0.5456 | 0.5330 | 3 | AVG | |
| 1,2,4-Trimethylbenzene | 3.0509 | 2.7570 | 3.1101 | 3.0984 | 3.1777 | 3.1169 | 3.1144 | 3.0608 | 5 | AVG | |
| sec-Butylbenzene | 3.6467 | 3.3265 | 3.8606 | 3.7998 | 3.8737 | 3.8185 | 3.7489 | 3.7250 | 5 | AVG | |
| 1,3-Dichlorobenzene | 1.6433 | 1.5318 | 1.6979 | 1.6730 | 1.6904 | 1.6653 | 1.6502 | 1.6502 | 3 | AVG | |
| p-Isopropyltoluene | 3.1452 | 2.9717 | 3.3507 | 3.2983 | 3.3952 | 3.3547 | 3.2996 | 3.2594 | 5 | AVG | |
| 1,4-Dichlorobenzene | 1.7747 | 1.5889 | 1.7374 | 1.6888 | 1.7159 | 1.6924 | 1.6578 | 1.6937 | 4 | AVG | |
| 1,2,3-Trimethylbenzene | 1.4965 | 1.3391 | 1.3356 | 1.3372 | 1.3825 | 1.3603 | 1.3492 | 1.3715 | 4 | AVG | |
| Benzyl Chloride | 0.2622 | 0.2555 | 0.2865 | 0.2898 | 0.2982 | 0.2966 | 0.3014 | 0.2843 | 6 | AVG | |
| n-Butylbenzene | 1.5799 | 1.4749 | 1.6909 | 1.6496 | 1.7152 | 1.6851 | 1.6627 | 1.6369 | 5 | AVG | |
| 1,2-Dichlorobenzene | 1.5500 | 1.4850 | 1.5866 | 1.5635 | 1.5912 | 1.5488 | 1.5243 | 1.5499 | 2 | AVG | |
| 1,2-Dibromo-3-chloropropane | 2.1824 | 2.0306 | 2.2440 | 2.1403 | 2.4130 | 2.4442 | 2.4826 | 2.2767 | 8 | AVG | |
| 1,3,5-Trichlorobenzene | 1.3980 | 1.2828 | 1.3859 | 1.3675 | 1.4163 | 1.3854 | 1.3373 | 1.3676 | 3 | AVG | |
| 1,2,4-Trichlorobenzene | 1.2736 | 1.1752 | 1.2742 | 1.2339 | 1.2676 | 1.2397 | 1.1991 | 1.2376 | 3 | AVG | |
| Hexachlorobutadiene | 0.6235 | 0.5349 | 0.6180 | 0.6015 | 0.6060 | 0.6005 | 0.5752 | 0.5942 | 5 | AVG | |
| Naphthalene | 2.3702 | 2.1871 | 2.3289 | 2.3222 | 2.3217 | 2.2822 | 2.2031 | 2.2879 | 3 | AVG | |

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10193 Calibration Date(s): 01/06/20 01/06/20

Heated Purge: (Y/N) Y Calibration Times: 18:38 20:52

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF0.2= cj06i07.d RRF0.5= cj06i06.d RRF 1 = cj06i05.d
RRF 2 = cj06i04.d RRF 5 = cj06i03.d RRF 10= cj06i02.d RRF 25= cj06i01.d

| COMPOUND | RRF0.2 | RRF0.5 | RRF 1 | RRF 2 | RRF 5 | RRF 10 | RRF 25 | RRF | % RSD | CAL. METHOD |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,2,3-Trichlorobenzene | 1.1482 | 1.0377 | 1.1249 | 1.0874 | 1.0816 | 1.0819 | 1.0283 | 1.0843 | 4 | AVG |
| Dibromofluoromethane | 0.2361 | 0.2357 | 0.2365 | 0.2326 | 0.2330 | 0.2335 | 0.2342 | 0.2345 | 1 | AVG |
| Dibromofluoromethane(2) | 0.2412 | 0.2404 | 0.2385 | 0.2396 | 0.2391 | 0.2381 | 0.2399 | 0.2395 | 0 | AVG |
| 1,2-Dichloroethane-d4 | 0.0506 | 0.0512 | 0.0518 | 0.0513 | 0.0522 | 0.0511 | 0.0516 | 0.0514 | 1 | AVG |
| 1,2-Dichloroethane-d4(2) | 0.2358 | 0.2385 | 0.2375 | 0.2393 | 0.2424 | 0.2334 | 0.2339 | 0.2372 | 1 | AVG |
| 1,2-Dichloroethane-d4(3) | 0.0325 | 0.0330 | 0.0323 | 0.0327 | 0.0327 | 0.0326 | 0.0330 | 0.0327 | 1 | AVG |
| Toluene-d8 | 1.3304 | 1.3290 | 1.3412 | 1.3379 | 1.3307 | 1.3321 | 1.3271 | 1.3326 | 0 | AVG |
| Toluene-d8(2) | 0.8592 | 0.8577 | 0.8649 | 0.8617 | 0.8681 | 0.8690 | 0.8793 | 0.8657 | 1 | AVG |
| 4-Bromofluorobenzene | 0.5027 | 0.4980 | 0.5051 | 0.5004 | 0.5008 | 0.4979 | 0.5001 | 0.5007 | 1 | AVG |
| 4-Bromofluorobenzene(2) | 0.4247 | 0.4195 | 0.4238 | 0.4158 | 0.4170 | 0.4173 | 0.4228 | 0.4201 | 1 | AVG |

Average %RSD 6

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%



FORM VI VOA

# Internal Standard Area and Retention Time Summary

## Initial Calibration Standards:

| | |
|---|---|
| /chem2/HP10193.i/20jan06i.b/cj06i01.d | VSTD025 |
| /chem2/HP10193.i/20jan06i.b/cj06i02.d | VSTD010 |
| /chem2/HP10193.i/20jan06i.b/cj06i03.d | VSTD005 |
| /chem2/HP10193.i/20jan06i.b/cj06i04.d | VSTD002 |
| /chem2/HP10193.i/20jan06i.b/cj06i05.d | VSTD001 |
| /chem2/HP10193.i/20jan06i.b/cj06i06.d | VSTD0.5 |
| /chem2/HP10193.i/20jan06i.b/cj06i07.d | VSTD0.2 |

Area Summary

File ID:

| Internal Standard Name | cj06i01.d | cj06i02.d | cj06i03.d | cj06i04.d | cj06i05.d | cj06i06.d | cj06i07.d | Avg. Area | %RSD | In Spec |
|---|---|---|---|---|---|---|---|---|---|---|
| t-Butyl Alcohol-d10 | 162278 | 157858 | 162601 | 173866 | 165460 | 176942 | 165873 | 166411 | 4 | Yes |
| Fluorobenzene | 1890188 | 1871607 | 1875348 | 1853524 | 1863948 | 1872467 | 1853296 | 1868625 | 1 | Yes |
| Chlorobenzene-d5 | 1403295 | 1385123 | 1386872 | 1372336 | 1370851 | 1386591 | 1375007 | 1382868 | 1 | Yes |
| 1,4-Dichlorobenzene-d4 | 774799 | 761305 | 762392 | 753578 | 762163 | 766452 | 756429 | 762445 | 1 | Yes |

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

| Internal Standard Name | cj06i01.d | cj06i02.d | cj06i03.d | cj06i04.d | cj06i05.d | cj06i06.d | cj06i07.d | Avg. RT |
|---|---|---|---|---|---|---|---|---|
| t-Butyl Alcohol-d10 | 4.151 | 4.139 | 4.127 | 4.127 | 4.139 | 4.145 | 4.139 | 4.138 |
| Fluorobenzene | 7.614 | 7.614 | 7.614 | 7.614 | 7.614 | 7.614 | 7.614 | 7.614 |
| Chlorobenzene-d5 | 11.125 | 11.125 | 11.125 | 11.125 | 11.125 | 11.126 | 11.125 | 11.125 |
| 1,4-Dichlorobenzene-d4 | 13.027 | 13.021 | 13.021 | 13.021 | 13.027 | 13.021 | 13.021 | 13.023 |

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 01/06/2020 at 21:57.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10193 ICV Date: 01/06/20 Time: 21:14

Lab File ID: cj06v01.d Init. Calib. Date(s): 01/06/20 01/06/20

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

| | | | ACTUAL | TRUE | % | |
|---|---|---|---|---|---|---|
| COMPOUND | $\overline{RRF}$ | RRF | CONC. | CONC. | DRIFT | |
| Dichlorodifluoromethane | 0.3473 | 0.2875 | 4.14 | 5 | -17 | |
| # Chloromethane | 0.3786 | 0.3471 | 4.58 | 5 | -8 | # |
| * Vinyl Chloride | 0.3552 | 0.3441 | 4.84 | 5 | -3 | * |
| 1,3-Butadiene | 0.3182 | 0.3351 | 5.27 | 5 | 5 | |
| Bromomethane | 0.2384 | 0.2238 | 4.69 | 5 | -6 | |
| Chloroethane | 0.2107 | 0.2001 | 4.75 | 5 | -5 | |
| Dichlorofluoromethane | 0.4595 | 0.4439 | 4.83 | 5 | -3 | |
| Trichlorofluoromethane | 0.3512 | 0.3845 | 5.47 | 5 | 9 | |
| Ethyl ether | 0.2305 | 0.2257 | 4.90 | 5 | -2 | |
| Freon 123a | 0.3028 | 0.3022 | 4.99 | 5 | 0 | |
| Acrolein | 2.0680 | 2.1804 | 39.54 | 37.5 | 5 | |
| * 1,1-Dichloroethene | 0.2343 | 0.2388 | 5.10 | 5 | 2 | * |
| Freon 113 | 0.2307 | 0.2443 | 5.29 | 5 | 6 | |
| Acetone | 2.6911 | 2.6130 | 36.41 | 37.5 | -3 | |
| Methyl Iodide | 0.4394 | 0.4374 | 4.98 | 5 | 0 | |
| Bromoethane | 0.2014 | 0.2101 | 5.22 | 5 | 4 | |
| Carbon Disulfide | 0.8406 | 0.8259 | 4.91 | 5 | -2 | |
| Allyl Chloride | 0.4314 | 0.4194 | 4.86 | 5 | -3 | |
| Methyl Acetate | 0.1538 | 0.1311 | 4.26 | 5 | -15 | |
| Methylene Chloride | 0.2661 | 0.2711 | 5.09 | 5 | 2 | |
| t-Butyl Alcohol | 1.0237 | 1.0756 | 52.54 | 50 | 5 | |
| Acrylonitrile | 3.3430 | 3.6849 | 27.56 | 25 | 10 | |
| trans-1,2-Dichloroethene | 0.2650 | 0.2659 | 5.02 | 5 | 0 | |
| Methyl Tertiary Butyl Ether | 0.7012 | 0.7062 | 5.04 | 5 | 1 | |
| n-Hexane | 0.4014 | 0.3903 | 4.86 | 5 | -3 | |
| # 1,1-Dichloroethane | 0.4854 | 0.4965 | 5.11 | 5 | 2 | # |
| di-Isopropyl Ether | 0.9119 | 0.9175 | 5.03 | 5 | 1 | |
| 2-Chloro-1,3-Butadiene | 0.4218 | 0.4291 | 5.09 | 5 | 2 | |
| Ethyl t-butyl ether | 0.8711 | 0.8744 | 5.02 | 5 | 0 | |
| cis-1,2-Dichloroethene | 0.2982 | 0.3159 | 5.30 | 5 | 6 | |
| 2,2-Dichloropropane | 0.4045 | 0.4038 | 4.99 | 5 | 0 | |
| 2-Butanone | 4.7222 | 4.9298 | 39.15 | 37.5 | 4 | |
| Propionitrile | 1.1573 | 1.2754 | 41.33 | 37.5 | 10 | |
| Methacrylonitrile | 4.3882 | 4.8202 | 41.19 | 37.5 | 10 | |
| Bromochloromethane | 0.1332 | 0.1315 | 4.94 | 5 | -1 | |
| Tetrahydrofuran | 1.4047 | 1.5088 | 26.85 | 25 | 7 | |

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10193 ICV Date: 01/06/20 Time: 21:14

Lab File ID: cj06v01.d Init. Calib. Date(s): 01/06/20 01/06/20

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

| | COMPOUND | $\overline{RRF}$ | RRF | ACTUAL CONC. | TRUE CONC. | % DRIFT | |
|---|---|---|---|---|---|---|---|
| * | Chloroform | 0.4509 | 0.4610 | 5.11 | 5 | 2 | * |
| | 1,1,1-Trichloroethane | 0.4005 | 0.4038 | 5.04 | 5 | 1 | |
| | Cyclohexane | 0.4895 | 0.4760 | 4.86 | 5 | -3 | |
| | 1,1-Dichloropropene | 0.3757 | 0.3790 | 5.04 | 5 | 1 | |
| | Carbon Tetrachloride | 0.3356 | 0.3510 | 5.23 | 5 | 5 | |
| | Isobutyl Alcohol | 0.3414 | 0.3478 | 127.37 | 125 | 2 | |
| | Benzene | 1.1094 | 1.1177 | 5.04 | 5 | 1 | |
| | 1,2-Dichloroethane | 0.3129 | 0.3124 | 4.99 | 5 | 0 | |
| | t-Amyl methyl ether | 0.7913 | 0.7962 | 5.03 | 5 | 1 | |
| | n-Heptane | 0.4158 | 0.3904 | 4.69 | 5 | -6 | |
| | n-Butanol | 0.3039 | 0.3235 | 266.07 | 250 | 6 | |
| | Trichloroethene | 0.2772 | 0.2842 | 5.13 | 5 | 3 | |
| | Methylcyclohexane | 0.4971 | 0.4881 | 4.91 | 5 | -2 | |
| * | 1,2-Dichloropropane | 0.2853 | 0.2969 | 5.20 | 5 | 4 | * |
| | Methyl Methacrylate | 8.9641 | 9.9894 | 5.57 | 5 | 11 | |
| | Dibromomethane | 0.1337 | 0.1385 | 5.18 | 5 | 4 | |
| | 1,4-Dioxane | 0.0565 | 0.0615 | 135.99 | 125 | 9 | |
| | Bromodichloromethane | 0.3418 | 0.3470 | 5.08 | 5 | 2 | |
| | 2-Nitropropane | 2.7747 | 2.8607 | 5.16 | 5 | 3 | |
| | 1-Bromo-2-chloroethane | 0.3077 | 0.3080 | 5.01 | 5 | 0 | |
| | cis-1,3-Dichloropropene | 0.4406 | 0.4484 | 5.09 | 5 | 2 | |
| | 4-Methyl-2-Pentanone | 0.2115 | 0.2116 | 25.01 | 25 | 0 | |
| * | Toluene | 0.9523 | 0.9638 | 5.06 | 5 | 1 | * |
| | trans-1,3-Dichloropropene | 0.5149 | 0.5137 | 4.99 | 5 | 0 | |
| | Ethyl Methacrylate | 0.4608 | 0.4363 | 4.73 | 5 | -5 | |
| | 1,1,2-Trichloroethane | 0.2722 | 0.2785 | 5.12 | 5 | 2 | |
| | Tetrachloroethene | 0.4093 | 0.4306 | 5.26 | 5 | 5 | |
| | 1,3-Dichloropropane | 0.4809 | 0.4865 | 5.06 | 5 | 1 | |
| | 2-Hexanone | 0.2074 | 0.2053 | 24.75 | 25 | -1 | |
| | Dibromochloromethane | 0.3296 | 0.3478 | 5.28 | 5 | 6 | |
| | 1,2-Dibromoethane | 0.2636 | 0.2685 | 5.09 | 5 | 2 | |
| | 1-Chlorohexane | 0.5527 | 0.5338 | 4.83 | 5 | -3 | |
| # | Chlorobenzene | 1.0720 | 1.0942 | 5.10 | 5 | 2 | # |
| | 1,1,1,2-Tetrachloroethane | 0.3692 | 0.3829 | 5.19 | 5 | 4 | |
| * | Ethylbenzene | 1.8372 | 1.8775 | 5.11 | 5 | 2 | * |
| | m+p-Xylene | 0.7208 | 0.7407 | 10.28 | 10 | 3 | |

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10193 ICV Date: 01/06/20 Time: 21:14

Lab File ID: cj06v01.d Init. Calib. Date(s): 01/06/20 01/06/20

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

| | COMPOUND | $\overline{RRF}$ | RRF | ACTUAL CONC. | TRUE CONC. | % DRIFT | |
|---|---|---|---|---|---|---|---|
| | o-Xylene | 0.7160 | 0.7285 | 5.09 | 5 | 2 | |
| | Styrene | 1.2095 | 1.2414 | 5.13 | 5 | 3 | |
| # | Bromoform | 0.2030 | 0.2105 | 5.19 | 5 | 4 | # |
| | Isopropylbenzene | 1.8435 | 1.9180 | 5.20 | 5 | 4 | |
| # | 1,1,2,2-Tetrachloroethane | 0.6553 | 0.6580 | 5.02 | 5 | 0 | # |
| | Bromobenzene | 0.8329 | 0.8519 | 5.11 | 5 | 2 | |
| | trans-1,4-Dichloro-2-butene | 4.1365 | 4.5861 | 27.72 | 25 | 11 | |
| | 1,2,3-Trichloropropane | 0.1740 | 0.1743 | 5.01 | 5 | 0 | |
| | n-Propylbenzene | 3.9367 | 4.0856 | 5.19 | 5 | 4 | |
| | 2-Chlorotoluene | 0.8207 | 0.8333 | 5.08 | 5 | 2 | |
| | 1,3,5-Trimethylbenzene | 2.9038 | 2.9801 | 5.13 | 5 | 3 | |
| | 4-Chlorotoluene | 0.8559 | 0.8614 | 5.03 | 5 | 1 | |
| | tert-Butylbenzene | 0.6189 | 0.6350 | 5.13 | 5 | 3 | |
| | Pentachloroethane | 0.5330 | 0.5331 | 5.00 | 5 | 0 | |
| | 1,2,4-Trimethylbenzene | 3.0608 | 3.0556 | 4.99 | 5 | 0 | |
| | sec-Butylbenzene | 3.7250 | 3.8591 | 5.18 | 5 | 4 | |
| | 1,3-Dichlorobenzene | 1.6502 | 1.6754 | 5.08 | 5 | 2 | |
| | p-Isopropyltoluene | 3.2594 | 3.3298 | 5.11 | 5 | 2 | |
| | 1,4-Dichlorobenzene | 1.6937 | 1.7238 | 5.09 | 5 | 2 | |
| | 1,2,3-Trimethylbenzene | 1.3715 | 1.3505 | 4.92 | 5 | -2 | |
| | Benzyl Chloride | 0.2843 | 0.2630 | 4.63 | 5 | -7 | |
| | n-Butylbenzene | 1.6369 | 1.6578 | 5.06 | 5 | 1 | |
| | 1,2-Dichlorobenzene | 1.5499 | 1.5845 | 5.11 | 5 | 2 | |
| | 1,2-Dibromo-3-chloropropane | 2.2767 | 2.6590 | 5.84 | 5 | 17 | |
| | 1,3,5-Trichlorobenzene | 1.3676 | 1.3824 | 5.05 | 5 | 1 | |
| | 1,2,4-Trichlorobenzene | 1.2376 | 1.2504 | 5.05 | 5 | 1 | |
| | Hexachlorobutadiene | 0.5942 | 0.6344 | 5.34 | 5 | 7 | |
| | Naphthalene | 2.2879 | 2.2021 | 4.81 | 5 | -4 | |
| | 1,2,3-Trichlorobenzene | 1.0843 | 1.0730 | 4.95 | 5 | -1 | |

Average %Drift 4

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%



^

# Lancaster Laboratories
# Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem2/HP10193.i/20jan06i.b/cj06i07.d
/chem2/HP10193.i/20jan06i.b/cj06i06.d
/chem2/HP10193.i/20jan06i.b/cj06i05.d
/chem2/HP10193.i/20jan06i.b/cj06i04.d
/chem2/HP10193.i/20jan06i.b/cj06i03.d
/chem2/HP10193.i/20jan06i.b/cj06i02.d
/chem2/HP10193.i/20jan06i.b/cj06i01.d

File /chem2/HP10193.i/20jan06i.b/cj06i02.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP10193.i/20feb05a.b/cf05c01.d

RT Summary

| Internal Standard Name | File ID: cf05c01.d | ICAL RT | In Spec |
|---|---|---|---|
| t-Butyl Alcohol-d10 | 4.151 | 4.139 | Yes |
| Fluorobenzene | 7.620 | 7.614 | Yes |
| Chlorobenzene-d5 | 11.131 | 11.125 | Yes |
| 1,4-Dichlorobenzene-d4 | 13.027 | 13.021 | Yes |

A "No" indicates the retention time is greater than 10 seconds from the referenced ICAL standard.

Area Summary

| Internal Standard Name | File ID: cf05c01.d | ICAL Area | Low Limit | High Limit | In Spec |
|---|---|---|---|---|---|
| t-Butyl Alcohol-d10 | 170617 | 157858 | 78929 | 315716 | Yes |
| Fluorobenzene | 1784527 | 1871607 | 935804 | 3743214 | Yes |
| Chlorobenzene-d5 | 1352823 | 1385123 | 692562 | 2770246 | Yes |
| 1,4-Dichlorobenzene-d4 | 797506 | 761305 | 380652 | 1522610 | Yes |

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments: _____

report generated on 02/05/2020 at 20:06

# VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10193 Calibration Date: 02/05/20 Time: 19:46

Lab File ID: cf05c01.d Init. Calib. Date(s): 01/06/20 01/06/20

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

| | COMPOUND | RRF | RRF10 | ACTUAL CONC. | TRUE CONC. | % DRIFT | |
|---|---|---|---|---|---|---|---|
| | Dichlorodifluoromethane | 0.3473 | 0.3190 | 9.19 | 10 | -8 | |
| # | Chloromethane | 0.3786 | 0.3709 | 9.80 | 10 | -2 | # |
| * | Vinyl Chloride | 0.3552 | 0.3481 | 9.80 | 10 | -2 | * |
| | 1,3-Butadiene | 0.3182 | 0.4247 | 13.35 | 10 | 33 | |
| | Bromomethane | 0.2384 | 0.2248 | 9.43 | 10 | -6 | |
| | Chloroethane | 0.2107 | 0.1974 | 9.37 | 10 | -6 | |
| | Dichlorofluoromethane | 0.4595 | 0.4705 | 10.24 | 10 | 2 | |
| | Trichlorofluoromethane | 0.3512 | 0.3736 | 10.64 | 10 | 6 | |
| | Ethyl ether | 0.2305 | 0.2241 | 9.72 | 10 | -3 | |
| | Freon 123a | 0.3028 | 0.2923 | 9.65 | 10 | -3 | |
| | Acrolein | 2.0680 | 1.8330 | 443.19 | 500 | -11 | |
| * | 1,1-Dichloroethene | 0.2343 | 0.2214 | 9.45 | 10 | -6 | * |
| | Freon 113 | 0.2307 | 0.2325 | 10.08 | 10 | 1 | |
| | Acetone | 2.6911 | 2.6121 | 97.07 | 100 | -3 | |
| | Methyl Iodide | 0.4394 | 0.4144 | 9.43 | 10 | -6 | |
| | Bromoethane | 0.2014 | 0.1882 | 9.34 | 10 | -7 | |
| | Carbon Disulfide | 0.8406 | 0.7696 | 9.16 | 10 | -8 | |
| | Allyl Chloride | 0.4314 | 0.3944 | 9.14 | 10 | -9 | |
| | Methyl Acetate | 0.1538 | 0.1354 | 8.80 | 10 | -12 | |
| | Methylene Chloride | 0.2661 | 0.2542 | 9.55 | 10 | -4 | |
| | t-Butyl Alcohol | 1.0237 | 1.0692 | 208.89 | 200 | 4 | |
| | Acrylonitrile | 3.3430 | 3.2688 | 48.89 | 50 | -2 | |
| | trans-1,2-Dichloroethene | 0.2650 | 0.2537 | 9.57 | 10 | -4 | |
| | Methyl Tertiary Butyl Ether | 0.7012 | 0.6735 | 9.60 | 10 | -4 | |
| | n-Hexane | 0.4014 | 0.3830 | 9.54 | 10 | -5 | |
| # | 1,1-Dichloroethane | 0.4854 | 0.4739 | 9.76 | 10 | -2 | # |
| | di-Isopropyl Ether | 0.9119 | 0.9185 | 10.07 | 10 | 1 | |
| | 2-Chloro-1,3-Butadiene | 0.4218 | 0.4210 | 9.98 | 10 | 0 | |
| | Ethyl t-butyl ether | 0.8711 | 0.8283 | 9.51 | 10 | -5 | |
| | cis-1,2-Dichloroethene | 0.2982 | 0.2834 | 9.50 | 10 | -5 | |
| | 2,2-Dichloropropane | 0.4045 | 0.3847 | 9.51 | 10 | -5 | |
| | 2-Butanone | 4.7222 | 4.6159 | 97.75 | 100 | -2 | |
| | Propionitrile | 1.1573 | 1.1899 | 205.63 | 200 | 3 | |
| | Methacrylonitrile | 4.3882 | 4.0693 | 92.73 | 100 | -7 | |
| | Bromochloromethane | 0.1332 | 0.1261 | 9.47 | 10 | -5 | |
| | Tetrahydrofuran | 1.4047 | 1.2695 | 90.37 | 100 | -10 | |

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10193 Calibration Date: 02/05/20 Time: 19:46

Lab File ID: cf05c01.d Init. Calib. Date(s): 01/06/20 01/06/20

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

| | COMPOUND | RRF | RRF10 | ACTUAL CONC. | TRUE CONC. | % DRIFT | |
|---|---|---|---|---|---|---|---|
| * | Chloroform | 0.4509 | 0.4473 | 9.92 | 10 | -1 | * |
| | 1,1,1-Trichloroethane | 0.4005 | 0.3983 | 9.94 | 10 | -1 | |
| | Cyclohexane | 0.4895 | 0.4747 | 9.70 | 10 | -3 | |
| | Cyclohexane(2) | 0.4038 | 0.3970 | 9.83 | 10 | -2 | |
| | Cyclohexane(3) | 0.0046 | 0.1414 | 304.76 | 10 | 2948 | |
| | 1,1-Dichloropropene | 0.3757 | 0.3723 | 9.91 | 10 | -1 | |
| | Carbon Tetrachloride | 0.3356 | 0.3409 | 10.16 | 10 | 2 | |
| | Isobutyl Alcohol | 0.3414 | 0.3693 | 540.95 | 500 | 8 | |
| | Benzene | 1.1094 | 1.0860 | 9.79 | 10 | -2 | |
| | 1,2-Dichloroethane | 0.3129 | 0.3090 | 9.87 | 10 | -1 | |
| | 1,2-Dichloroethane(2) | 0.0314 | 0.0279 | 8.89 | 10 | -11 | |
| | t-Amyl methyl ether | 0.7913 | 0.7618 | 9.63 | 10 | -4 | |
| | n-Heptane | 0.4158 | 0.4238 | 10.19 | 10 | 2 | |
| | n-Butanol | 0.3039 | 0.3248 | 1068.80 | 1000 | 7 | |
| | Trichloroethene | 0.2772 | 0.2726 | 9.83 | 10 | -2 | |
| | Methylcyclohexane | 0.4971 | 0.4659 | 9.37 | 10 | -6 | |
| * | 1,2-Dichloropropane | 0.2853 | 0.2829 | 9.91 | 10 | -1 | * |
| | Methyl Methacrylate | 8.9641 | 7.9342 | 8.85 | 10 | -11 | |
| | Dibromomethane | 0.1337 | 0.1347 | 10.08 | 10 | 1 | |
| | 1,4-Dioxane | 0.0565 | 0.0586 | 518.28 | 500 | 4 | |
| | 1,4-Dioxane(2) | 0.0414 | 0.0126 | 151.83 | 500 | -70 | |
| | Bromodichloromethane | 0.3418 | 0.3357 | 9.82 | 10 | -2 | |
| | 2-Nitropropane | 2.7747 | 2.6756 | 96.43 | 100 | -4 | |
| | 1-Bromo-2-chloroethane | 0.3077 | 0.3042 | 9.89 | 10 | -1 | |
| | cis-1,3-Dichloropropene | 0.4406 | 0.4222 | 9.58 | 10 | -4 | |
| | 4-Methyl-2-Pentanone | 0.2115 | 0.2291 | 108.29 | 100 | 8 | |
| * | Toluene | 0.9523 | 0.9088 | 9.54 | 10 | -5 | * |
| | trans-1,3-Dichloropropene | 0.5149 | 0.4859 | 9.44 | 10 | -6 | |
| | Ethyl Methacrylate | 0.4608 | 0.4248 | 9.22 | 10 | -8 | |
| | 1,1,2-Trichloroethane | 0.2722 | 0.2593 | 9.53 | 10 | -5 | |
| | Tetrachloroethene | 0.4093 | 0.4026 | 9.84 | 10 | -2 | |
| | 1,3-Dichloropropane | 0.4809 | 0.4660 | 9.69 | 10 | -3 | |
| | 2-Hexanone | 0.2074 | 0.2145 | 103.41 | 100 | 3 | |
| | Dibromochloromethane | 0.3296 | 0.3183 | 9.66 | 10 | -3 | |
| | 1,2-Dibromoethane | 0.2636 | 0.2570 | 9.75 | 10 | -3 | |
| | 1-Chlorohexane | 0.5527 | 0.5032 | 9.10 | 10 | -9 | |

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10193 Calibration Date: 02/05/20 Time: 19:46

Lab File ID: cf05c01.d Init. Calib. Date(s): 01/06/20 01/06/20

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

| | COMPOUND | RRF | RRF10 | ACTUAL CONC. | TRUE CONC. | % DRIFT | |
|---|---|---|---|---|---|---|---|
| # | Chlorobenzene | 1.0720 | 1.0305 | 9.61 | 10 | -4 | # |
| | 1,1,1,2-Tetrachloroethane | 0.3692 | 0.3632 | 9.84 | 10 | -2 | |
| * | Ethylbenzene | 1.8372 | 1.8021 | 9.81 | 10 | -2 | * |
| | m+p-Xylene | 0.7208 | 0.7034 | 19.52 | 20 | -2 | |
| | o-Xylene | 0.7160 | 0.6980 | 9.75 | 10 | -3 | |
| | Styrene | 1.2095 | 1.1747 | 9.71 | 10 | -3 | |
| # | Bromoform | 0.2030 | 0.1944 | 9.58 | 10 | -4 | # |
| | Isopropylbenzene | 1.8435 | 1.8134 | 9.84 | 10 | -2 | |
| # | 1,1,2,2-Tetrachloroethane | 0.6553 | 0.6018 | 9.18 | 10 | -8 | # |
| | Bromobenzene | 0.8329 | 0.7685 | 9.23 | 10 | -8 | |
| | trans-1,4-Dichloro-2-butene | 4.1365 | 3.8058 | 92.01 | 100 | -8 | |
| | 1,2,3-Trichloropropane | 0.1740 | 0.1600 | 9.19 | 10 | -8 | |
| | n-Propylbenzene | 3.9367 | 3.6889 | 9.37 | 10 | -6 | |
| | 2-Chlorotoluene | 0.8207 | 0.7442 | 9.07 | 10 | -9 | |
| | 1,3,5-Trimethylbenzene | 2.9038 | 2.6824 | 9.24 | 10 | -8 | |
| | 4-Chlorotoluene | 0.8559 | 0.7743 | 9.05 | 10 | -10 | |
| | tert-Butylbenzene | 0.6189 | 0.5778 | 9.34 | 10 | -7 | |
| | Pentachloroethane | 0.5330 | 0.4792 | 8.99 | 10 | -10 | |
| | 1,2,4-Trimethylbenzene | 3.0608 | 2.8248 | 9.23 | 10 | -8 | |
| | sec-Butylbenzene | 3.7250 | 3.4948 | 9.38 | 10 | -6 | |
| | 1,3-Dichlorobenzene | 1.6502 | 1.5513 | 9.40 | 10 | -6 | |
| | p-Isopropyltoluene | 3.2594 | 3.0468 | 9.35 | 10 | -7 | |
| | 1,4-Dichlorobenzene | 1.6937 | 1.5663 | 9.25 | 10 | -8 | |
| | 1,2,3-Trimethylbenzene | 1.3715 | 1.2074 | 8.80 | 10 | -12 | |
| | Benzyl Chloride | 0.2843 | 0.2645 | 9.30 | 10 | -7 | |
| | n-Butylbenzene | 1.6369 | 1.5592 | 9.53 | 10 | -5 | |
| | 1,2-Dichlorobenzene | 1.5499 | 1.4423 | 9.31 | 10 | -7 | |
| | 1,2-Dibromo-3-chloropropane | 2.2767 | 2.1580 | 9.48 | 10 | -5 | |
| | 1,3,5-Trichlorobenzene | 1.3676 | 1.2635 | 9.24 | 10 | -8 | |
| | 1,2,4-Trichlorobenzene | 1.2376 | 1.1240 | 9.08 | 10 | -9 | |
| | Hexachlorobutadiene | 0.5942 | 0.5589 | 9.41 | 10 | -6 | |
| | Naphthalene | 2.2879 | 2.0363 | 8.90 | 10 | -11 | |
| | 1,2,3-Trichlorobenzene | 1.0843 | 0.9574 | 8.83 | 10 | -12 | |
| | Dibromofluoromethane | 0.2345 | 0.2389 | 10.19 | 10 | 2 | |
| | Dibromofluoromethane(2) | 0.2395 | 0.2450 | 10.23 | 10 | 2 | |

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10193 Calibration Date: 02/05/20 Time: 19:46

Lab File ID: cf05c01.d Init. Calib. Date(s): 01/06/20 01/06/20

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

| COMPOUND | RRF | RRF10 | ACTUAL CONC. | TRUE CONC. | % DRIFT |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 0.0514 | 0.0521 | 10.13 | 10 | 1 |
| 1,2-Dichloroethane-d4(2) | 0.2372 | 0.2459 | 10.37 | 10 | 4 |
| 1,2-Dichloroethane-d4(3) | 0.0327 | 0.0333 | 10.20 | 10 | 2 |
| Toluene-d8 | 1.3326 | 1.3159 | 9.87 | 10 | -1 |
| Toluene-d8(2) | 0.8657 | 0.8455 | 9.77 | 10 | -2 |
| 4-Bromofluorobenzene | 0.5007 | 0.4982 | 9.95 | 10 | 0 |
| 4-Bromofluorobenzene(2) | 0.4201 | 0.4350 | 10.35 | 10 | 4 |

Average %Drift 32

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID (Standard): cf05c01.d Date Analyzed: 02/05/20

Instrument ID: HP10193 Time Analyzed: 19:46

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

| | IS1(TBA) | | IS2(FBZ) | | IS3(CBZ) | | IS4(DCB) | |
|---|---|---|---|---|---|---|---|---|
| | AREA # | RT # | AREA # | RT # | AREA # | RT # | AREA # | RT # |
| 12 HOUR STD | 170617 | 4.151 | 1784527 | 7.620 | 1352823 | 11.131 | 797506 | 13.027 |
| UPPER LIMIT | 341234 | 4.651 | 3569054 | 8.120 | 2705646 | 11.631 | 1595012 | 13.527 |
| LOWER LIMIT | 85308 | 3.651 | 892264 | 7.120 | 676412 | 10.631 | 398753 | 12.527 |
| LAB SAMPLE ID | | | | | | | | |
| 01 LCSC92 | 175629 | 4.133 | 1799580 | 7.614 | 1352171 | 11.125 | 784172 | 13.028 |
| 02 VBLKC92 | 169953 | 4.133 | 1746532 | 7.614 | 1307000 | 11.132 | 743344 | 13.028 |
| 03 1251398 | 178230 | 4.139 | 1758649 | 7.614 | 1329236 | 11.125 | 752509 | 13.027 |
| 04 1251399 | 162513 | 4.151 | 1727698 | 7.620 | 1300667 | 11.132 | 741943 | 13.027 |
| 05 1251371 | 178347 | 4.139 | 1728817 | 7.620 | 1303485 | 11.132 | 740934 | 13.028 |
| 06 1251373 | 164830 | 4.139 | 1698297 | 7.614 | 1274165 | 11.132 | 728489 | 13.028 |
| 07 1251375 | 160757 | 4.121 | 1711642 | 7.614 | 1285511 | 11.125 | 724713 | 13.027 |
| 08 1251376 | 163664 | 4.139 | 1696794 | 7.614 | 1272331 | 11.125 | 720465 | 13.027 |
| 09 1251378 | 173624 | 4.151 | 1686549 | 7.614 | 1272299 | 11.125 | 719652 | 13.027 |
| 10 1251388 | 168490 | 4.133 | 1688310 | 7.614 | 1268439 | 11.125 | 719049 | 13.027 |
| 11 1251389MS | 167805 | 4.127 | 1729090 | 7.620 | 1294234 | 11.131 | 745789 | 13.027 |
| 12 1251390MSD | 157945 | 4.133 | 1726755 | 7.614 | 1285432 | 11.125 | 736009 | 13.027 |
| 13 1251380 | 148788 | 4.139 | 1685673 | 7.620 | 1259100 | 11.131 | 712582 | 13.027 |
| 14 1251382 | 158639 | 4.133 | 1714533 | 7.614 | 1285583 | 11.131 | 712268 | 13.027 |
| 15 1251384 | 161755 | 4.145 | 1690280 | 7.620 | 1267793 | 11.132 | 716564 | 13.027 |
| 16 1251396 | 169268 | 4.127 | 1712375 | 7.614 | 1274438 | 11.125 | 718871 | 13.027 |
| 17 1251549DL2 | 162163 | 4.133 | 1700458 | 7.614 | 1266185 | 11.131 | 719219 | 13.027 |

IS1 (TBA)=t-Butyl Alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

# Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.



FORM VIII VOA

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# Sample Data

# Volatiles by GC/MS

PO24I

# Lancaster Laboratories
## Analysis Summary for GC/MS Volatiles 1251371

Data file: /chem2/HP10193.i/20feb05a.b/cf05s04.d Injection date and time: **05-FEB-2020 22:14**
Data file Sample Info. Line: PO24I;1251371;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:54 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

**Analysis Comments:**

| Internal Standards | RT | (+/-RT) | Scan | QIon | Area | (+/- %Change) | Conc. (on-column) | QC Flag |
|---|---|---|---|---|---|---|---|---|
| 28) t-Butyl Alcohol-d10 | 4.139 | ( 0.012) | 420 | 65 | 178347 | ( 5) | 50.00 | |
| 65) Fluorobenzene | 7.620 | ( 0.000) | 991 | 96 | 1728817 | ( -3) | 10.00 | |
| 99) Chlorobenzene-d5 | 11.132 | ( 0.000) | 1567 | 117 | 1303485 | ( -4) | 10.00 | |
| 135) 1,4-Dichlorobenzene-d4 | 13.028 | ( 0.000) | 1878 | 152 | 740934 | ( -7) | 10.00 | |

| Surrogate Standards | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | %Rec. | QC flags | QC Limits |
|---|---|---|---|---|---|---|---|---|---|
| 52) Dibromofluoromethane | (2) | 6.730 | (-0.001) | 113 | 419185 | 10.339 | 103% | | 80 - 120 |
| 59) 1,2-Dichloroethane-d4 | (2) | 7.175 | ( 0.001) | 102 | 91653 | 10.314 | 103% | | 80 - 120 |
| 84) Toluene-d8 | (3) | 9.650 | ( 0.000) | 98 | 1722546 | 9.916 | 99% | | 80 - 120 |
| 113) 4-Bromofluorobenzene | (3) | 12.137 | ( 0.000) | 95 | 634976 | 9.729 | 97% | | 80 - 120 |

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit | LOQ (in sample) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 2) Chloromethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 5) Vinyl Chloride | (2) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 7) Bromomethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 8) Chloroethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 10) Trichlorofluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 16) 1,1-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 15) Acetone | (1) | | | | Not Detected | | | | | 1 | 5 |
| 20) Carbon Disulfide | (2) | | | | Not Detected | | | | | 0.09 | 1 |
| 25) Methylene Chloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 30) t-Butyl Alcohol | (1) | | | | Not Detected | | | | | 2 | 10 |
| 33) trans-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 32) Methyl Tertiary Butyl Ether | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 35) 1,1-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 41) cis-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 43) 2,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 40) 2-Butanone | (1) | | | | Not Detected | | | | | 0.7 | 5 |
| 49) Bromochloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 51) Chloroform | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 53) 1,1,1-Trichloroethane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 57) 1,1-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 56) Carbon Tetrachloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 60) Benzene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 61) 1,2-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 69) Trichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 72) 1,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 75) Dibromomethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 76) Bromodichloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 82) cis-1,3-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 83) 4-Methyl-2-Pentanone | (2) | | | | Not Detected | | | | | 0.6 | 5 |
| 85) Toluene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:05. Target 3.5 esignature user ID: jkh09052

# Lancaster Laboratories
## Analysis Summary for GC/MS Volatiles 1251371

Data file: /chem2/HP10193.i/20feb05a.b/cf05s04.d Injection date and time: **05-FEB-2020 22:14**
Data file Sample Info. Line: PO24I;1251371;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:54 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

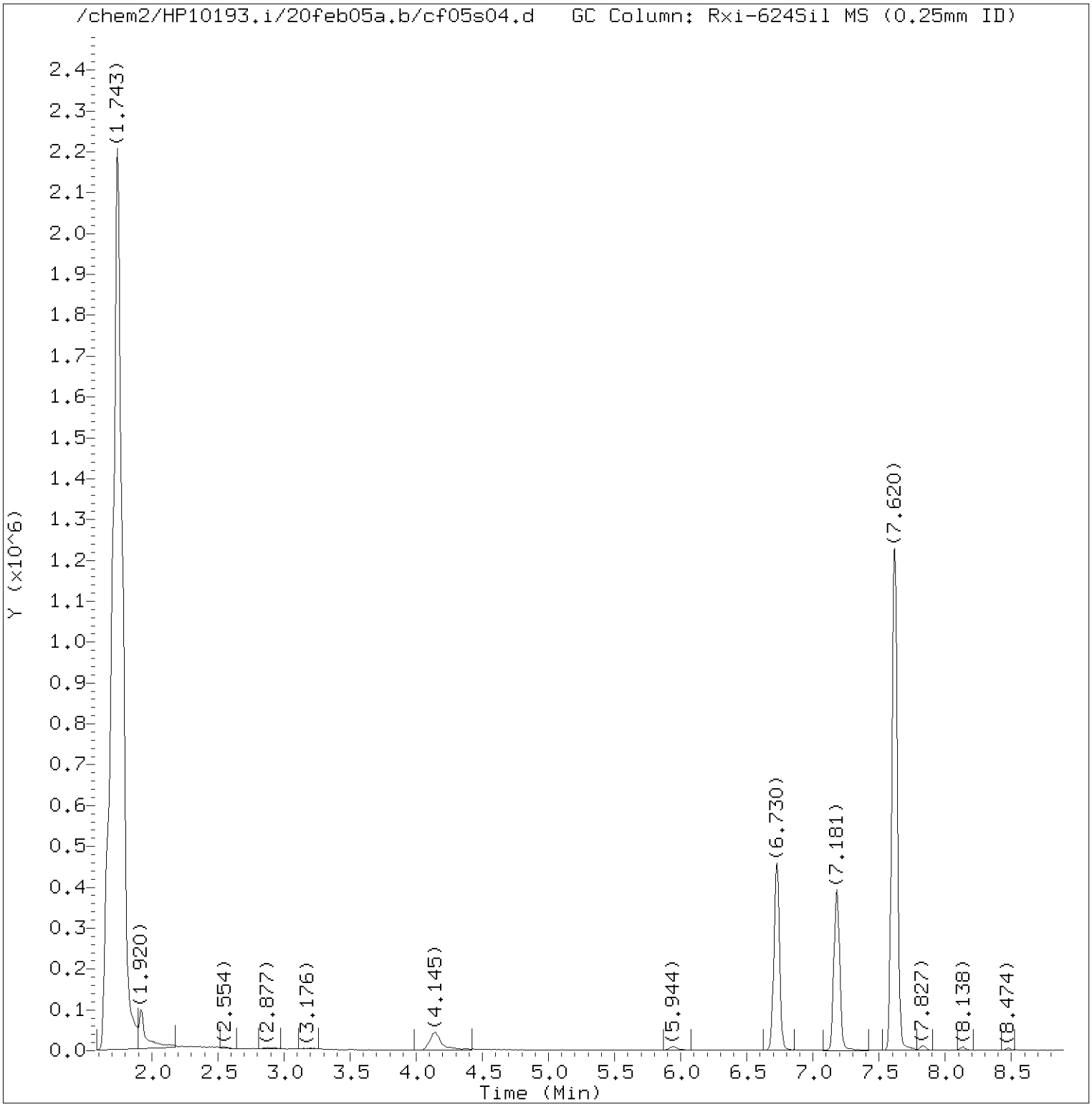
Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 86) trans-1,3-Dichloropropene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 90) 1,1,2-Trichloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 91) Tetrachloroethene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 92) 1,3-Dichloropropane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 95) Dibromochloromethane | (3) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 97) 1,2-Dibromoethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 100) Chlorobenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 102) Ethylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 103) m+p-Xylene | (3) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 106) o-Xylene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 108) Styrene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 109) Bromoform | (3) | | | | Not Detected | | | | | 0.3 | 1 |
| 110) Isopropylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 116) Bromobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 118) 1,2,3-Trichloropropane | (4) | | | | Not Detected | | | | | 0.06 | 1 |
| 119) n-Propylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 121) 2-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 123) 1,3,5-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 124) 4-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 127) tert-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 129) 1,2,4-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 130) sec-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 133) 1,3-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 134) p-Isopropyltoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 136) 1,4-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 140) n-Butylbenzene | (4) | | | | Not Detected | | | | | 0.07 | 0.5 |
| 141) 1,2-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | | | | Not Detected | | | | | 0.2 | 0.5 |
| 147) 1,2,4-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 148) Hexachlorobutadiene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 149) Naphthalene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 150) 1,2,3-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |

Total number of targets = 65

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:05. Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23. PARALLAX ID: kek01027




Total Ion Chromatogram (TIC)

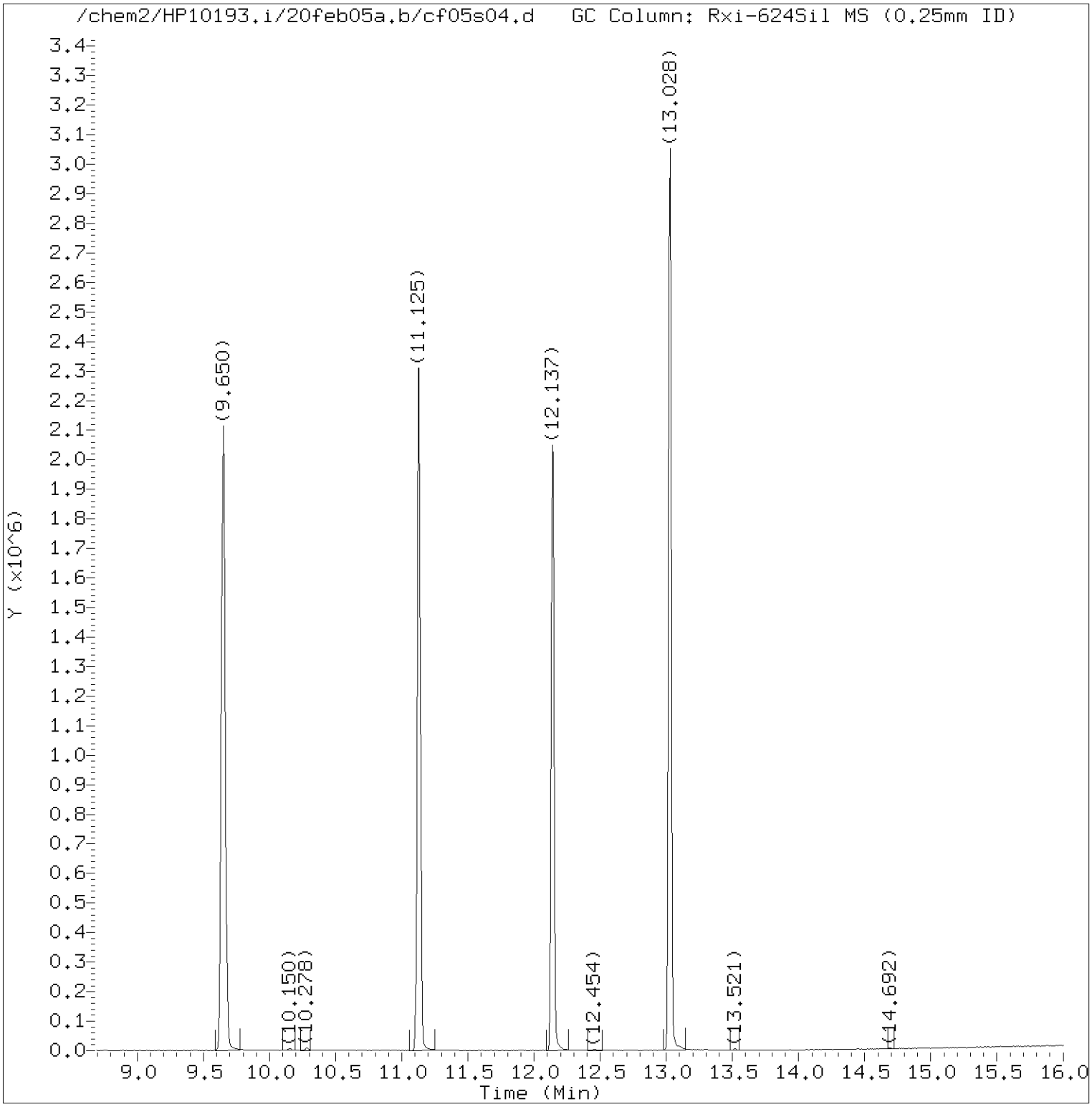
Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s04.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 22:14 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:54 jkh09052

Sample Name: PO24I Lab Sample ID: 1251371

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:05.
Target 3.5 esignature user ID: jkh09052




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s04.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 22:14 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:54 jkh09052

Sample Name: PO24I Lab Sample ID: 1251371

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:05.
Target 3.5 esignature user ID: jkh09052

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s04.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 22:14 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:54 jkh09052

Sample Name: PO24I Lab Sample ID: 1251371

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 28)*t-Butyl Alcohol-d10 | (1) | 4.139 | 65 | 178347 | 50.000 |
| 52)$Dibromofluoromethane | (2) | 6.730 | 113 | 419185 | 10.339 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.175 | 102 | 91653 | 10.314 |
| 65)*Fluorobenzene | (2) | 7.620 | 96 | 1728817 | 10.000 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1722546 | 9.916 |
| 99)*Chlorobenzene-d5 | (3) | 11.132 | 117 | 1303485 | 10.000 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 634976 | 9.729 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.028 | 152 | 740934 | 10.000 |

* = Compound is an internal standard.
$ = Compound is a surrogate standard.



Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:05.
Target 3.5 esignature user ID: jkh09052

PO-23

# Lancaster Laboratories
## Analysis Summary for GC/MS Volatiles 1251373

Data file: /chem2/HP10193.i/20feb05a.b/cf05s05.d Injection date and time: **05-FEB-2020 22:36**
Data file Sample Info. Line: PO-23;1251373;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:54 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

**Analysis Comments:**

| Internal Standards | RT | (+/-RT) | Scan | QIon | Area | (+/- %Change) | Conc. (on-column) | QC Flag |
|---|---|---|---|---|---|---|---|---|
| 28) t-Butyl Alcohol-d10 | 4.139 | ( 0.012) | 420 | 65 | 164830 | ( -3) | 50.00 | |
| 65) Fluorobenzene | 7.614 | ( 0.006) | 990 | 96 | 1698297 | ( -5) | 10.00 | |
| 99) Chlorobenzene-d5 | 11.132 | ( 0.000) | 1567 | 117 | 1274165 | ( -6) | 10.00 | |
| 135) 1,4-Dichlorobenzene-d4 | 13.027 | ( 0.000) | 1878 | 152 | 728489 | ( -9) | 10.00 | |

| Surrogate Standards | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | %Rec. | QC flags | QC Limits |
|---|---|---|---|---|---|---|---|---|---|
| 52) Dibromofluoromethane | (2) | 6.724 | (-0.001) | 113 | 411986 | 10.344 | 103% | | 80 - 120 |
| 59) 1,2-Dichloroethane-d4 | (2) | 7.175 | ( 0.000) | 102 | 89538 | 10.257 | 103% | | 80 - 120 |
| 84) Toluene-d8 | (3) | 9.650 | ( 0.000) | 98 | 1699222 | 10.007 | 100% | | 80 - 120 |
| 113) 4-Bromofluorobenzene | (3) | 12.137 | ( 0.000) | 95 | 628792 | 9.856 | 99% | | 80 - 120 |

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit | LOQ (in sample) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 2) Chloromethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 5) Vinyl Chloride | (2) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 7) Bromomethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 8) Chloroethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 10) Trichlorofluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 16) 1,1-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 15) Acetone | (1) | | | | Not Detected | | | | | 1 | 5 |
| 20) Carbon Disulfide | (2) | | | | Not Detected | | | | | 0.09 | 1 |
| 25) Methylene Chloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 30) t-Butyl Alcohol | (1) | | | | Not Detected | | | | | 2 | 10 |
| 33) trans-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 32) Methyl Tertiary Butyl Ether | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 35) 1,1-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 41) cis-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 43) 2,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 40) 2-Butanone | (1) | | | | Not Detected | | | | | 0.7 | 5 |
| 49) Bromochloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 51) Chloroform | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 53) 1,1,1-Trichloroethane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 57) 1,1-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 56) Carbon Tetrachloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 60) Benzene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 61) 1,2-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 69) Trichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 72) 1,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 75) Dibromomethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 76) Bromodichloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 82) cis-1,3-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 83) 4-Methyl-2-Pentanone | (2) | | | | Not Detected | | | | | 0.6 | 5 |
| 85) Toluene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:05. Target 3.5 esignature user ID: jkh09052

PO-23 Lancaster Laboratories 1251373
Analysis Summary for GC/MS Volatiles

Data file: /chem2/HP10193.i/20feb05a.b/cf05s05.d Injection date and time: **05-FEB-2020 22:36**
Data file Sample Info. Line: PO-23;1251373;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:54 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

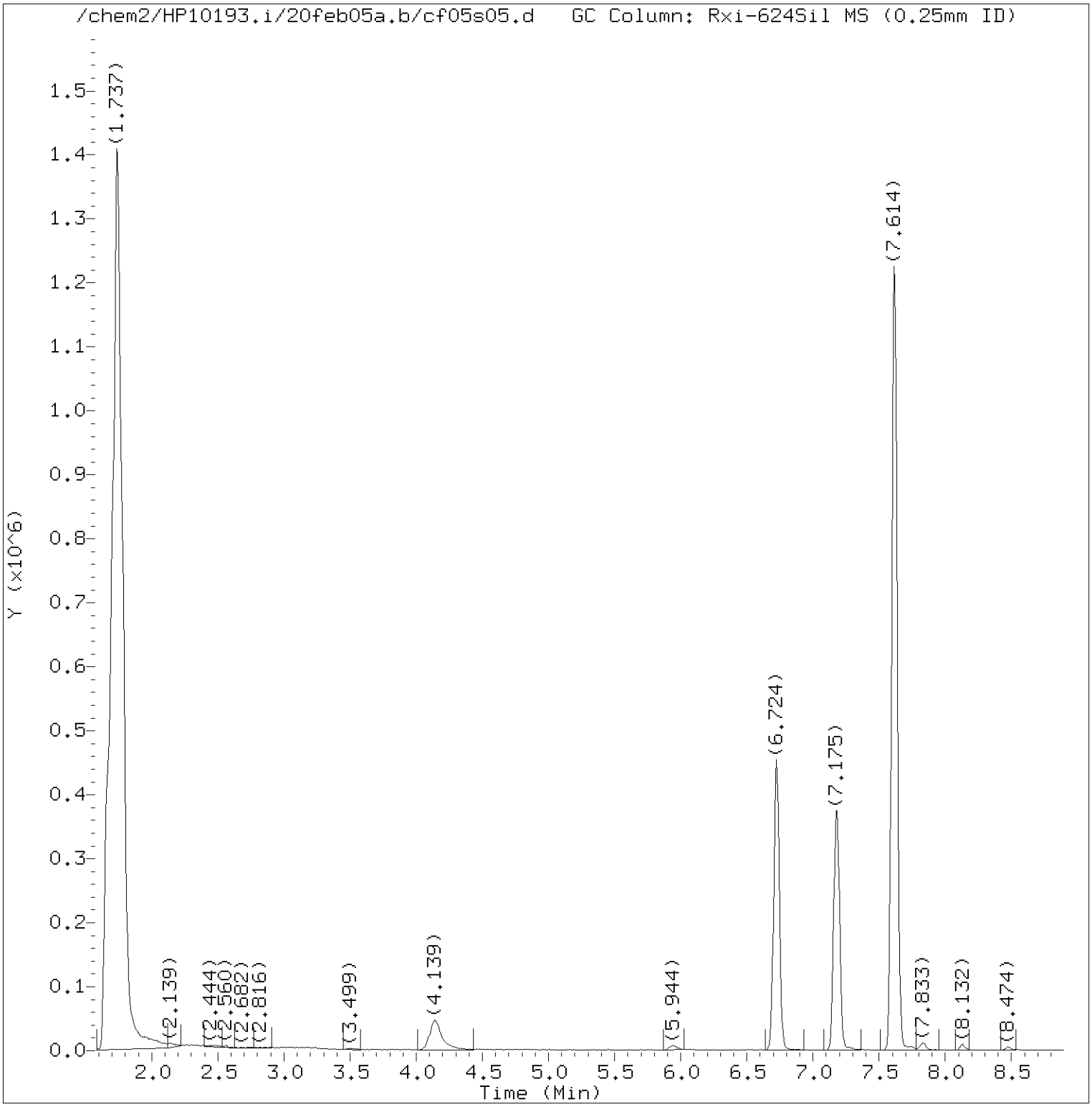
Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 86) trans-1,3-Dichloropropene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 90) 1,1,2-Trichloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 91) Tetrachloroethene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 92) 1,3-Dichloropropane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 95) Dibromochloromethane | (3) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 97) 1,2-Dibromoethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 100) Chlorobenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 102) Ethylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 103) m+p-Xylene | (3) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 106) o-Xylene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 108) Styrene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 109) Bromoform | (3) | | | | Not Detected | | | | | 0.3 | 1 |
| 110) Isopropylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 116) Bromobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 118) 1,2,3-Trichloropropane | (4) | | | | Not Detected | | | | | 0.06 | 1 |
| 119) n-Propylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 121) 2-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 123) 1,3,5-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 124) 4-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 127) tert-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 129) 1,2,4-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 130) sec-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 133) 1,3-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 134) p-Isopropyltoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 136) 1,4-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 140) n-Butylbenzene | (4) | | | | Not Detected | | | | | 0.07 | 0.5 |
| 141) 1,2-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | | | | Not Detected | | | | | 0.2 | 0.5 |
| 147) 1,2,4-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 148) Hexachlorobutadiene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 149) Naphthalene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 150) 1,2,3-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |

Total number of targets = 65

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:05. Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23. PARALLAX ID: kek01027




Total Ion Chromatogram (TIC)

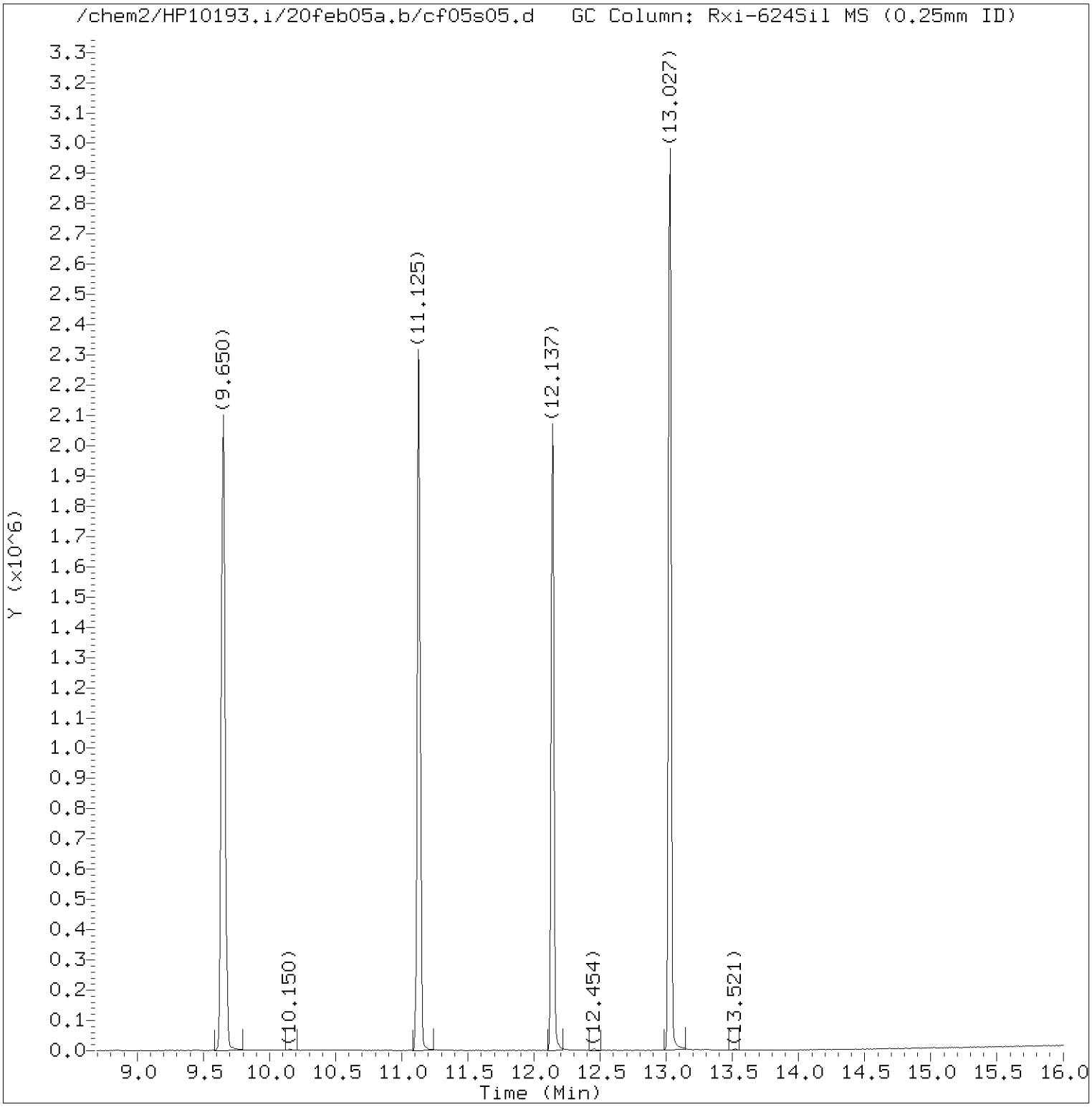
Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s05.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 22:36 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:54 jkh09052

Sample Name: PO-23 Lab Sample ID: 1251373

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:05.
Target 3.5 esignature user ID: jkh09052




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s05.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 22:36 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:54 jkh09052

Sample Name: PO-23 Lab Sample ID: 1251373

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:05.
Target 3.5 esignature user ID: jkh09052

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s05.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 22:36 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:54 jkh09052

Sample Name: PO-23 Lab Sample ID: 1251373

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 28)*t-Butyl Alcohol-d10 | (1) | 4.139 | 65 | 164830 | 50.000 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 113 | 411986 | 10.344 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.175 | 102 | 89538 | 10.257 |
| 65)*Fluorobenzene | (2) | 7.614 | 96 | 1698297 | 10.000 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1699222 | 10.007 |
| 99)*Chlorobenzene-d5 | (3) | 11.132 | 117 | 1274165 | 10.000 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 628792 | 9.856 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.027 | 152 | 728489 | 10.000 |

* = Compound is an internal standard.
$ = Compound is a surrogate standard.



Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:05.
Target 3.5 esignature user ID: jkh09052

PO34I

# Lancaster Laboratories
## Analysis Summary for GC/MS Volatiles 1251375

Data file: /chem2/HP10193.i/20feb05a.b/cf05s06.d Injection date and time: **05-FEB-2020 22:59**
Data file Sample Info. Line: PO34I;1251375;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:54 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

**Analysis Comments:**

| Internal Standards | RT | (+/-RT) | Scan | QIon | Area | (+/- %Change) | Conc. (on-column) | QC Flag |
|---|---|---|---|---|---|---|---|---|
| 28) t-Butyl Alcohol-d10 | 4.121 | ( 0.030) | 417 | 65 | 160757 | ( -6) | 50.00 | |
| 65) Fluorobenzene | 7.614 | ( 0.006) | 990 | 96 | 1711642 | ( -4) | 10.00 | |
| 99) Chlorobenzene-d5 | 11.125 | ( 0.006) | 1566 | 117 | 1285511 | ( -5) | 10.00 | |
| 135) 1,4-Dichlorobenzene-d4 | 13.027 | ( 0.000) | 1878 | 152 | 724713 | ( -9) | 10.00 | |

| Surrogate Standards | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | %Rec. | QC flags | QC Limits |
|---|---|---|---|---|---|---|---|---|---|
| 52) Dibromofluoromethane | (2) | 6.724 | (-0.001) | 113 | 413612 | 10.304 | 103% | | 80 - 120 |
| 59) 1,2-Dichloroethane-d4 | (2) | 7.181 | (-0.001) | 102 | 90159 | 10.247 | 102% | | 80 - 120 |
| 84) Toluene-d8 | (3) | 9.650 | ( 0.000) | 98 | 1696488 | 9.903 | 99% | | 80 - 120 |
| 113) 4-Bromofluorobenzene | (3) | 12.137 | (-0.001) | 95 | 623412 | 9.685 | 97% | | 80 - 120 |

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit | LOQ (in sample) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 2) Chloromethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 5) Vinyl Chloride | (2) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 7) Bromomethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 8) Chloroethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 10) Trichlorofluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 16) 1,1-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 15) Acetone | (1) | | | | Not Detected | | | | | 1 | 5 |
| 20) Carbon Disulfide | (2) | | | | Not Detected | | | | | 0.09 | 1 |
| 25) Methylene Chloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 30) t-Butyl Alcohol | (1) | | | | Not Detected | | | | | 2 | 10 |
| 33) trans-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 32) Methyl Tertiary Butyl Ether | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 35) 1,1-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 41) cis-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 43) 2,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 40) 2-Butanone | (1) | | | | Not Detected | | | | | 0.7 | 5 |
| 49) Bromochloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 51) Chloroform | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 53) 1,1,1-Trichloroethane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 57) 1,1-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 56) Carbon Tetrachloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 60) Benzene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 61) 1,2-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 69) Trichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 72) 1,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 75) Dibromomethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 76) Bromodichloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 82) cis-1,3-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 83) 4-Methyl-2-Pentanone | (2) | | | | Not Detected | | | | | 0.6 | 5 |
| 85) Toluene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:05. Target 3.5 esignature user ID: jkh09052

# Lancaster Laboratories
## Analysis Summary for GC/MS Volatiles 1251375

Data file: /chem2/HP10193.i/20feb05a.b/cf05s06.d Injection date and time: **05-FEB-2020 22:59**
Data file Sample Info. Line: PO34I;1251375;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:54 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

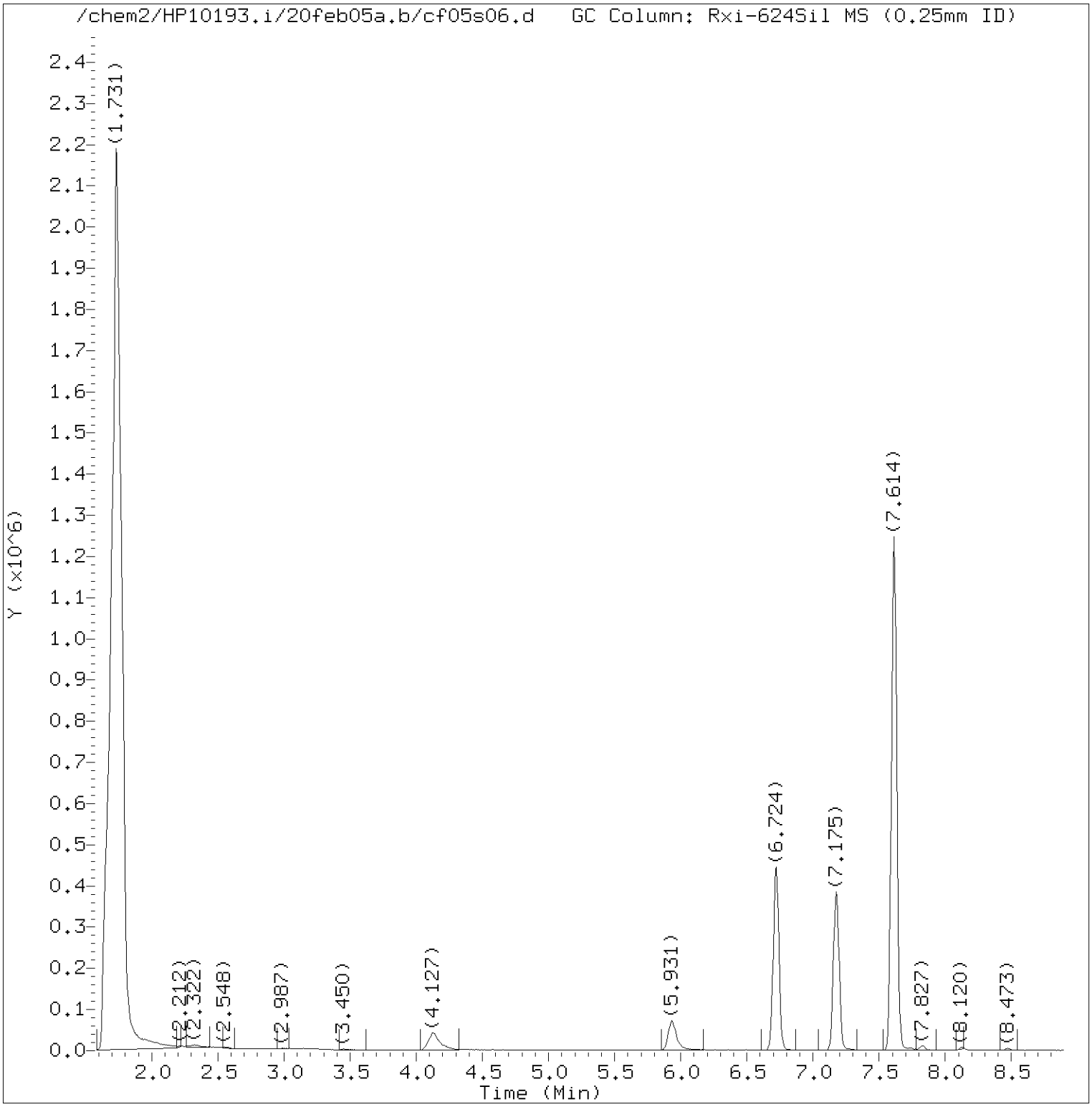
Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 86) trans-1,3-Dichloropropene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 90) 1,1,2-Trichloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 91) Tetrachloroethene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 92) 1,3-Dichloropropane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 95) Dibromochloromethane | (3) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 97) 1,2-Dibromoethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 100) Chlorobenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 102) Ethylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 103) m+p-Xylene | (3) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 106) o-Xylene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 108) Styrene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 109) Bromoform | (3) | | | | Not Detected | | | | | 0.3 | 1 |
| 110) Isopropylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 116) Bromobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 118) 1,2,3-Trichloropropane | (4) | | | | Not Detected | | | | | 0.06 | 1 |
| 119) n-Propylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 121) 2-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 123) 1,3,5-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 124) 4-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 127) tert-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 129) 1,2,4-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 130) sec-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 133) 1,3-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 134) p-Isopropyltoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 136) 1,4-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 140) n-Butylbenzene | (4) | | | | Not Detected | | | | | 0.07 | 0.5 |
| 141) 1,2-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | | | | Not Detected | | | | | 0.2 | 0.5 |
| 147) 1,2,4-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 148) Hexachlorobutadiene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 149) Naphthalene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 150) 1,2,3-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |

Total number of targets = 65

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:05. Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23. PARALLAX ID: kek01027




Total Ion Chromatogram (TIC)

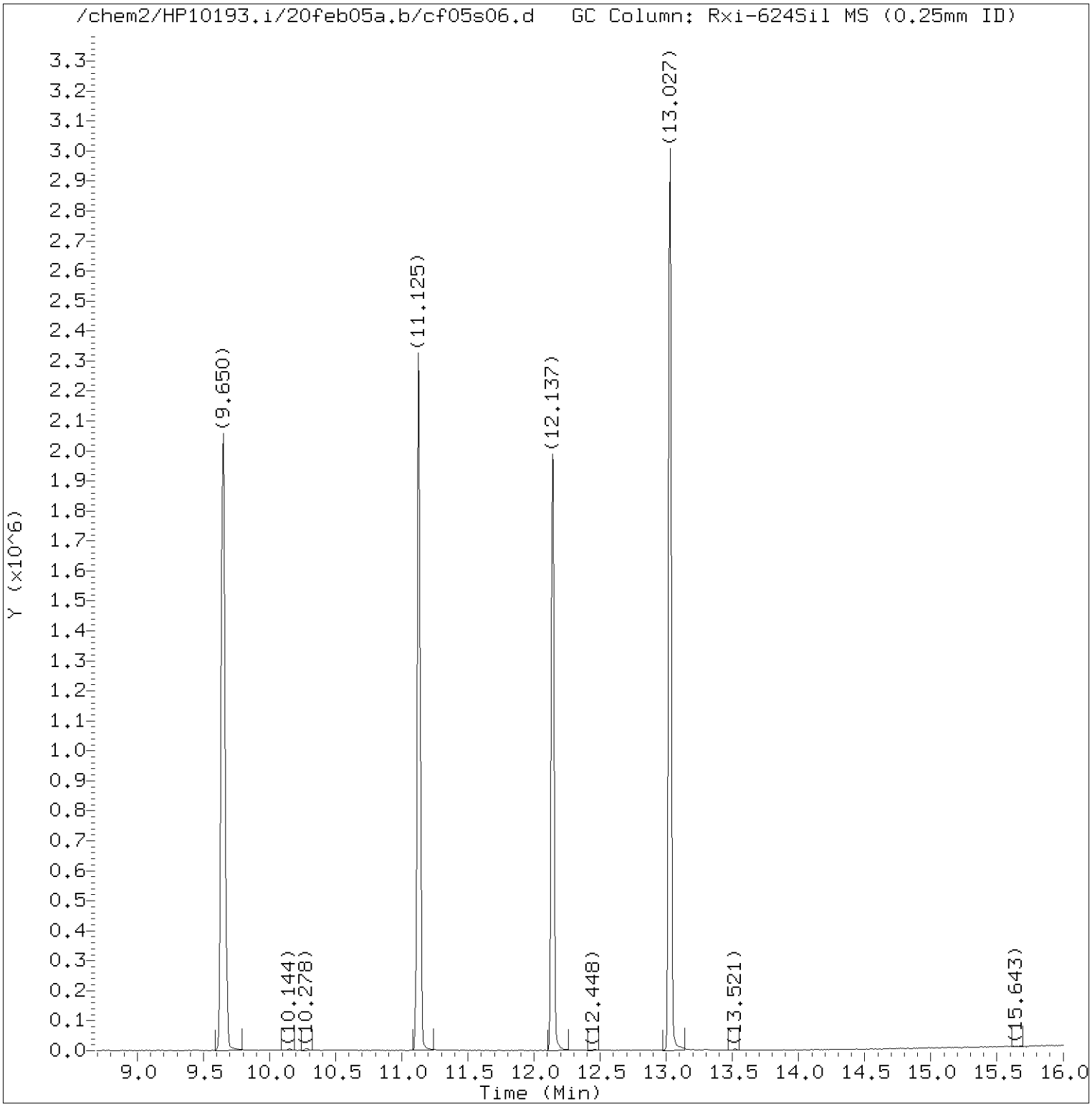
Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s06.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 22:59 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:54 jkh09052

Sample Name: PO34I Lab Sample ID: 1251375

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:05.
Target 3.5 esignature user ID: jkh09052




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s06.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 22:59 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:54 jkh09052

Sample Name: PO34I Lab Sample ID: 1251375

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:05.
Target 3.5 esignature user ID: jkh09052

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s06.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 22:59 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:54 jkh09052

Sample Name: PO34I Lab Sample ID: 1251375

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 28)*t-Butyl Alcohol-d10 | (1) | 4.121 | 65 | 160757 | 50.000 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 113 | 413612 | 10.304 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 102 | 90159 | 10.247 |
| 65)*Fluorobenzene | (2) | 7.614 | 96 | 1711642 | 10.000 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1696488 | 9.903 |
| 99)*Chlorobenzene-d5 | (3) | 11.125 | 117 | 1285511 | 10.000 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 623412 | 9.685 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.027 | 152 | 724713 | 10.000 |

* = Compound is an internal standard.
$ = Compound is a surrogate standard.



Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:05.
Target 3.5 esignature user ID: jkh09052

PO25I

# Lancaster Laboratories
## Analysis Summary for GC/MS Volatiles 1251376

Data file: /chem2/HP10193.i/20feb05a.b/cf05s07.d Injection date and time: **05-FEB-2020 23:21**
Data file Sample Info. Line: PO25I;1251376;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:55 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

**Analysis Comments:**

| Internal Standards | RT | (+/-RT) | Scan | QIon | Area | (+/- %Change) | Conc. (on-column) | QC Flag |
|---|---|---|---|---|---|---|---|---|
| 28) t-Butyl Alcohol-d10 | 4.139 | ( 0.012) | 420 | 65 | 163664 | ( -4) | 50.00 | |
| 65) Fluorobenzene | 7.614 | ( 0.006) | 990 | 96 | 1696794 | ( -5) | 10.00 | |
| 99) Chlorobenzene-d5 | 11.125 | ( 0.006) | 1566 | 117 | 1272331 | ( -6) | 10.00 | |
| 135) 1,4-Dichlorobenzene-d4 | 13.027 | ( 0.000) | 1878 | 152 | 720465 | ( -10) | 10.00 | |

| Surrogate Standards | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | %Rec. | QC flags | QC Limits |
|---|---|---|---|---|---|---|---|---|---|
| 52) Dibromofluoromethane | (2) | 6.724 | (-0.001) | 113 | 409717 | 10.296 | 103% | | 80 - 120 |
| 59) 1,2-Dichloroethane-d4 | (2) | 7.181 | (-0.001) | 102 | 89092 | 10.215 | 102% | | 80 - 120 |
| 84) Toluene-d8 | (3) | 9.650 | ( 0.000) | 98 | 1684502 | 9.935 | 99% | | 80 - 120 |
| 113) 4-Bromofluorobenzene | (3) | 12.137 | (-0.001) | 95 | 617355 | 9.690 | 97% | | 80 - 120 |

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit | LOQ (in sample) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 2) Chloromethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 5) Vinyl Chloride | (2) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 7) Bromomethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 8) Chloroethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 10) Trichlorofluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 16) 1,1-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 15) Acetone | (1) | | | | Not Detected | | | | | 1 | 5 |
| 20) Carbon Disulfide | (2) | | | | Not Detected | | | | | 0.09 | 1 |
| 25) Methylene Chloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 30) t-Butyl Alcohol | (1) | | | | Not Detected | | | | | 2 | 10 |
| 33) trans-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 32) Methyl Tertiary Butyl Ether | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 35) 1,1-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 41) cis-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 43) 2,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 40) 2-Butanone | (1) | | | | Not Detected | | | | | 0.7 | 5 |
| 49) Bromochloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 51) Chloroform | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 53) 1,1,1-Trichloroethane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 57) 1,1-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 56) Carbon Tetrachloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 60) Benzene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 61) 1,2-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 69) Trichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 72) 1,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 75) Dibromomethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 76) Bromodichloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 82) cis-1,3-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 83) 4-Methyl-2-Pentanone | (2) | | | | Not Detected | | | | | 0.6 | 5 |
| 85) Toluene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:05. Target 3.5 esignature user ID: jkh09052

PO25I

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1251376

Data file: /chem2/HP10193.i/20feb05a.b/cf05s07.d
Injection date and time: **05-FEB-2020 23:21**
Data file Sample Info. Line: PO25I;1251376;1;0;;PUP93;;;cf05b01;
Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:55 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

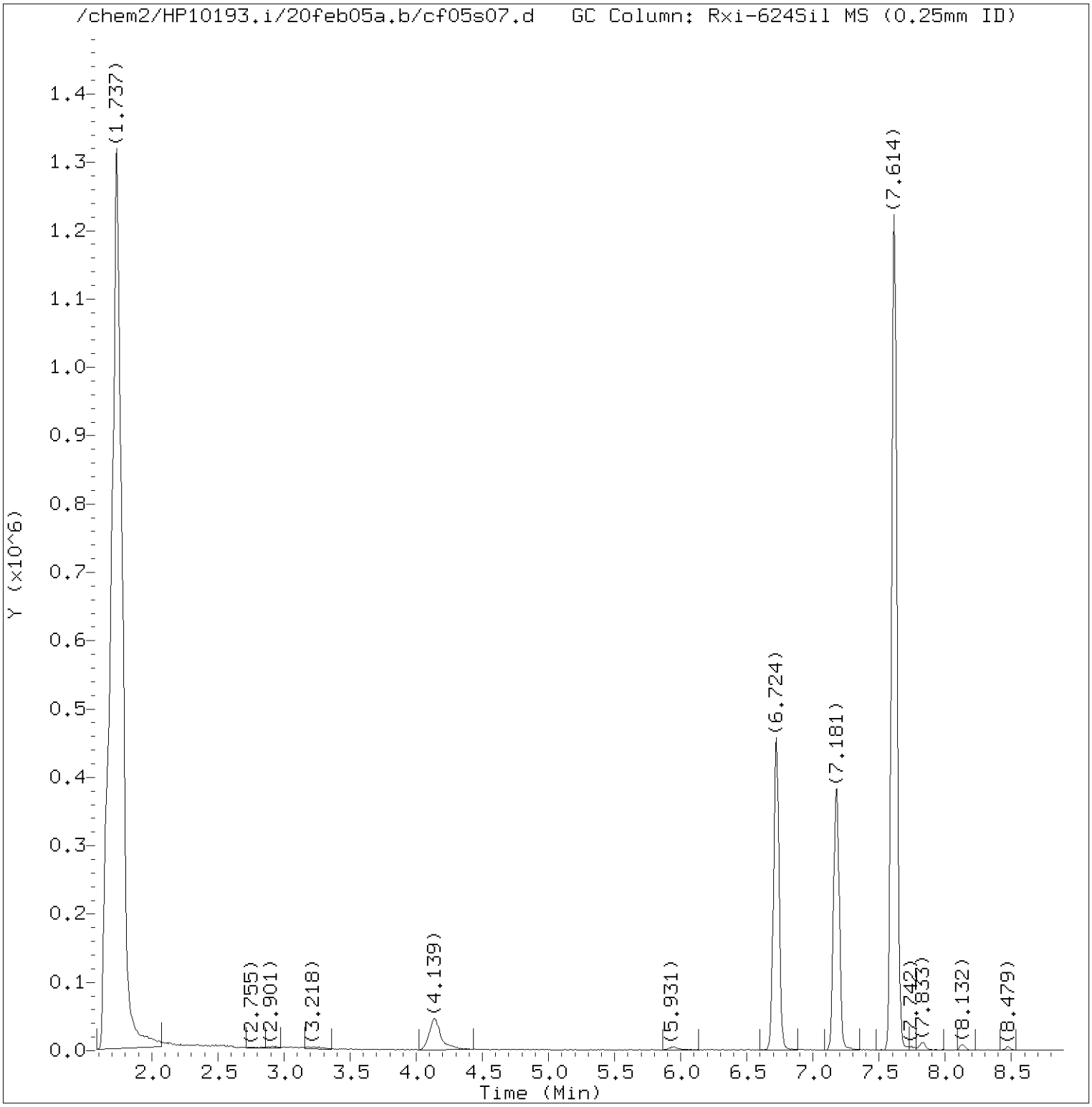
Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

| Target Compounds | I.S. Ref. | RT (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ |
|---|---|---|---|---|---|---|---|---|---|---|
| 86) trans-1,3-Dichloropropene | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 90) 1,1,2-Trichloroethane | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 91) Tetrachloroethene | (3) | 10.278( 0.000) | 166 | 5601 | 0.108 | 0.11 | | J | 0.05 | 0.5 |
| 92) 1,3-Dichloropropane | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 95) Dibromochloromethane | (3) | | | Not Detected | | | | | 0.06 | 0.5 |
| 97) 1,2-Dibromoethane | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 100) Chlorobenzene | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 102) Ethylbenzene | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 103) m+p-Xylene | (3) | | | Not Detected | | | | | 0.08 | 0.5 |
| 106) o-Xylene | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 108) Styrene | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 109) Bromoform | (3) | | | Not Detected | | | | | 0.3 | 1 |
| 110) Isopropylbenzene | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | | | Not Detected | | | | | 0.06 | 0.5 |
| 116) Bromobenzene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 118) 1,2,3-Trichloropropane | (4) | | | Not Detected | | | | | 0.06 | 1 |
| 119) n-Propylbenzene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 121) 2-Chlorotoluene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 123) 1,3,5-Trimethylbenzene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 124) 4-Chlorotoluene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 127) tert-Butylbenzene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 129) 1,2,4-Trimethylbenzene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 130) sec-Butylbenzene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 133) 1,3-Dichlorobenzene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 134) p-Isopropyltoluene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 136) 1,4-Dichlorobenzene | (4) | | | Not Detected | | | | | 0.06 | 0.5 |
| 140) n-Butylbenzene | (4) | | | Not Detected | | | | | 0.07 | 0.5 |
| 141) 1,2-Dichlorobenzene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | | | Not Detected | | | | | 0.2 | 0.5 |
| 147) 1,2,4-Trichlorobenzene | (4) | | | Not Detected | | | | | 0.09 | 0.5 |
| 148) Hexachlorobutadiene | (4) | | | Not Detected | | | | | 0.1 | 0.5 |
| 149) Naphthalene | (4) | | | Not Detected | | | | | 0.09 | 0.5 |
| 150) 1,2,3-Trichlorobenzene | (4) | | | Not Detected | | | | | 0.1 | 0.5 |

Total number of targets = 65

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:05. Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23. PARALLAX ID: kek01027




Total Ion Chromatogram (TIC)

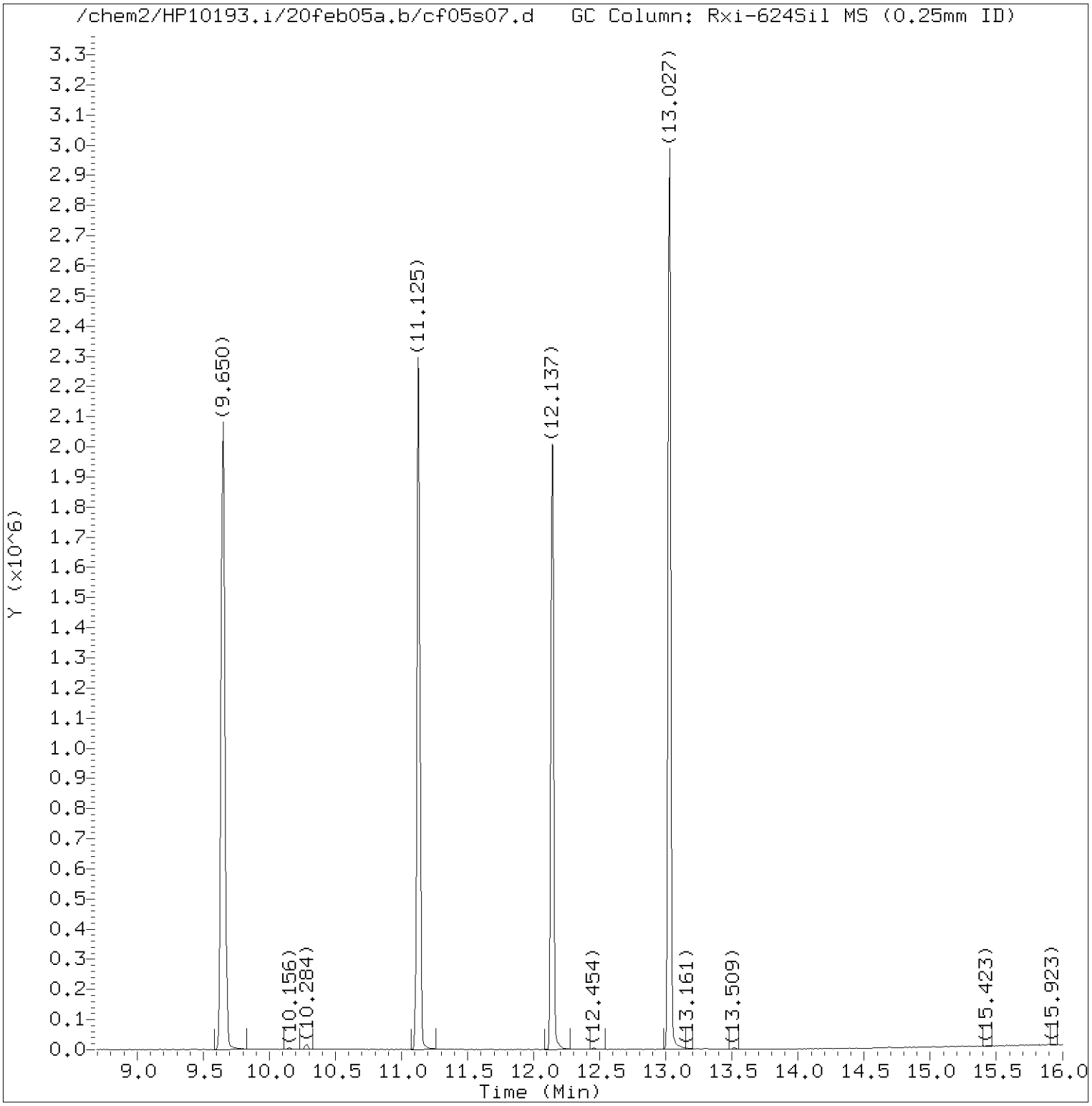
Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s07.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 23:21 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:55 jkh09052

Sample Name: PO25I Lab Sample ID: 1251376

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:05.
Target 3.5 esignature user ID: jkh09052




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s07.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 23:21 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:55 jkh09052

Sample Name: PO25I Lab Sample ID: 1251376

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:05.
Target 3.5 esignature user ID: jkh09052

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s07.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 23:21 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:55 jkh09052

Sample Name: PO25I Lab Sample ID: 1251376

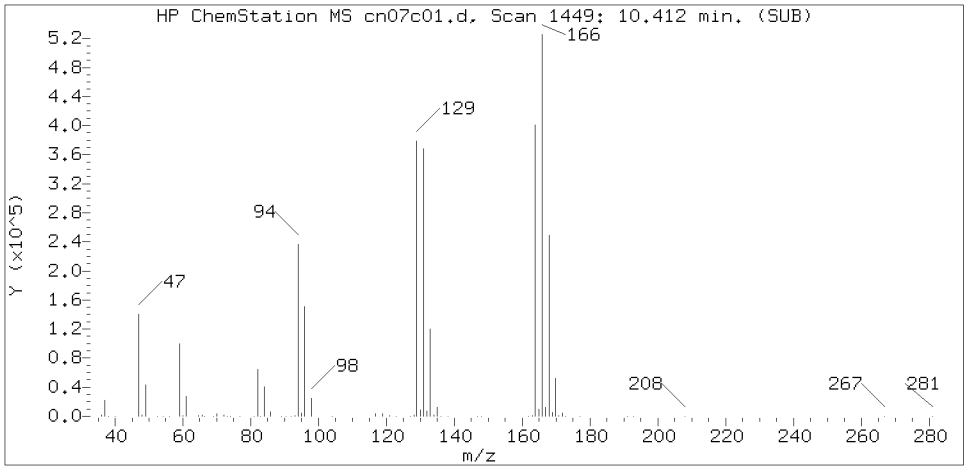
| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 28)*t-Butyl Alcohol-d10 | (1) | 4.139 | 65 | 163664 | 50.000 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 113 | 409717 | 10.296 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 102 | 89092 | 10.215 |
| 65)*Fluorobenzene | (2) | 7.614 | 96 | 1696794 | 10.000 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1684502 | 9.935 |
| 91) Tetrachloroethene | (3) | 10.278 | 166 | 5601 | 0.108 |
| 99)*Chlorobenzene-d5 | (3) | 11.125 | 117 | 1272331 | 10.000 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 617355 | 9.690 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.027 | 152 | 720465 | 10.000 |

* = Compound is an internal standard.
$ = Compound is a surrogate standard.

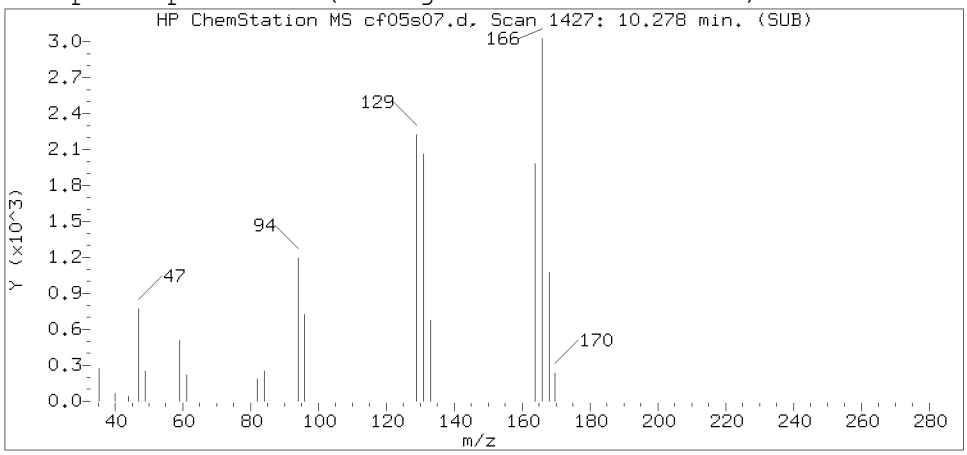


Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:05.
Target 3.5 esignature user ID: jkh09052

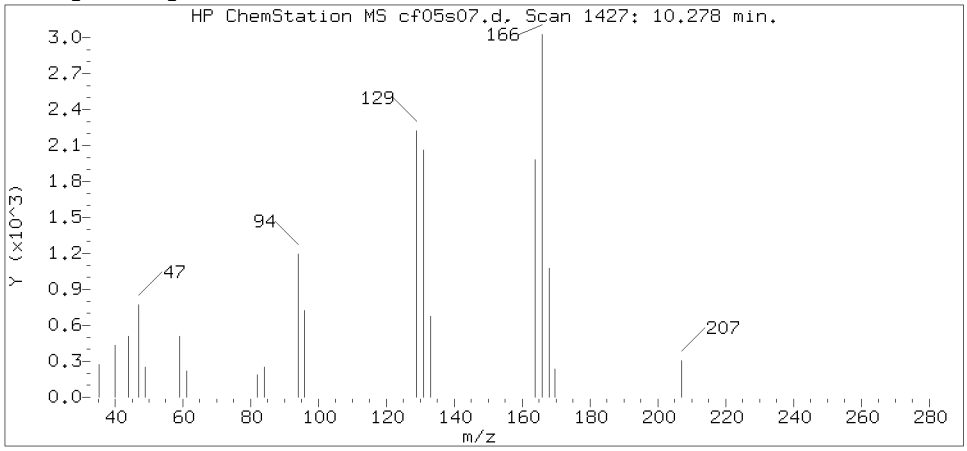
Reference Standard Spectrum for Tetrachloroethene

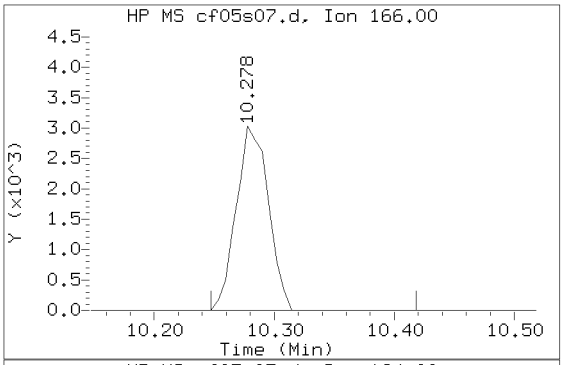


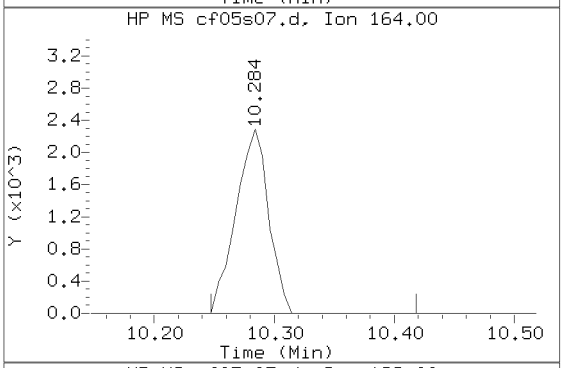

Sample Spectrum (Background Subtracted)

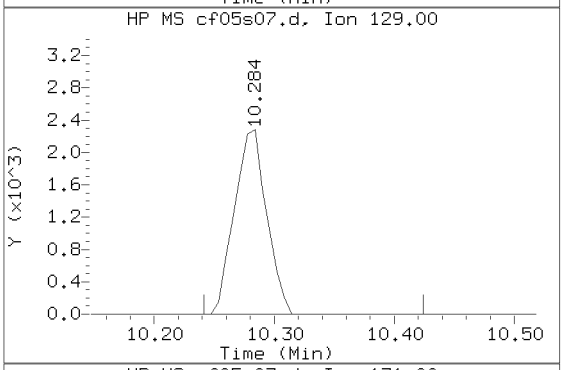


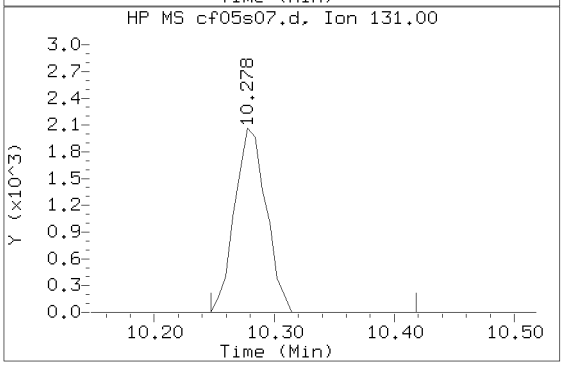

Sample Spectrum (Unaltered)




Data File: /chem2/HP10193.i/20feb05a.b/cf05s07.d  Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 23:21  Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m  Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:55 jkh09052

Sample Name: PO25I  Lab Sample ID: 1251376

| | |
|---|---|
| Compound Number | : 91 |
| Compound Name | : Tetrachloroethene |
| Scan Number | : 1427 |
| Retention Time (minutes) | : 10.278 |
| Relative Retention Time | : 0.00004 |
| Quant Ion | : 166.00 |
| Area (flag) | : 5601 |
| On-Column Amount (ng) | : 0.1076 |

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:05.
Target 3.5 esignature user ID: jkh09052

PO44I

# Lancaster Laboratories
## Analysis Summary for GC/MS Volatiles 1251378

Data file: /chem2/HP10193.i/20feb05a.b/cf05s08.d Injection date and time: **05-FEB-2020 23:43**
Data file Sample Info. Line: PO44I;1251378;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:55 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

**Analysis Comments:**

| Internal Standards | RT | (+/-RT) | Scan | QIon | Area | (+/- %Change) | Conc. (on-column) | QC Flag |
|---|---|---|---|---|---|---|---|---|
| 28) t-Butyl Alcohol-d10 | 4.151 | ( 0.000) | 422 | 65 | 173624 | ( 2) | 50.00 | |
| 65) Fluorobenzene | 7.614 | ( 0.006) | 990 | 96 | 1686549 | ( -5) | 10.00 | |
| 99) Chlorobenzene-d5 | 11.125 | ( 0.006) | 1566 | 117 | 1272299 | ( -6) | 10.00 | |
| 135) 1,4-Dichlorobenzene-d4 | 13.027 | ( 0.000) | 1878 | 152 | 719652 | ( -10) | 10.00 | |

| Surrogate Standards | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | %Rec. | QC flags | QC Limits |
|---|---|---|---|---|---|---|---|---|---|
| 52) Dibromofluoromethane | (2) | 6.730 | (-0.002) | 113 | 412257 | 10.423 | 104% | | 80 - 120 |
| 59) 1,2-Dichloroethane-d4 | (2) | 7.175 | ( 0.000) | 102 | 89946 | 10.375 | 104% | | 80 - 120 |
| 84) Toluene-d8 | (3) | 9.650 | ( 0.000) | 98 | 1682715 | 9.925 | 99% | | 80 - 120 |
| 113) 4-Bromofluorobenzene | (3) | 12.137 | (-0.001) | 95 | 620905 | 9.746 | 97% | | 80 - 120 |

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit | LOQ (in sample) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 2) Chloromethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 5) Vinyl Chloride | (2) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 7) Bromomethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 8) Chloroethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 10) Trichlorofluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 16) 1,1-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 15) Acetone | (1) | | | | Not Detected | | | | | 1 | 5 |
| 20) Carbon Disulfide | (2) | | | | Not Detected | | | | | 0.09 | 1 |
| 25) Methylene Chloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 30) t-Butyl Alcohol | (1) | | | | Not Detected | | | | | 2 | 10 |
| 33) trans-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 32) Methyl Tertiary Butyl Ether | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 35) 1,1-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 41) cis-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 43) 2,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 40) 2-Butanone | (1) | | | | Not Detected | | | | | 0.7 | 5 |
| 49) Bromochloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 51) Chloroform | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 53) 1,1,1-Trichloroethane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 57) 1,1-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 56) Carbon Tetrachloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 60) Benzene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 61) 1,2-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 69) Trichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 72) 1,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 75) Dibromomethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 76) Bromodichloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 82) cis-1,3-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 83) 4-Methyl-2-Pentanone | (2) | | | | Not Detected | | | | | 0.6 | 5 |
| 85) Toluene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:05. Target 3.5 esignature user ID: jkh09052

# Lancaster Laboratories
## Analysis Summary for GC/MS Volatiles 1251378

Data file: /chem2/HP10193.i/20feb05a.b/cf05s08.d Injection date and time: **05-FEB-2020 23:43**
Data file Sample Info. Line: PO44I;1251378;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:55 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

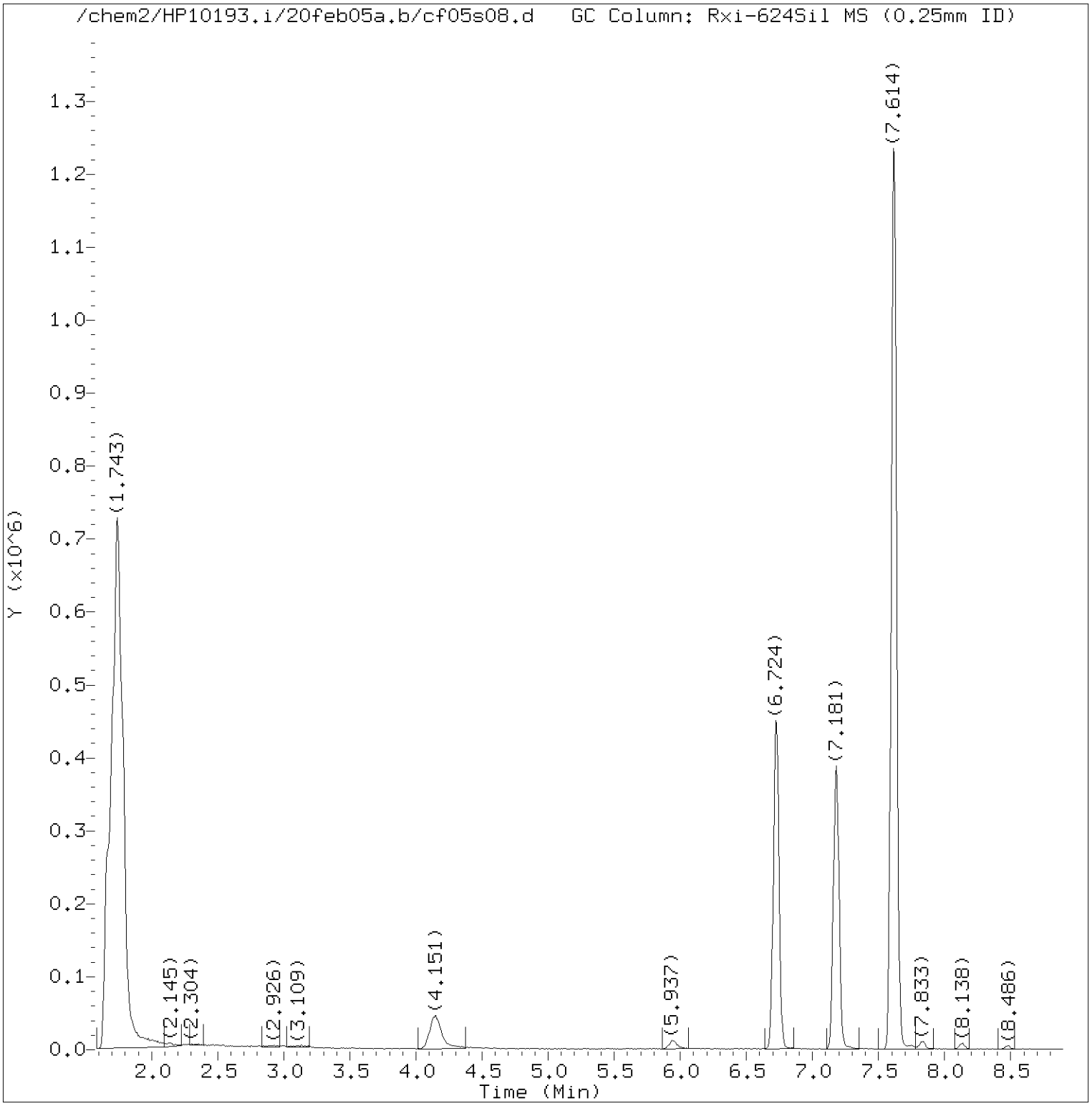
Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 86) trans-1,3-Dichloropropene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 90) 1,1,2-Trichloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 91) Tetrachloroethene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 92) 1,3-Dichloropropane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 95) Dibromochloromethane | (3) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 97) 1,2-Dibromoethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 100) Chlorobenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 102) Ethylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 103) m+p-Xylene | (3) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 106) o-Xylene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 108) Styrene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 109) Bromoform | (3) | | | | Not Detected | | | | | 0.3 | 1 |
| 110) Isopropylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 116) Bromobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 118) 1,2,3-Trichloropropane | (4) | | | | Not Detected | | | | | 0.06 | 1 |
| 119) n-Propylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 121) 2-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 123) 1,3,5-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 124) 4-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 127) tert-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 129) 1,2,4-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 130) sec-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 133) 1,3-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 134) p-Isopropyltoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 136) 1,4-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 140) n-Butylbenzene | (4) | | | | Not Detected | | | | | 0.07 | 0.5 |
| 141) 1,2-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | | | | Not Detected | | | | | 0.2 | 0.5 |
| 147) 1,2,4-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 148) Hexachlorobutadiene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 149) Naphthalene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 150) 1,2,3-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |

Total number of targets = 65

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:05. Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23. PARALLAX ID: kek01027




Total Ion Chromatogram (TIC)

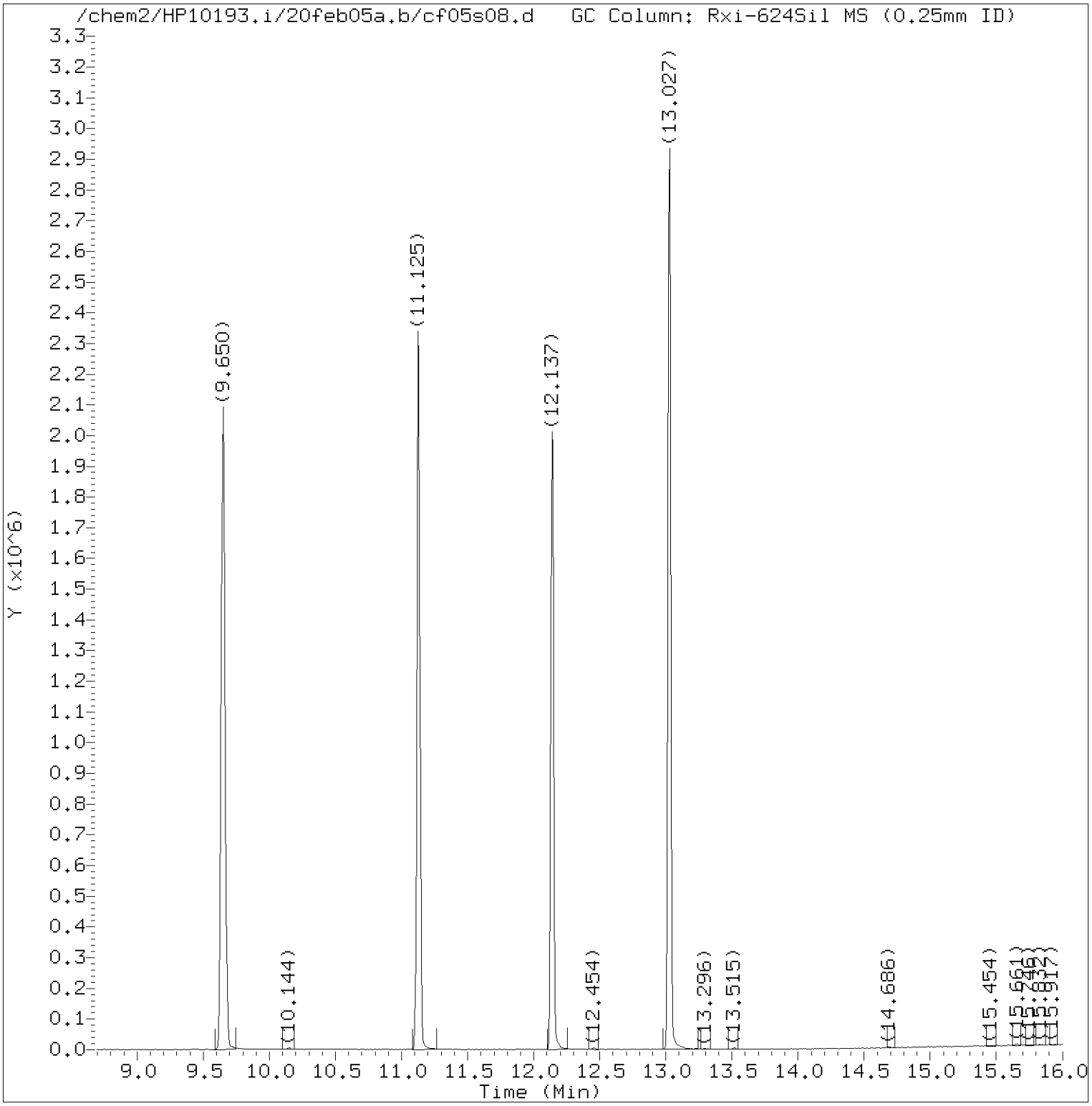
Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s08.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 23:43 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:55 jkh09052

Sample Name: PO44I Lab Sample ID: 1251378

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:05.
Target 3.5 esignature user ID: jkh09052




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s08.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 23:43 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:55 jkh09052

Sample Name: PO44I Lab Sample ID: 1251378

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:05.
Target 3.5 esignature user ID: jkh09052

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s08.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 23:43 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:55 jkh09052

Sample Name: PO44I Lab Sample ID: 1251378

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 28)*t-Butyl Alcohol-d10 | (1) | 4.151 | 65 | 173624 | 50.000 |
| 52)$Dibromofluoromethane | (2) | 6.730 | 113 | 412257 | 10.423 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.175 | 102 | 89946 | 10.375 |
| 65)*Fluorobenzene | (2) | 7.614 | 96 | 1686549 | 10.000 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1682715 | 9.925 |
| 99)*Chlorobenzene-d5 | (3) | 11.125 | 117 | 1272299 | 10.000 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 620905 | 9.746 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.027 | 152 | 719652 | 10.000 |

* = Compound is an internal standard.
$ = Compound is a surrogate standard.



Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:05.
Target 3.5 esignature user ID: jkh09052

POFD1 Lancaster Laboratories Analysis Summary for GC/MS Volatiles 1251380

Data file: /chem2/HP10193.i/20feb05a.b/cf05s12.d Injection date and time: **06-FEB-2020 01:35**
Data file Sample Info. Line: POFD1;1251380;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:58 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

**Analysis Comments:**

| Internal Standards | RT | (+/-RT) | Scan | QIon | Area | (+/- %Change) | Conc. (on-column) | QC Flag |
|---|---|---|---|---|---|---|---|---|
| 28) t-Butyl Alcohol-d10 | 4.139 | ( 0.012) | 420 | 65 | 148788 | ( -13) | 50.00 | |
| 65) Fluorobenzene | 7.620 | ( 0.000) | 991 | 96 | 1685673 | ( -6) | 10.00 | |
| 99) Chlorobenzene-d5 | 11.131 | ( 0.000) | 1567 | 117 | 1259100 | ( -7) | 10.00 | |
| 135) 1,4-Dichlorobenzene-d4 | 13.027 | ( 0.000) | 1878 | 152 | 712582 | ( -11) | 10.00 | |

| Surrogate Standards | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | %Rec. | QC flags | QC Limits |
|---|---|---|---|---|---|---|---|---|---|
| 52) Dibromofluoromethane | (2) | 6.724 | ( 0.000) | 113 | 406393 | 10.280 | 103% | | 80 - 120 |
| 59) 1,2-Dichloroethane-d4 | (2) | 7.181 | ( 0.000) | 102 | 86798 | 10.017 | 100% | | 80 - 120 |
| 84) Toluene-d8 | (3) | 9.650 | ( 0.000) | 98 | 1666934 | 9.935 | 99% | | 80 - 120 |
| 113) 4-Bromofluorobenzene | (3) | 12.137 | ( 0.000) | 95 | 613133 | 9.725 | 97% | | 80 - 120 |

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit | LOQ (in sample) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 2) Chloromethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 5) Vinyl Chloride | (2) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 7) Bromomethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 8) Chloroethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 10) Trichlorofluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 16) 1,1-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 15) Acetone | (1) | | | | Not Detected | | | | | 1 | 5 |
| 20) Carbon Disulfide | (2) | | | | Not Detected | | | | | 0.09 | 1 |
| 25) Methylene Chloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 30) t-Butyl Alcohol | (1) | | | | Not Detected | | | | | 2 | 10 |
| 33) trans-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 32) Methyl Tertiary Butyl Ether | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 35) 1,1-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 41) cis-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 43) 2,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 40) 2-Butanone | (1) | | | | Not Detected | | | | | 0.7 | 5 |
| 49) Bromochloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 51) Chloroform | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 53) 1,1,1-Trichloroethane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 57) 1,1-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 56) Carbon Tetrachloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 60) Benzene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 61) 1,2-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 69) Trichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 72) 1,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 75) Dibromomethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 76) Bromodichloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 82) cis-1,3-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 83) 4-Methyl-2-Pentanone | (2) | | | | Not Detected | | | | | 0.6 | 5 |
| 85) Toluene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:06. Target 3.5 esignature user ID: jkh09052

POFD1 Lancaster Laboratories 1251380
Analysis Summary for GC/MS Volatiles

Data file: /chem2/HP10193.i/20feb05a.b/cf05s12.d Injection date and time: **06-FEB-2020 01:35**
Data file Sample Info. Line: POFD1;1251380;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:58 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

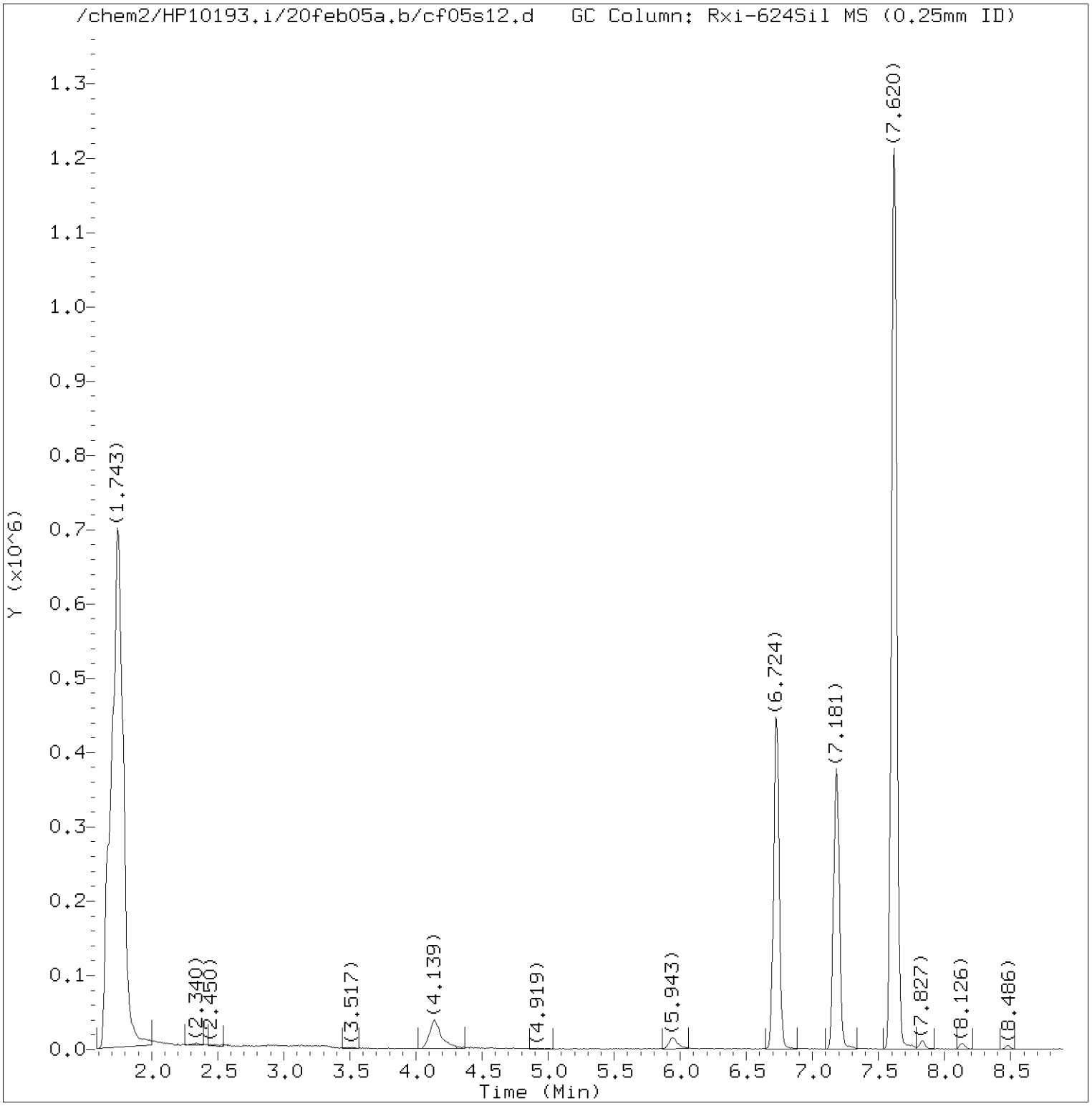
Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 86) trans-1,3-Dichloropropene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 90) 1,1,2-Trichloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 91) Tetrachloroethene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 92) 1,3-Dichloropropane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 95) Dibromochloromethane | (3) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 97) 1,2-Dibromoethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 100) Chlorobenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 102) Ethylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 103) m+p-Xylene | (3) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 106) o-Xylene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 108) Styrene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 109) Bromoform | (3) | | | | Not Detected | | | | | 0.3 | 1 |
| 110) Isopropylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 116) Bromobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 118) 1,2,3-Trichloropropane | (4) | | | | Not Detected | | | | | 0.06 | 1 |
| 119) n-Propylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 121) 2-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 123) 1,3,5-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 124) 4-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 127) tert-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 129) 1,2,4-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 130) sec-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 133) 1,3-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 134) p-Isopropyltoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 136) 1,4-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 140) n-Butylbenzene | (4) | | | | Not Detected | | | | | 0.07 | 0.5 |
| 141) 1,2-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | | | | Not Detected | | | | | 0.2 | 0.5 |
| 147) 1,2,4-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 148) Hexachlorobutadiene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 149) Naphthalene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 150) 1,2,3-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |

Total number of targets = 65

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:06. Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23. PARALLAX ID: kek01027




Total Ion Chromatogram (TIC)

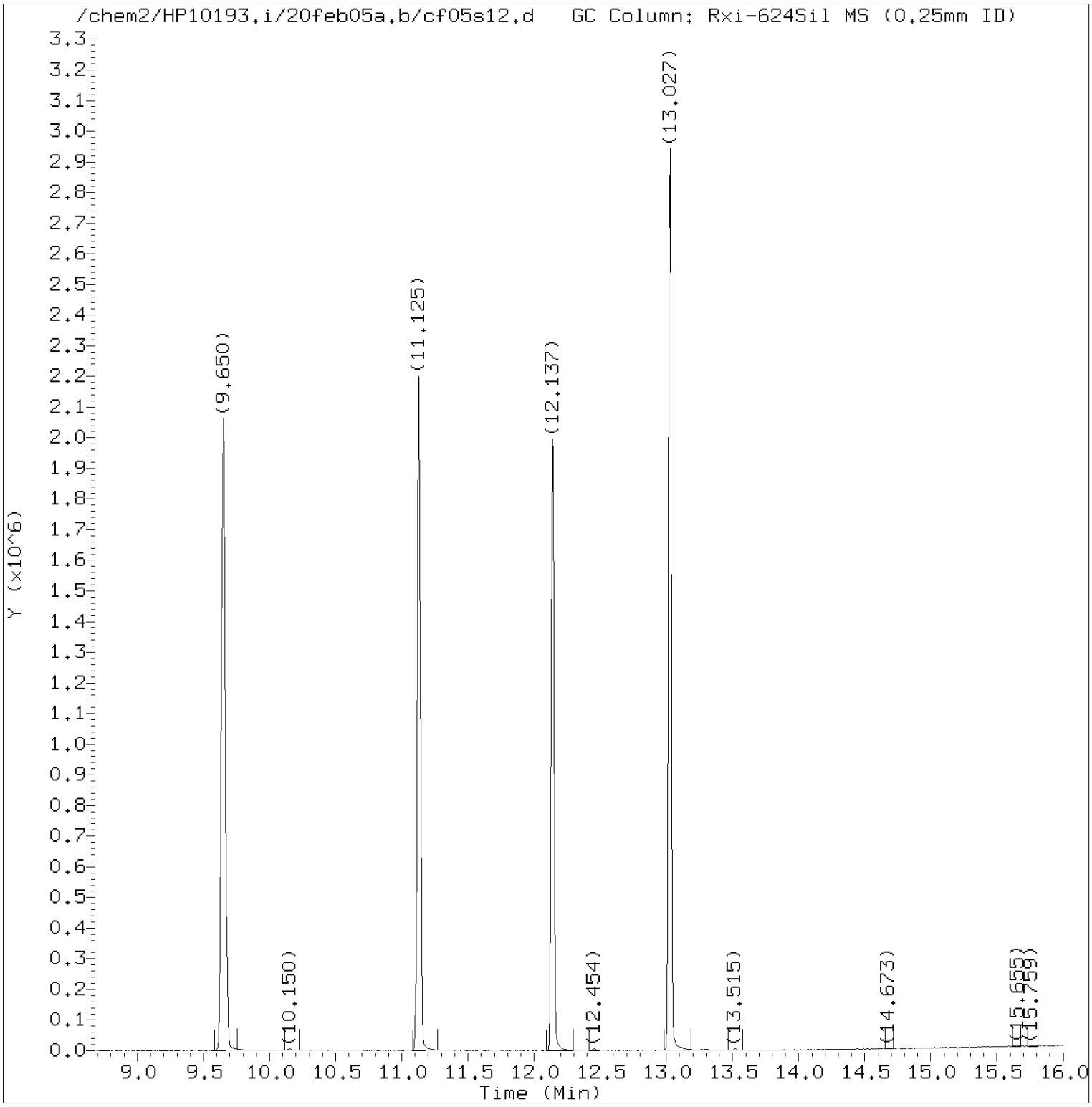
Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s12.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 01:35 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:58 jkh09052

Sample Name: POFD1 Lab Sample ID: 1251380

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:06.
Target 3.5 esignature user ID: jkh09052




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s12.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 01:35 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:58 jkh09052

Sample Name: POFD1 Lab Sample ID: 1251380

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:06.
Target 3.5 esignature user ID: jkh09052

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s12.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 01:35 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:58 jkh09052

Sample Name: POFD1 Lab Sample ID: 1251380

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 28)*t-Butyl Alcohol-d10 | (1) | 4.139 | 65 | 148788 | 50.000 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 113 | 406393 | 10.280 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 102 | 86798 | 10.017 |
| 65)*Fluorobenzene | (2) | 7.620 | 96 | 1685673 | 10.000 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1666934 | 9.935 |
| 99)*Chlorobenzene-d5 | (3) | 11.131 | 117 | 1259100 | 10.000 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 613133 | 9.725 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.027 | 152 | 712582 | 10.000 |

* = Compound is an internal standard.
$ = Compound is a surrogate standard.



Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:06.
Target 3.5 esignature user ID: jkh09052

PO44D

# Lancaster Laboratories
## Analysis Summary for GC/MS Volatiles 1251382

Data file: /chem2/HP10193.i/20feb05a.b/cf05s13.d Injection date and time: **06-FEB-2020 01:57**
Data file Sample Info. Line: PO44D;1251382;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:58 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

**Analysis Comments:**

| Internal Standards | RT | (+/-RT) | Scan | QIon | Area | (+/- %Change) | Conc. (on-column) | QC Flag |
|---|---|---|---|---|---|---|---|---|
| 28) t-Butyl Alcohol-d10 | 4.133 | ( 0.018) | 419 | 65 | 158639 | ( -7) | 50.00 | |
| 65) Fluorobenzene | 7.614 | ( 0.006) | 990 | 96 | 1714533 | ( -4) | 10.00 | |
| 99) Chlorobenzene-d5 | 11.131 | ( 0.000) | 1567 | 117 | 1285583 | ( -5) | 10.00 | |
| 135) 1,4-Dichlorobenzene-d4 | 13.027 | ( 0.000) | 1878 | 152 | 712268 | ( -11) | 10.00 | |

| Surrogate Standards | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | %Rec. | QC flags | QC Limits |
|---|---|---|---|---|---|---|---|---|---|
| 52) Dibromofluoromethane | (2) | 6.724 | (-0.001) | 113 | 415216 | 10.326 | 103% | | 80 - 120 |
| 59) 1,2-Dichloroethane-d4 | (2) | 7.181 | (-0.001) | 102 | 89556 | 10.162 | 102% | | 80 - 120 |
| 84) Toluene-d8 | (3) | 9.650 | ( 0.000) | 98 | 1698143 | 9.912 | 99% | | 80 - 120 |
| 113) 4-Bromofluorobenzene | (3) | 12.137 | ( 0.000) | 95 | 621651 | 9.657 | 97% | | 80 - 120 |

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit | LOQ (in sample) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 2) Chloromethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 5) Vinyl Chloride | (2) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 7) Bromomethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 8) Chloroethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 10) Trichlorofluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 16) 1,1-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 15) Acetone | (1) | | | | Not Detected | | | | | 1 | 5 |
| 20) Carbon Disulfide | (2) | | | | Not Detected | | | | | 0.09 | 1 |
| 25) Methylene Chloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 30) t-Butyl Alcohol | (1) | | | | Not Detected | | | | | 2 | 10 |
| 33) trans-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 32) Methyl Tertiary Butyl Ether | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 35) 1,1-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 41) cis-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 43) 2,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 40) 2-Butanone | (1) | | | | Not Detected | | | | | 0.7 | 5 |
| 49) Bromochloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 51) Chloroform | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 53) 1,1,1-Trichloroethane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 57) 1,1-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 56) Carbon Tetrachloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 60) Benzene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 61) 1,2-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 69) Trichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 72) 1,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 75) Dibromomethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 76) Bromodichloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 82) cis-1,3-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 83) 4-Methyl-2-Pentanone | (2) | | | | Not Detected | | | | | 0.6 | 5 |
| 85) Toluene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:06. Target 3.5 esignature user ID: jkh09052

Data file: /chem2/HP10193.i/20feb05a.b/cf05s13.d Injection date and time: **06-FEB-2020 01:57**
Data file Sample Info. Line: PO44D;1251382;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:58 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

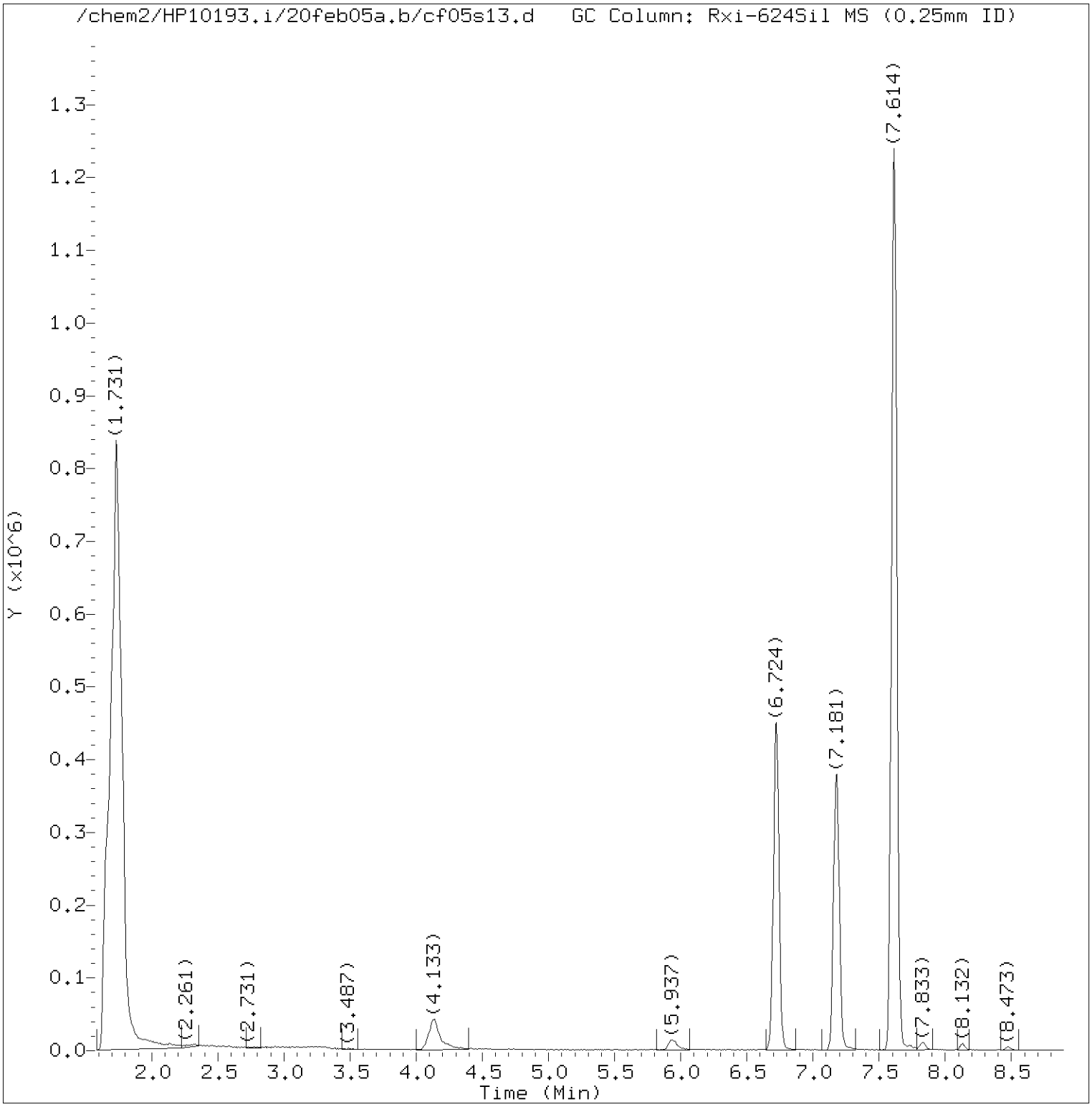
Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 86) trans-1,3-Dichloropropene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 90) 1,1,2-Trichloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 91) Tetrachloroethene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 92) 1,3-Dichloropropane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 95) Dibromochloromethane | (3) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 97) 1,2-Dibromoethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 100) Chlorobenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 102) Ethylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 103) m+p-Xylene | (3) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 106) o-Xylene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 108) Styrene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 109) Bromoform | (3) | | | | Not Detected | | | | | 0.3 | 1 |
| 110) Isopropylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 116) Bromobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 118) 1,2,3-Trichloropropane | (4) | | | | Not Detected | | | | | 0.06 | 1 |
| 119) n-Propylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 121) 2-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 123) 1,3,5-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 124) 4-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 127) tert-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 129) 1,2,4-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 130) sec-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 133) 1,3-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 134) p-Isopropyltoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 136) 1,4-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 140) n-Butylbenzene | (4) | | | | Not Detected | | | | | 0.07 | 0.5 |
| 141) 1,2-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | | | | Not Detected | | | | | 0.2 | 0.5 |
| 147) 1,2,4-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 148) Hexachlorobutadiene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 149) Naphthalene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 150) 1,2,3-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |

Total number of targets = 65

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:06. Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23. PARALLAX ID: kek01027




Total Ion Chromatogram (TIC)

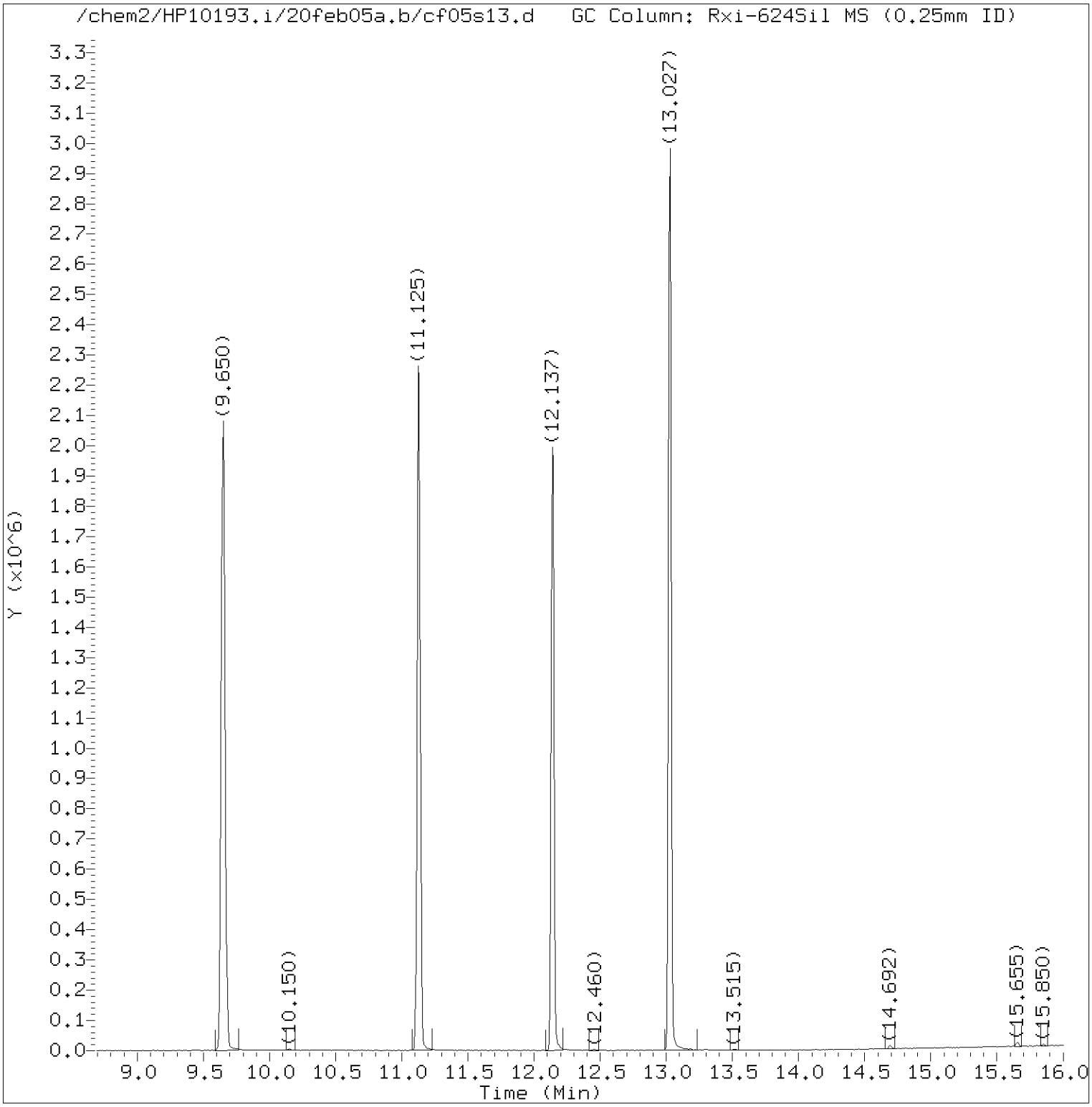
Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s13.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 01:57 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:58 jkh09052

Sample Name: PO44D Lab Sample ID: 1251382

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:06.
Target 3.5 esignature user ID: jkh09052




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s13.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 01:57 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:58 jkh09052

Sample Name: PO44D Lab Sample ID: 1251382

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:06.
Target 3.5 esignature user ID: jkh09052

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s13.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 01:57 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:58 jkh09052

Sample Name: PO44D Lab Sample ID: 1251382

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 28)*t-Butyl Alcohol-d10 | (1) | 4.133 | 65 | 158639 | 50.000 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 113 | 415216 | 10.326 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 102 | 89556 | 10.162 |
| 65)*Fluorobenzene | (2) | 7.614 | 96 | 1714533 | 10.000 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1698143 | 9.912 |
| 99)*Chlorobenzene-d5 | (3) | 11.131 | 117 | 1285583 | 10.000 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 621651 | 9.657 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.027 | 152 | 712268 | 10.000 |

* = Compound is an internal standard.
$ = Compound is a surrogate standard.



Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:06.
Target 3.5 esignature user ID: jkh09052

P11IP

# Lancaster Laboratories
## Analysis Summary for GC/MS Volatiles 1251384

Data file: /chem2/HP10193.i/20feb05a.b/cf05s14.d Injection date and time: **06-FEB-2020 02:19**
Data file Sample Info. Line: P11IP;1251384;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:59 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

**Analysis Comments:**

| Internal Standards | RT | (+/-RT) | Scan | QIon | Area | (+/- %Change) | Conc. (on-column) | QC Flag |
|---|---|---|---|---|---|---|---|---|
| 28) t-Butyl Alcohol-d10 | 4.145 | ( 0.006) | 421 | 65 | 161755 | ( -5) | 50.00 | |
| 65) Fluorobenzene | 7.620 | ( 0.000) | 991 | 96 | 1690280 | ( -5) | 10.00 | |
| 99) Chlorobenzene-d5 | 11.132 | ( 0.000) | 1567 | 117 | 1267793 | ( -6) | 10.00 | |
| 135) 1,4-Dichlorobenzene-d4 | 13.027 | ( 0.000) | 1878 | 152 | 716564 | ( -10) | 10.00 | |

| Surrogate Standards | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | %Rec. | QC flags | QC Limits |
|---|---|---|---|---|---|---|---|---|---|
| 52) Dibromofluoromethane | (2) | 6.730 | (-0.001) | 113 | 411249 | 10.374 | 104% | | 80 - 120 |
| 59) 1,2-Dichloroethane-d4 | (2) | 7.181 | ( 0.000) | 102 | 89325 | 10.281 | 103% | | 80 - 120 |
| 84) Toluene-d8 | (3) | 9.650 | ( 0.000) | 98 | 1688930 | 9.997 | 100% | | 80 - 120 |
| 113) 4-Bromofluorobenzene | (3) | 12.137 | ( 0.000) | 95 | 615666 | 9.699 | 97% | | 80 - 120 |

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit | LOQ (in sample) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 2) Chloromethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 5) Vinyl Chloride | (2) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 7) Bromomethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 8) Chloroethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 10) Trichlorofluoromethane | (2) | 2.926 | (-0.000) | 101 | 7318 | 0.123 | 0.12 | | J | 0.1 | 0.5 |
| 16) 1,1-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 15) Acetone | (1) | | | | Not Detected | | | | | 1 | 5 |
| 20) Carbon Disulfide | (2) | | | | Not Detected | | | | | 0.09 | 1 |
| 25) Methylene Chloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 30) t-Butyl Alcohol | (1) | | | | Not Detected | | | | | 2 | 10 |
| 33) trans-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 32) Methyl Tertiary Butyl Ether | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 35) 1,1-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 41) cis-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 43) 2,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 40) 2-Butanone | (1) | | | | Not Detected | | | | | 0.7 | 5 |
| 49) Bromochloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 51) Chloroform | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 53) 1,1,1-Trichloroethane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 57) 1,1-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 56) Carbon Tetrachloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 60) Benzene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 61) 1,2-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 69) Trichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 72) 1,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 75) Dibromomethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 76) Bromodichloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 82) cis-1,3-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 83) 4-Methyl-2-Pentanone | (2) | | | | Not Detected | | | | | 0.6 | 5 |
| 85) Toluene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:08. Target 3.5 esignature user ID: jkh09052

# Lancaster Laboratories
## Analysis Summary for GC/MS Volatiles 1251384

Data file: /chem2/HP10193.i/20feb05a.b/cf05s14.d Injection date and time: **06-FEB-2020 02:19**
Data file Sample Info. Line: P11IP;1251384;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:59 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

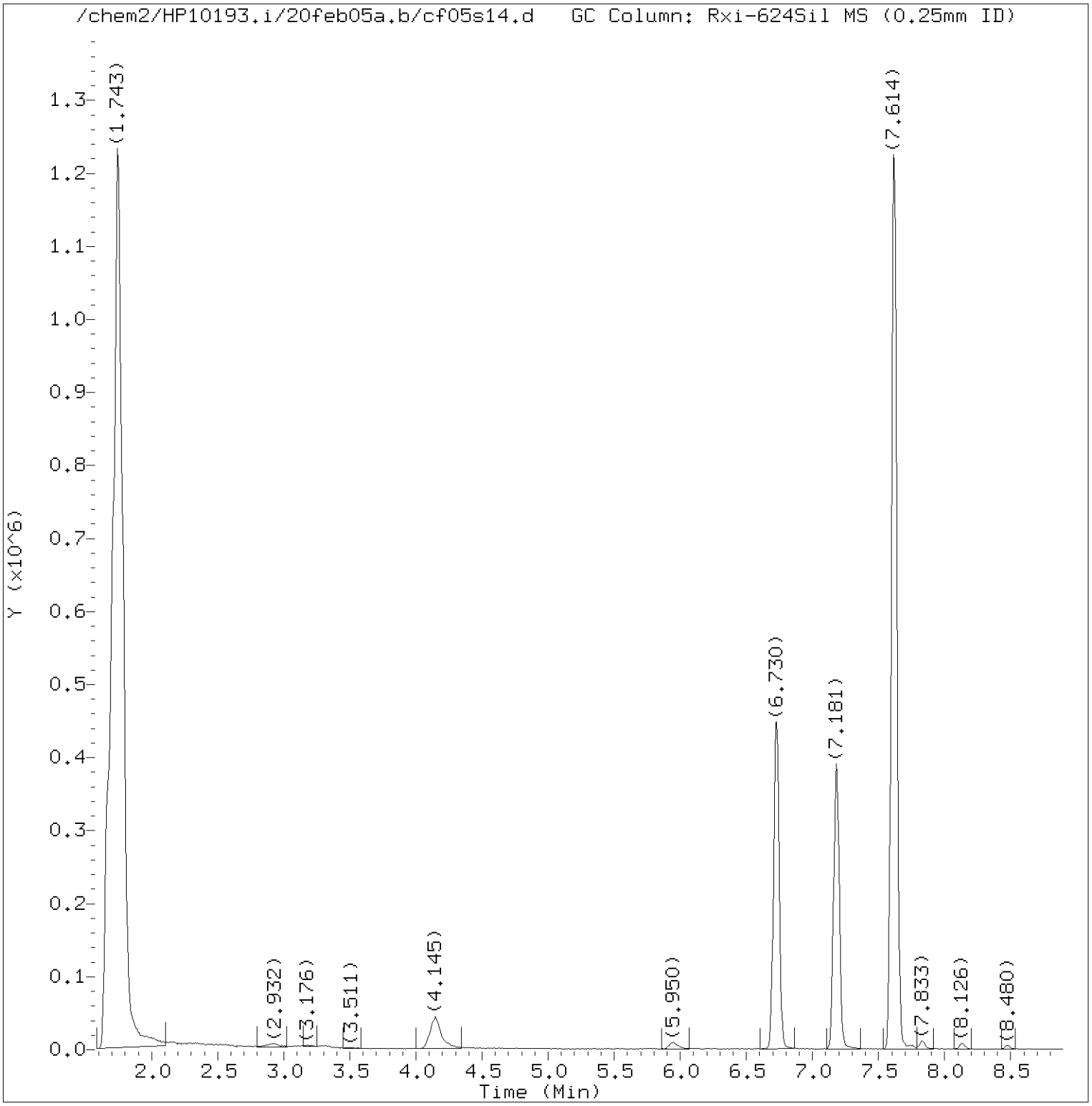
Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

| Target Compounds | I.S. Ref. | RT (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ (in sample) |
|---|---|---|---|---|---|---|---|---|---|---|
| 86) trans-1,3-Dichloropropene | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 90) 1,1,2-Trichloroethane | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 91) Tetrachloroethene | (3) | 10.284(-0.000) | 166 | 2675 | 0.052 | 0.05 | | J | 0.05 | 0.5 |
| 92) 1,3-Dichloropropane | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 95) Dibromochloromethane | (3) | | | Not Detected | | | | | 0.06 | 0.5 |
| 97) 1,2-Dibromoethane | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 100) Chlorobenzene | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 102) Ethylbenzene | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 103) m+p-Xylene | (3) | | | Not Detected | | | | | 0.08 | 0.5 |
| 106) o-Xylene | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 108) Styrene | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 109) Bromoform | (3) | | | Not Detected | | | | | 0.3 | 1 |
| 110) Isopropylbenzene | (3) | | | Not Detected | | | | | 0.05 | 0.5 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | | | Not Detected | | | | | 0.06 | 0.5 |
| 116) Bromobenzene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 118) 1,2,3-Trichloropropane | (4) | | | Not Detected | | | | | 0.06 | 1 |
| 119) n-Propylbenzene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 121) 2-Chlorotoluene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 123) 1,3,5-Trimethylbenzene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 124) 4-Chlorotoluene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 127) tert-Butylbenzene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 129) 1,2,4-Trimethylbenzene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 130) sec-Butylbenzene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 133) 1,3-Dichlorobenzene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 134) p-Isopropyltoluene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 136) 1,4-Dichlorobenzene | (4) | | | Not Detected | | | | | 0.06 | 0.5 |
| 140) n-Butylbenzene | (4) | | | Not Detected | | | | | 0.07 | 0.5 |
| 141) 1,2-Dichlorobenzene | (4) | | | Not Detected | | | | | 0.05 | 0.5 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | | | Not Detected | | | | | 0.2 | 0.5 |
| 147) 1,2,4-Trichlorobenzene | (4) | | | Not Detected | | | | | 0.09 | 0.5 |
| 148) Hexachlorobutadiene | (4) | | | Not Detected | | | | | 0.1 | 0.5 |
| 149) Naphthalene | (4) | | | Not Detected | | | | | 0.09 | 0.5 |
| 150) 1,2,3-Trichlorobenzene | (4) | | | Not Detected | | | | | 0.1 | 0.5 |

Total number of targets = 65

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:08. Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23. PARALLAX ID: kek01027




Total Ion Chromatogram (TIC)

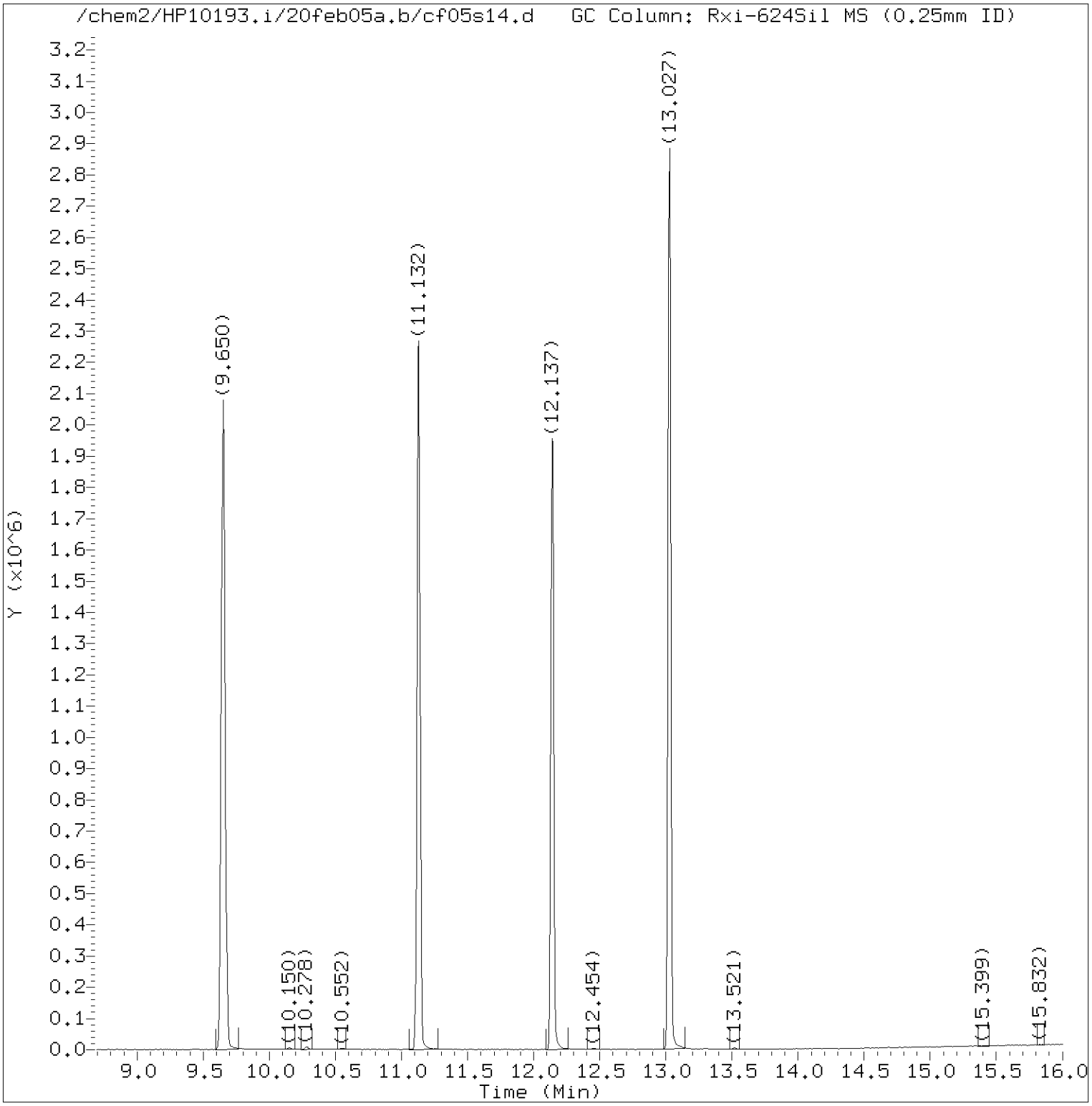
Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s14.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 02:19 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:59 jkh09052

Sample Name: P11IP Lab Sample ID: 1251384

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:08.
Target 3.5 esignature user ID: jkh09052




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s14.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 02:19 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:59 jkh09052

Sample Name: P11IP Lab Sample ID: 1251384

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:08.
Target 3.5 esignature user ID: jkh09052

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s14.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 02:19 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:59 jkh09052

Sample Name: P11IP Lab Sample ID: 1251384

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 10) Trichlorofluoromethane | (2) | 2.926 | 101 | 7318 | 0.123 |
| 28)*t-Butyl Alcohol-d10 | (1) | 4.145 | 65 | 161755 | 50.000 |
| 52)$Dibromofluoromethane | (2) | 6.730 | 113 | 411249 | 10.374 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 102 | 89325 | 10.281 |
| 65)*Fluorobenzene | (2) | 7.620 | 96 | 1690280 | 10.000 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1688930 | 9.997 |
| 91) Tetrachloroethene | (3) | 10.284 | 166 | 2675 | 0.052 |
| 99)*Chlorobenzene-d5 | (3) | 11.132 | 117 | 1267793 | 10.000 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 615666 | 9.699 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.027 | 152 | 716564 | 10.000 |

* = Compound is an internal standard.
$ = Compound is a surrogate standard.



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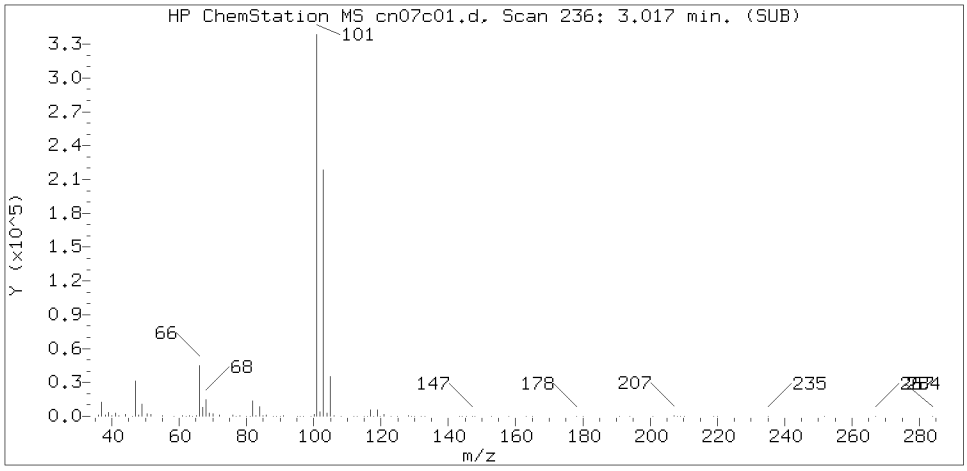
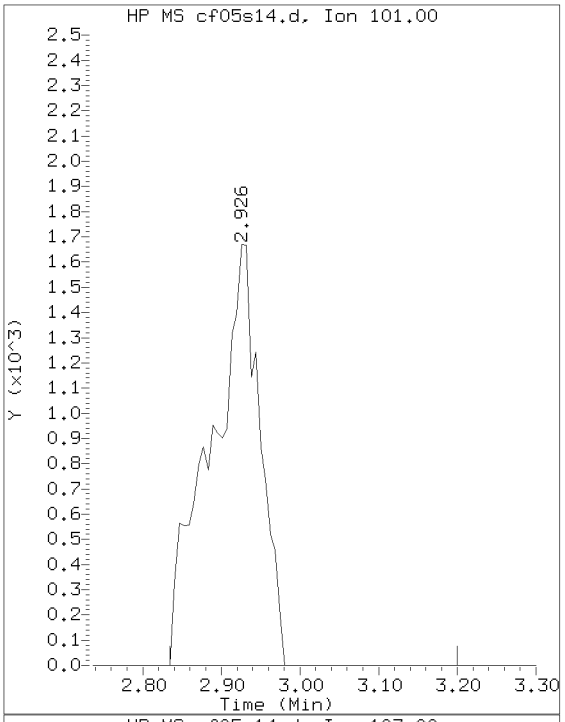
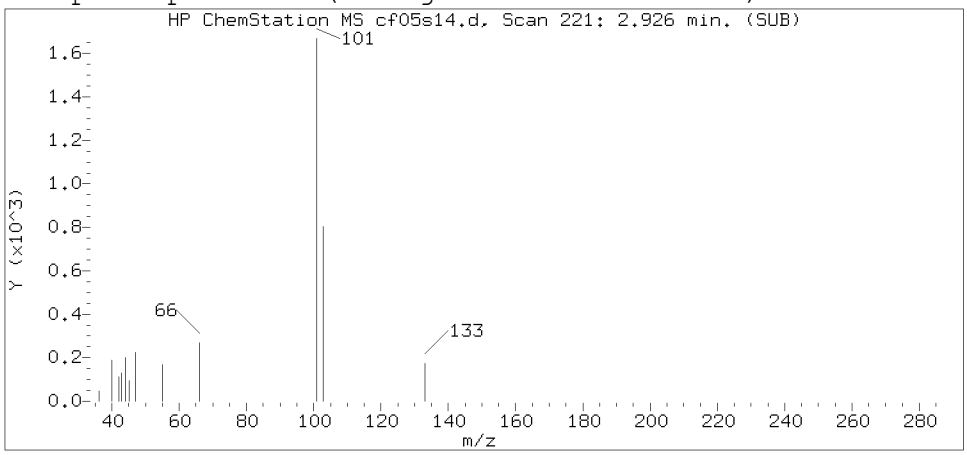
on 02/06/2020 at 09:08.
Target 3.5 esignature user ID: jkh09052

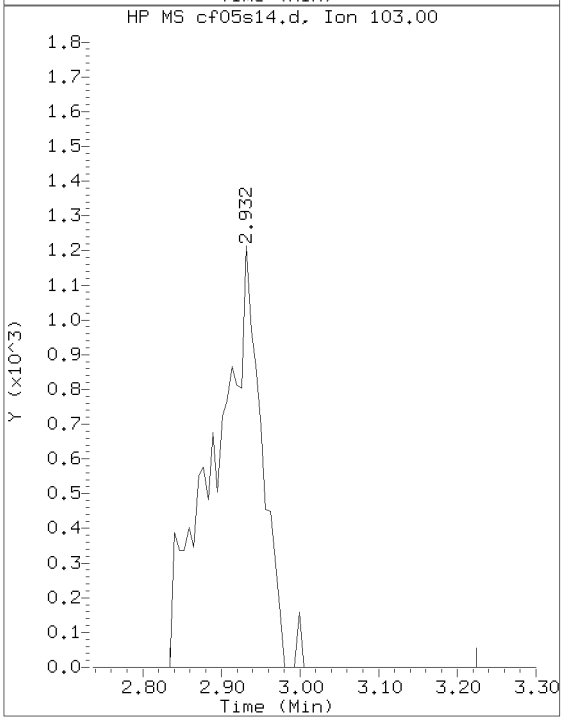
Reference Standard Spectrum for Trichlorofluoromethane



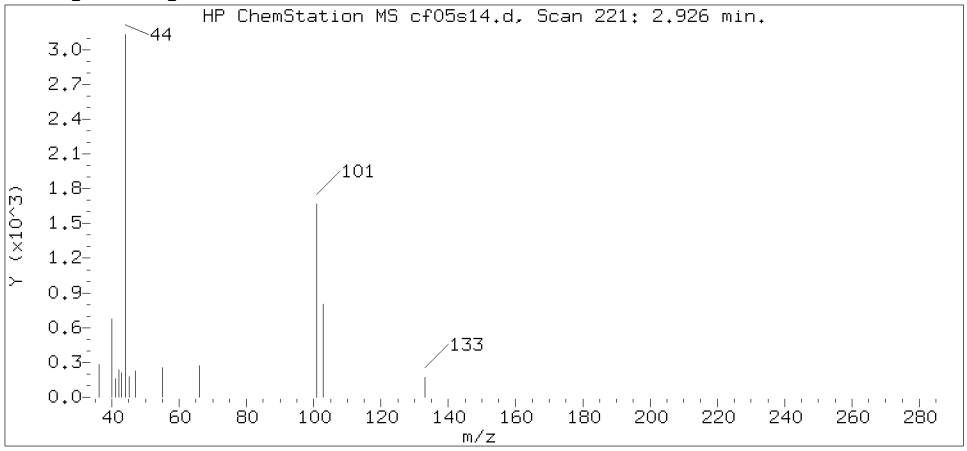




Sample Spectrum (Background Subtracted)




Sample Spectrum (Unaltered)




Data File: /chem2/HP10193.i/20feb05a.b/cf05s14.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 02:19 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:59 jkh09052

Sample Name: P11IP Lab Sample ID: 1251384

Compound Number : 10
Compound Name : Trichlorofluoromethane
Scan Number : 221
Retention Time (minutes): 2.926
Relative Retention Time :-0.00000
Quant Ion : 101.00
Area (flag) : 7318
On-Column Amount (ng) : 0.1233

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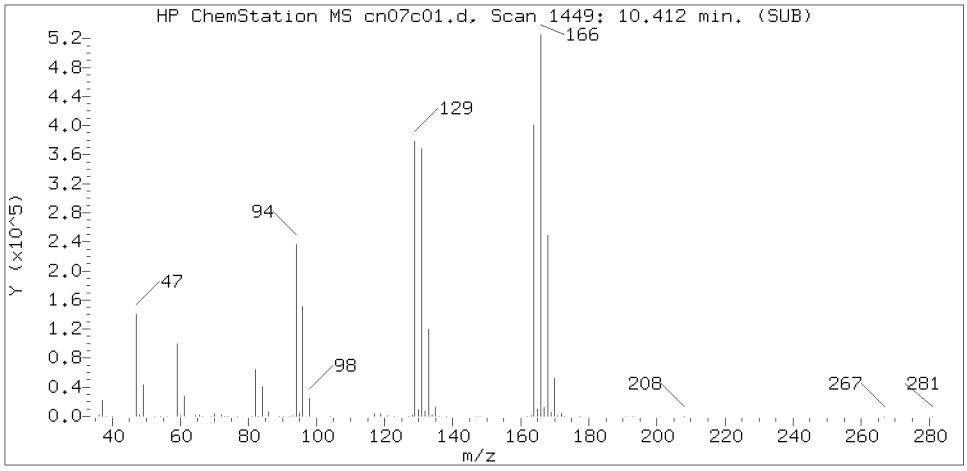
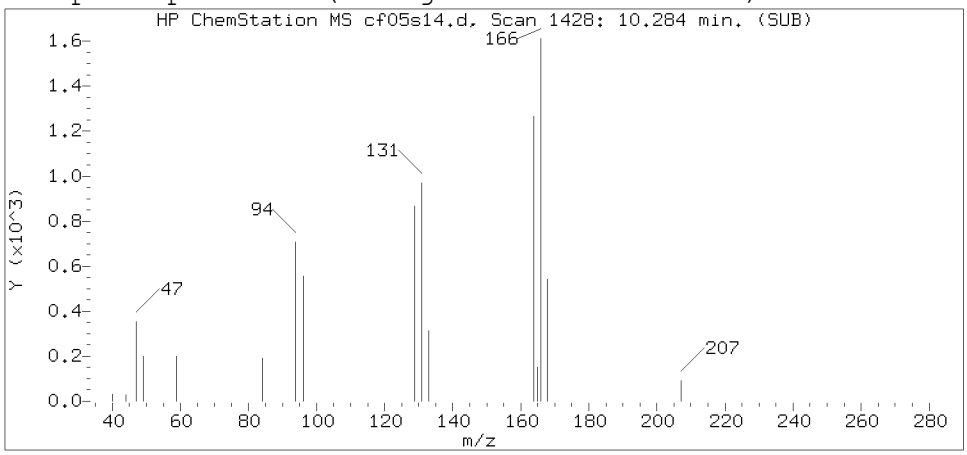
Target 3.5 esignature user ID: jkh09052

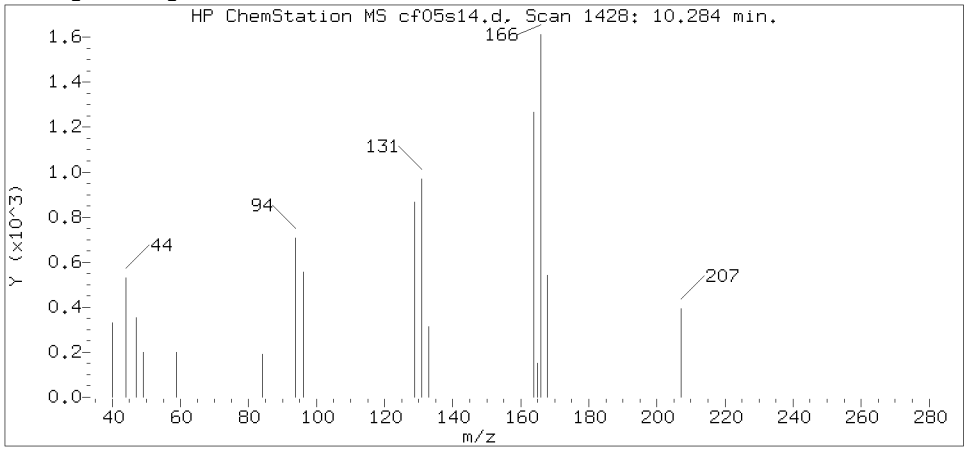
Reference Standard Spectrum for Tetrachloroethene

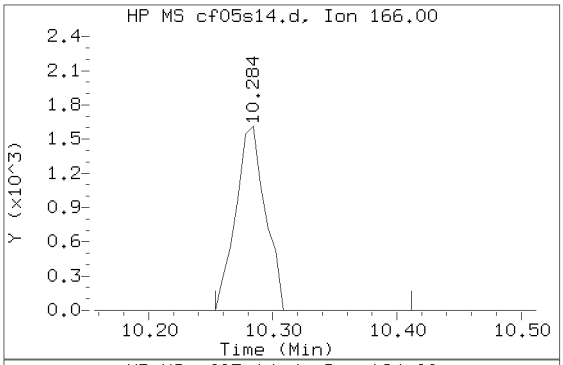


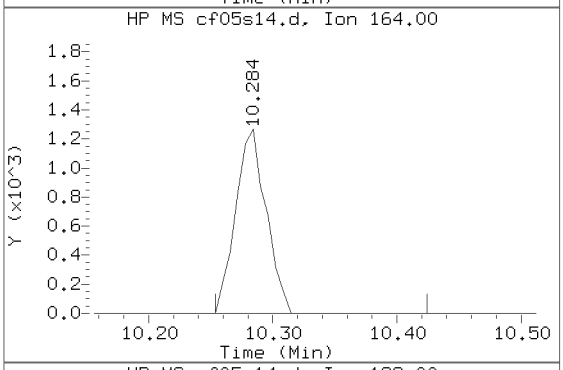

Sample Spectrum (Background Subtracted)

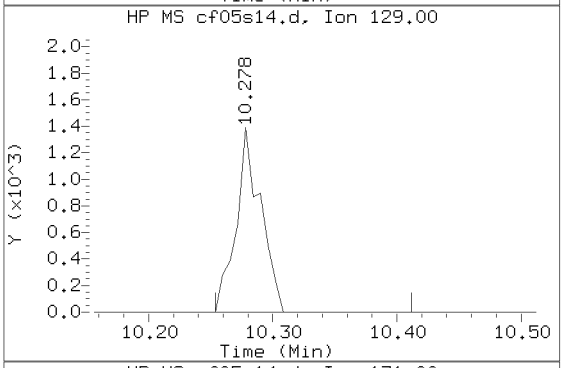


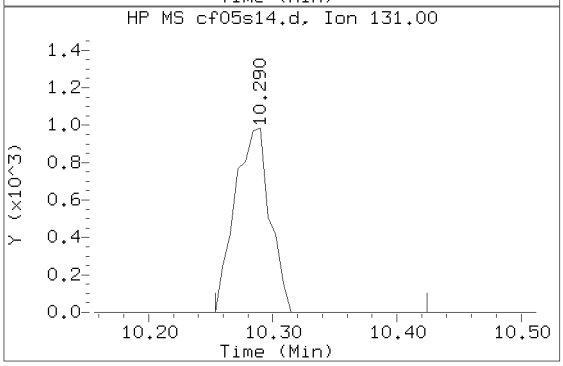

Sample Spectrum (Unaltered)




Data File: /chem2/HP10193.i/20feb05a.b/cf05s14.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 02:19 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:59 jkh09052

Sample Name: P11IP Lab Sample ID: 1251384

Compound Number : 91
Compound Name : Tetrachloroethene
Scan Number : 1428
Retention Time (minutes): 10.284
Relative Retention Time :-0.00000
Quant Ion : 166.00
Area (flag) : 2675
On-Column Amount (ng) : 0.0516

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:08.
Target 3.5 esignature user ID: jkh09052

PO48D

# Lancaster Laboratories
## Analysis Summary for GC/MS Volatiles 1251388

Data file: /chem2/HP10193.i/20feb05a.b/cf05s09.d Injection date and time: **06-FEB-2020 00:06**
Data file Sample Info. Line: PO48D;1251388;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

**Analysis Comments:**

| Internal Standards | RT | (+/-RT) | Scan | QIon | Area | (+/- %Change) | Conc. (on-column) | QC Flag |
|---|---|---|---|---|---|---|---|---|
| 28) t-Butyl Alcohol-d10 | 4.133 | ( 0.018) | 419 | 65 | 168490 | ( -1) | 50.00 | |
| 65) Fluorobenzene | 7.614 | ( 0.006) | 990 | 96 | 1688310 | ( -5) | 10.00 | |
| 99) Chlorobenzene-d5 | 11.125 | ( 0.006) | 1566 | 117 | 1268439 | ( -6) | 10.00 | |
| 135) 1,4-Dichlorobenzene-d4 | 13.027 | ( 0.000) | 1878 | 152 | 719049 | ( -10) | 10.00 | |

| Surrogate Standards | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | %Rec. | QC flags | QC Limits |
|---|---|---|---|---|---|---|---|---|---|
| 52) Dibromofluoromethane | (2) | 6.724 | (-0.001) | 113 | 412201 | 10.410 | 104% | | 80 - 120 |
| 59) 1,2-Dichloroethane-d4 | (2) | 7.175 | ( 0.000) | 102 | 88285 | 10.173 | 102% | | 80 - 120 |
| 84) Toluene-d8 | (3) | 9.650 | ( 0.000) | 98 | 1685632 | 9.972 | 100% | | 80 - 120 |
| 113) 4-Bromofluorobenzene | (3) | 12.137 | (-0.001) | 95 | 616454 | 9.706 | 97% | | 80 - 120 |

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit | LOQ (in sample) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 2) Chloromethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 5) Vinyl Chloride | (2) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 7) Bromomethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 8) Chloroethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 10) Trichlorofluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 16) 1,1-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 15) Acetone | (1) | | | | Not Detected | | | | | 1 | 5 |
| 20) Carbon Disulfide | (2) | | | | Not Detected | | | | | 0.09 | 1 |
| 25) Methylene Chloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 30) t-Butyl Alcohol | (1) | | | | Not Detected | | | | | 2 | 10 |
| 33) trans-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 32) Methyl Tertiary Butyl Ether | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 35) 1,1-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 41) cis-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 43) 2,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 40) 2-Butanone | (1) | | | | Not Detected | | | | | 0.7 | 5 |
| 49) Bromochloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 51) Chloroform | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 53) 1,1,1-Trichloroethane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 57) 1,1-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 56) Carbon Tetrachloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 60) Benzene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 61) 1,2-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 69) Trichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 72) 1,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 75) Dibromomethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 76) Bromodichloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 82) cis-1,3-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 83) 4-Methyl-2-Pentanone | (2) | | | | Not Detected | | | | | 0.6 | 5 |
| 85) Toluene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |

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# Lancaster Laboratories
## Analysis Summary for GC/MS Volatiles 1251388

Data file: /chem2/HP10193.i/20feb05a.b/cf05s09.d Injection date and time: **06-FEB-2020 00:06**
Data file Sample Info. Line: PO48D;1251388;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

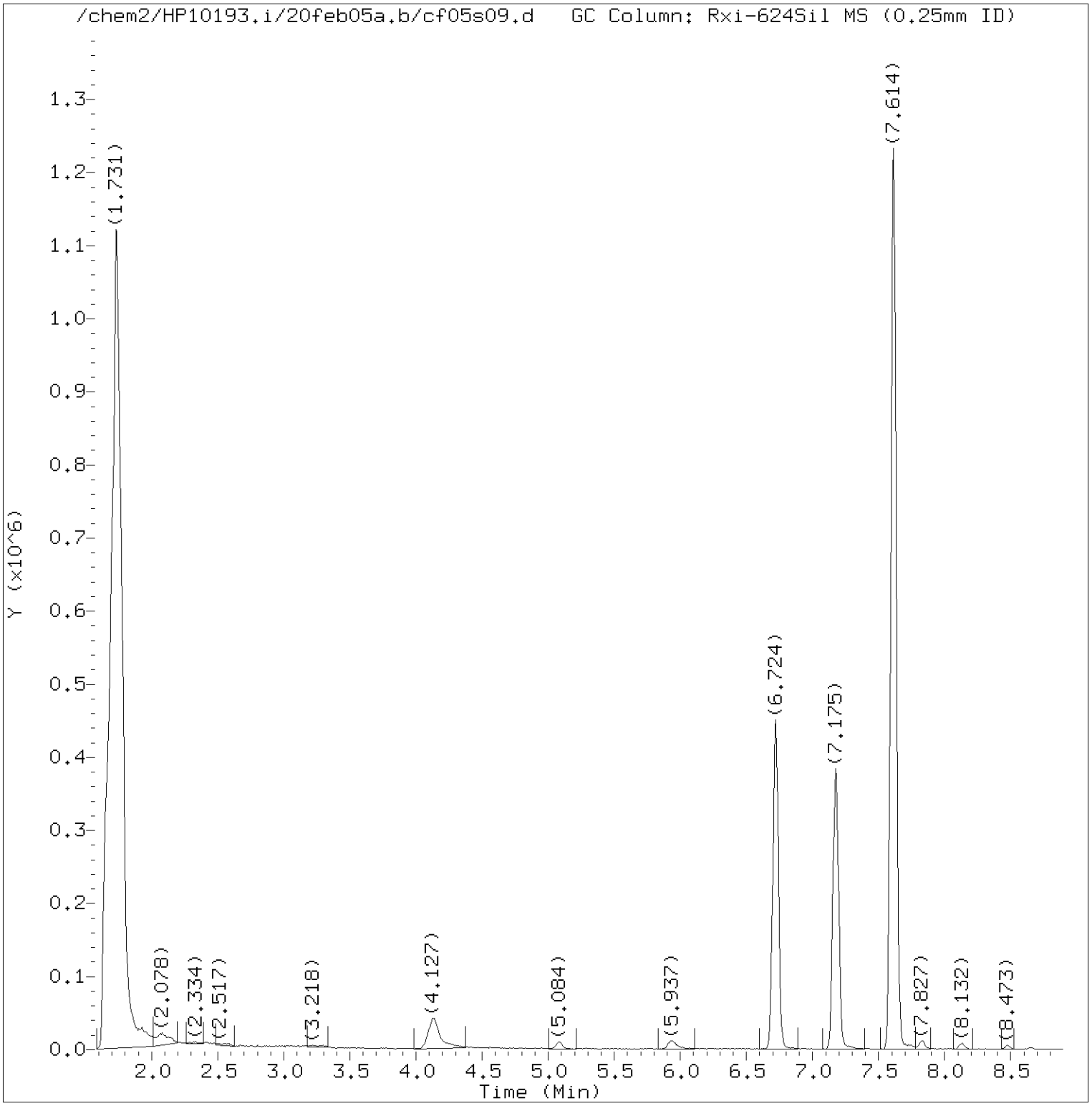
Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 86) trans-1,3-Dichloropropene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 90) 1,1,2-Trichloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 91) Tetrachloroethene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 92) 1,3-Dichloropropane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 95) Dibromochloromethane | (3) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 97) 1,2-Dibromoethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 100) Chlorobenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 102) Ethylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 103) m+p-Xylene | (3) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 106) o-Xylene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 108) Styrene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 109) Bromoform | (3) | | | | Not Detected | | | | | 0.3 | 1 |
| 110) Isopropylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 116) Bromobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 118) 1,2,3-Trichloropropane | (4) | | | | Not Detected | | | | | 0.06 | 1 |
| 119) n-Propylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 121) 2-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 123) 1,3,5-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 124) 4-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 127) tert-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 129) 1,2,4-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 130) sec-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 133) 1,3-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 134) p-Isopropyltoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 136) 1,4-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 140) n-Butylbenzene | (4) | | | | Not Detected | | | | | 0.07 | 0.5 |
| 141) 1,2-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | | | | Not Detected | | | | | 0.2 | 0.5 |
| 147) 1,2,4-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 148) Hexachlorobutadiene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 149) Naphthalene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 150) 1,2,3-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |

Total number of targets = 65

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:07. Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23. PARALLAX ID: kek01027




Total Ion Chromatogram (TIC)

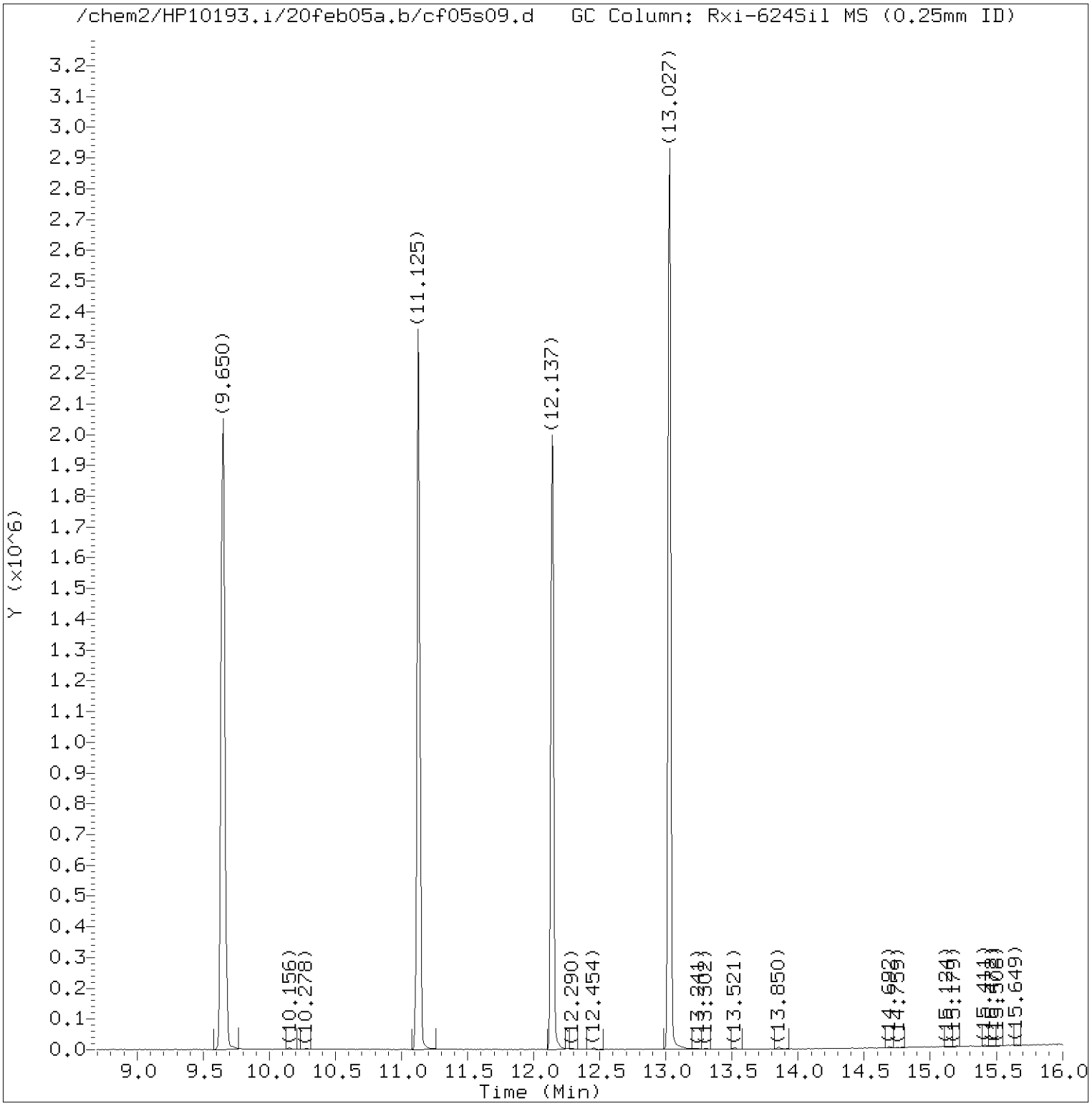
Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s09.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:06 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Sample Name: PO48D Lab Sample ID: 1251388

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:07.
Target 3.5 esignature user ID: jkh09052




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s09.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:06 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Sample Name: PO48D Lab Sample ID: 1251388

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on 02/06/2020 at 09:07.
Target 3.5 esignature user ID: jkh09052

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s09.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:06 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Sample Name: PO48D Lab Sample ID: 1251388

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 28)*t-Butyl Alcohol-d10 | (1) | 4.133 | 65 | 168490 | 50.000 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 113 | 412201 | 10.410 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.175 | 102 | 88285 | 10.173 |
| 65)*Fluorobenzene | (2) | 7.614 | 96 | 1688310 | 10.000 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1685632 | 9.972 |
| 99)*Chlorobenzene-d5 | (3) | 11.125 | 117 | 1268439 | 10.000 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 616454 | 9.706 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.027 | 152 | 719049 | 10.000 |

* = Compound is an internal standard.
$ = Compound is a surrogate standard.



Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:07.
Target 3.5 esignature user ID: jkh09052

PO48I

# Lancaster Laboratories
## Analysis Summary for GC/MS Volatiles 1251396

Data file: /chem2/HP10193.i/20feb05a.b/cf05s15.d Injection date and time: **06-FEB-2020 02:42**
Data file Sample Info. Line: PO48I;1251396;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:59 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

**Analysis Comments:**

| Internal Standards | RT | (+/-RT) | Scan | QIon | Area | (+/- %Change) | Conc. (on-column) | QC Flag |
|---|---|---|---|---|---|---|---|---|
| 28) t-Butyl Alcohol-d10 | 4.127 | ( 0.024) | 418 | 65 | 169268 | ( -1) | 50.00 | |
| 65) Fluorobenzene | 7.614 | ( 0.006) | 990 | 96 | 1712375 | ( -4) | 10.00 | |
| 99) Chlorobenzene-d5 | 11.125 | ( 0.006) | 1566 | 117 | 1274438 | ( -6) | 10.00 | |
| 135) 1,4-Dichlorobenzene-d4 | 13.027 | ( 0.000) | 1878 | 152 | 718871 | ( -10) | 10.00 | |

| Surrogate Standards | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | %Rec. | QC flags | QC Limits |
|---|---|---|---|---|---|---|---|---|---|
| 52) Dibromofluoromethane | (2) | 6.718 | ( 0.000) | 113 | 413789 | 10.304 | 103% | | 80 - 120 |
| 59) 1,2-Dichloroethane-d4 | (2) | 7.175 | ( 0.000) | 102 | 90829 | 10.319 | 103% | | 80 - 120 |
| 84) Toluene-d8 | (3) | 9.650 | ( 0.000) | 98 | 1693242 | 9.970 | 100% | | 80 - 120 |
| 113) 4-Bromofluorobenzene | (3) | 12.137 | (-0.001) | 95 | 617823 | 9.682 | 97% | | 80 - 120 |

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit | LOQ (in sample) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 2) Chloromethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 5) Vinyl Chloride | (2) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 7) Bromomethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 8) Chloroethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 10) Trichlorofluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 16) 1,1-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 15) Acetone | (1) | | | | Not Detected | | | | | 1 | 5 |
| 20) Carbon Disulfide | (2) | | | | Not Detected | | | | | 0.09 | 1 |
| 25) Methylene Chloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 30) t-Butyl Alcohol | (1) | | | | Not Detected | | | | | 2 | 10 |
| 33) trans-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 32) Methyl Tertiary Butyl Ether | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 35) 1,1-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 41) cis-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 43) 2,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 40) 2-Butanone | (1) | | | | Not Detected | | | | | 0.7 | 5 |
| 49) Bromochloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 51) Chloroform | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 53) 1,1,1-Trichloroethane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 57) 1,1-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 56) Carbon Tetrachloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 60) Benzene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 61) 1,2-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 69) Trichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 72) 1,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 75) Dibromomethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 76) Bromodichloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 82) cis-1,3-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 83) 4-Methyl-2-Pentanone | (2) | | | | Not Detected | | | | | 0.6 | 5 |
| 85) Toluene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:08. Target 3.5 esignature user ID: jkh09052

# Lancaster Laboratories
## Analysis Summary for GC/MS Volatiles 1251396

Data file: /chem2/HP10193.i/20feb05a.b/cf05s15.d Injection date and time: **06-FEB-2020 02:42**
Data file Sample Info. Line: PO48I;1251396;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:59 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

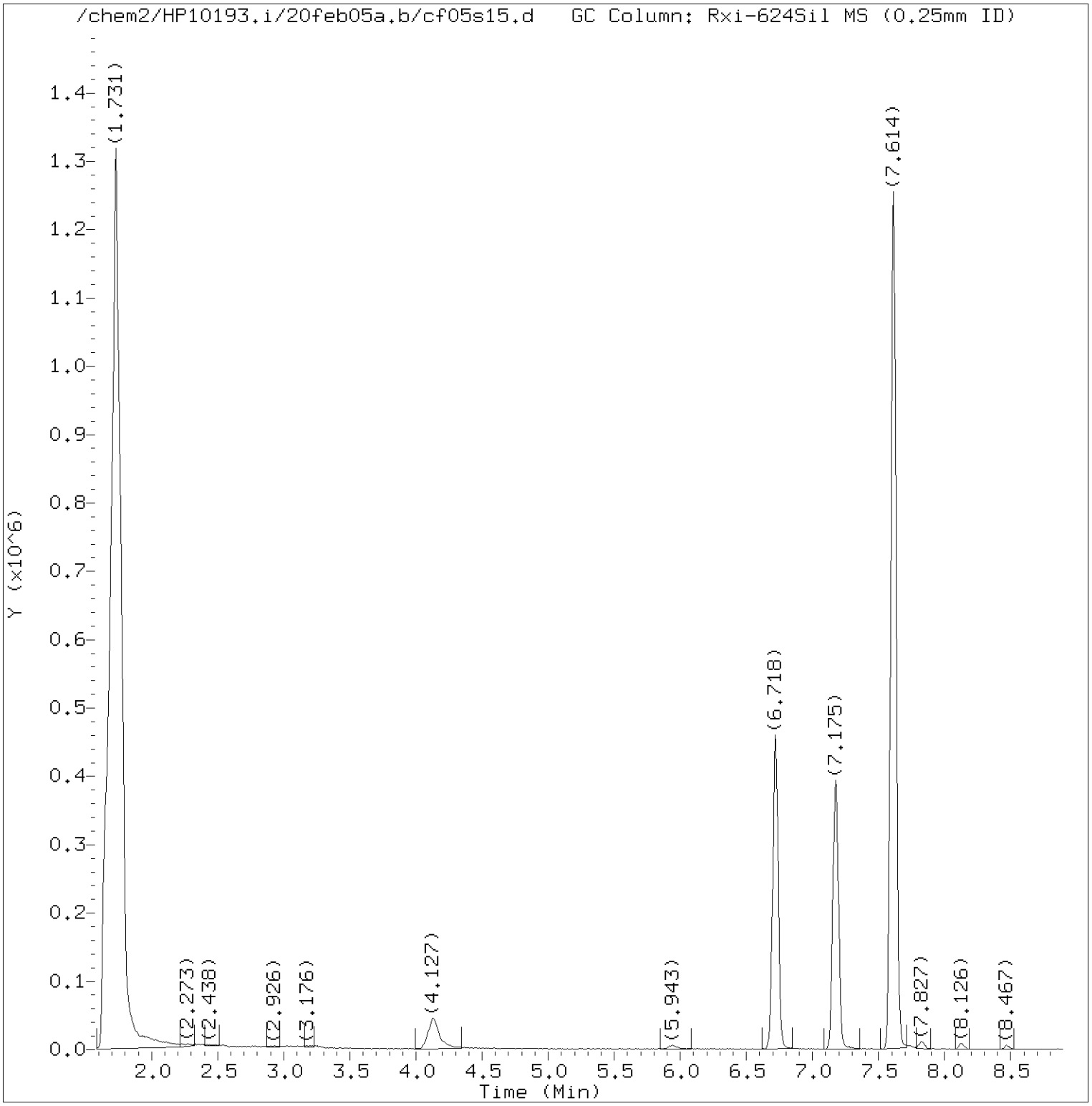
Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ (in sample) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 86) trans-1,3-Dichloropropene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 90) 1,1,2-Trichloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 91) Tetrachloroethene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 92) 1,3-Dichloropropane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 95) Dibromochloromethane | (3) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 97) 1,2-Dibromoethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 100) Chlorobenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 102) Ethylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 103) m+p-Xylene | (3) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 106) o-Xylene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 108) Styrene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 109) Bromoform | (3) | | | | Not Detected | | | | | 0.3 | 1 |
| 110) Isopropylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 116) Bromobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 118) 1,2,3-Trichloropropane | (4) | | | | Not Detected | | | | | 0.06 | 1 |
| 119) n-Propylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 121) 2-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 123) 1,3,5-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 124) 4-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 127) tert-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 129) 1,2,4-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 130) sec-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 133) 1,3-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 134) p-Isopropyltoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 136) 1,4-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 140) n-Butylbenzene | (4) | | | | Not Detected | | | | | 0.07 | 0.5 |
| 141) 1,2-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | | | | Not Detected | | | | | 0.2 | 0.5 |
| 147) 1,2,4-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 148) Hexachlorobutadiene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 149) Naphthalene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 150) 1,2,3-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |

Total number of targets = 65

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:08. Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23. PARALLAX ID: kek01027




Total Ion Chromatogram (TIC)

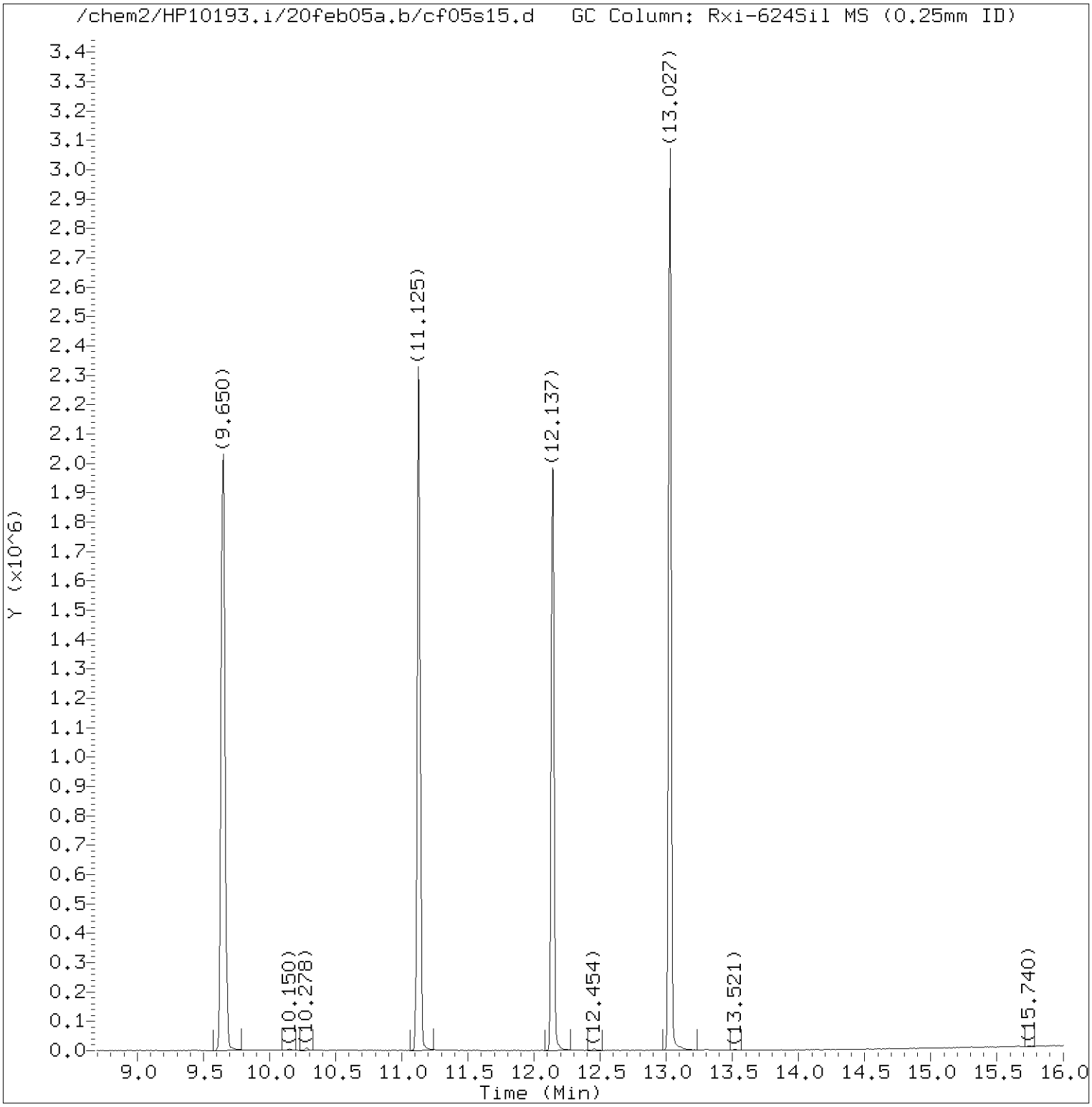
Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s15.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 02:42 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:59 jkh09052

Sample Name: PO48I Lab Sample ID: 1251396

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:08.
Target 3.5 esignature user ID: jkh09052




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s15.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 02:42 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:59 jkh09052

Sample Name: PO48I Lab Sample ID: 1251396

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:08.
Target 3.5 esignature user ID: jkh09052

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s15.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 02:42 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:59 jkh09052

Sample Name: PO48I Lab Sample ID: 1251396

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 28)*t-Butyl Alcohol-d10 | (1) | 4.127 | 65 | 169268 | 50.000 |
| 52)$Dibromofluoromethane | (2) | 6.718 | 113 | 413789 | 10.304 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.175 | 102 | 90829 | 10.319 |
| 65)*Fluorobenzene | (2) | 7.614 | 96 | 1712375 | 10.000 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1693242 | 9.970 |
| 99)*Chlorobenzene-d5 | (3) | 11.125 | 117 | 1274438 | 10.000 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 617823 | 9.682 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.027 | 152 | 718871 | 10.000 |

* = Compound is an internal standard.
$ = Compound is a surrogate standard.



Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:08.
Target 3.5 esignature user ID: jkh09052

PO-TB

# Lancaster Laboratories
## Analysis Summary for GC/MS Volatiles 1251398

Data file: /chem2/HP10193.i/20feb05a.b/cf05s02.d Injection date and time: **05-FEB-2020 21:29**
Data file Sample Info. Line: PO-TB;1251398;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:53 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

**Analysis Comments:**

| Internal Standards | RT | (+/-RT) | Scan | QIon | Area | (+/- %Change) | Conc. (on-column) | QC Flag |
|---|---|---|---|---|---|---|---|---|
| 28) t-Butyl Alcohol-d10 | 4.139 | ( 0.012) | 420 | 65 | 178230 | ( 4) | 50.00 | |
| 65) Fluorobenzene | 7.614 | ( 0.006) | 990 | 96 | 1758649 | ( -1) | 10.00 | |
| 99) Chlorobenzene-d5 | 11.125 | ( 0.006) | 1566 | 117 | 1329236 | ( -2) | 10.00 | |
| 135) 1,4-Dichlorobenzene-d4 | 13.027 | ( 0.000) | 1878 | 152 | 752509 | ( -6) | 10.00 | |

| Surrogate Standards | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | %Rec. | QC flags | QC Limits |
|---|---|---|---|---|---|---|---|---|---|
| 52) Dibromofluoromethane | (2) | 6.724 | (-0.001) | 113 | 428670 | 10.393 | 104% | | 80 - 120 |
| 59) 1,2-Dichloroethane-d4 | (2) | 7.181 | (-0.001) | 102 | 91751 | 10.150 | 101% | | 80 - 120 |
| 84) Toluene-d8 | (3) | 9.650 | ( 0.000) | 98 | 1745803 | 9.856 | 99% | | 80 - 120 |
| 113) 4-Bromofluorobenzene | (3) | 12.137 | (-0.001) | 95 | 655518 | 9.849 | 98% | | 80 - 120 |

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit | LOQ (in sample) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 2) Chloromethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 5) Vinyl Chloride | (2) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 7) Bromomethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 8) Chloroethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 10) Trichlorofluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 16) 1,1-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 15) Acetone | (1) | | | | Not Detected | | | | | 1 | 5 |
| 20) Carbon Disulfide | (2) | | | | Not Detected | | | | | 0.09 | 1 |
| 25) Methylene Chloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 30) t-Butyl Alcohol | (1) | | | | Not Detected | | | | | 2 | 10 |
| 33) trans-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 32) Methyl Tertiary Butyl Ether | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 35) 1,1-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 41) cis-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 43) 2,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 40) 2-Butanone | (1) | | | | Not Detected | | | | | 0.7 | 5 |
| 49) Bromochloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 51) Chloroform | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 53) 1,1,1-Trichloroethane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 57) 1,1-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 56) Carbon Tetrachloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 60) Benzene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 61) 1,2-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 69) Trichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 72) 1,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 75) Dibromomethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 76) Bromodichloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 82) cis-1,3-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 83) 4-Methyl-2-Pentanone | (2) | | | | Not Detected | | | | | 0.6 | 5 |
| 85) Toluene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:04. Target 3.5 esignature user ID: jkh09052

# Lancaster Laboratories
## Analysis Summary for GC/MS Volatiles 1251398

Data file: /chem2/HP10193.i/20feb05a.b/cf05s02.d Injection date and time: **05-FEB-2020 21:29**
Data file Sample Info. Line: PO-TB;1251398;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:53 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

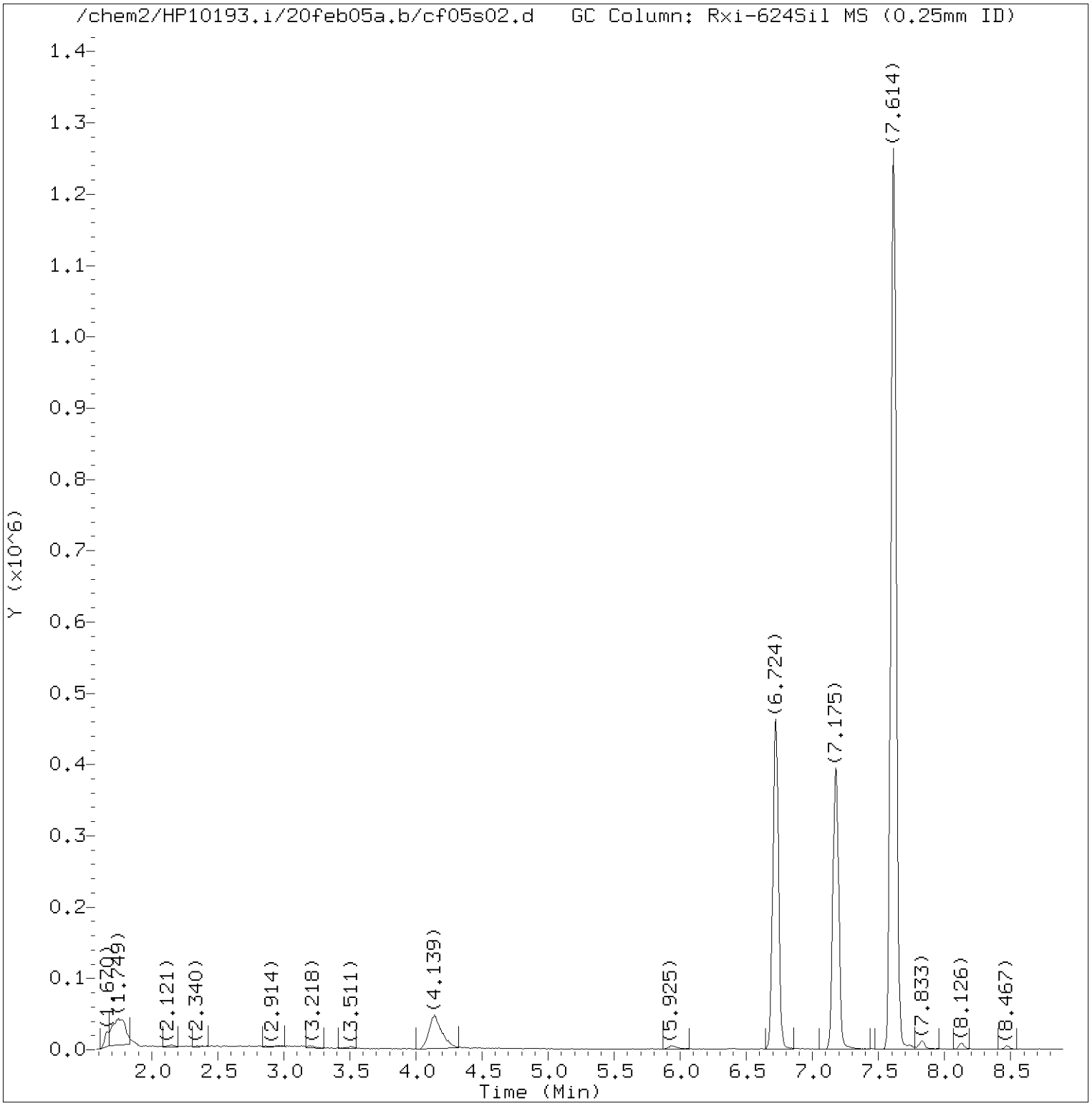
Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 86) trans-1,3-Dichloropropene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 90) 1,1,2-Trichloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 91) Tetrachloroethene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 92) 1,3-Dichloropropane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 95) Dibromochloromethane | (3) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 97) 1,2-Dibromoethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 100) Chlorobenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 102) Ethylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 103) m+p-Xylene | (3) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 106) o-Xylene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 108) Styrene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 109) Bromoform | (3) | | | | Not Detected | | | | | 0.3 | 1 |
| 110) Isopropylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 116) Bromobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 118) 1,2,3-Trichloropropane | (4) | | | | Not Detected | | | | | 0.06 | 1 |
| 119) n-Propylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 121) 2-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 123) 1,3,5-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 124) 4-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 127) tert-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 129) 1,2,4-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 130) sec-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 133) 1,3-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 134) p-Isopropyltoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 136) 1,4-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 140) n-Butylbenzene | (4) | | | | Not Detected | | | | | 0.07 | 0.5 |
| 141) 1,2-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | | | | Not Detected | | | | | 0.2 | 0.5 |
| 147) 1,2,4-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 148) Hexachlorobutadiene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 149) Naphthalene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 150) 1,2,3-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |

Total number of targets = 65

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:04. Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23. PARALLAX ID: kek01027




Total Ion Chromatogram (TIC)

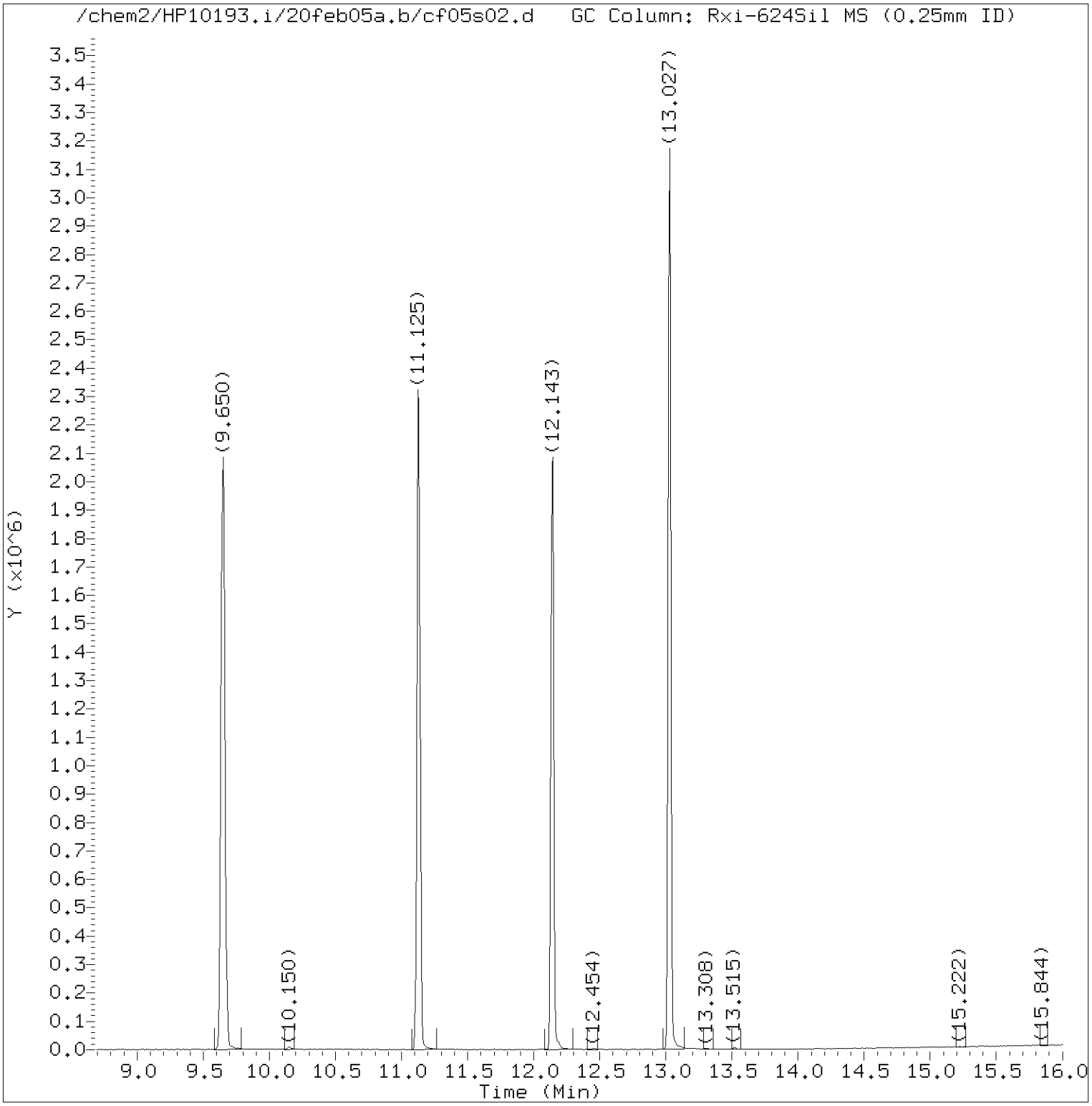
Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s02.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 21:29 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:53 jkh09052

Sample Name: PO-TB Lab Sample ID: 1251398

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:04.
Target 3.5 esignature user ID: jkh09052




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s02.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 21:29 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:53 jkh09052

Sample Name: PO-TB Lab Sample ID: 1251398

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:04.
Target 3.5 esignature user ID: jkh09052

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s02.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 21:29 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:53 jkh09052

Sample Name: PO-TB Lab Sample ID: 1251398

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 28)*t-Butyl Alcohol-d10 | (1) | 4.139 | 65 | 178230 | 50.000 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 113 | 428670 | 10.393 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 102 | 91751 | 10.150 |
| 65)*Fluorobenzene | (2) | 7.614 | 96 | 1758649 | 10.000 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1745803 | 9.856 |
| 99)*Chlorobenzene-d5 | (3) | 11.125 | 117 | 1329236 | 10.000 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 655518 | 9.849 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.027 | 152 | 752509 | 10.000 |

* = Compound is an internal standard.
$ = Compound is a surrogate standard.



Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:04.
Target 3.5 esignature user ID: jkh09052

PO-EB

# Lancaster Laboratories
## Analysis Summary for GC/MS Volatiles 1251399

Data file: /chem2/HP10193.i/20feb05a.b/cf05s03.d Injection date and time: **05-FEB-2020 21:52**
Data file Sample Info. Line: PO-EB;1251399;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:53 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

**Analysis Comments:**

| Internal Standards | RT | (+/-RT) | Scan | QIon | Area | (+/- %Change) | Conc. (on-column) | QC Flag |
|---|---|---|---|---|---|---|---|---|
| 28) t-Butyl Alcohol-d10 | 4.151 | ( 0.000) | 422 | 65 | 162513 | ( -5) | 50.00 | |
| 65) Fluorobenzene | 7.620 | ( 0.000) | 991 | 96 | 1727698 | ( -3) | 10.00 | |
| 99) Chlorobenzene-d5 | 11.132 | ( 0.000) | 1567 | 117 | 1300667 | ( -4) | 10.00 | |
| 135) 1,4-Dichlorobenzene-d4 | 13.027 | ( 0.000) | 1878 | 152 | 741943 | ( -7) | 10.00 | |

| Surrogate Standards | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | %Rec. | QC flags | QC Limits |
|---|---|---|---|---|---|---|---|---|---|
| 52) Dibromofluoromethane | (2) | 6.724 | ( 0.000) | 113 | 414279 | 10.224 | 102% | | 80 - 120 |
| 59) 1,2-Dichloroethane-d4 | (2) | 7.181 | ( 0.000) | 102 | 90866 | 10.232 | 102% | | 80 - 120 |
| 84) Toluene-d8 | (3) | 9.650 | ( 0.000) | 98 | 1716890 | 9.905 | 99% | | 80 - 120 |
| 113) 4-Bromofluorobenzene | (3) | 12.137 | ( 0.000) | 95 | 635539 | 9.759 | 98% | | 80 - 120 |

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit | LOQ (in sample) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 2) Chloromethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 5) Vinyl Chloride | (2) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 7) Bromomethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 8) Chloroethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 10) Trichlorofluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 16) 1,1-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 15) Acetone | (1) | | | | Not Detected | | | | | 1 | 5 |
| 20) Carbon Disulfide | (2) | | | | Not Detected | | | | | 0.09 | 1 |
| 25) Methylene Chloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 30) t-Butyl Alcohol | (1) | | | | Not Detected | | | | | 2 | 10 |
| 33) trans-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 32) Methyl Tertiary Butyl Ether | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 35) 1,1-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 41) cis-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 43) 2,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 40) 2-Butanone | (1) | | | | Not Detected | | | | | 0.7 | 5 |
| 49) Bromochloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 51) Chloroform | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 53) 1,1,1-Trichloroethane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 57) 1,1-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 56) Carbon Tetrachloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 60) Benzene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 61) 1,2-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 69) Trichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 72) 1,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 75) Dibromomethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 76) Bromodichloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 82) cis-1,3-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 83) 4-Methyl-2-Pentanone | (2) | | | | Not Detected | | | | | 0.6 | 5 |
| 85) Toluene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:04. Target 3.5 esignature user ID: jkh09052

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles 1251399

Data file: /chem2/HP10193.i/20feb05a.b/cf05s03.d Injection date and time: **05-FEB-2020 21:52**
Data file Sample Info. Line: PO-EB;1251399;1;0;;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 08:53 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

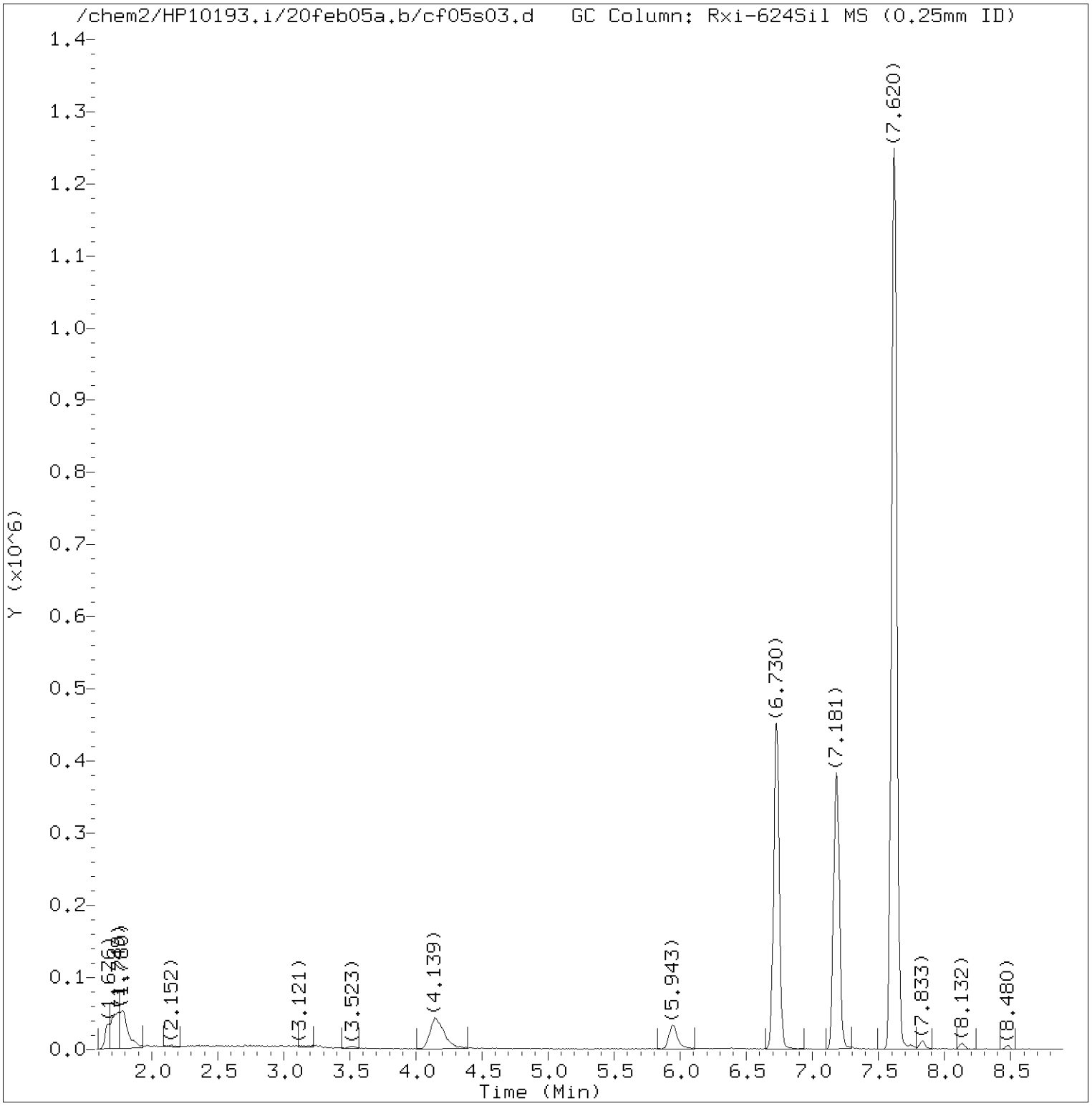
Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ (in sample) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 86) trans-1,3-Dichloropropene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 90) 1,1,2-Trichloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 91) Tetrachloroethene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 92) 1,3-Dichloropropane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 95) Dibromochloromethane | (3) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 97) 1,2-Dibromoethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 100) Chlorobenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 102) Ethylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 103) m+p-Xylene | (3) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 106) o-Xylene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 108) Styrene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 109) Bromoform | (3) | | | | Not Detected | | | | | 0.3 | 1 |
| 110) Isopropylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 116) Bromobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 118) 1,2,3-Trichloropropane | (4) | | | | Not Detected | | | | | 0.06 | 1 |
| 119) n-Propylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 121) 2-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 123) 1,3,5-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 124) 4-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 127) tert-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 129) 1,2,4-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 130) sec-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 133) 1,3-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 134) p-Isopropyltoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 136) 1,4-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 140) n-Butylbenzene | (4) | | | | Not Detected | | | | | 0.07 | 0.5 |
| 141) 1,2-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | | | | Not Detected | | | | | 0.2 | 0.5 |
| 147) 1,2,4-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 148) Hexachlorobutadiene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 149) Naphthalene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 150) 1,2,3-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |

Total number of targets = 65

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:04. Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23. PARALLAX ID: kek01027




Total Ion Chromatogram (TIC)

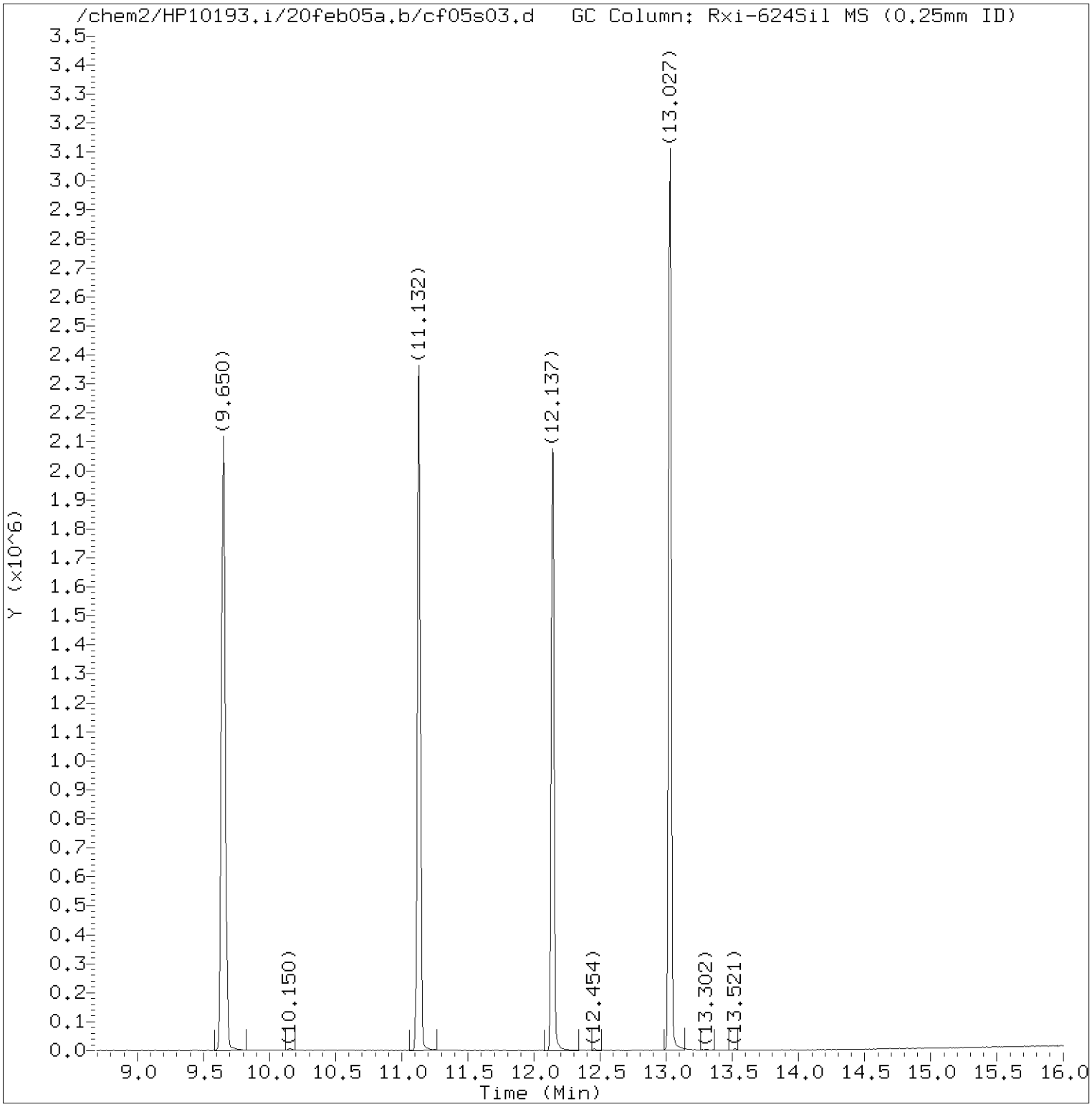
Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s03.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 21:52 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:53 jkh09052

Sample Name: PO-EB Lab Sample ID: 1251399

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:04.
Target 3.5 esignature user ID: jkh09052




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s03.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 21:52 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:53 jkh09052

Sample Name: PO-EB Lab Sample ID: 1251399

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:04.
Target 3.5 esignature user ID: jkh09052

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s03.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 21:52 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 08:53 jkh09052

Sample Name: PO-EB Lab Sample ID: 1251399

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 28)*t-Butyl Alcohol-d10 | (1) | 4.151 | 65 | 162513 | 50.000 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 113 | 414279 | 10.224 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 102 | 90866 | 10.232 |
| 65)*Fluorobenzene | (2) | 7.620 | 96 | 1727698 | 10.000 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1716890 | 9.905 |
| 99)*Chlorobenzene-d5 | (3) | 11.132 | 117 | 1300667 | 10.000 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 635539 | 9.759 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.027 | 152 | 741943 | 10.000 |

* = Compound is an internal standard.
$ = Compound is a surrogate standard.



Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:04.
Target 3.5 esignature user ID: jkh09052

# Standards Data

# Volatiles by GC/MS

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP10193 **HP #25**

Data Directory Path is - C:\MSDChem\1\data\20jan06i\

| OPERATOR | FILE | LLI# | DATE | TIME | BATCH | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| jkh09052 | CJ06T01.D | 50NGBFB | 01/06/2020 | 13:56 | C193051AA | |
| JKH09052 | CJ06X00.D | BLK | 01/06/2020 | 14:11 | | |
| JKH09052 | CJ06X01.D | BLK | 01/06/2020 | 14:33 | | |
| JKH09052 | CJ06X02.D | BLK | 01/06/2020 | 14:55 | | |
| JKH09052 | CJ06I11.D | VSTD025 | 01/06/2020 | 15:18 | | |
| JKH09052 | CJ06I12.D | VSTD010 | 01/06/2020 | 15:40 | | |
| JKH09052 | CJ06I13.D | VSTD005 | 01/06/2020 | 16:02 | | |
| JKH09052 | CJ06I14.D | VSTD002 | 01/06/2020 | 16:25 | | |
| JKH09052 | CJ06I15.D | VSTD001 | 01/06/2020 | 16:47 | | |
| JKH09052 | CJ06I16.D | VSTD0.5 | 01/06/2020 | 17:09 | | |
| JKH09052 | CJ06I17.D | VSTD0.2 | 01/06/2020 | 17:32 | | |
| JKH09052 | CJ06V11.D | LCSSM | 01/06/2020 | 17:54 | | |
| JKH09052 | CJ06X08.D | BLK | 01/06/2020 | 18:16 | | |
| JKH09052 | CJ06I01.D | VSTD025 | 01/06/2020 | 18:38 | | |
| JKH09052 | CJ06I02.D | VSTD010 | 01/06/2020 | 19:01 | | |
| JKH09052 | CJ06I03.D | VSTD005 | 01/06/2020 | 19:23 | | |
| JKH09052 | CJ06I04.D | VSTD002 | 01/06/2020 | 19:45 | | |
| JKH09052 | CJ06I05.D | VSTD001 | 01/06/2020 | 20:08 | | |
| JKH09052 | CJ06I06.D | VSTD0.5 | 01/06/2020 | 20:30 | | |
| JKH09052 | CJ06I07.D | VSTD0.2 | 01/06/2020 | 20:52 | | |
| JKH09052 | CJ06V01.D | LCSLG | 01/06/2020 | 21:14 | | |

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP10193 **HP #25**

Data Directory Path is - C:\MSDCHEM\1\DATA\20FEB05A\

| OPERATOR | FILE | LLI# | DATE | TIME | BATCH | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| MEC29284 | CF05T01.D | 50NGBFB | 02/05/2020 | 19:09 | | |
| MEC29284 | CF05X00.D | BLK | 02/05/2020 | 19:23 | C200361AA | |
| MEC29284 | CF05C01.D | VSTD010 | 02/05/2020 | 19:46 | C200361AA | |
| MEC29284 | CF05L01.D | LCSC92 | 02/05/2020 | 20:08 | C200361AA | |
| MEC29284 | CF05X01.D | BLK | 02/05/2020 | 20:30 | C200361AA | |
| MEC29284 | CF05B01.D | VBLKC92 | 02/05/2020 | 20:53 | C200361AA | |
| MEC29284 | CF05S02.D | 1251398 | 02/05/2020 | 21:29 | C200361AA | |
| MEC29284 | CF05S03.D | 1251399 | 02/05/2020 | 21:52 | C200361AA | |
| MEC29284 | CF05S04.D | 1251371 | 02/05/2020 | 22:14 | C200361AA | |
| MEC29284 | CF05S05.D | 1251373 | 02/05/2020 | 22:36 | C200361AA | |
| MEC29284 | CF05S06.D | 1251375 | 02/05/2020 | 22:59 | C200361AA | |
| MEC29284 | CF05S07.D | 1251376 | 02/05/2020 | 23:21 | C200361AA | |
| MEC29284 | CF05S08.D | 1251378 | 02/05/2020 | 23:43 | C200361AA | |
| MEC29284 | CF05S09.D | 1251388 | 02/06/2020 | 00:06 | C200361AA | |
| MEC29284 | CF05S10.D | 1251389MS | 02/06/2020 | 00:28 | C200361AA | |
| MEC29284 | CF05S11.D | 1251390MSD | 02/06/2020 | 00:50 | C200361AA | |
| MEC29284 | CF05S12.D | 1251380 | 02/06/2020 | 01:35 | C200361AA | |
| MEC29284 | CF05S13.D | 1251382 | 02/06/2020 | 01:57 | C200361AA | |
| MEC29284 | CF05S14.D | 1251384 | 02/06/2020 | 02:19 | C200361AA | |
| MEC29284 | CF05S15.D | 1251396 | 02/06/2020 | 02:42 | C200361AA | |
| MEC29284 | CF05S16.D | 1251549DL2 | 02/06/2020 | 03:04 | C200361AA | 1000 |
| MEC29284 | CF05S17.D | 1251549RE | 02/06/2020 | 03:26 | C200361AA | 10 |

Data File: /chem2/HP10193.i/20jan06i.b/cj06t01.d



Date : 06-JAN-2020 13:56

Client ID: BFBaug 2-19

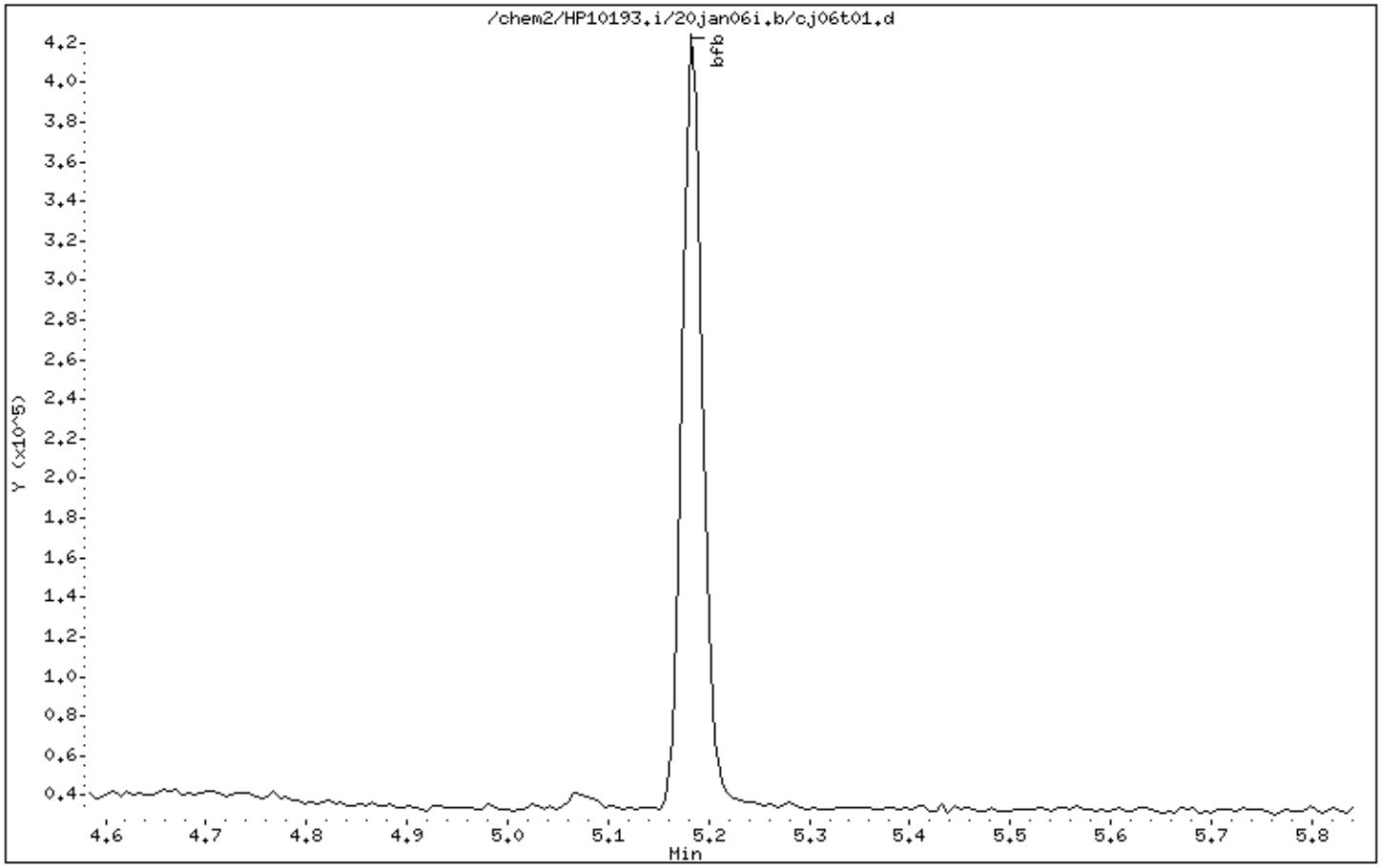
Instrument: HP10193.i

Sample Info: BFBaug 2-19;50NGBFB;1;3;;;;;;

Operator: jkh09052

Column phase: Rxi-624Sil MS

Column diameter: 0.25



Data File: /chem2/HP10193.i/20jan06i.b/cj06t01.d

Date : 06-JAN-2020 13:56

Client ID: BFBaug 2-19

Instrument: HP10193.i

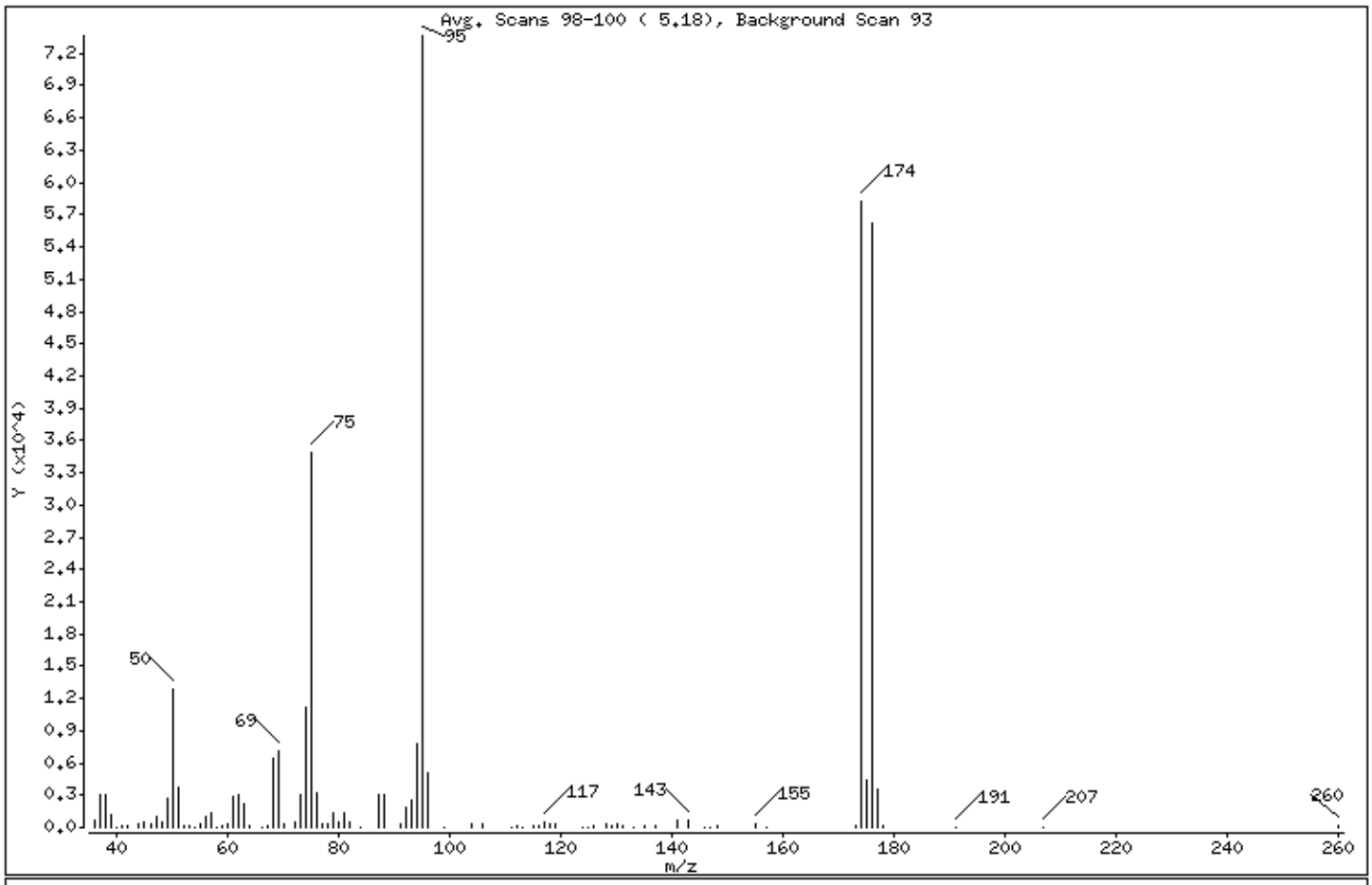
Sample Info: BFBaug 2-19;50NGBFB;1;3;;;;;;

Operator: jkh09052

Column phase: Rxi-624Sil MS

Column diameter: 0.25

1 bfb




| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 95 | Base Peak, 100% relative abundance | 100.00 |
| 50 | 15.00 - 40.00% of mass 95 | 17.42 |
| 75 | 30.00 - 60.00% of mass 95 | 47.38 |
| 96 | 5.00 - 9.00% of mass 95 | 6.89 |
| 173 | Less than 2.00% of mass 174 | 0.25 ( 0.32) |
| 174 | 50.00 - 100.00% of mass 95 | 79.05 |
| 175 | 5.00 - 9.00% of mass 174 | 5.99 ( 7.57) |
| 176 | 95.00 - 101.00% of mass 174 | 76.39 ( 96.63) |
| 177 | 5.00 - 9.00% of mass 176 | 4.78 ( 6.26) |

Date : 06-JAN-2020 13:56

Client ID: BFBaug 2-19 Instrument: HP10193.i

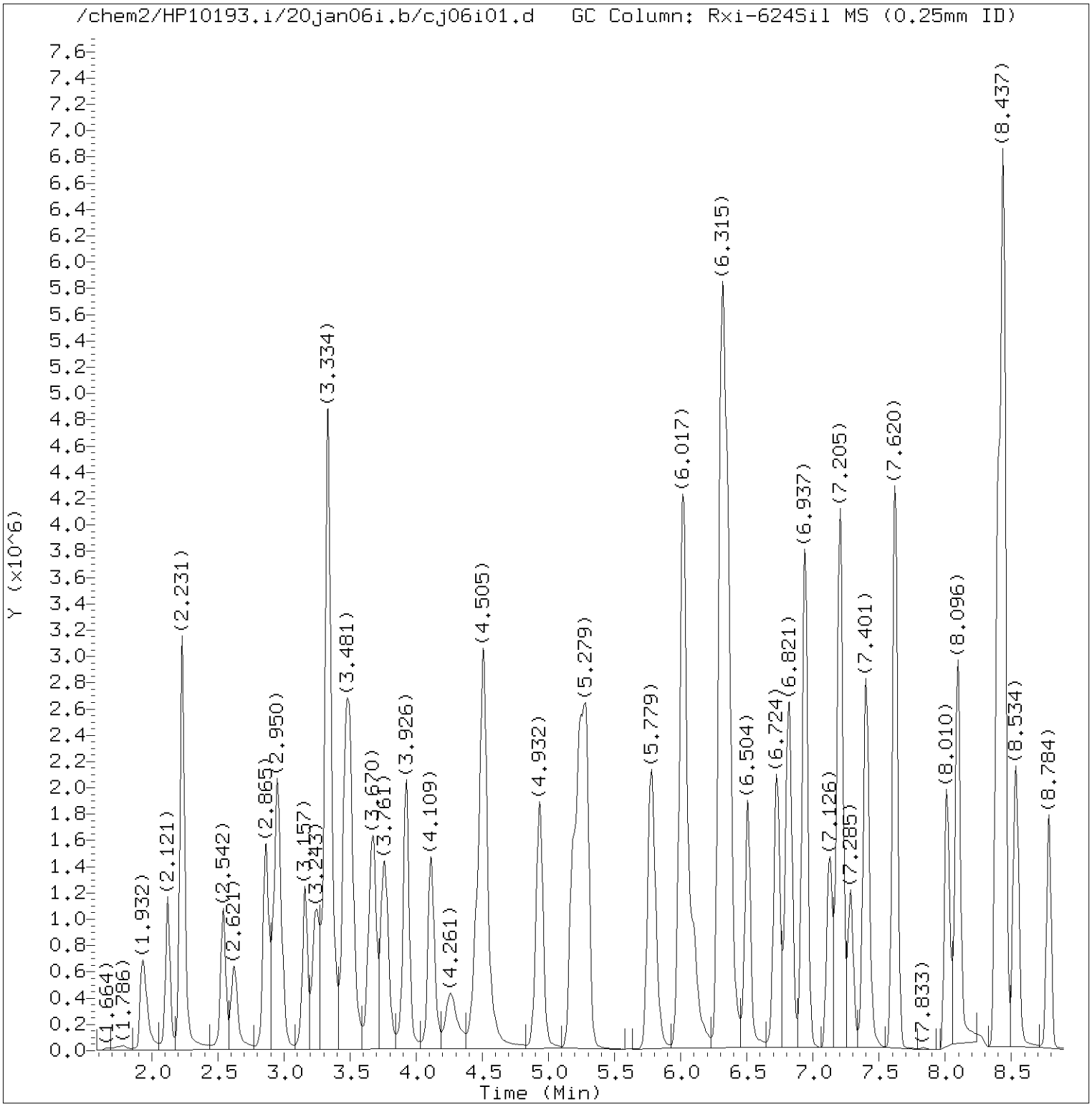
Sample Info: BFBaug 2-19;50NGBFB;1;3;;;;;;

Operator: jkh09052

Column phase: Rxi-624Sil MS Column diameter: 0.25

Data File: cj06t01.d
Spectrum: Avg. Scans 98-100 ( 5.18), Background Scan 93
Location of Maximum: 95.00
Number of points: 90

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.00 | 632 | 60.00 | 396 | 88.00 | 3001 | 130.00 | 263 |
| 37.00 | 2979 | 61.00 | 2885 | 91.00 | 377 | 131.00 | 150 |
| 38.00 | 2972 | 62.00 | 3002 | 92.00 | 1904 | 133.00 | 35 |
| 39.00 | 1122 | 63.00 | 2267 | 93.00 | 2557 | 135.00 | 119 |
| 40.00 | 3 | 64.00 | 163 | 94.00 | 7854 | 137.00 | 173 |
| 41.00 | 164 | 66.00 | 53 | 95.00 | 73656 | 141.00 | 609 |
| 42.00 | 194 | 67.00 | 154 | 96.00 | 5076 | 143.00 | 627 |
| 44.00 | 265 | 68.00 | 6453 | 99.00 | 25 | 146.00 | 73 |
| 45.00 | 537 | 69.00 | 7052 | 104.00 | 295 | 147.00 | 56 |
| 46.00 | 259 | 70.00 | 388 | 106.00 | 287 | 148.00 | 214 |
| 47.00 | 1007 | 72.00 | 486 | 111.00 | 18 | 155.00 | 282 |
| 48.00 | 525 | 73.00 | 2990 | 112.00 | 155 | 157.00 | 61 |
| 49.00 | 2672 | 74.00 | 11203 | 113.00 | 54 | 173.00 | 186 |
| 50.00 | 12831 | 75.00 | 34896 | 115.00 | 87 | 174.00 | 58232 |
| 51.00 | 3715 | 76.00 | 3192 | 116.00 | 246 | 175.00 | 4411 |
| 52.00 | 236 | 77.00 | 368 | 117.00 | 453 | 176.00 | 56264 |
| 53.00 | 87 | 78.00 | 385 | 118.00 | 255 | 177.00 | 3523 |
| 54.00 | 4 | 79.00 | 1342 | 119.00 | 333 | 178.00 | 109 |
| 55.00 | 310 | 80.00 | 535 | 124.00 | 55 | 191.00 | 60 |
| 56.00 | 1053 | 81.00 | 1400 | 125.00 | 50 | 207.00 | 46 |
| 57.00 | 1367 | 82.00 | 500 | 126.00 | 109 | 260.00 | 104 |
| 58.00 | 37 | 84.00 | 51 | 128.00 | 278 | | |
| 59.00 | 130 | 87.00 | 3126 | 129.00 | 121 | | |




Total Ion Chromatogram (TIC)

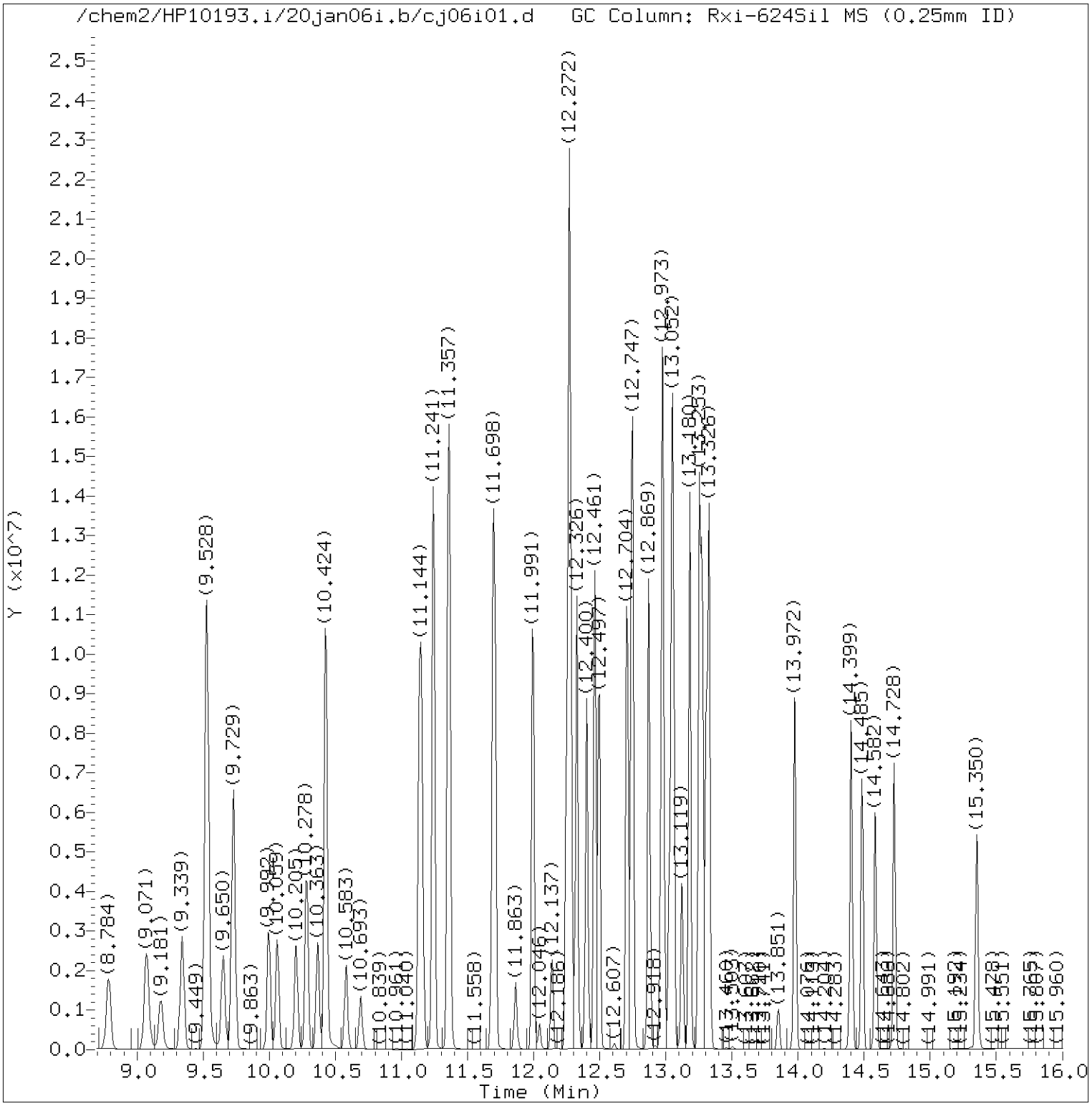
Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:21
Date, time and analyst ID of latest file update: 06-Jan-2020 19:23 mec29284

Sample Name: VSTD025 Lab Sample ID: VSTD025

Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:21
Date, time and analyst ID of latest file update: 06-Jan-2020 19:23 mec29284

Sample Name: VSTD025 Lab Sample ID: VSTD025

Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:21
Date, time and analyst ID of latest file update: 06-Jan-2020 19:23 mec29284

Sample Name: VSTD025 Lab Sample ID: VSTD025

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | 1.932 | 85 | 1609048M | 24.879 |
| 2) Chloromethane | (2) | 2.121 | 50 | 1754849 | 24.904 |
| 6) 1,3-Butadiene | (2) | 2.225 | 39 | 1392962 | 25.103 |
| 5) Vinyl Chloride | (2) | 2.237 | 62 | 1694184 | 24.898 |
| 7) Bromomethane | (2) | 2.542 | 94 | 1070751 | 24.858 |
| 8) Chloroethane | (2) | 2.627 | 64 | 926682 | 24.842 |
| 9) Dichlorofluoromethane | (2) | 2.859 | 67 | 2034215 | 24.954 |
| 10) Trichlorofluoromethane | (2) | 2.920 | 101 | 1664590 | 24.791 |
| 12) Ethyl ether | (2) | 3.157 | 59 | 1083490M | 25.150 |
| 13) Freon 123a | (2) | 3.243 | 67 | 1370508 | 24.888 |
| 14) Acrolein | (1) | 3.328 | 56 | 8761685 | 1251.478 |
| 16) 1,1-Dichloroethene | (2) | 3.462 | 96 | 1094481 | 24.920 |
| 17) Freon 113 | (2) | 3.493 | 101 | 1120805 | 24.860 |
| 15) Acetone | (1) | 3.499 | 43 | 1983577 | 250.030 |
| 18) Methyl Iodide | (2) | 3.657 | 142 | 2062727 | 24.855 |
| 19) Bromoethane | (2) | 3.682 | 108 | 938158 | 24.841 |
| 20) Carbon Disulfide | (2) | 3.761 | 76 | 3916806 | 24.912 |
| 23) Methyl Acetate | (2) | 3.907 | 43 | 739571 | 26.594 |
| 24) Allyl Chloride | (2) | 3.926 | 41 | 1998574 | 24.895 |
| 25) Methylene Chloride | (2) | 4.109 | 84 | 1226476 | 24.808 |
| 28)*t-Butyl Alcohol-d10 | (1) | 4.151 | 65 | 162278M | 50.000 |
| 30) t-Butyl Alcohol | (1) | 4.261 | 59 | 1619516M | 493.900 |
| 31) Acrylonitrile | (1) | 4.456 | 53 | 1395419 | 124.895 |
| 32) Methyl Tertiary Butyl Ether | (2) | 4.505 | 73 | 3224437 | 24.802 |
| 33) trans-1,2-Dichloroethene | (2) | 4.511 | 96 | 1230544 | 24.918 |
| 34) n-Hexane | (2) | 4.932 | 57 | 1837736 | 24.710 |
| 35) 1,1-Dichloroethane | (2) | 5.181 | 63 | 2286107 | 24.955 |
| 36) di-Isopropyl Ether | (2) | 5.236 | 45 | 4259511 | 24.886 |
| 37) 2-Chloro-1,3-Butadiene | (2) | 5.285 | 53 | 2001918 | 24.834 |
| 39) Ethyl t-butyl ether | (2) | 5.779 | 59 | 3985961 | 24.709 |
| 40) 2-Butanone | (1) | 6.004 | 43 | 3839254 | 250.008 |
| 41) cis-1,2-Dichloroethene | (2) | 6.017 | 96 | 1377228 | 24.803 |
| 43) 2,2-Dichloropropane | (2) | 6.029 | 77 | 1818994 | 24.763 |
| 44) Propionitrile | (1) | 6.096 | 54 | 1995213 | 503.554 |
| 42) 1,2-Dichloroethene (Total) | (2) | | 96 | 2607772 | 49.721 |
| 47) Methacrylonitrile | (1) | 6.315 | 67 | 3670158 | 249.566 |
| 49) Bromochloromethane | (2) | 6.352 | 128 | 625569 | 24.915 |
| 50) Tetrahydrofuran | (1) | 6.364 | 71 | 1131899 | 250.274 |

M = Compound was manually integrated.
* = Compound is an internal standard.



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on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:21
Date, time and analyst ID of latest file update: 06-Jan-2020 19:23 mec29284

Sample Name: VSTD025 Lab Sample ID: VSTD025

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 51) Chloroform | (2) | 6.504 | 83 | 2105435 | 24.881 |
| 53) 1,1,1-Trichloroethane | (2) | 6.724 | 97 | 1869036 | 24.882 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 113 | 442739 | 10.016 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 111 | 453379 | 10.038 |
| 54) Cyclohexane | (2) | 6.821 | 56 | 2275734 | 24.746 |
| 54) Cyclohexane | (2) | 6.821 | 84 | 1930004 | 24.772 |
| 54) Cyclohexane | (2) | 6.632 | 69 | 1553 | 26.150 |
| 56) Carbon Tetrachloride | (2) | 6.931 | 117 | 1617748 | 24.894 |
| 57) 1,1-Dichloropropene | (2) | 6.943 | 75 | 1783724 | 24.894 |
| 58) Isobutyl Alcohol | (1) | 7.126 | 41 | 1383170 | 1249.614 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 102 | 97469 | 10.044 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 65 | 442109 | 10.011 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 104 | 62361 | 10.062 |
| 60) Benzene | (2) | 7.205 | 78 | 5240418 | 24.880 |
| 61) 1,2-Dichloroethane | (2) | 7.285 | 62 | 1422931 | 24.889 |
| 61) 1,2-Dichloroethane | (2) | 7.285 | 98 | 136055 | 24.799 |
| 62) t-Amyl methyl ether | (2) | 7.401 | 73 | 3667389 | 24.718 |
| 65)*Fluorobenzene | (2) | 7.614 | 96 | 1890188 | 10.000 |
| 64) n-Heptane | (2) | 7.620 | 43 | 1915665M | 24.847 |
| 67) n-Butanol | (1) | 8.010 | 56 | 2525204 | 2496.546 |
| 69) Trichloroethene | (2) | 8.096 | 95 | 1293543 | 24.812 |
| 71) Methylcyclohexane | (2) | 8.400 | 83 | 2394635 | 24.866 |
| 72) 1,2-Dichloropropane | (2) | 8.437 | 63 | 1363962 | 24.891 |
| 73) Methyl Methacrylate | (1) | 8.522 | 69 | 745832 | 24.995 |
| 74) 1,4-Dioxane | (1) | 8.534 | 88 | 219386M | 1238.646 |
| 74) 1,4-Dioxane | (1) | 8.541 | 58 | 161634M | 1247.379 |
| 75) Dibromomethane | (2) | 8.541 | 93 | 638563 | 25.075 |
| 76) Bromodichloromethane | (2) | 8.784 | 83 | 1614201 | 25.012 |
| 78) 2-Nitropropane | (1) | 9.071 | 41 | 2280779 | 248.989 |
| 81) 1-Bromo-2-chloroethane | (2) | 9.181 | 63 | 1438815 | 24.914 |
| 82) cis-1,3-Dichloropropene | (2) | 9.339 | 75 | 2122492 | 24.986 |
| 83) 4-Methyl-2-Pentanone | (2) | 9.528 | 43 | 10114124 | 250.842 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1862372 | 9.981 |
| 84)$Toluene-d8 | (3) | 9.650 | 100 | 1233979 | 10.059 |
| 85) Toluene | (3) | 9.729 | 92 | 3317546 | 24.929 |
| 87) 1,3-Dichloropropene (total) | (3) | | 75 | 3967879 | 50.039 |
| 86) trans-1,3-Dichloropropene | (3) | 9.992 | 75 | 1845387 | 25.053 |
| 88) Ethyl Methacrylate | (3) | 10.059 | 69 | 1599572 | 24.976 |

M = Compound was manually integrated.
* = Compound is an internal standard.
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on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:21
Date, time and analyst ID of latest file update: 06-Jan-2020 19:23 mec29284

Sample Name: VSTD025 Lab Sample ID: VSTD025

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 90) 1,1,2-Trichloroethane | (3) | 10.199 | 97 | 942945 | 24.934 |
| 91) Tetrachloroethene | (3) | 10.284 | 166 | 1429882 | 24.793 |
| 92) 1,3-Dichloropropane | (3) | 10.363 | 76 | 1685897 | 24.868 |
| 93) 2-Hexanone | (3) | 10.424 | 43 | 7213269 | 250.592 |
| 95) Dibromochloromethane | (3) | 10.583 | 129 | 1191214 | 24.927 |
| 97) 1,2-Dibromoethane | (3) | 10.693 | 107 | 928148 | 24.931 |
| 99)*Chlorobenzene-d5 | (3) | 11.125 | 117 | 1403295 | 10.000 |
| 98) 1-Chlorohexane | (3) | 11.138 | 91 | 1855531 | 24.707 |
| 100) Chlorobenzene | (3) | 11.156 | 112 | 3745221 | 24.904 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | 11.241 | 131 | 1325217 | 24.954 |
| 102) Ethylbenzene | (3) | 11.241 | 91 | 6504652 | 24.951 |
| 103) m+p-Xylene | (3) | 11.357 | 106 | 5098049 | 49.872 |
| 106) o-Xylene | (3) | 11.692 | 106 | 2512396 | 24.947 |
| 108) Styrene | (3) | 11.705 | 104 | 4299240 | 24.938 |
| 107) Xylene (Total) | (3) | | 106 | 7610445 | 74.819 |
| 109) Bromoform | (3) | 11.863 | 173 | 748522 | 25.129 |
| 110) Isopropylbenzene | (3) | 11.991 | 105 | 6488984 | 24.825 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 701734 | 10.022 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 174 | 593338 | 10.065 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | 12.247 | 83 | 1262646 | 24.987 |
| 116) Bromobenzene | (4) | 12.253 | 156 | 1602929 | 24.784 |
| 117) trans-1,4-Dichloro-2-butene | (1) | 12.272 | 53 | 3621009A | 249.805 |
| 118) 1,2,3-Trichloropropane | (4) | 12.290 | 110 | 331205 | 25.128 |
| 119) n-Propylbenzene | (4) | 12.326 | 91 | 7627760 | 24.727 |
| 121) 2-Chlorotoluene | (4) | 12.400 | 126 | 1575347 | 24.798 |
| 123) 1,3,5-Trimethylbenzene | (4) | 12.461 | 105 | 5710629 | 24.849 |
| 124) 4-Chlorotoluene | (4) | 12.497 | 126 | 1633641 | 24.825 |
| 127) tert-Butylbenzene | (4) | 12.704 | 134 | 1211412M | 24.932 |
| 128) Pentachloroethane | (4) | 12.741 | 167 | 1056745 | 25.153 |
| 129) 1,2,4-Trimethylbenzene | (4) | 12.747 | 105 | 6032577 | 24.990 |
| 130) sec-Butylbenzene | (4) | 12.869 | 105 | 7261559 | 24.770 |
| 133) 1,3-Dichlorobenzene | (4) | 12.967 | 146 | 3196374 | 24.886 |
| 134) p-Isopropyltoluene | (4) | 12.979 | 119 | 6391389 | 24.793 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.027 | 152 | 774799 | 10.000 |
| 136) 1,4-Dichlorobenzene | (4) | 13.046 | 146 | 3211119 | 24.742 |
| 137) 1,2,3-Trimethylbenzene | (4) | 13.058 | 120 | 2613345 | 24.897 |
| 138) Benzyl Chloride | (4) | 13.125 | 126 | 583868 | 25.201 |
| 140) n-Butylbenzene | (4) | 13.271 | 92 | 3220661 | 24.833 |

M = Compound was manually integrated.
A = User selected an alternate hit.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.

Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:21
Date, time and analyst ID of latest file update: 06-Jan-2020 19:23 mec29284

Sample Name: VSTD025 Lab Sample ID: VSTD025

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 141) 1,2-Dichlorobenzene | (4) | 13.302 | 146 | 2952561 | 24.801 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | 13.851 | 155 | 201438A | 25.195 |
| 146) 1,3,5-Trichlorobenzene | (4) | 13.979 | 180 | 2590432 | 24.559 |
| 147) 1,2,4-Trichlorobenzene | (4) | 14.399 | 180 | 2322603 | 24.583 |
| 148) Hexachlorobutadiene | (4) | 14.485 | 225 | 1114083 | 24.460 |
| 149) Naphthalene | (4) | 14.588 | 128 | 4267432 | 24.559 |
| 150) 1,2,3-Trichlorobenzene | (4) | 14.728 | 180 | 1991836 | 24.366 |

A = User selected an alternate hit.



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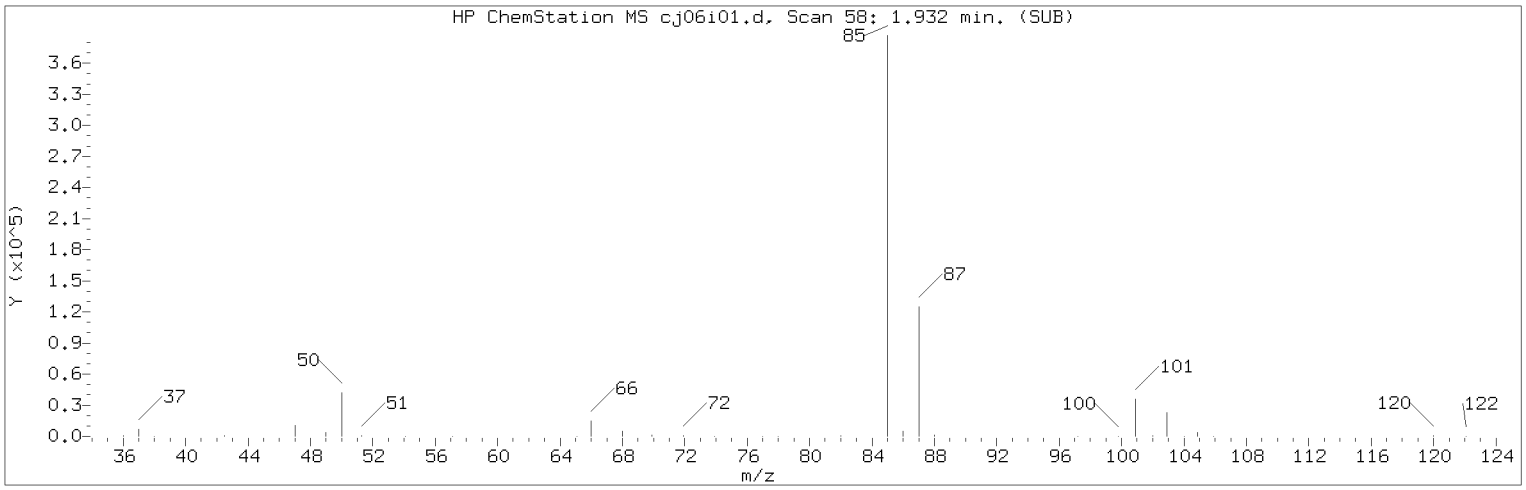
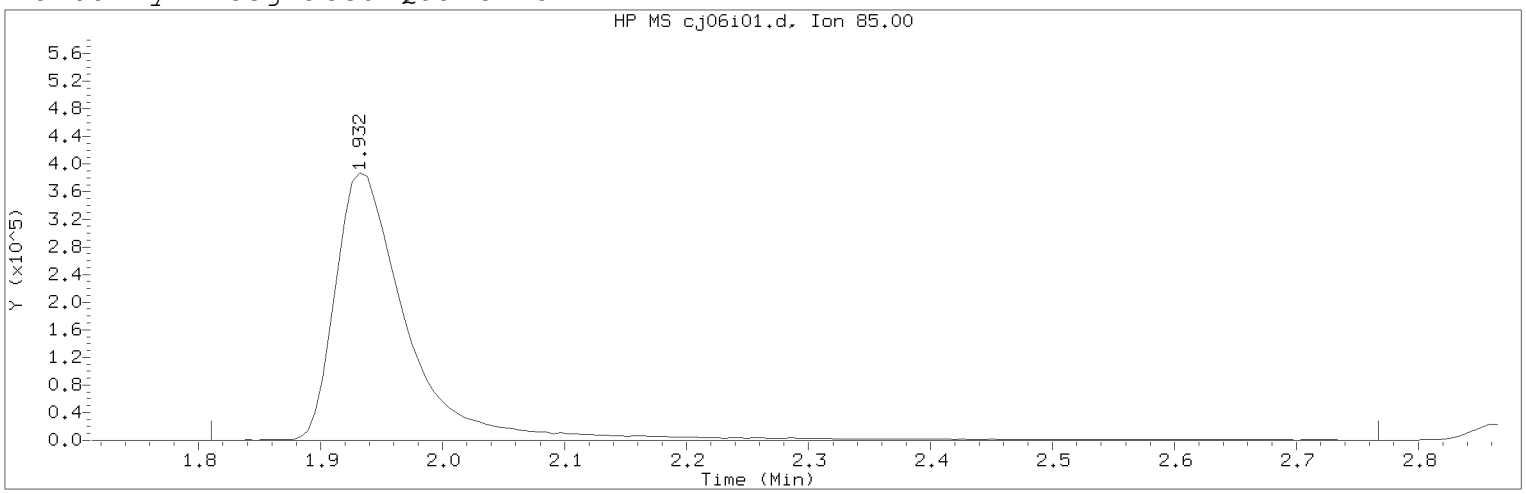
on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:21
Date, time and analyst ID of latest file update: 06-Jan-2020 19:23 mec29284

Sample Name: VSTD025 Lab Sample ID: VSTD025

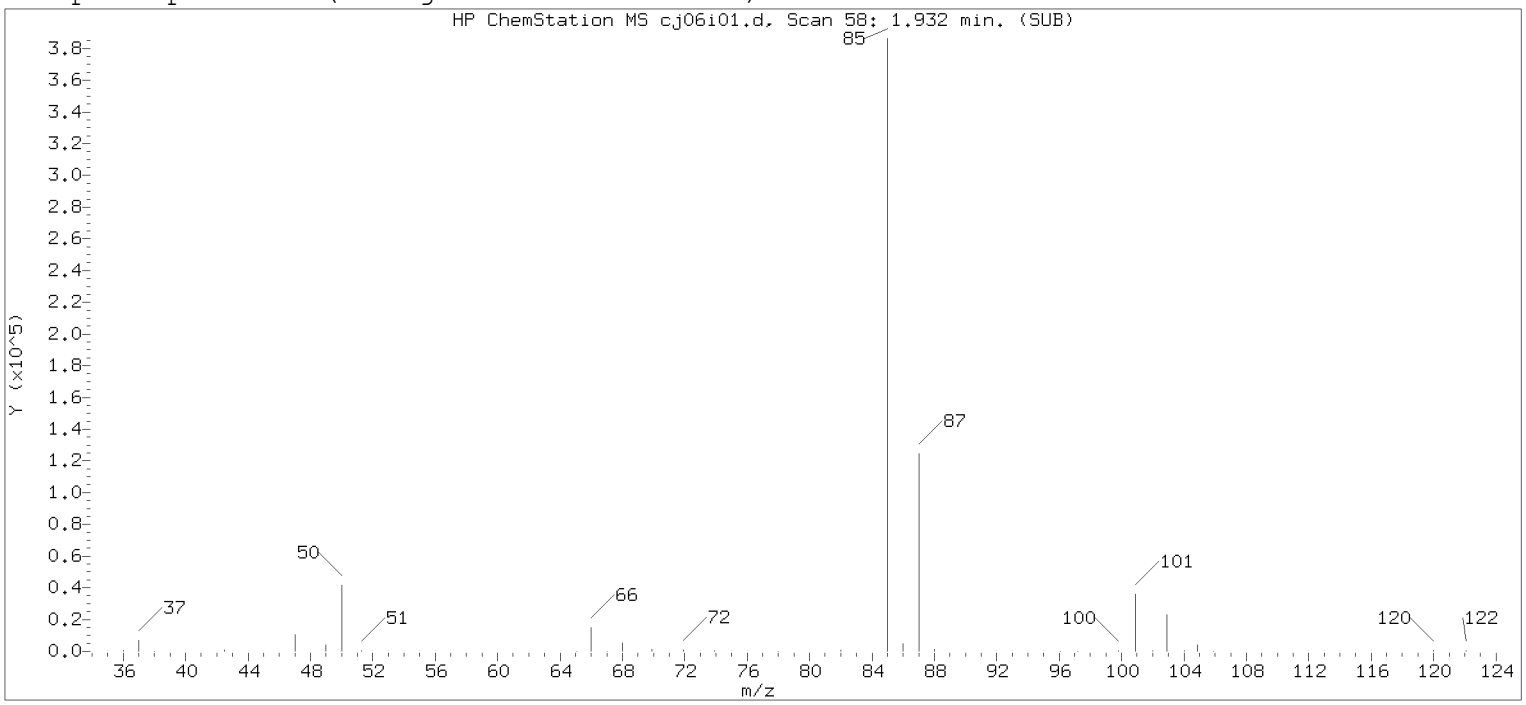
Compound Number : 1
Compound Name : Dichlorodifluoromethane
Scan Number : 58
Retention Time (minutes): 1.932
Quant Ion : 85.00
Area (flag) : 1609048M
On-Column Amount (ng) : 24.8786
Integration start scan : 37 Integration stop scan: 194
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

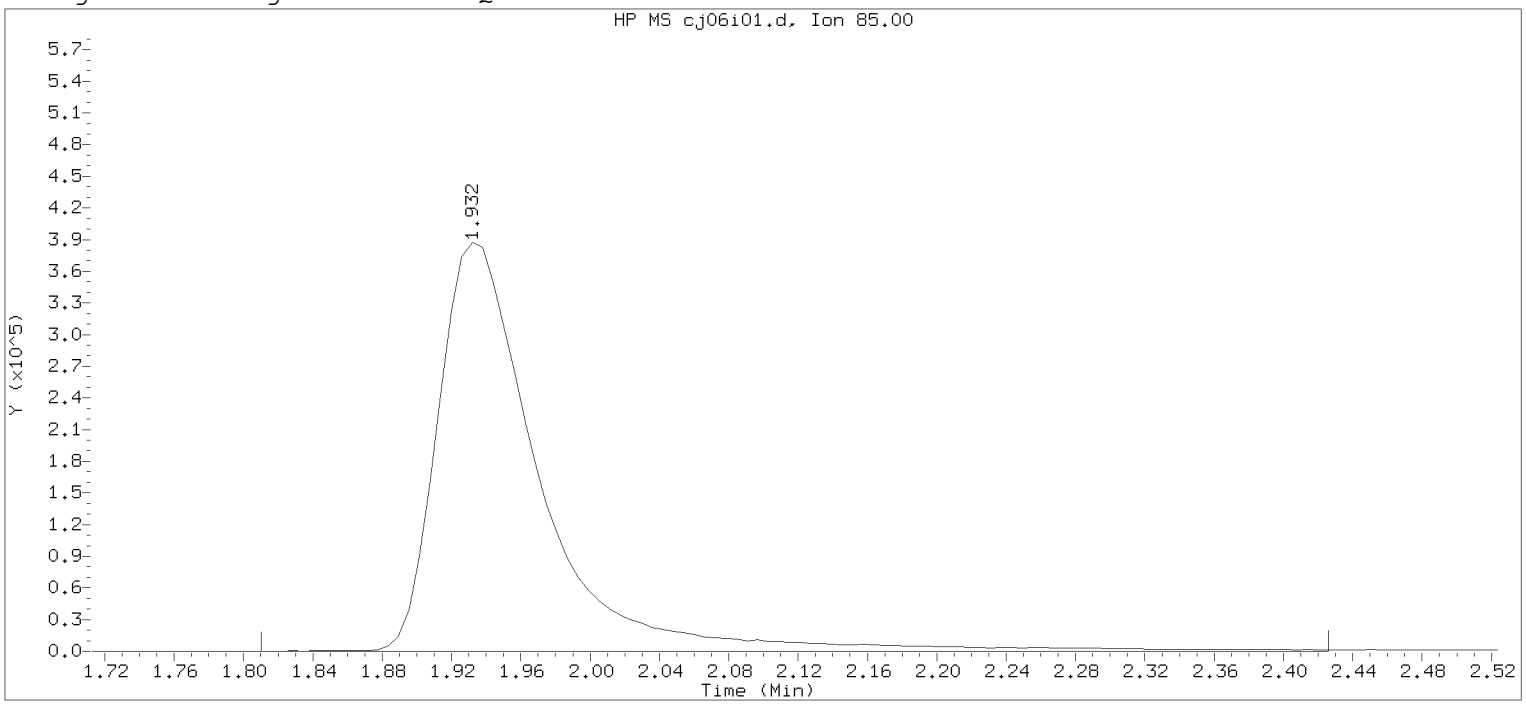
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

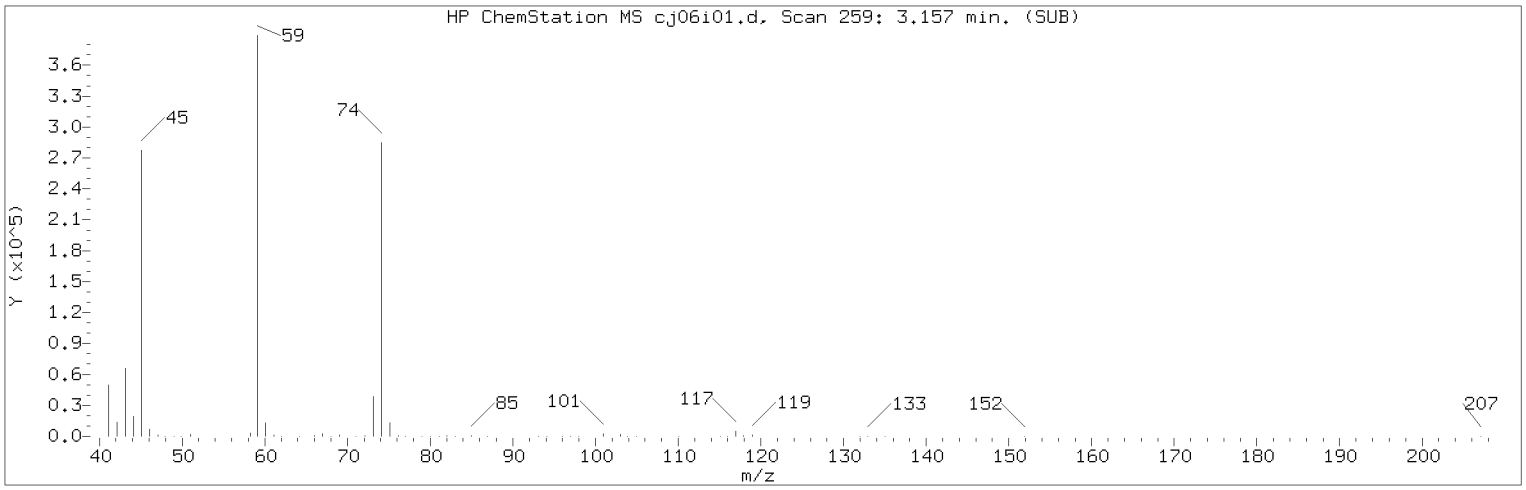
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 18:56
Date, time and analyst ID of latest file update: 06-Jan-2020 18:56 Automation

Sample Name: VSTD025 Lab Sample ID: VSTD025

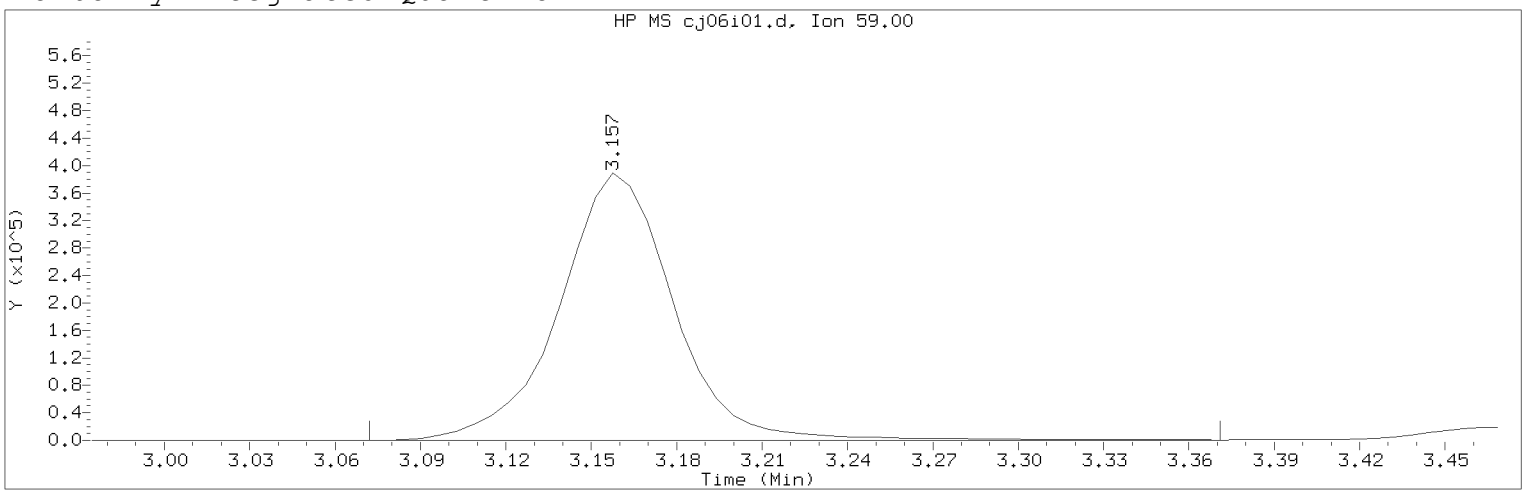
Compound Number : 1
Compound Name : Dichlorodifluoromethane
Scan Number : 58
Retention Time (minutes): 1.932
Quant Ion : 85.00
Area : 1592639
On-column Amount (ng) : 25.0000
Integration start scan : 37 Integration stop scan: 138
Y at integration start : 0 Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:21
Date, time and analyst ID of latest file update: 06-Jan-2020 19:23 mec29284

Sample Name: VSTD025 Lab Sample ID: VSTD025

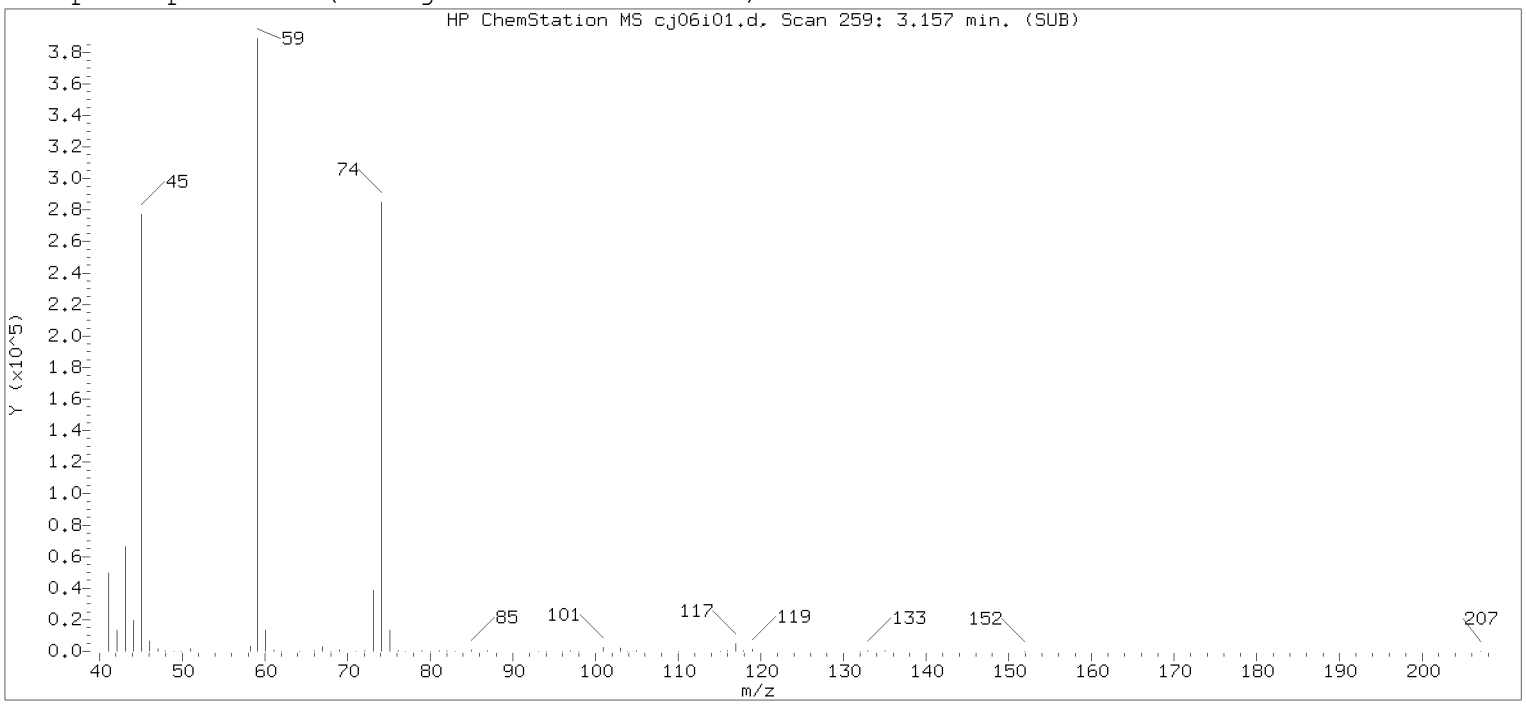
Compound Number : 12
Compound Name : Ethyl ether
Scan Number : 259
Retention Time (minutes): 3.157
Quant Ion : 59.00
Area (flag) : 1083490M
On-Column Amount (ng) : 25.1500
Integration start scan : 244 Integration stop scan: 293
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

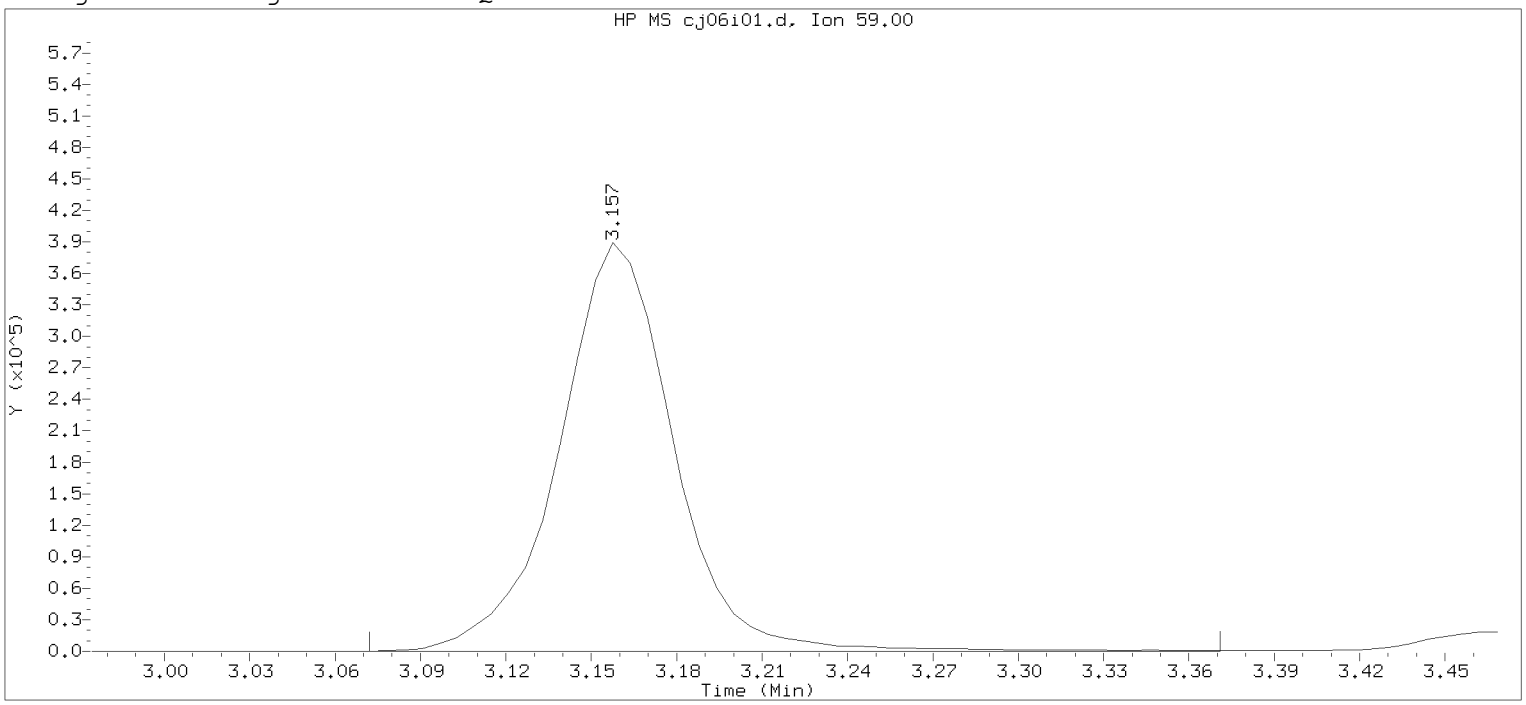
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

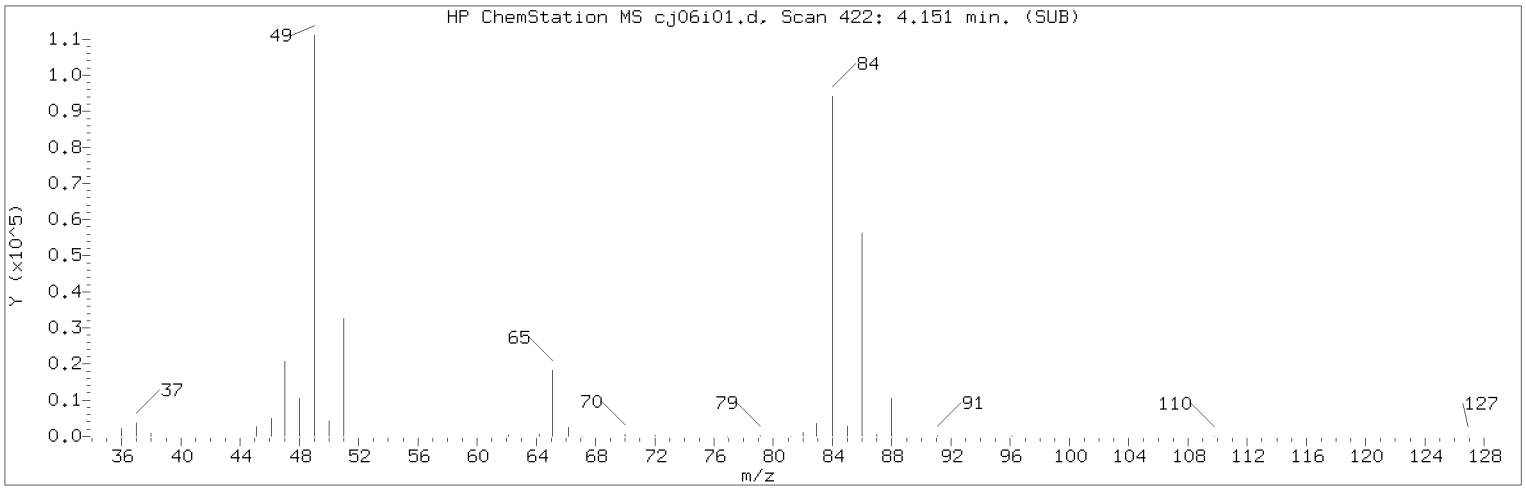
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 18:56
Date, time and analyst ID of latest file update: 06-Jan-2020 18:56 Automation

Sample Name: VSTD025 Lab Sample ID: VSTD025

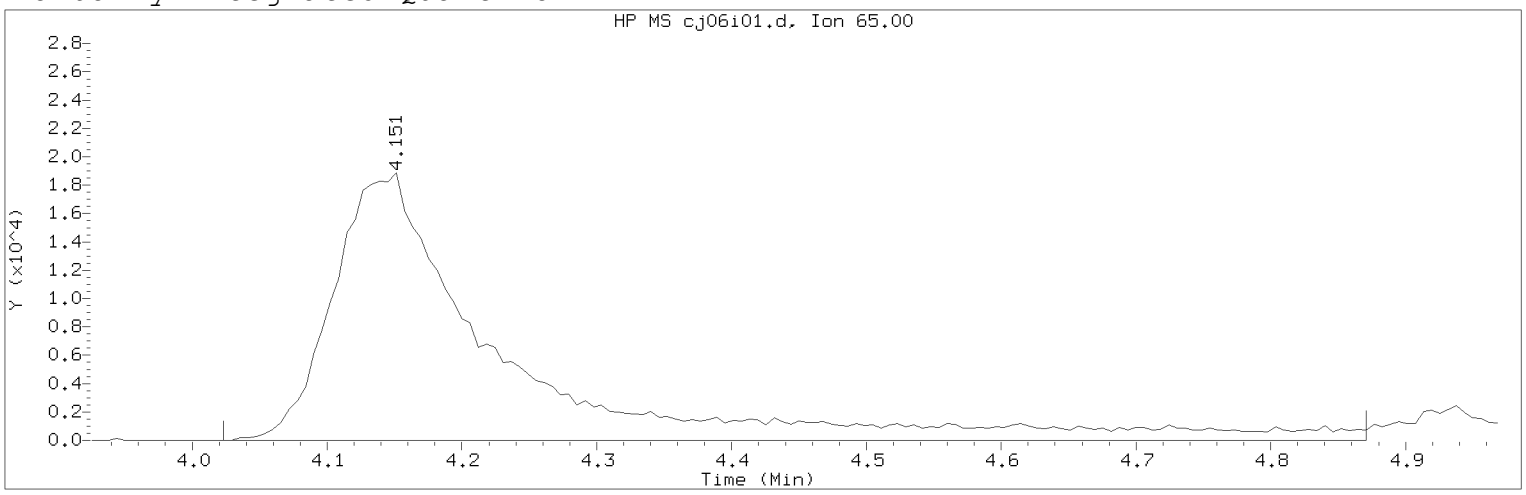
| | | | |
|---|---|---|---|
| Compound Number | : 12 | | |
| Compound Name | : Ethyl ether | | |
| Scan Number | : 259 | | |
| Retention Time (minutes) | : 3.157 | | |
| Quant Ion | : 59.00 | | |
| Area | : 1081533 | | |
| On-column Amount (ng) | : 25.0000 | | |
| Integration start scan | : 244 | Integration stop scan: | 293 |
| Y at integration start | : 0 | Y at integration end: | 208 |

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:21
Date, time and analyst ID of latest file update: 06-Jan-2020 19:23 mec29284

Sample Name: VSTD025 Lab Sample ID: VSTD025

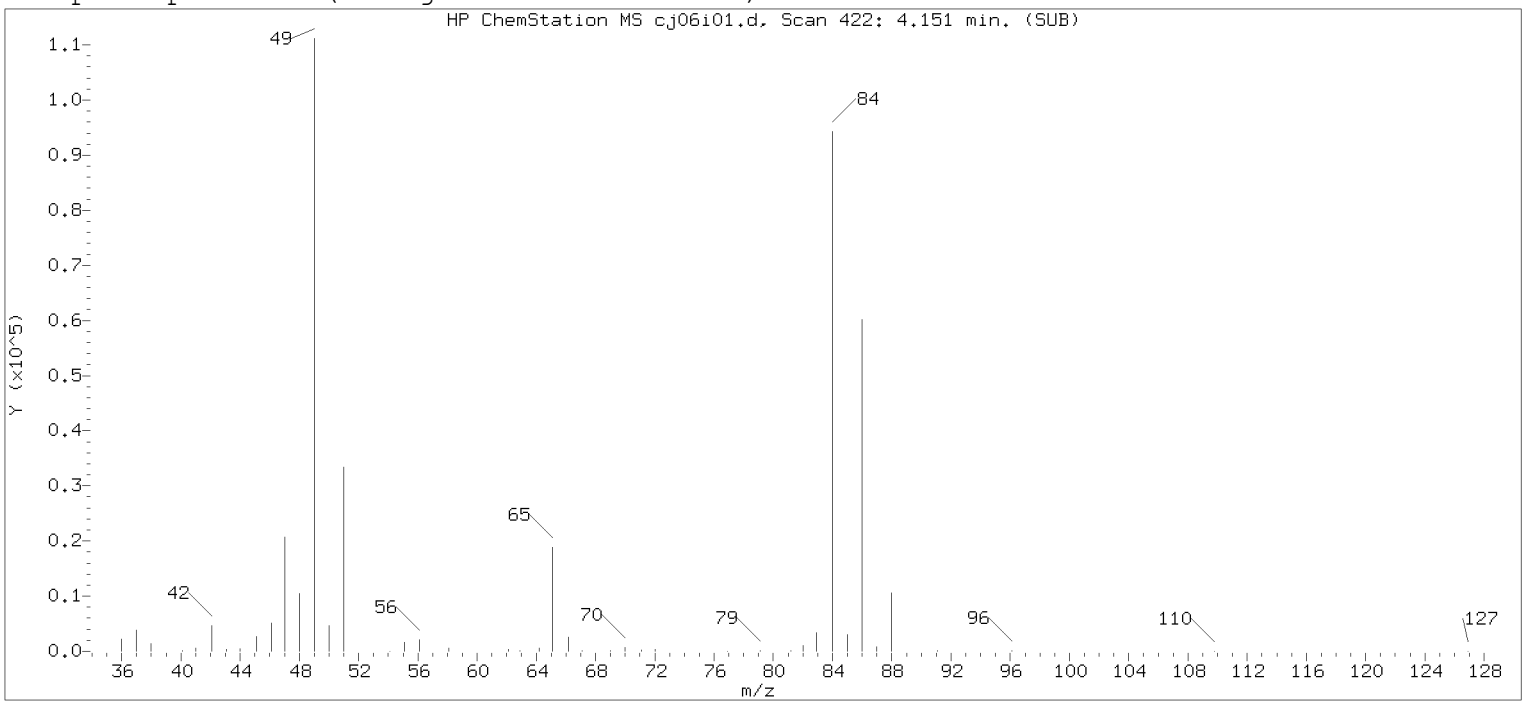
Compound Number : 28
Compound Name : t-Butyl Alcohol-d10
Scan Number : 422
Retention Time (minutes): 4.151
Quant Ion : 65.00
Area (flag) : 162278M
On-Column Amount (ng) : 50.0000
Integration start scan : 400 Integration stop scan: 539
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

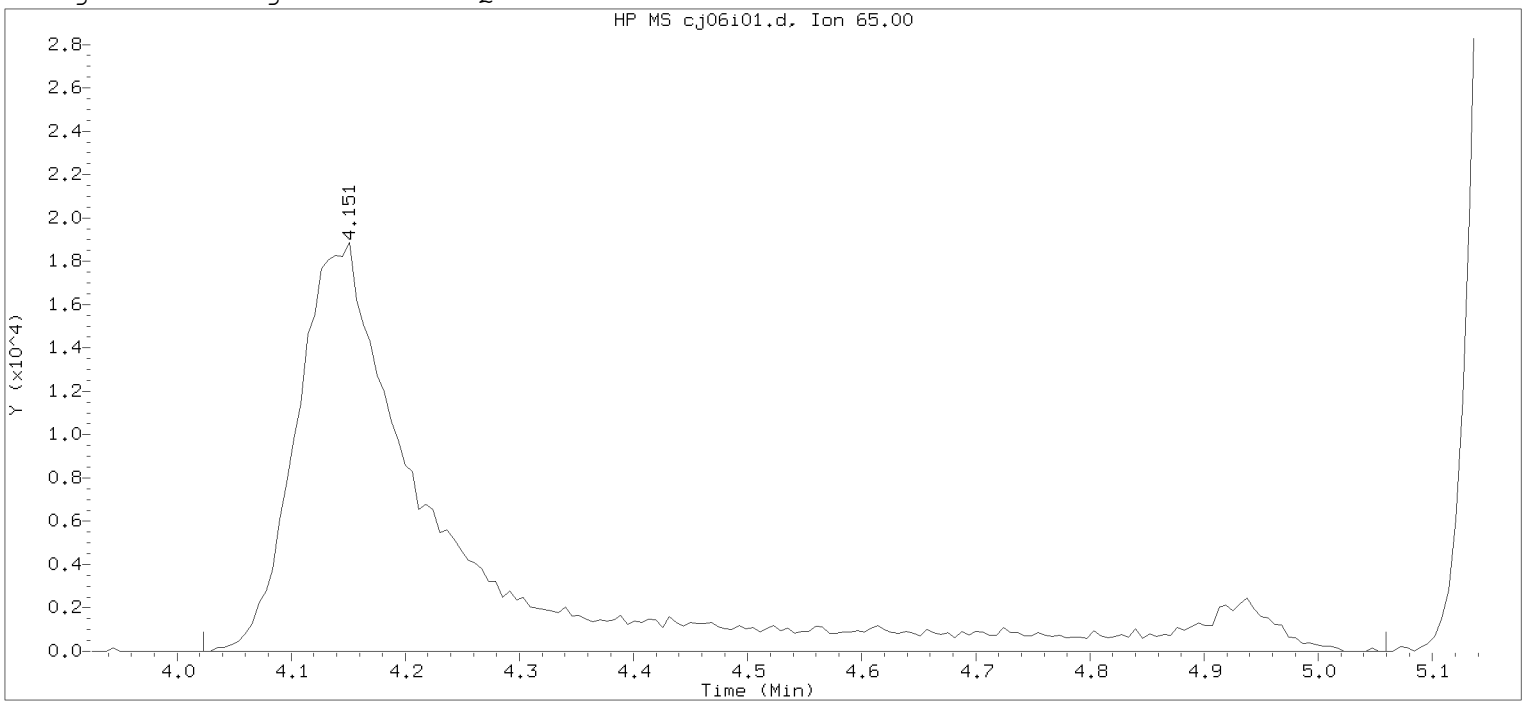
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

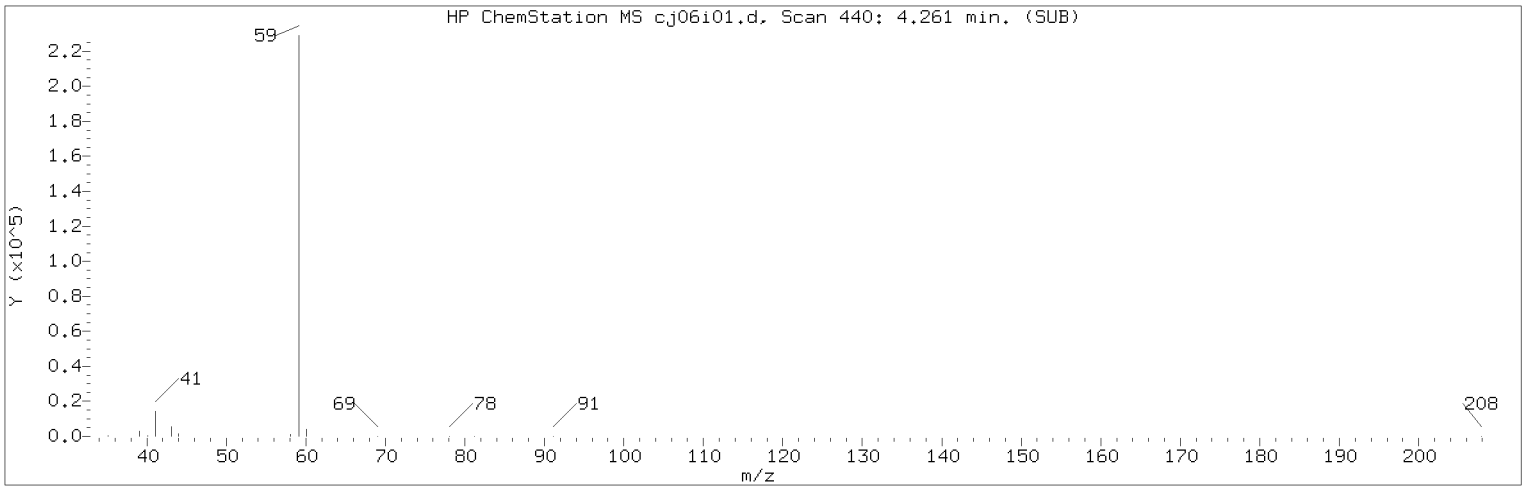
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 18:56
Date, time and analyst ID of latest file update: 06-Jan-2020 18:56 Automation

Sample Name: VSTD025 Lab Sample ID: VSTD025

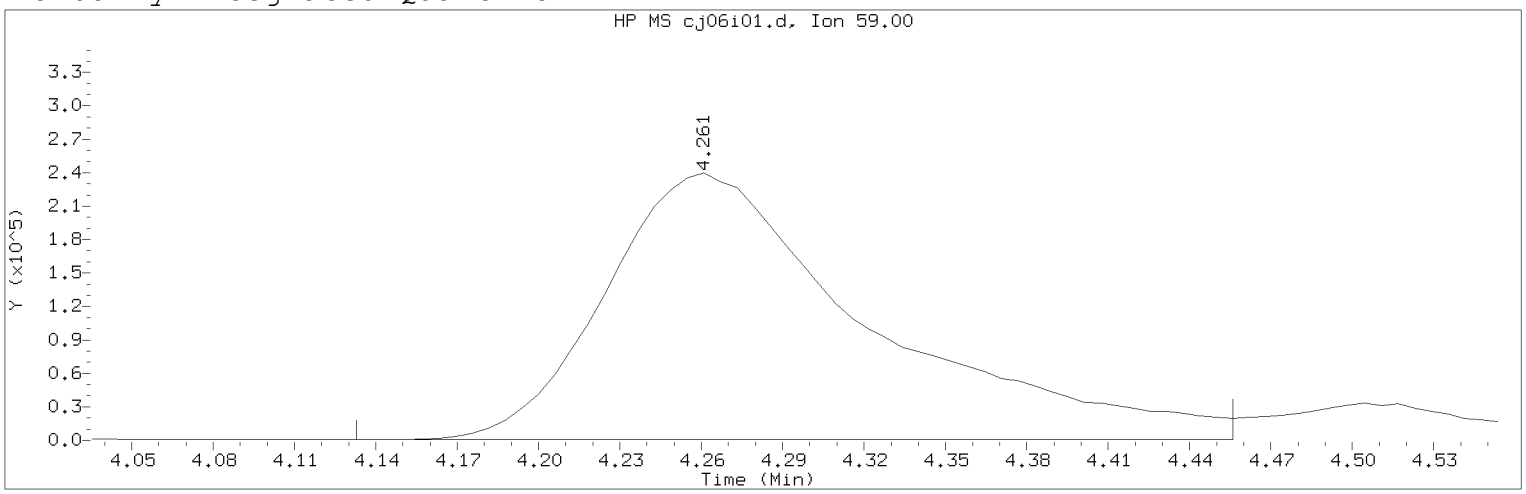
Compound Number : 28
Compound Name : t-Butyl Alcohol-d10
Scan Number : 422
Retention Time (minutes): 4.151
Quant Ion : 65.00
Area : 172605
On-column Amount (ng) : 50.0000
Integration start scan : 400 Integration stop scan: 570
Y at integration start : 0 Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:21
Date, time and analyst ID of latest file update: 06-Jan-2020 19:23 mec29284

Sample Name: VSTD025 Lab Sample ID: VSTD025

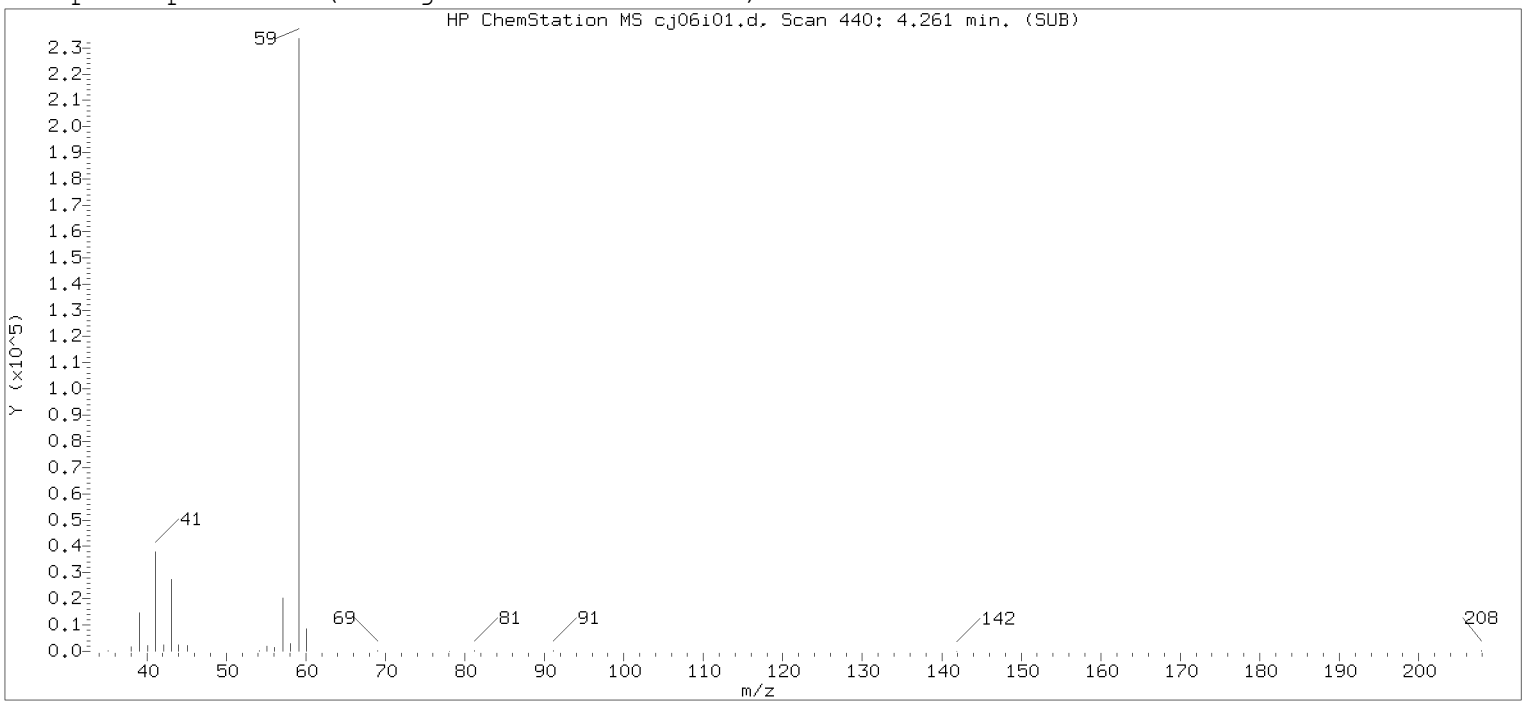
Compound Number : 30
Compound Name : t-Butyl Alcohol
Scan Number : 440
Retention Time (minutes): 4.261
Quant Ion : 59.00
Area (flag) : 1619516M
On-Column Amount (ng) : 493.9000
Integration start scan : 418 Integration stop scan: 471
Y at integration start : 342 Y at integration end: 342

Reason for manual integration: improper integration

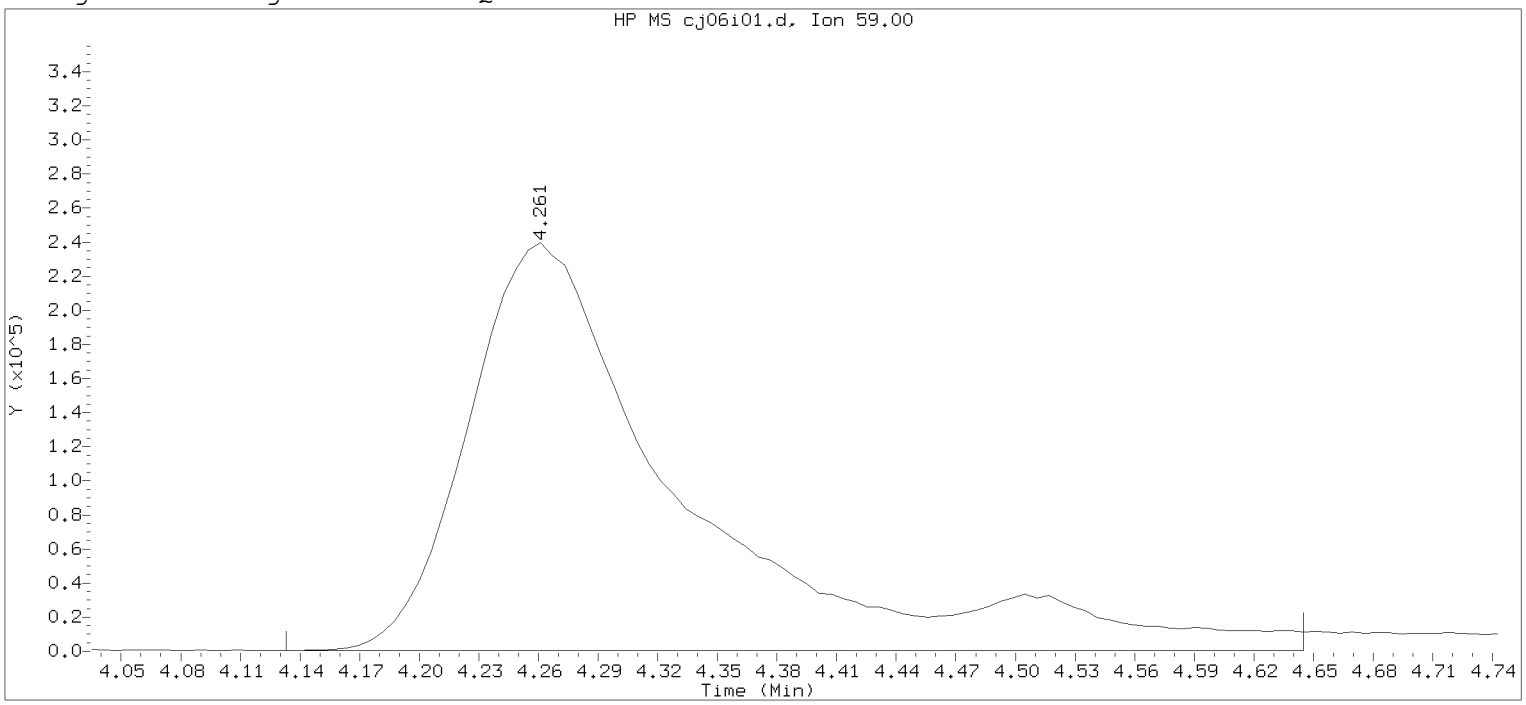
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

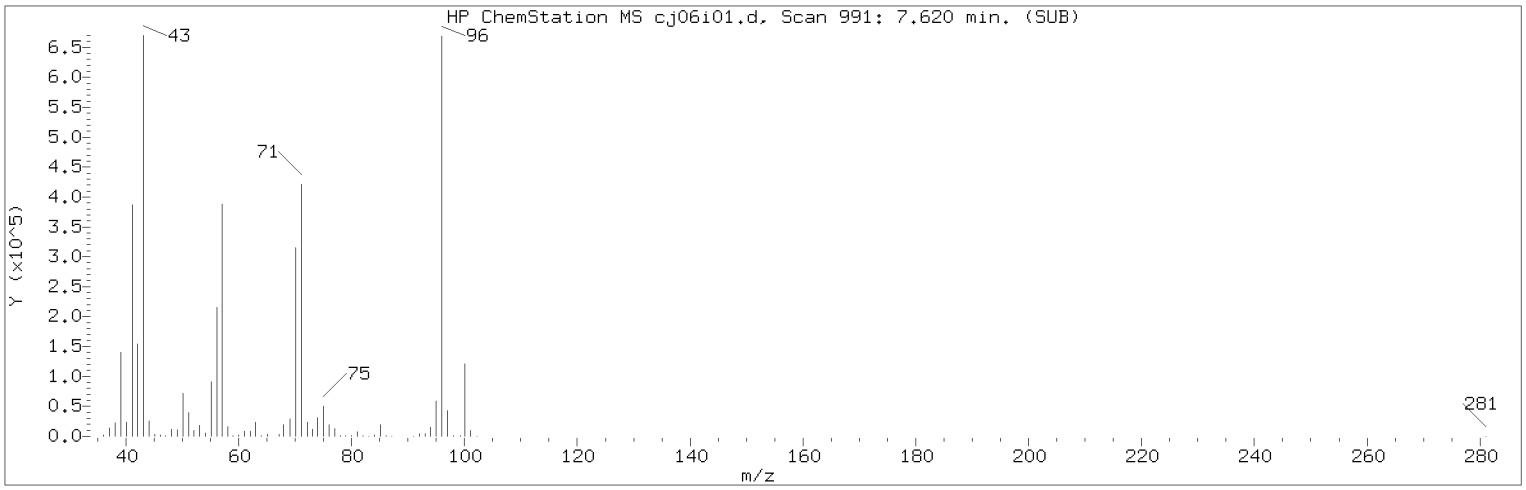
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 18:56
Date, time and analyst ID of latest file update: 06-Jan-2020 18:56 Automation

Sample Name: VSTD025 Lab Sample ID: VSTD025

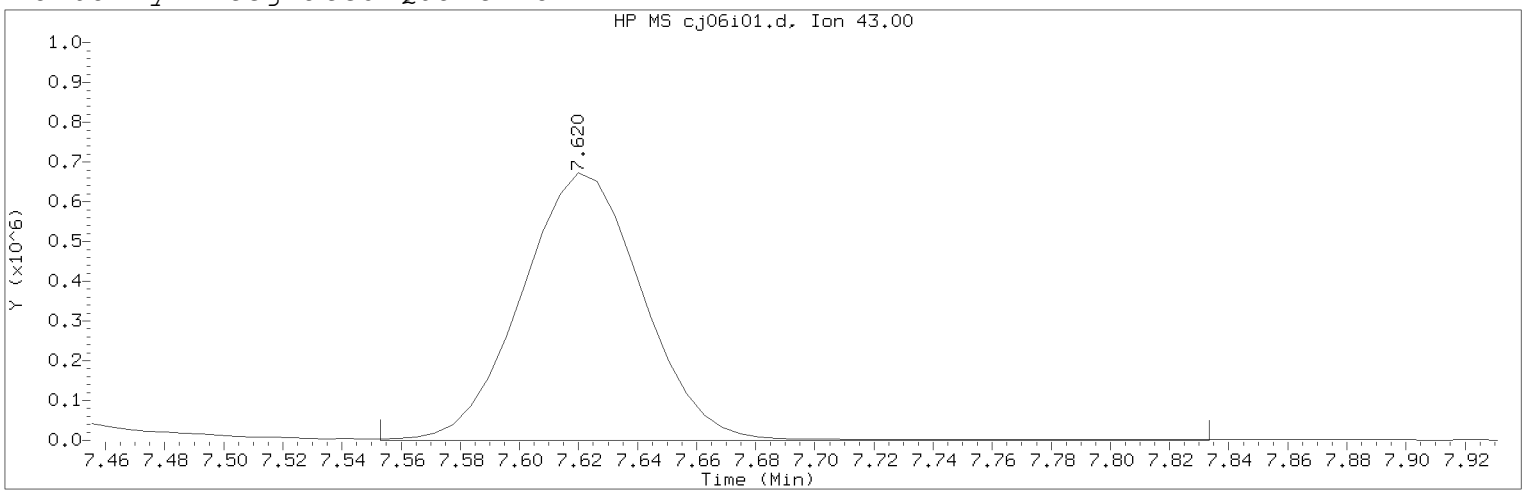
| | | | |
|---|---|---|---|
| Compound Number | : 30 | | |
| Compound Name | : t-Butyl Alcohol | | |
| Scan Number | : 440 | | |
| Retention Time (minutes) | : 4.261 | | |
| Quant Ion | : 59.00 | | |
| Area | : 1833250 | | |
| On-column Amount (ng) | : 500.0000 | | |
| Integration start scan | : 418 | Integration stop scan: | 502 |
| Y at integration start | : 342 | Y at integration end: | 342 |

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:21
Date, time and analyst ID of latest file update: 06-Jan-2020 19:23 mec29284

Sample Name: VSTD025 Lab Sample ID: VSTD025

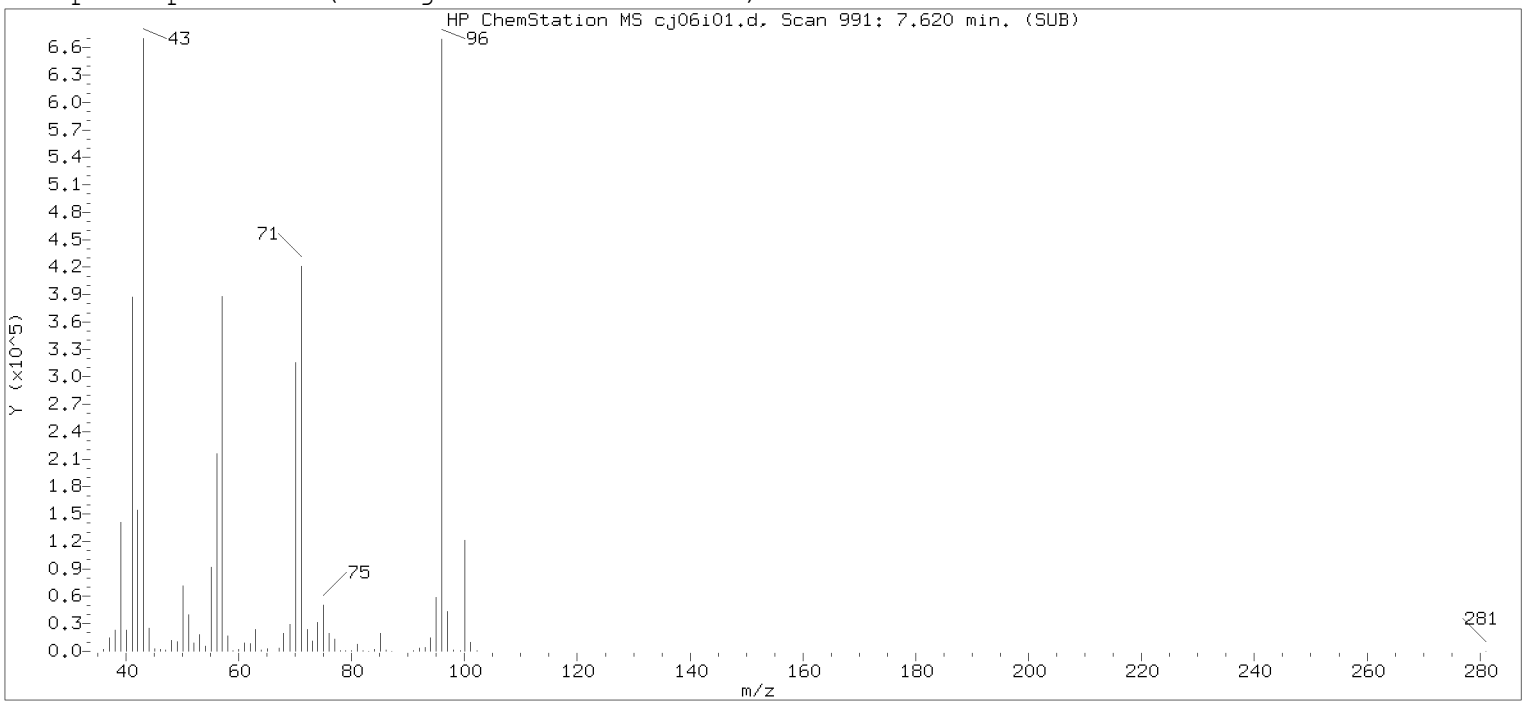
Compound Number : 64
Compound Name : n-Heptane
Scan Number : 991
Retention Time (minutes): 7.620
Quant Ion : 43.00
Area (flag) : 1915665M
On-Column Amount (ng) : 24.8471
Integration start scan : 979 Integration stop scan: 1025
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

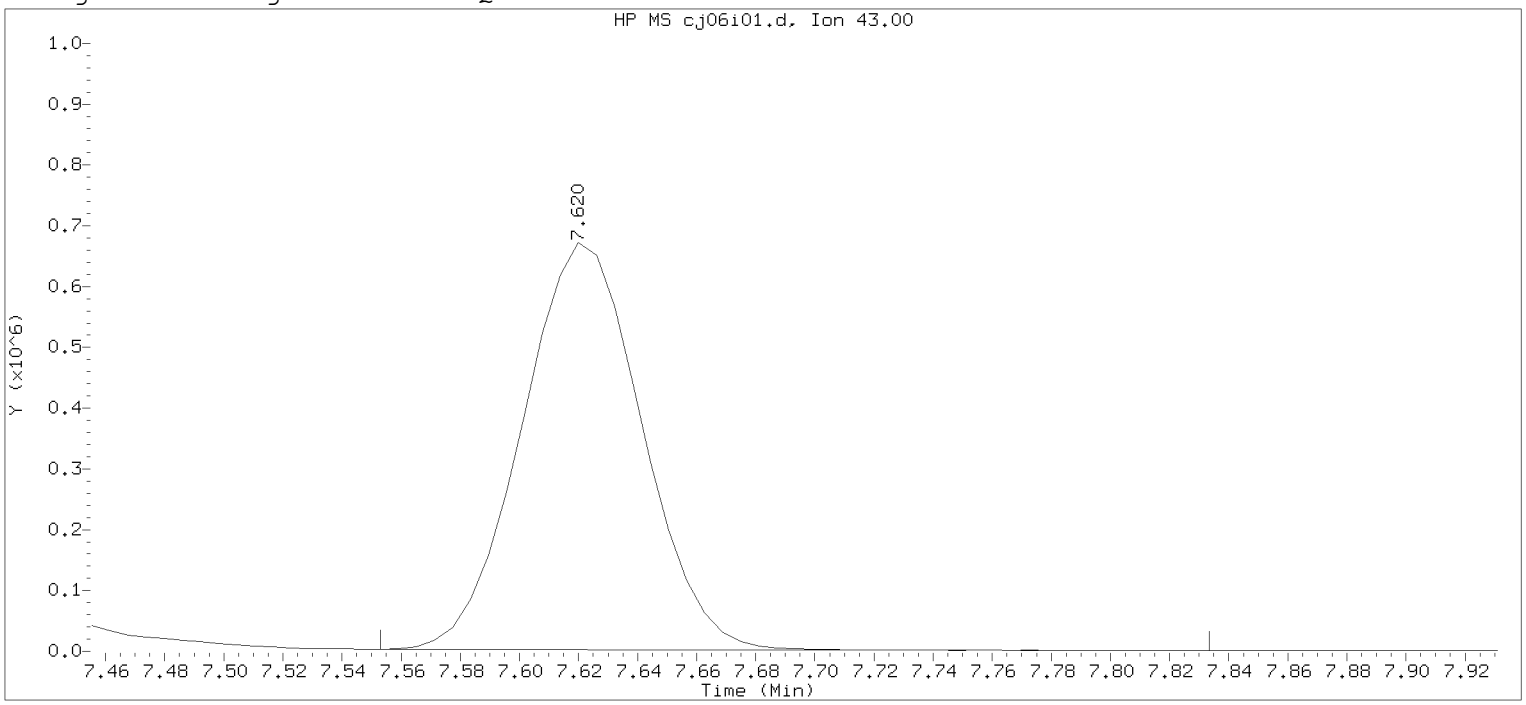
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38  Analyst ID: JKH09052

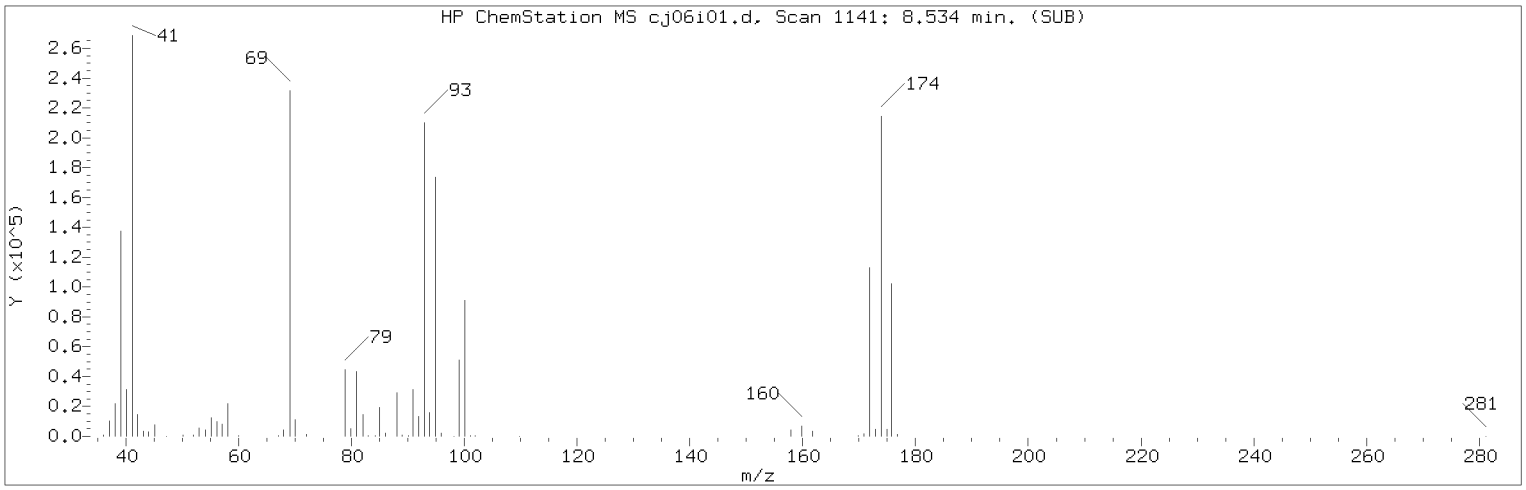
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 18:56
Date, time and analyst ID of latest file update: 06-Jan-2020 18:56 Automation

Sample Name: VSTD025  Lab Sample ID: VSTD025

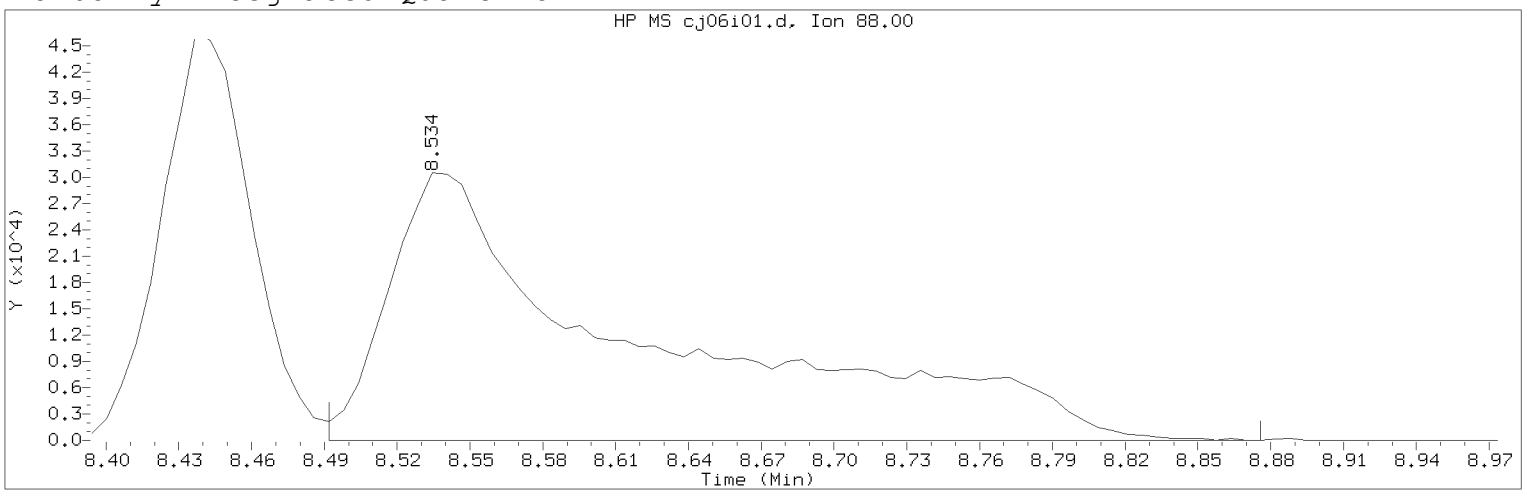
Compound Number : 64
Compound Name : n-Heptane
Scan Number : 991
Retention Time (minutes): 7.620
Quant Ion : 43.00
Area : 1880929
On-column Amount (ng) : 25.0000
Integration start scan : 979  Integration stop scan: 1025
Y at integration start : 3282  Y at integration end: 750

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec2981

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:21
Date, time and analyst ID of latest file update: 06-Jan-2020 19:23 mec29284

Sample Name: VSTD025 Lab Sample ID: VSTD025

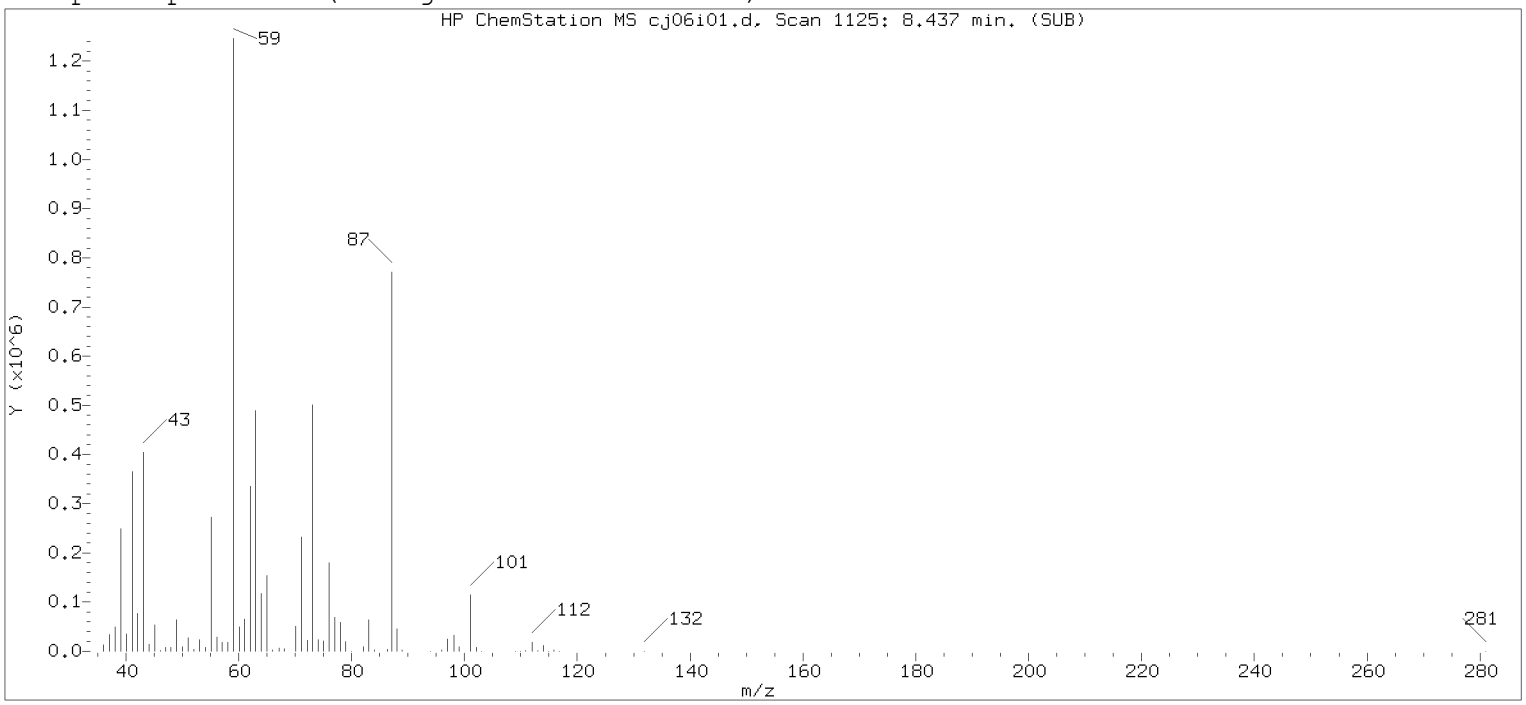
Compound Number : 74
Compound Name : 1,4-Dioxane
Scan Number : 1141
Retention Time (minutes): 8.534
Quant Ion : 88.00
Area (flag) : 219386M
On-Column Amount (ng) : 1238.6464
Integration start scan : 1133 Integration stop scan: 1196
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

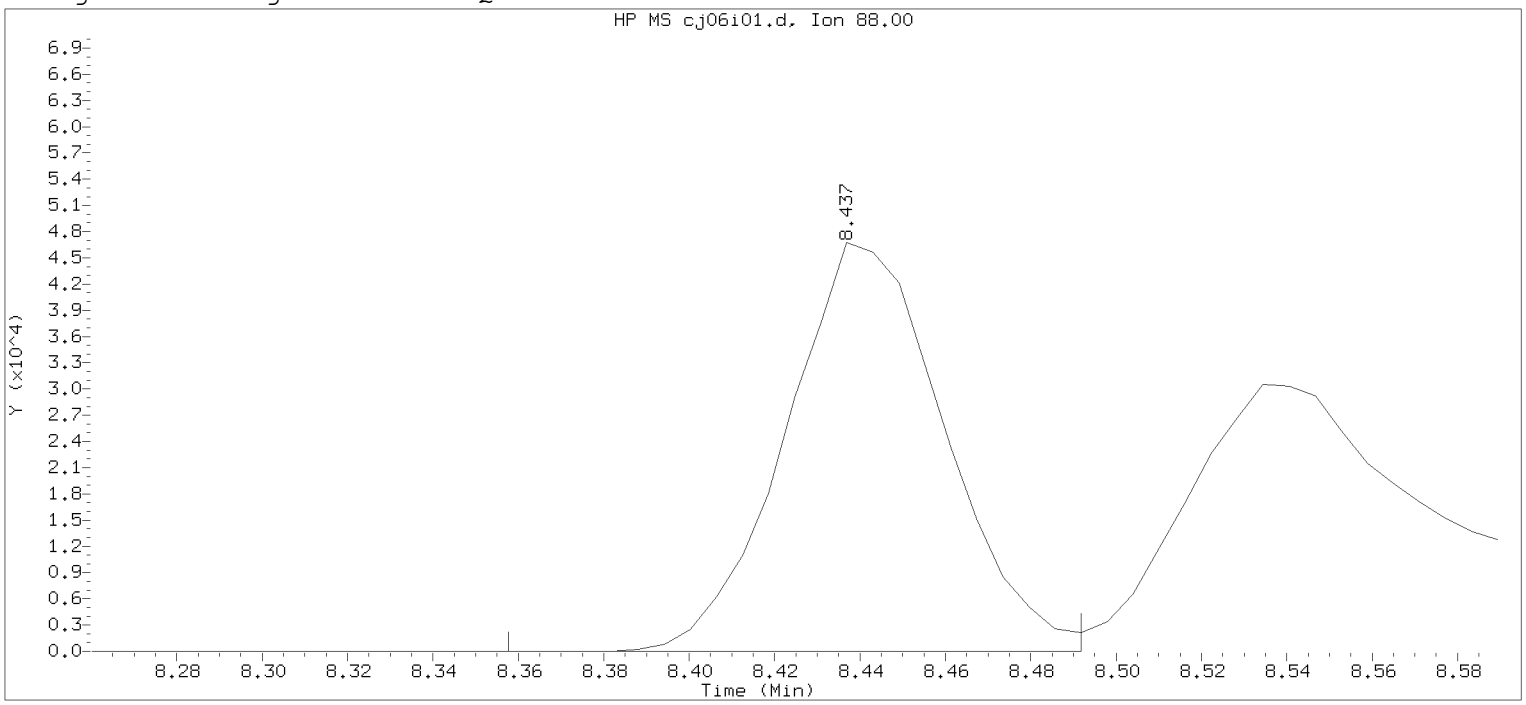
Analyst responsible for change: Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38  Analyst ID: JKH09052

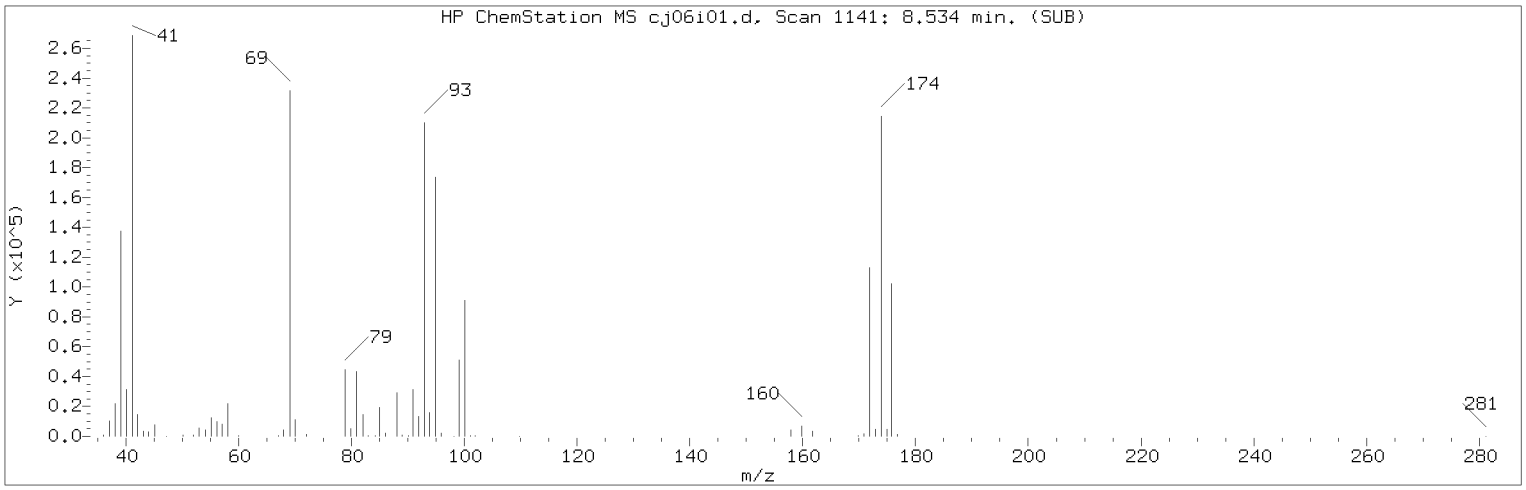
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 18:56
Date, time and analyst ID of latest file update: 06-Jan-2020 18:56 Automation

Sample Name: VSTD025  Lab Sample ID: VSTD025

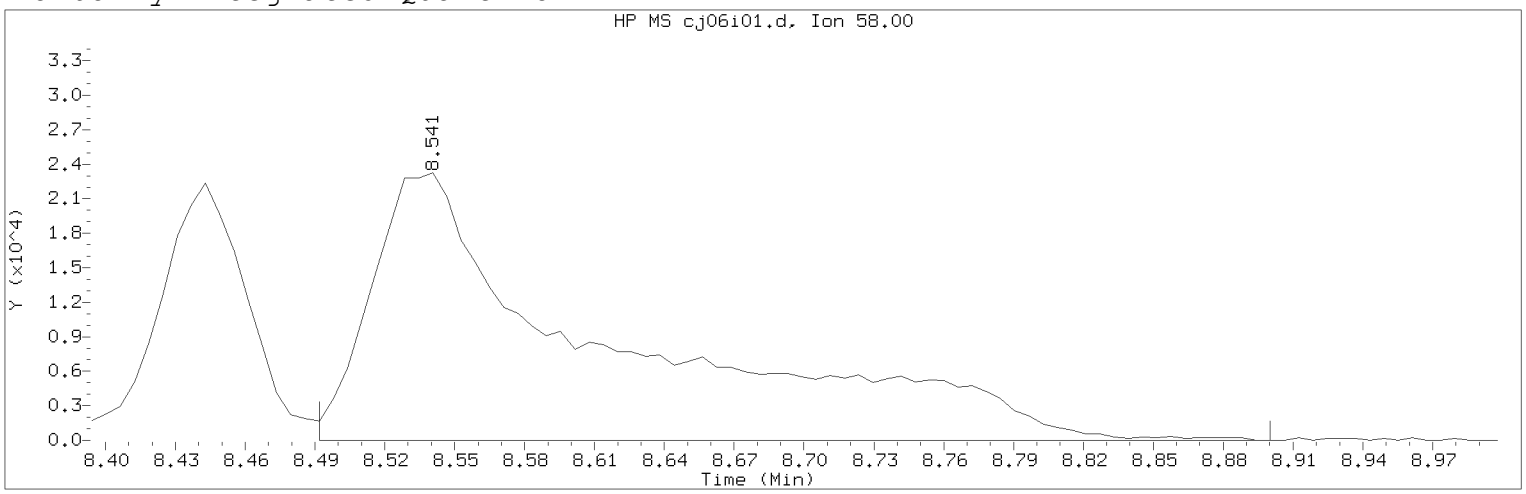
Compound Number : 74
Compound Name : 1,4-Dioxane
Scan Number : 1125
Retention Time (minutes): 8.437
Quant Ion : 88.00
Area : 120132
On-column Amount (ng) : 1250.0000
Integration start scan : 1111  Integration stop scan: 1133
Y at integration start : 0  Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:21
Date, time and analyst ID of latest file update: 06-Jan-2020 19:23 mec29284

Sample Name: VSTD025 Lab Sample ID: VSTD025

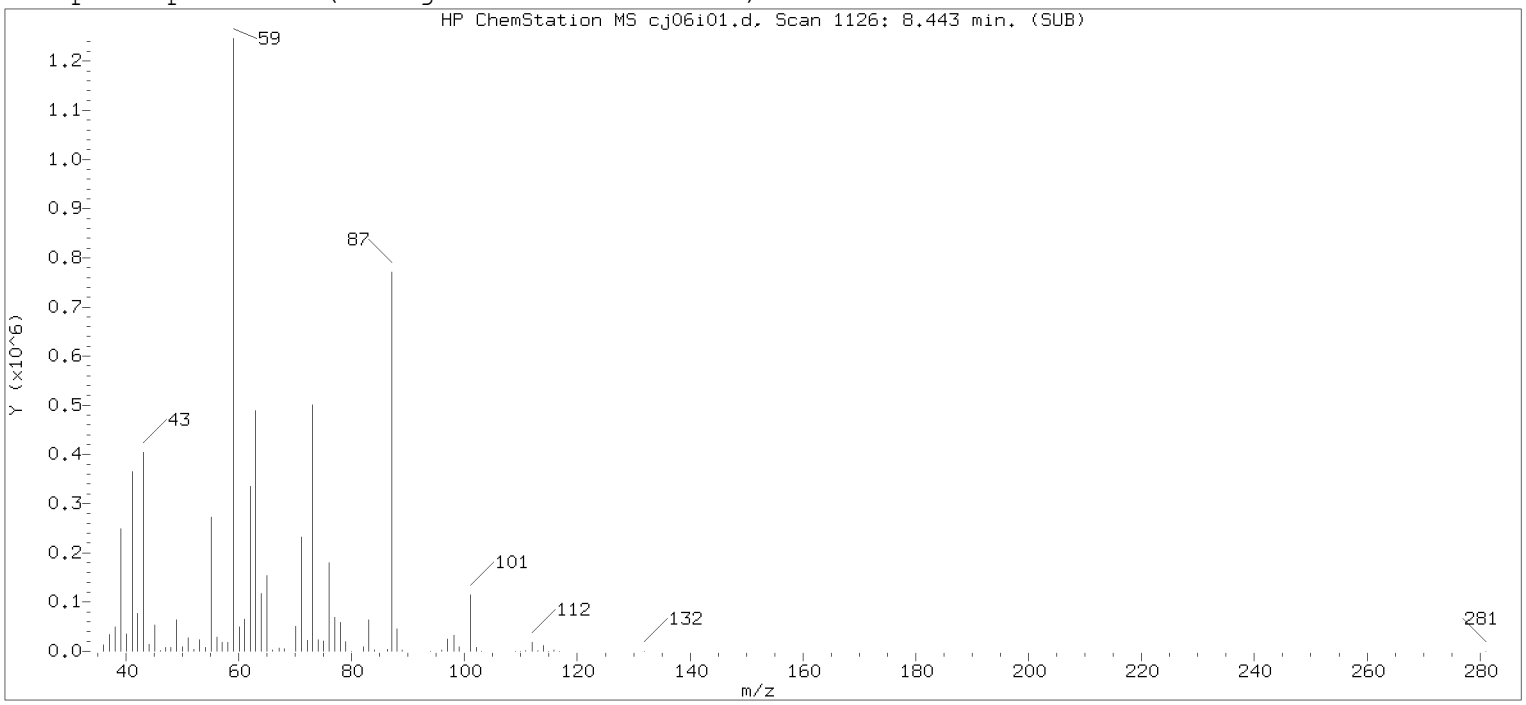
Compound Number : 74
Compound Name : 1,4-Dioxane
Scan Number : 1142
Retention Time (minutes): 8.541
Quant Ion : 58.00
Area (flag) : 161634M
On-Column Amount (ng) : 1247.3789
Integration start scan : 1133 Integration stop scan: 1200
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

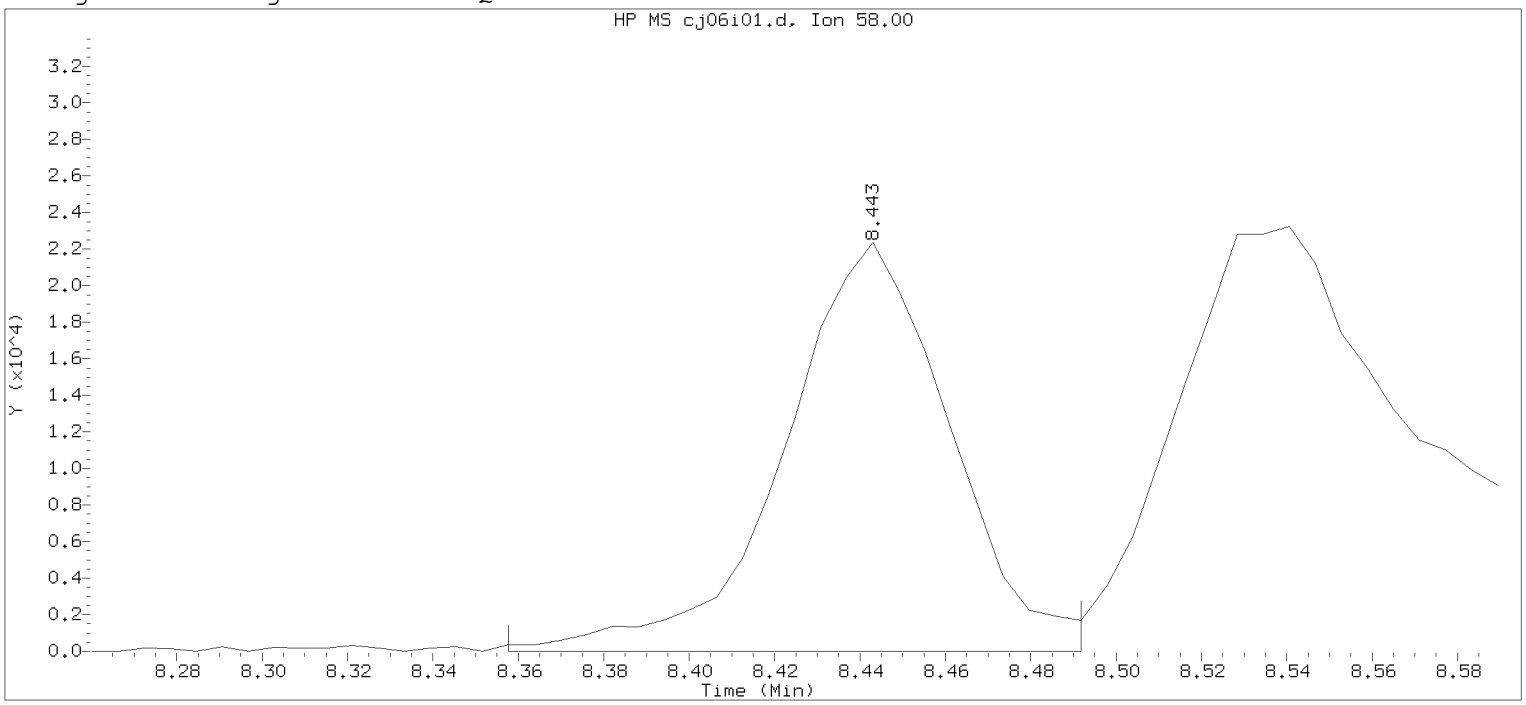
Analyst responsible for change: Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38  Analyst ID: JKH09052

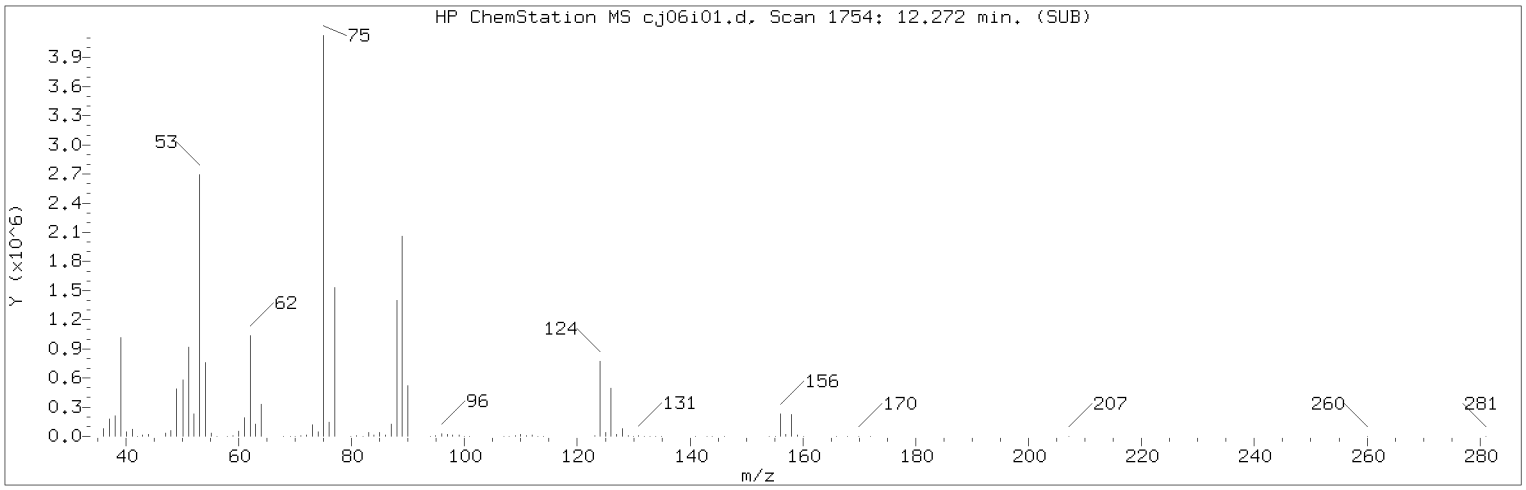
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 18:56
Date, time and analyst ID of latest file update: 06-Jan-2020 18:56 Automation

Sample Name: VSTD025  Lab Sample ID: VSTD025

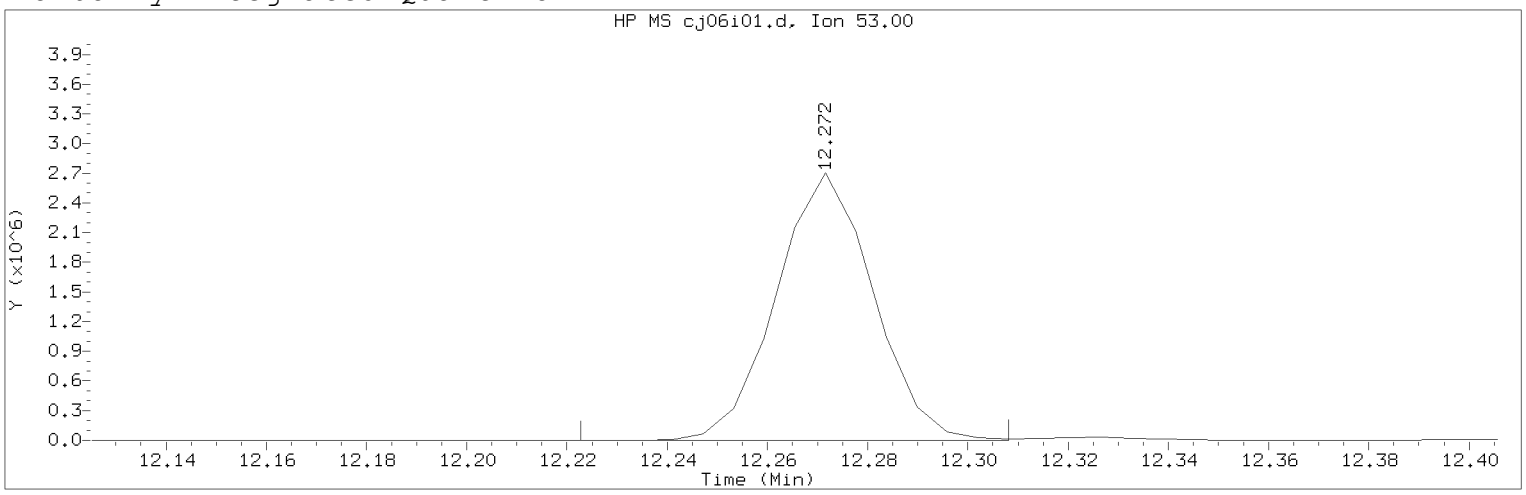
Compound Number : 74
Compound Name : 1,4-Dioxane
Scan Number : 1126
Retention Time (minutes): 8.443
Quant Ion : 58.00
Area : 60083
On-column Amount (ng) : 1250.0000
Integration start scan : 1111  Integration stop scan: 1133
Y at integration start : 0  Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:21
Date, time and analyst ID of latest file update: 06-Jan-2020 19:23 mec29284

Sample Name: VSTD025 Lab Sample ID: VSTD025

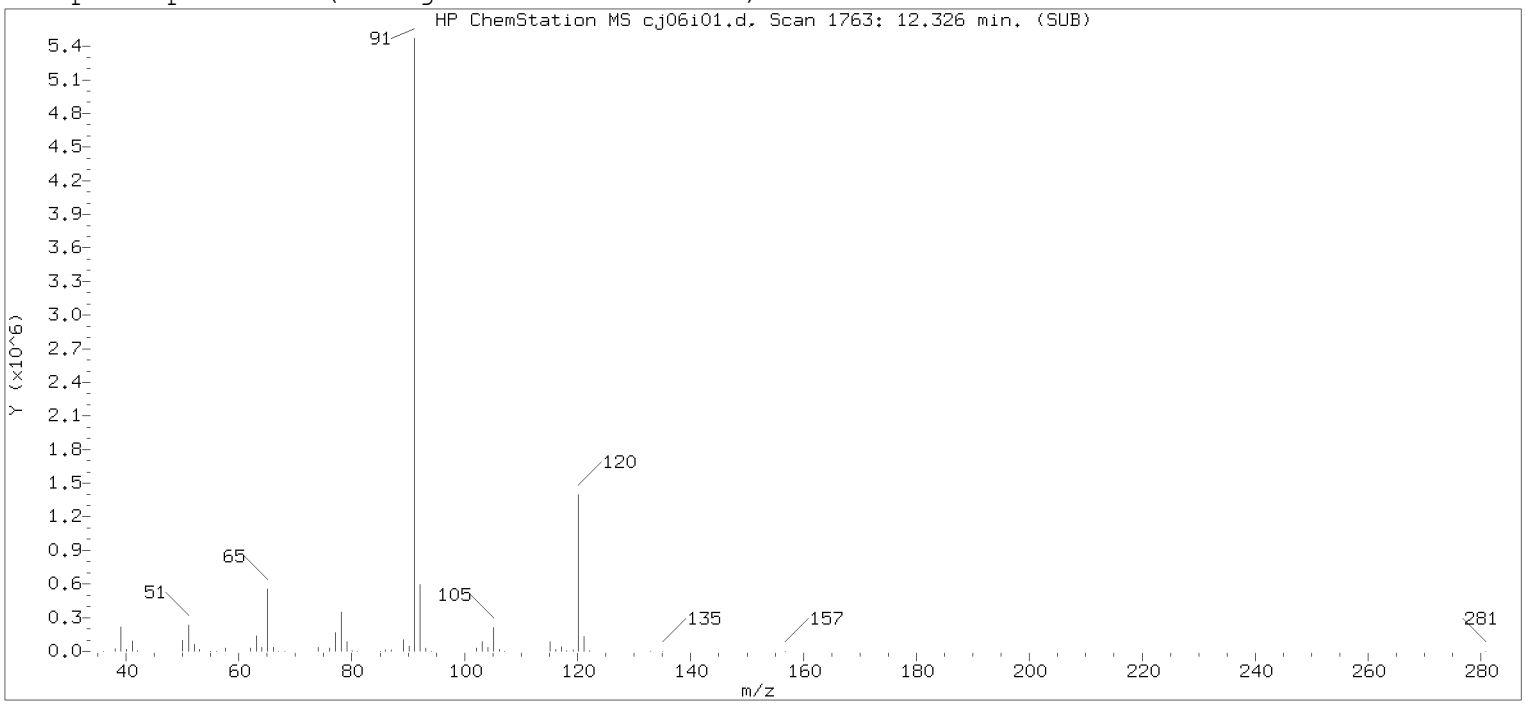
Compound Number : 117
Compound Name : trans-1,4-Dichloro-2-butene
Scan Number : 1754
Retention Time (minutes): 12.272
Quant Ion : 53.00
Area (flag) : 3621009A
On-Column Amount (ng) : 249.8053
Integration start scan : 1745 Integration stop scan: 1759
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

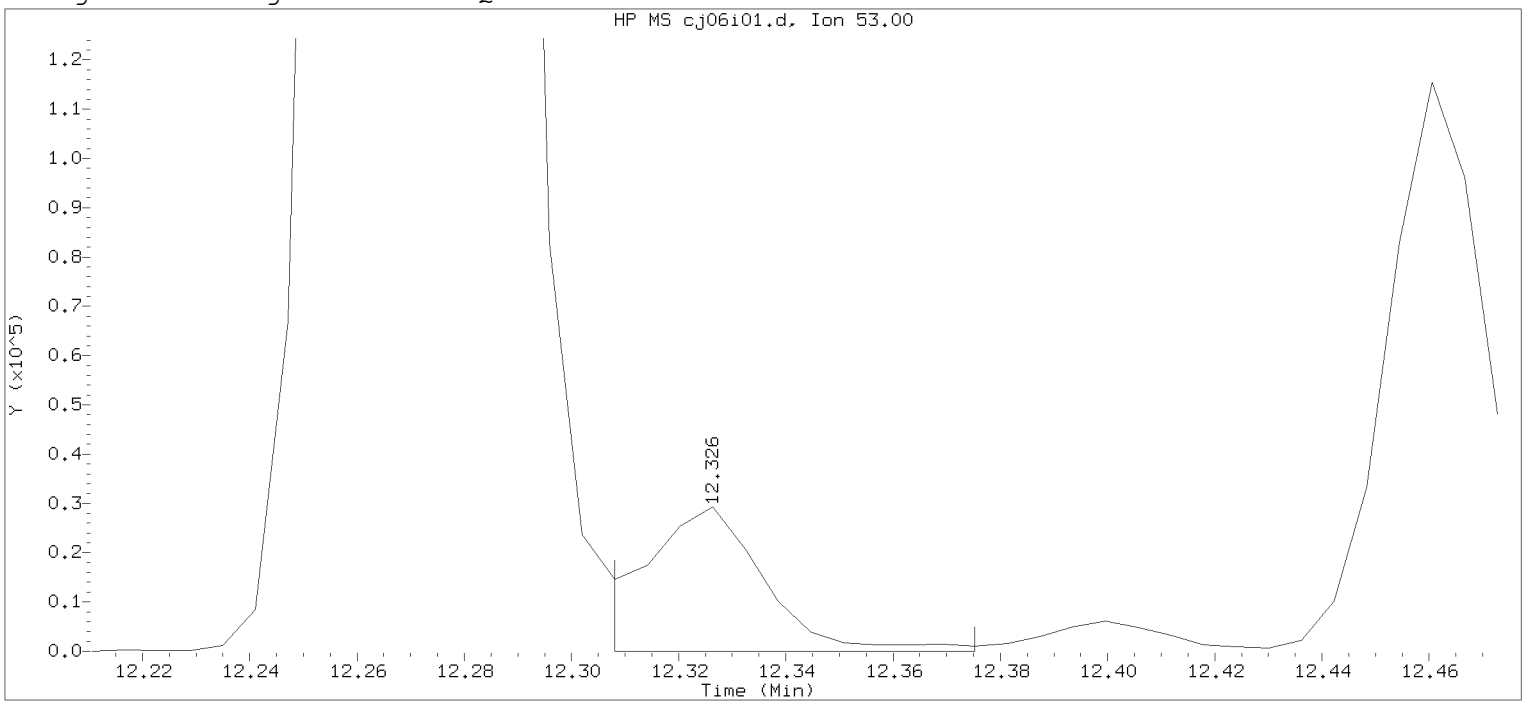
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

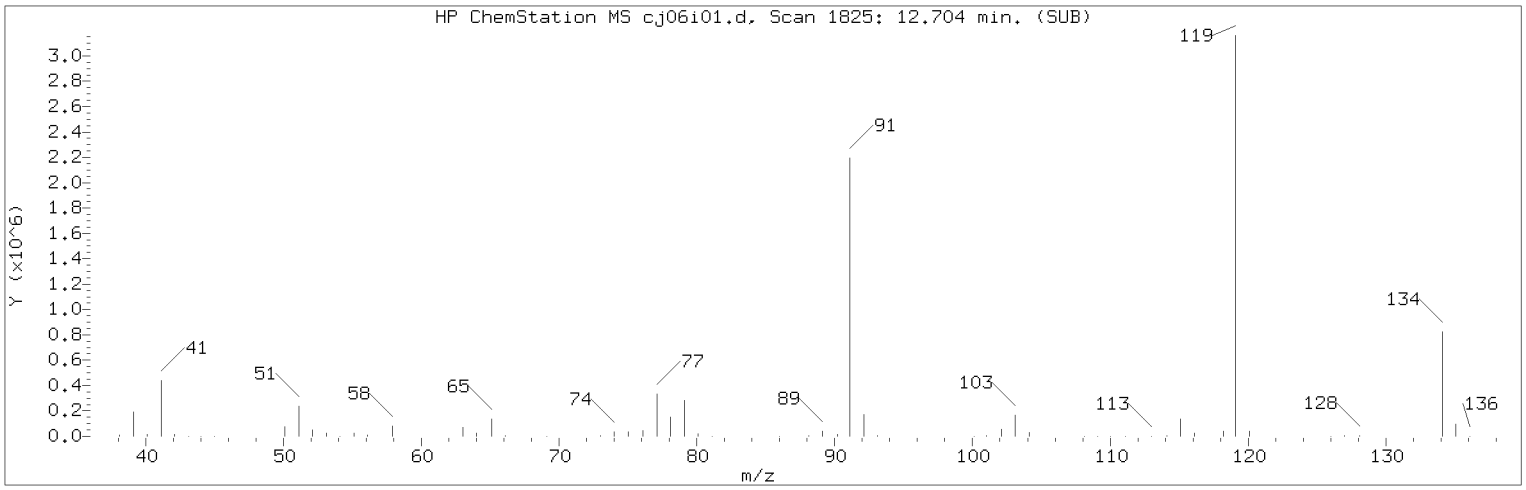
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 18:56
Date, time and analyst ID of latest file update: 06-Jan-2020 18:56 Automation

Sample Name: VSTD025 Lab Sample ID: VSTD025

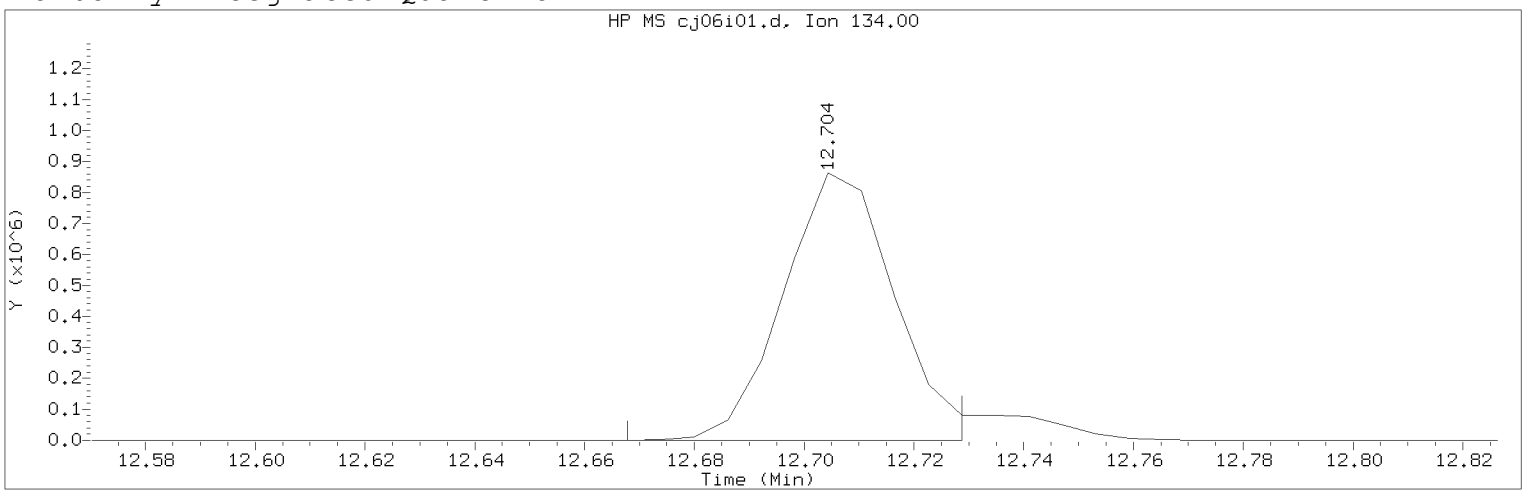
Compound Number : 117
Compound Name : trans-1,4-Dichloro-2-butene
Scan Number : 1763
Retention Time (minutes): 12.326
Quant Ion : 53.00
Area : 44029
On-column Amount (ng) : 250.0000
Integration start scan : 1759 Integration stop scan: 1770
Y at integration start : 0 Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:21
Date, time and analyst ID of latest file update: 06-Jan-2020 19:23 mec29284

Sample Name: VSTD025 Lab Sample ID: VSTD025

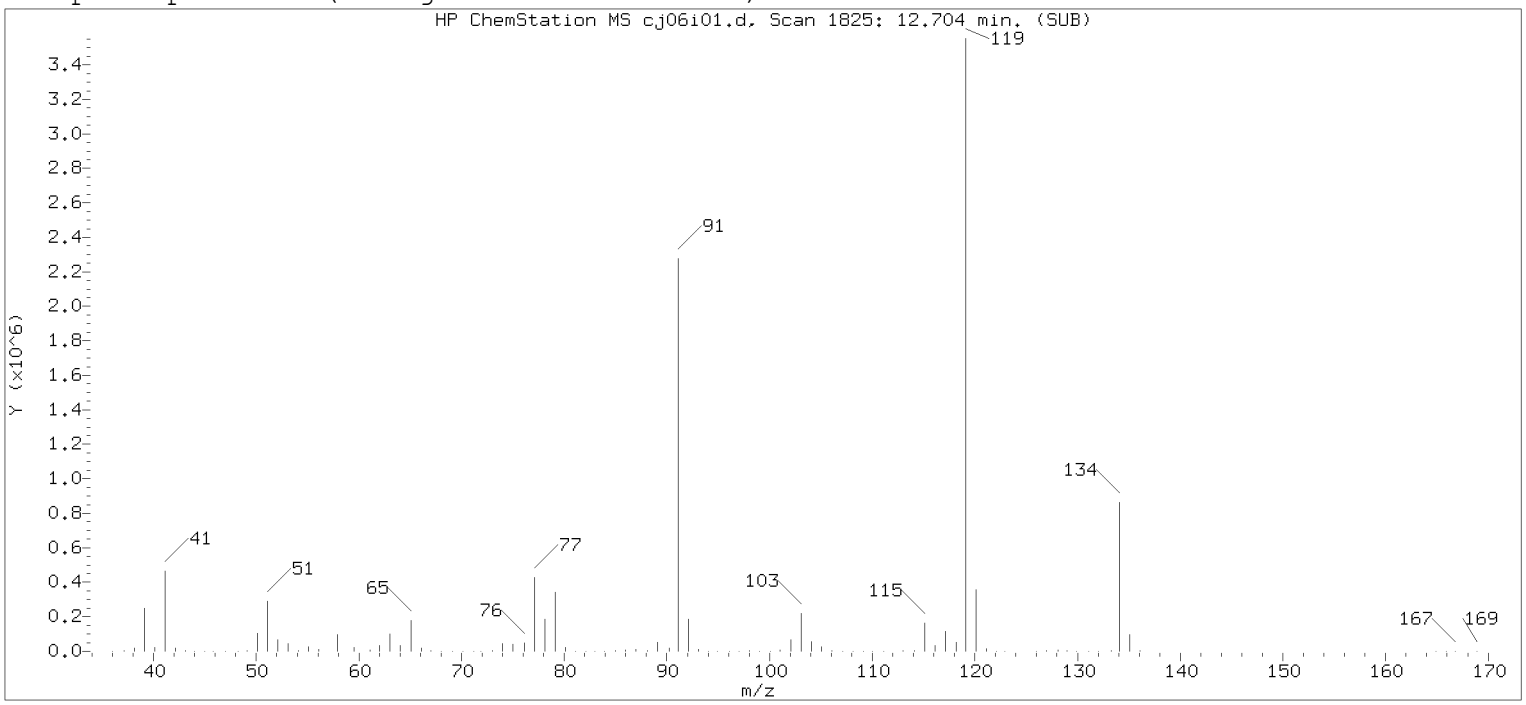
Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1825
Retention Time (minutes): 12.704
Quant Ion : 134.00
Area (flag) : 1211412M
On-Column Amount (ng) : 24.9317
Integration start scan : 1818 Integration stop scan: 1828
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

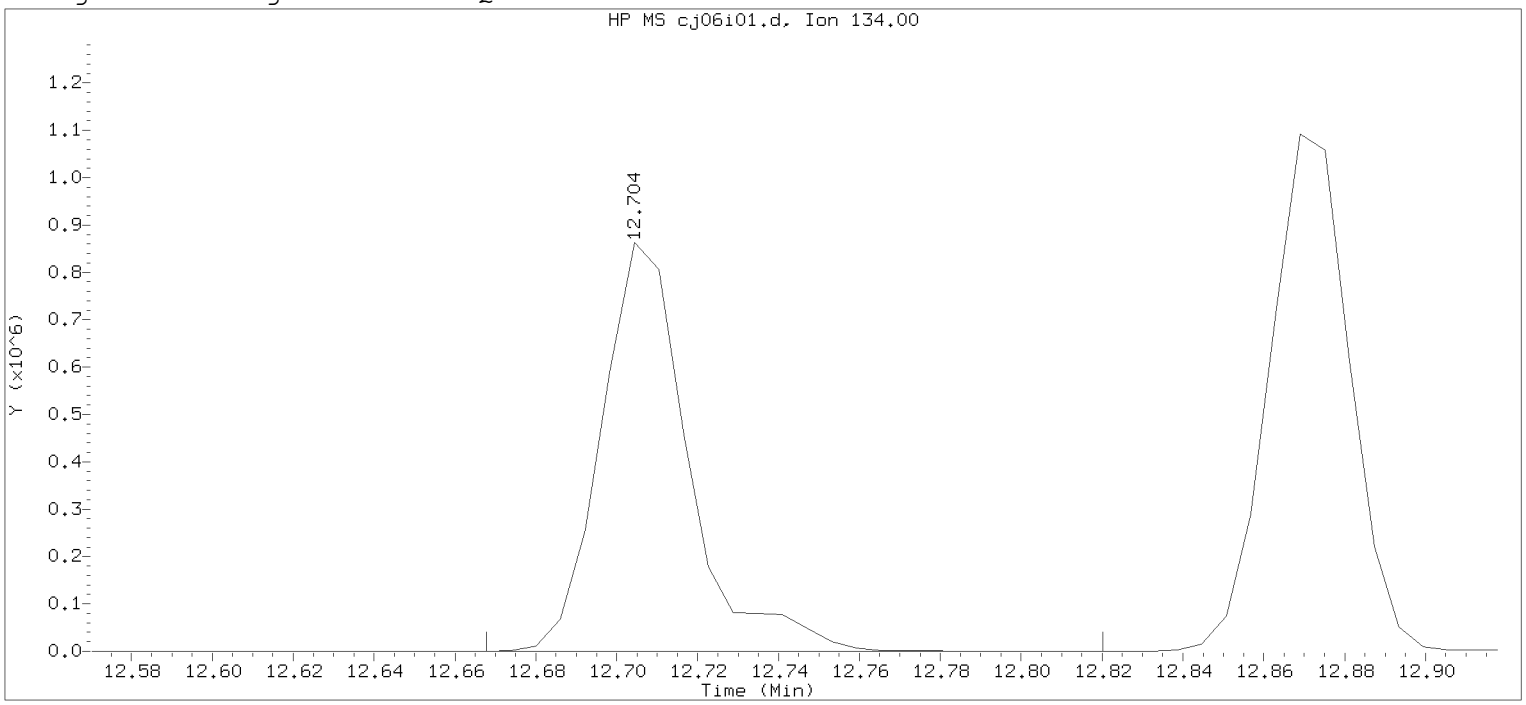
Analyst responsible for change: Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

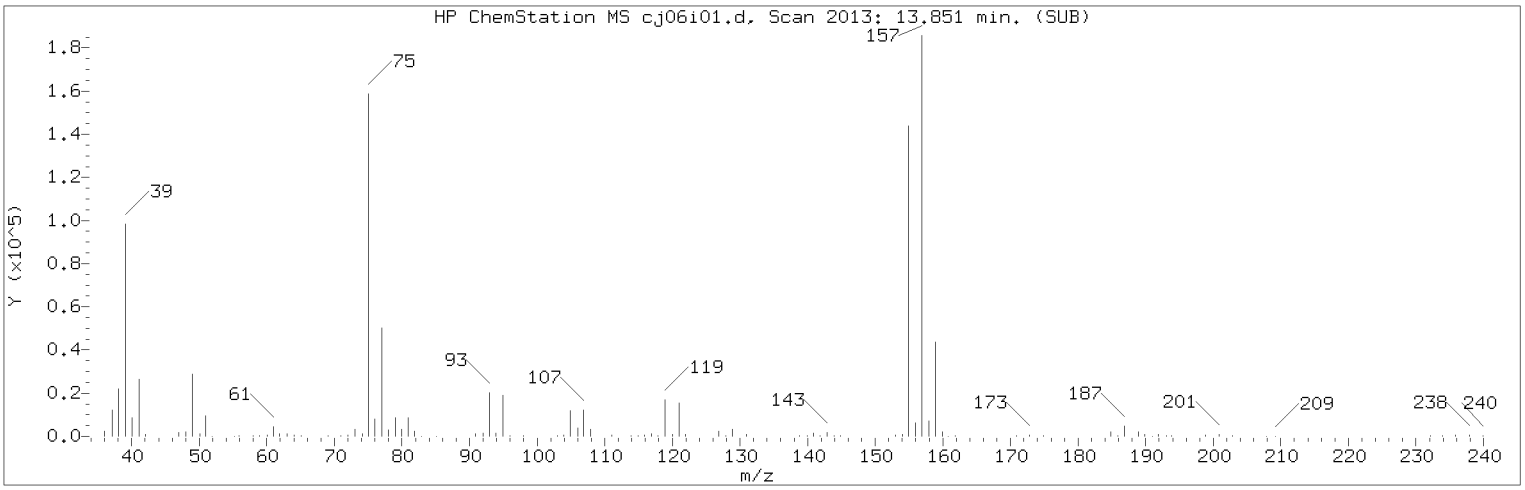
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 18:56
Date, time and analyst ID of latest file update: 06-Jan-2020 18:56 Automation

Sample Name: VSTD025 Lab Sample ID: VSTD025

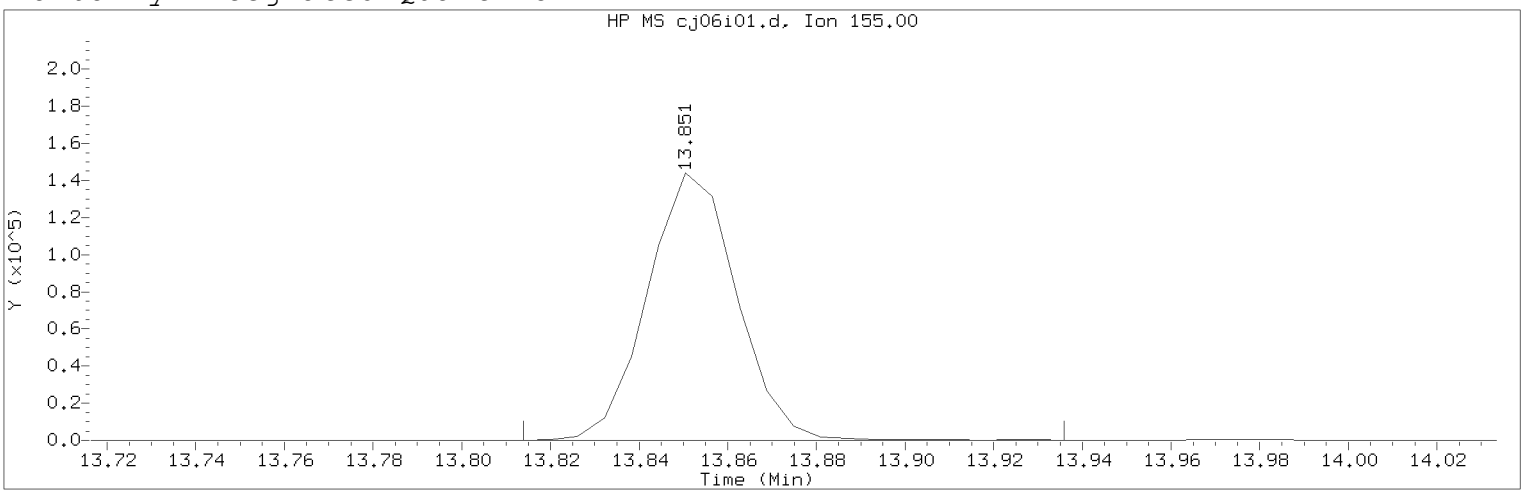
Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1825
Retention Time (minutes): 12.704
Quant Ion : 134.00
Area : 1298665
On-column Amount (ng) : 25.0000
Integration start scan : 1818 Integration stop scan: 1843
Y at integration start : 0 Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:21
Date, time and analyst ID of latest file update: 06-Jan-2020 19:23 mec29284

Sample Name: VSTD025 Lab Sample ID: VSTD025

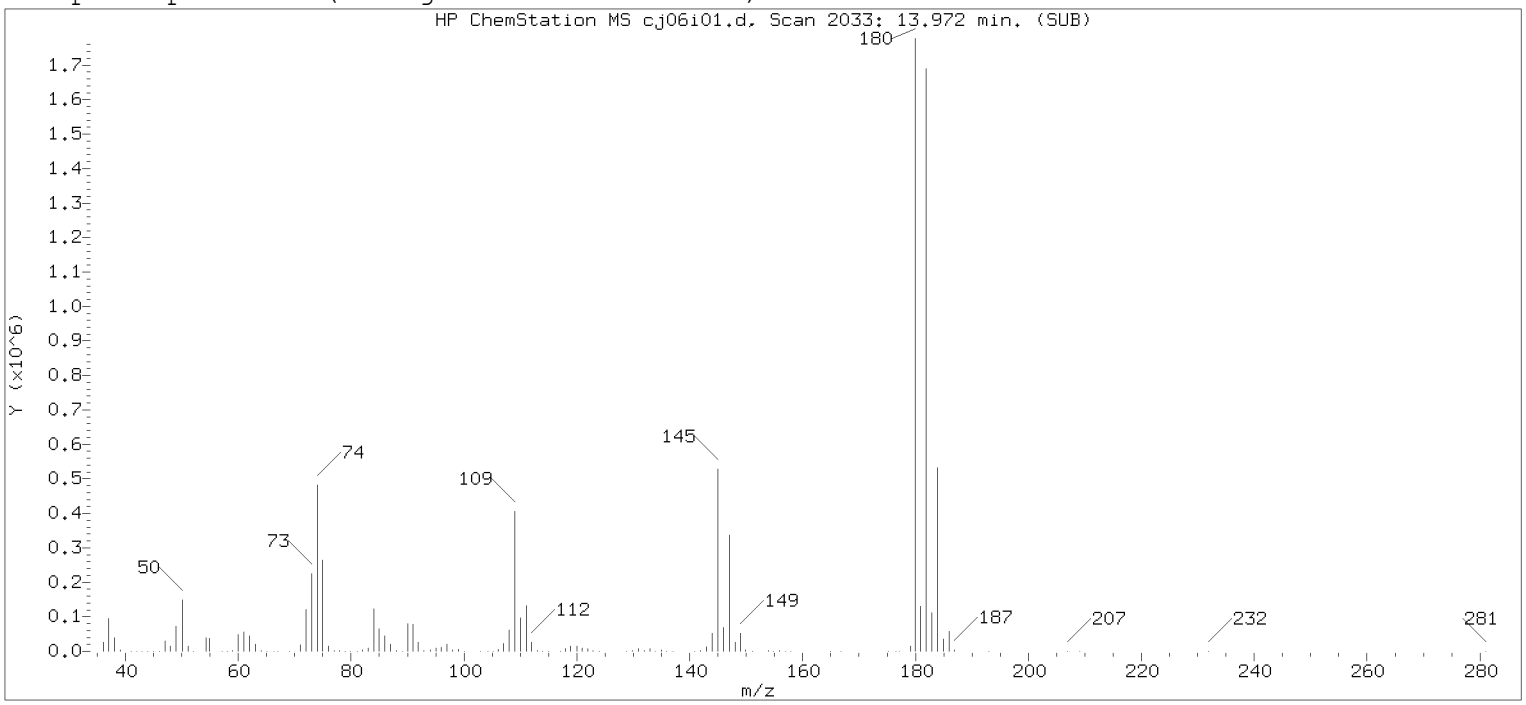
Compound Number : 145
Compound Name : 1,2-Dibromo-3-chloropropane
Scan Number : 2013
Retention Time (minutes): 13.851
Quant Ion : 155.00
Area (flag) : 201438A
On-Column Amount (ng) : 25.1952
Integration start scan : 2006 Integration stop scan: 2026
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

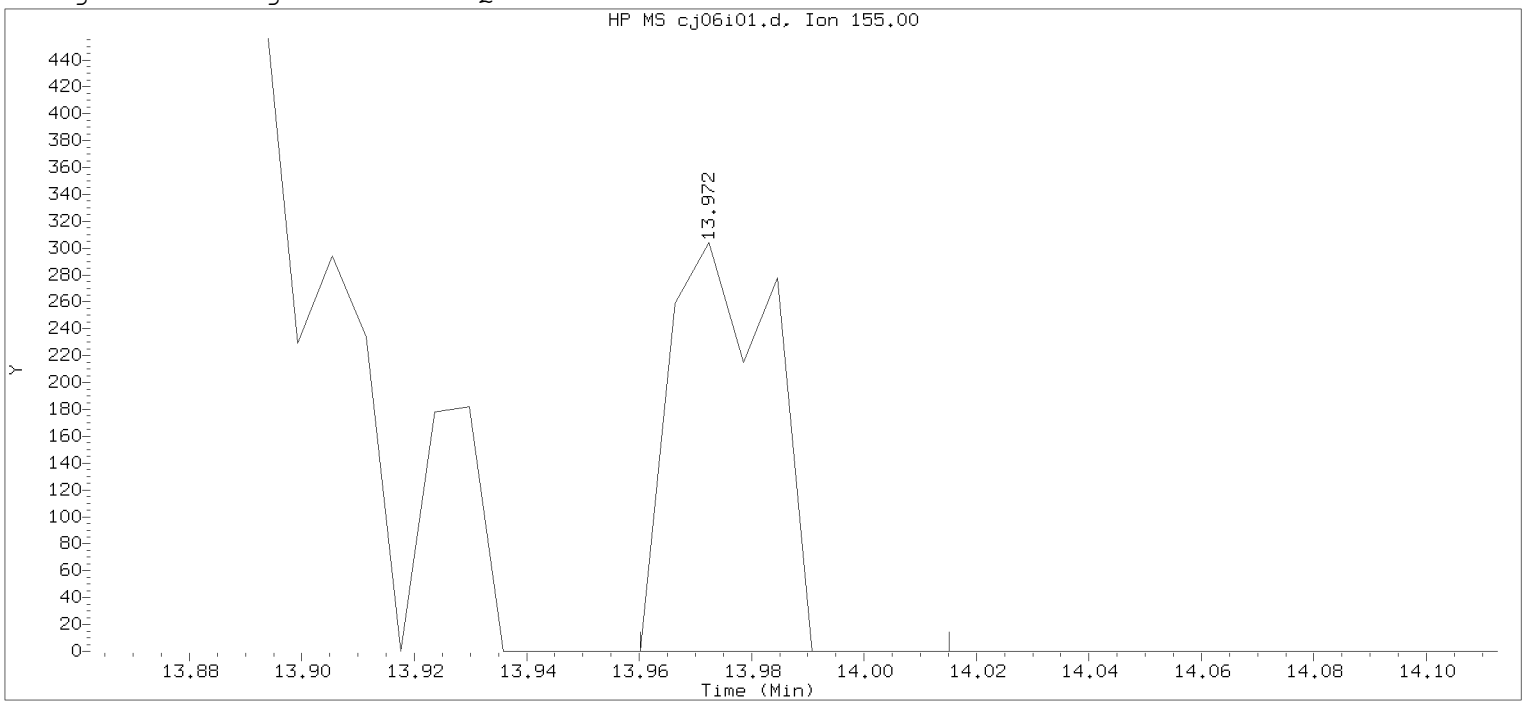
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i01.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 18:38  Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 18:56
Date, time and analyst ID of latest file update: 06-Jan-2020 18:56 Automation

Sample Name: VSTD025  Lab Sample ID: VSTD025

Compound Number : 145
Compound Name : 1,2-Dibromo-3-chloropropane
Scan Number : 2033
Retention Time (minutes): 13.972
Quant Ion : 155.00
Area : 386
On-column Amount (ng) : 25.0000
Integration start scan : 2030  Integration stop scan: 2039
Y at integration start : 0  Y at integration end: 0

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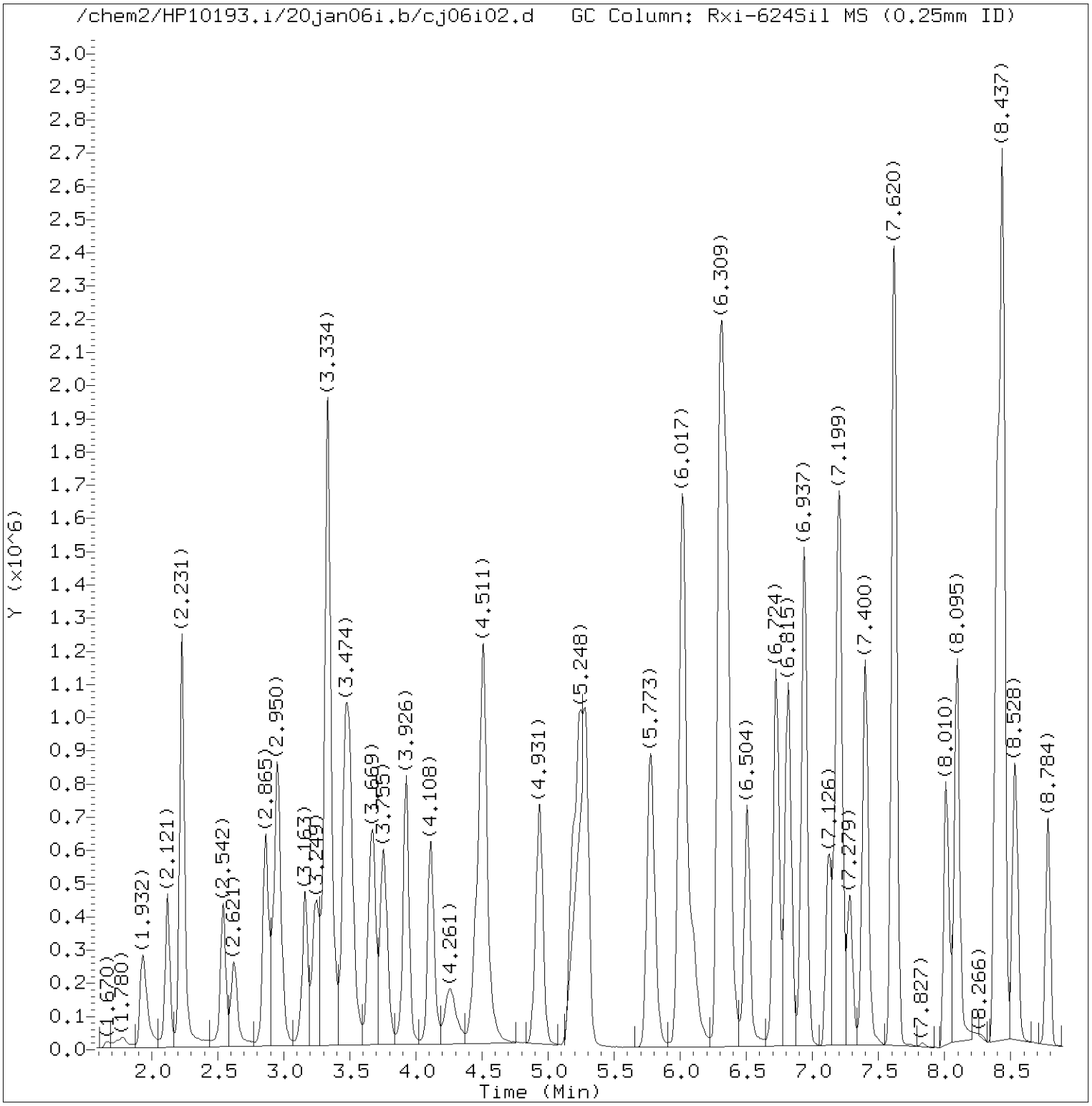
Target 3.5 esignature user ID: mec29234




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:21 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

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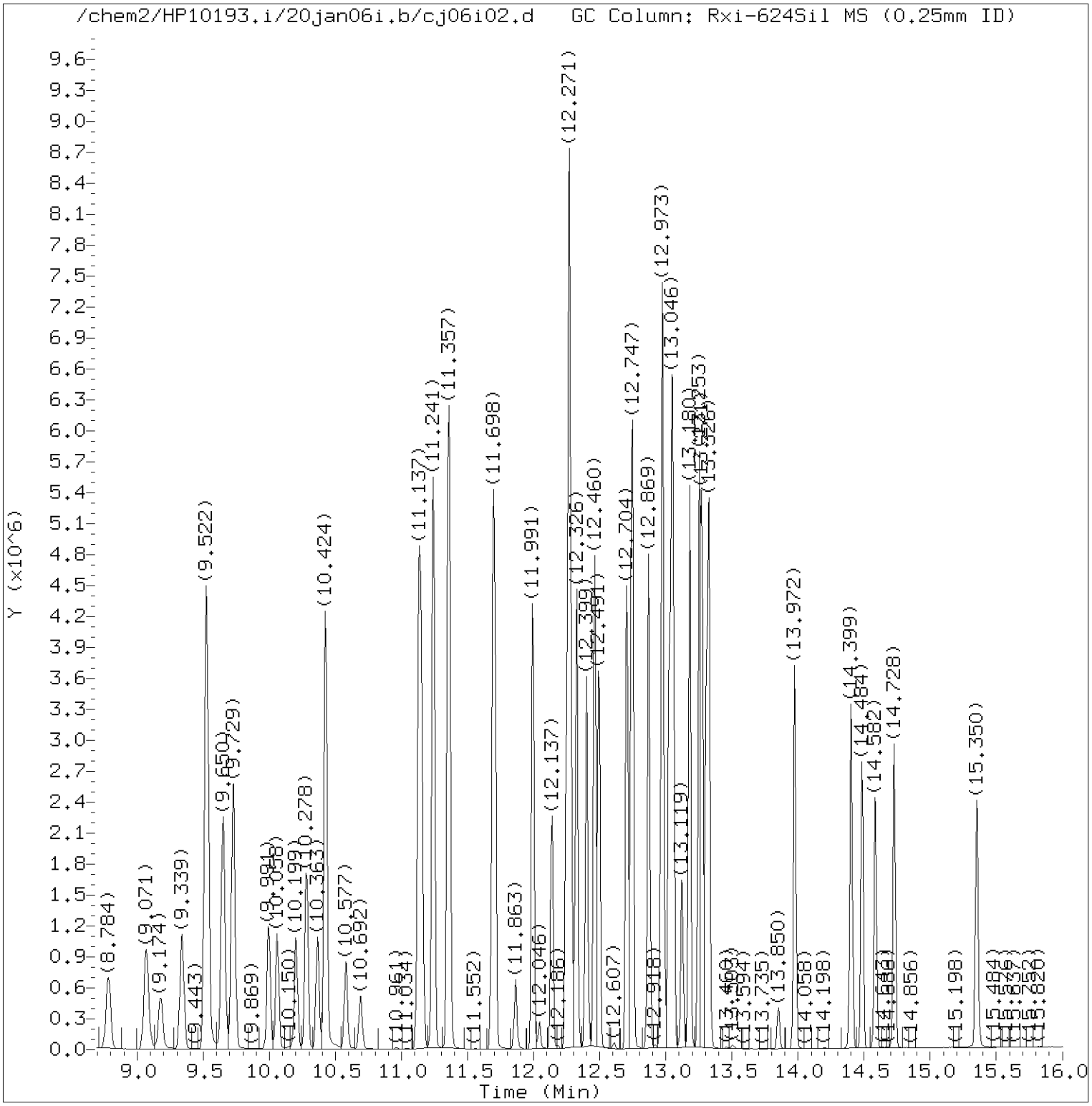
on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:21 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:21 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | 1.932 | 85 | 643513M | 10.100 |
| 2) Chloromethane | (2) | 2.121 | 50 | 700397 | 10.038 |
| 6) 1,3-Butadiene | (2) | 2.225 | 39 | 547168 | 9.959 |
| 5) Vinyl Chloride | (2) | 2.237 | 62 | 676499 | 10.041 |
| 7) Bromomethane | (2) | 2.542 | 94 | 428920 | 10.057 |
| 8) Chloroethane | (2) | 2.621 | 64 | 371708M | 10.063 |
| 9) Dichlorofluoromethane | (2) | 2.865 | 67 | 808674 | 10.019 |
| 10) Trichlorofluoromethane | (2) | 2.926 | 101 | 670386 | 10.083 |
| 12) Ethyl ether | (2) | 3.157 | 59 | 424016 | 9.949 |
| 13) Freon 123a | (2) | 3.243 | 67 | 547688 | 10.045 |
| 14) Acrolein | (1) | 3.334 | 56 | 3401151 | 514.827 |
| 16) 1,1-Dichloroethene | (2) | 3.462 | 96 | 436260 | 10.032 |
| 17) Freon 113 | (2) | 3.499 | 101 | 448917 | 10.056 |
| 15) Acetone | (1) | 3.505 | 43 | 771632 | 103.071 |
| 18) Methyl Iodide | (2) | 3.651 | 142 | 826531 | 10.058 |
| 19) Bromoethane | (2) | 3.682 | 108 | 376320 | 10.063 |
| 20) Carbon Disulfide | (2) | 3.755 | 76 | 1562273 | 10.035 |
| 23) Methyl Acetate | (2) | 3.907 | 43 | 257813 | 9.363 |
| 24) Allyl Chloride | (2) | 3.926 | 41 | 798261 | 10.042 |
| 25) Methylene Chloride | (2) | 4.114 | 84 | 493295 | 10.077 |
| 28)*t-Butyl Alcohol-d10 | (1) | 4.139 | 65 | 157858M | 50.000 |
| 30) t-Butyl Alcohol | (1) | 4.261 | 59 | 645726 | 196.213 |
| 31) Acrylonitrile | (1) | 4.456 | 53 | 543879M | 51.584 |
| 32) Methyl Tertiary Butyl Ether | (2) | 4.505 | 73 | 1297453 | 10.079 |
| 33) trans-1,2-Dichloroethene | (2) | 4.511 | 96 | 490572 | 10.033 |
| 34) n-Hexane | (2) | 4.931 | 57 | 744956 | 10.116 |
| 35) 1,1-Dichloroethane | (2) | 5.181 | 63 | 908700 | 10.018 |
| 36) di-Isopropyl Ether | (2) | 5.236 | 45 | 1702448 | 10.045 |
| 37) 2-Chloro-1,3-Butadiene | (2) | 5.291 | 53 | 803508 | 10.066 |
| 39) Ethyl t-butyl ether | (2) | 5.773 | 59 | 1615892 | 10.116 |
| 40) 2-Butanone | (1) | 5.998 | 43 | 1493769 | 103.080 |
| 41) cis-1,2-Dichloroethene | (2) | 6.017 | 96 | 554142 | 10.079 |
| 43) 2,2-Dichloropropane | (2) | 6.029 | 77 | 734249 | 10.095 |
| 44) Propionitrile | (1) | 6.096 | 54 | 765388 | 204.747 |
| 42) 1,2-Dichloroethene (Total) | (2) | | 96 | 1044714 | 20.111 |
| 47) Methacrylonitrile | (1) | 6.309 | 67 | 1433040 | 103.257 |
| 49) Bromochloromethane | (2) | 6.352 | 128 | 249451 | 10.034 |
| 50) Tetrahydrofuran | (1) | 6.358 | 71 | 439462 | 102.974 |

M = Compound was manually integrated.
* = Compound is an internal standard.



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Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:21 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 51) Chloroform | (2) | 6.504 | 83 | 841842 | 10.047 |
| 53) 1,1,1-Trichloroethane | (2) | 6.724 | 97 | 747301 | 10.047 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 113 | 436962 | 9.984 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 111 | 445551 | 9.962 |
| 54) Cyclohexane | (2) | 6.815 | 56 | 919873 | 10.102 |
| 54) Cyclohexane | (2) | 6.815 | 84 | 778459 | 10.091 |
| 54) Cyclohexane | (2) | 6.596 | 69 | 561 | 9.540 |
| 56) Carbon Tetrachloride | (2) | 6.931 | 117 | 646178 | 10.042 |
| 57) 1,1-Dichloropropene | (2) | 6.937 | 75 | 712479 | 10.042 |
| 58) Isobutyl Alcohol | (1) | 7.120 | 41 | 538529 | 515.572 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 102 | 95659 | 9.956 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 65 | 436825 | 9.989 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 104 | 60984 | 9.938 |
| 60) Benzene | (2) | 7.205 | 78 | 2095660 | 10.048 |
| 61) 1,2-Dichloroethane | (2) | 7.285 | 62 | 568607 | 10.044 |
| 61) 1,2-Dichloroethane | (2) | 7.285 | 98 | 54762 | 10.081 |
| 62) t-Amyl methyl ether | (2) | 7.400 | 73 | 1485620 | 10.113 |
| 65)*Fluorobenzene | (2) | 7.614 | 96 | 1871607 | 10.000 |
| 64) n-Heptane | (2) | 7.620 | 43 | 768071M | 10.153 |
| 67) n-Butanol | (1) | 8.010 | 56 | 985286 | 1032.215 |
| 69) Trichloroethene | (2) | 8.095 | 95 | 520076 | 10.075 |
| 71) Methylcyclohexane | (2) | 8.394 | 83 | 958656 | 10.054 |
| 72) 1,2-Dichloropropane | (2) | 8.431 | 63 | 544948 | 10.044 |
| 73) Methyl Methacrylate | (1) | 8.522 | 69 | 290316 | 10.310 |
| 74) 1,4-Dioxane | (1) | 8.534 | 88 | 86929M | 664.208 |
| 74) 1,4-Dioxane | (1) | 8.534 | 58 | 63157M | 741.832 |
| 75) Dibromomethane | (2) | 8.547 | 93 | 251411 | 9.970 |
| 76) Bromodichloromethane | (2) | 8.784 | 83 | 638736 | 9.995 |
| 78) 2-Nitropropane | (1) | 9.071 | 41 | 894666 | 103.487 |
| 81) 1-Bromo-2-chloroethane | (2) | 9.181 | 63 | 573799 | 10.034 |
| 82) cis-1,3-Dichloropropene | (2) | 9.339 | 75 | 841618 | 10.006 |
| 83) 4-Methyl-2-Pentanone | (2) | 9.522 | 43 | 3978978 | 99.663 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1845089 | 10.019 |
| 84)$Toluene-d8 | (3) | 9.650 | 100 | 1203672 | 9.941 |
| 85) Toluene | (3) | 9.729 | 92 | 1317272 | 10.028 |
| 87) 1,3-Dichloropropene (total) | (3) | | 75 | 1567133 | 19.985 |
| 86) trans-1,3-Dichloropropene | (3) | 9.991 | 75 | 725515 | 9.979 |
| 88) Ethyl Methacrylate | (3) | 10.058 | 69 | 632753 | 10.010 |

M = Compound was manually integrated.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.



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Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:21 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 90) 1,1,2-Trichloroethane | (3) | 10.199 | 97 | 374262 | 10.026 |
| 91) Tetrachloroethene | (3) | 10.278 | 166 | 573959 | 10.083 |
| 92) 1,3-Dichloropropane | (3) | 10.363 | 76 | 672683 | 10.053 |
| 93) 2-Hexanone | (3) | 10.424 | 43 | 2834484 | 99.763 |
| 95) Dibromochloromethane | (3) | 10.577 | 129 | 473084 | 10.029 |
| 97) 1,2-Dibromoethane | (3) | 10.692 | 107 | 368490 | 10.028 |
| 99)*Chlorobenzene-d5 | (3) | 11.125 | 117 | 1385123 | 10.000 |
| 98) 1-Chlorohexane | (3) | 11.137 | 91 | 749957 | 10.117 |
| 100) Chlorobenzene | (3) | 11.156 | 112 | 1490126 | 10.039 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | 11.235 | 131 | 525137 | 10.018 |
| 102) Ethylbenzene | (3) | 11.241 | 91 | 2578357 | 10.020 |
| 103) m+p-Xylene | (3) | 11.357 | 106 | 2023154 | 20.051 |
| 106) o-Xylene | (3) | 11.692 | 106 | 996131 | 10.021 |
| 108) Styrene | (3) | 11.704 | 104 | 1705804 | 10.025 |
| 107) Xylene (Total) | (3) | | 106 | 3019285 | 30.072 |
| 109) Bromoform | (3) | 11.863 | 173 | 292495 | 9.948 |
| 110) Isopropylbenzene | (3) | 11.991 | 105 | 2598039 | 10.070 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 689616 | 9.978 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 174 | 578044 | 9.935 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | 12.247 | 83 | 496765 | 10.005 |
| 116) Bromobenzene | (4) | 12.253 | 156 | 640964 | 10.086 |
| 117) trans-1,4-Dichloro-2-butene | (1) | 12.271 | 53 | 1411145A | 197.743 |
| 118) 1,2,3-Trichloropropane | (4) | 12.290 | 110 | 128849 | 9.949 |
| 119) n-Propylbenzene | (4) | 12.326 | 91 | 3064081 | 10.109 |
| 121) 2-Chlorotoluene | (4) | 12.399 | 126 | 629273 | 10.081 |
| 123) 1,3,5-Trimethylbenzene | (4) | 12.460 | 105 | 2271716 | 10.060 |
| 124) 4-Chlorotoluene | (4) | 12.491 | 126 | 651110 | 10.070 |
| 127) tert-Butylbenzene | (4) | 12.704 | 134 | 478735M | 9.680 |
| 128) Pentachloroethane | (4) | 12.735 | 167 | 410287 | 9.939 |
| 129) 1,2,4-Trimethylbenzene | (4) | 12.747 | 105 | 2372935 | 10.004 |
| 130) sec-Butylbenzene | (4) | 12.869 | 105 | 2907070 | 10.092 |
| 133) 1,3-Dichlorobenzene | (4) | 12.966 | 146 | 1267801 | 10.046 |
| 134) p-Isopropyltoluene | (4) | 12.979 | 119 | 2553955 | 10.083 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.021 | 152 | 761305 | 10.000 |
| 136) 1,4-Dichlorobenzene | (4) | 13.040 | 146 | 1288424 | 10.103 |
| 137) 1,2,3-Trimethylbenzene | (4) | 13.052 | 120 | 1035639 | 10.041 |
| 138) Benzyl Chloride | (4) | 13.125 | 126 | 225818 | 9.920 |
| 140) n-Butylbenzene | (4) | 13.271 | 92 | 1282866 | 10.067 |

M = Compound was manually integrated.
A = User selected an alternate hit.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.

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on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:21 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 141) 1,2-Dichlorobenzene | (4) | 13.302 | 146 | 1179104 | 10.080 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | 13.850 | 155 | 77166 | 19.963 |
| 146) 1,3,5-Trichlorobenzene | (4) | 13.972 | 180 | 1054724 | 10.177 |
| 147) 1,2,4-Trichlorobenzene | (4) | 14.399 | 180 | 943810 | 10.167 |
| 148) Hexachlorobutadiene | (4) | 14.484 | 225 | 457191 | 10.216 |
| 149) Naphthalene | (4) | 14.582 | 128 | 1737484 | 10.176 |
| 150) 1,2,3-Trichlorobenzene | (4) | 14.728 | 180 | 823623 | 10.254 |



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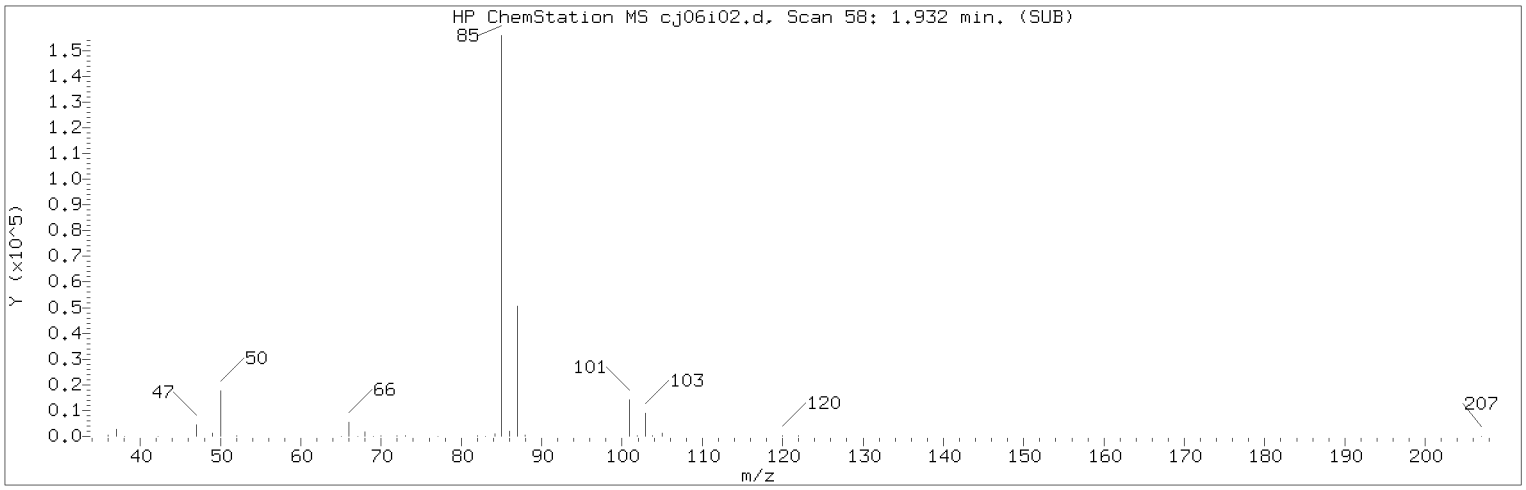
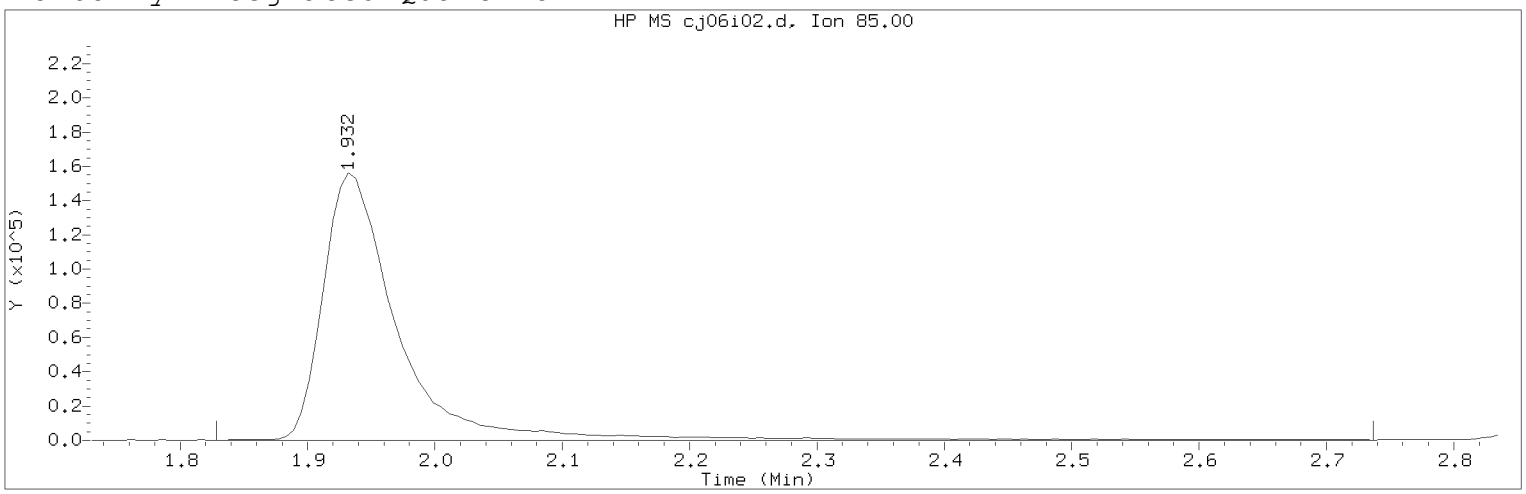
Target 3.5 esignature user ID: mec29284

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:21 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

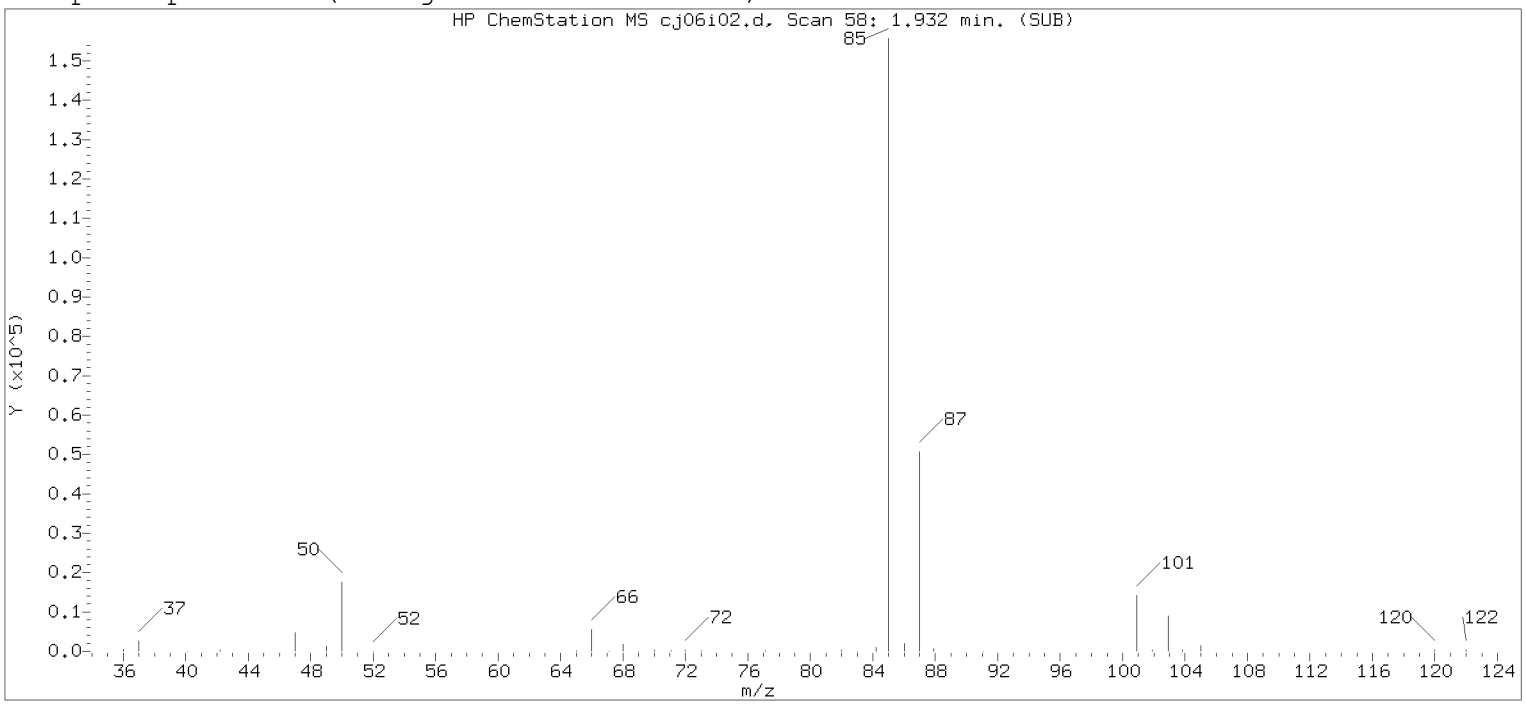
Compound Number : 1
Compound Name : Dichlorodifluoromethane
Scan Number : 58
Retention Time (minutes): 1.932
Quant Ion : 85.00
Area (flag) : 643513M
On-Column Amount (ng) : 10.0998
Integration start scan : 40 Integration stop scan: 189
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

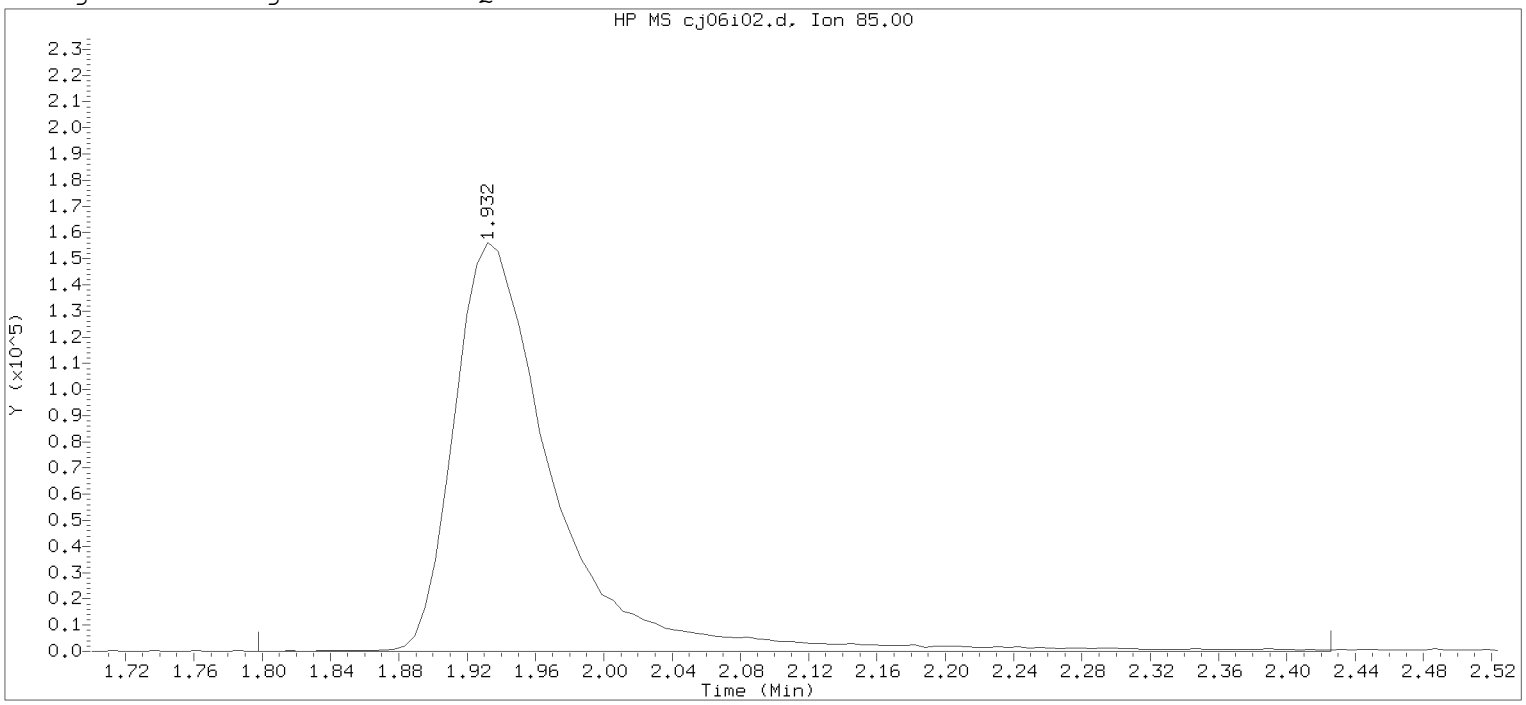
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01  Analyst ID: JKH09052

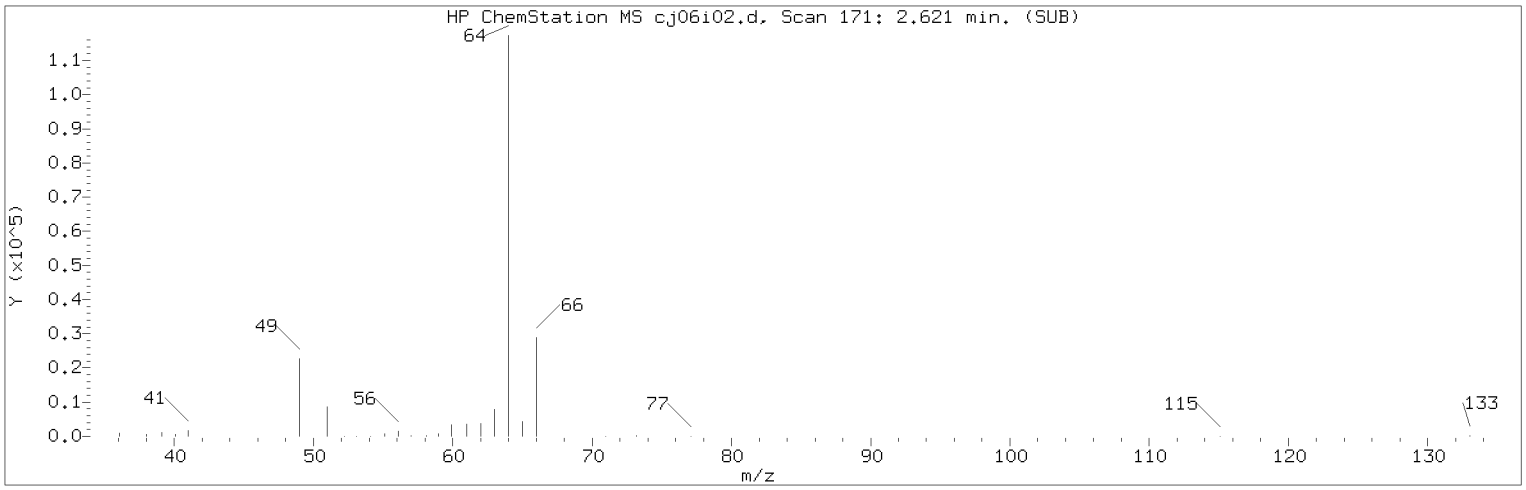
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:18 Automation

Sample Name: VSTD010  Lab Sample ID: VSTD010

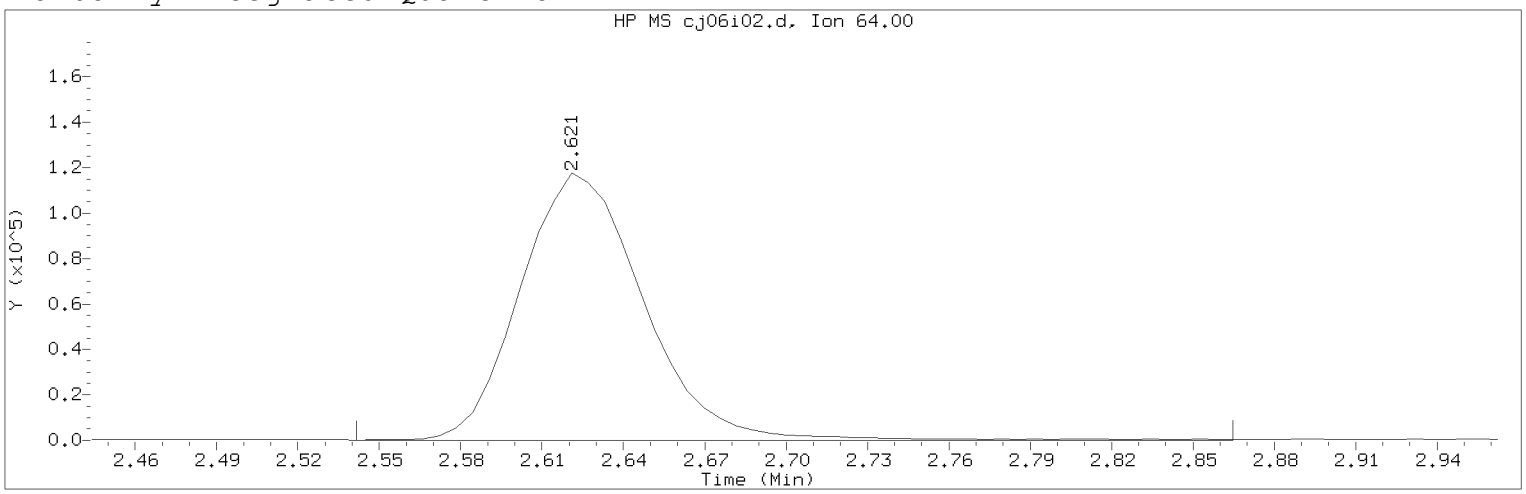
Compound Number : 1
Compound Name : Dichlorodifluoromethane
Scan Number : 58
Retention Time (minutes): 1.932
Quant Ion : 85.00
Area : 635398
On-column Amount (ng) : 10.0364
Integration start scan : 35  Integration stop scan: 138
Y at integration start : 0  Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29234

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:21 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

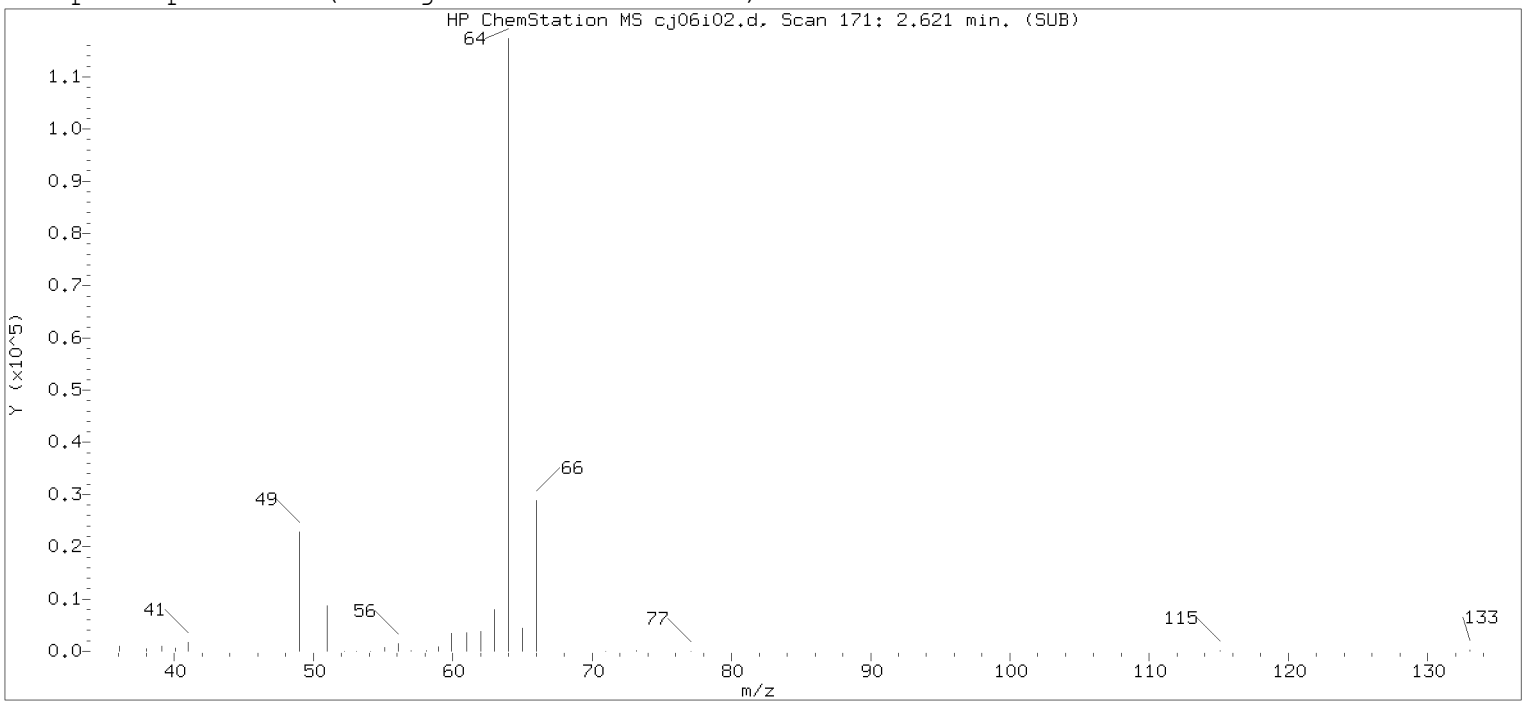
Compound Number : 8
Compound Name : Chloroethane
Scan Number : 171
Retention Time (minutes): 2.621
Quant Ion : 64.00
Area (flag) : 371708M
On-Column Amount (ng) : 10.0633
Integration start scan : 157 Integration stop scan: 210
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

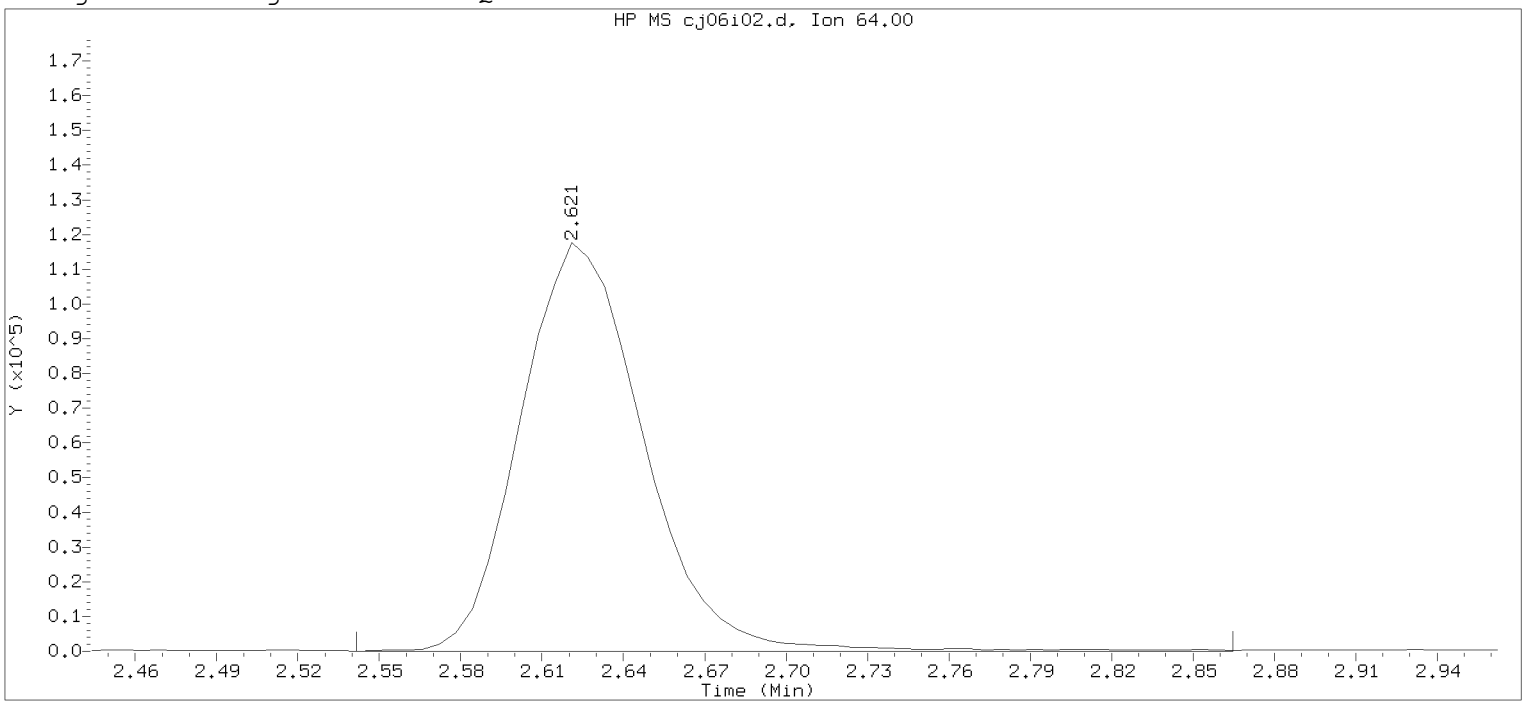
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01  Analyst ID: JKH09052

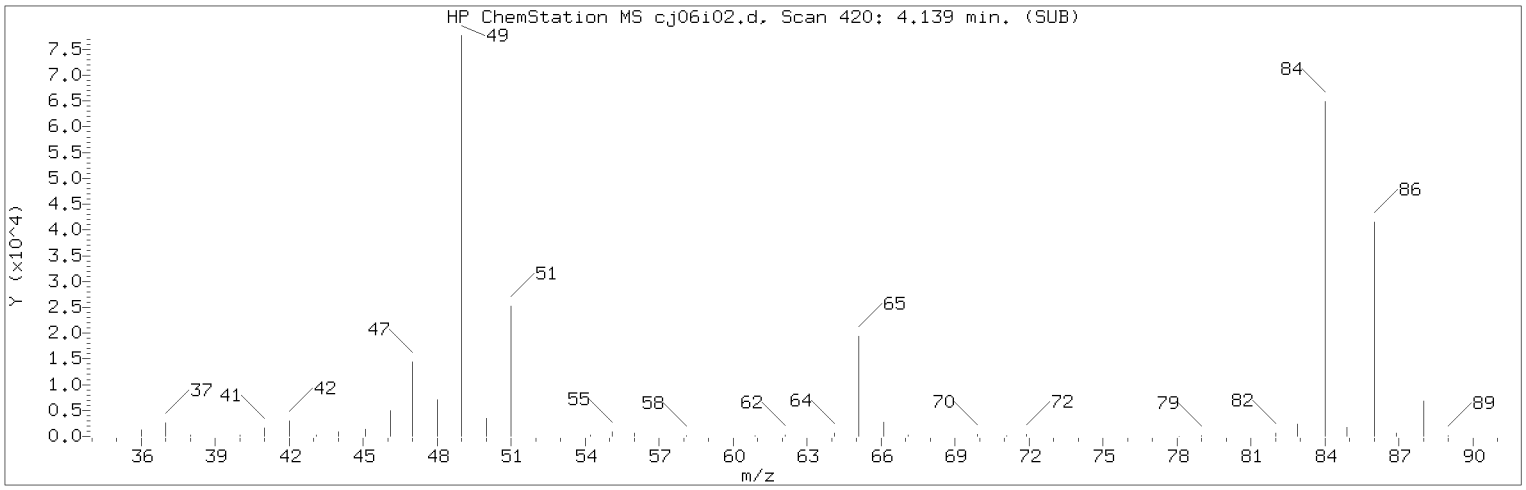
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:18 Automation

Sample Name: VSTD010  Lab Sample ID: VSTD010

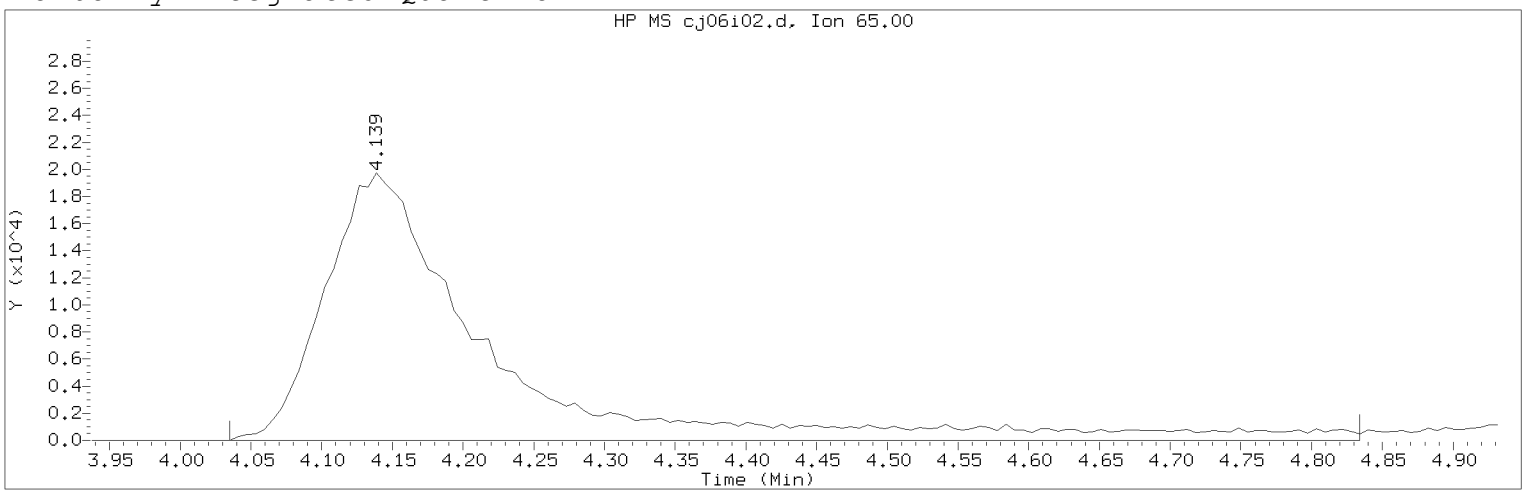
Compound Number : 8
Compound Name : Chloroethane
Scan Number : 171
Retention Time (minutes): 2.621
Quant Ion : 64.00
Area : 370838
On-column Amount (ng) : 10.0516
Integration start scan : 157  Integration stop scan: 210
Y at integration start : 0  Y at integration end: 85

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29234

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:21 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

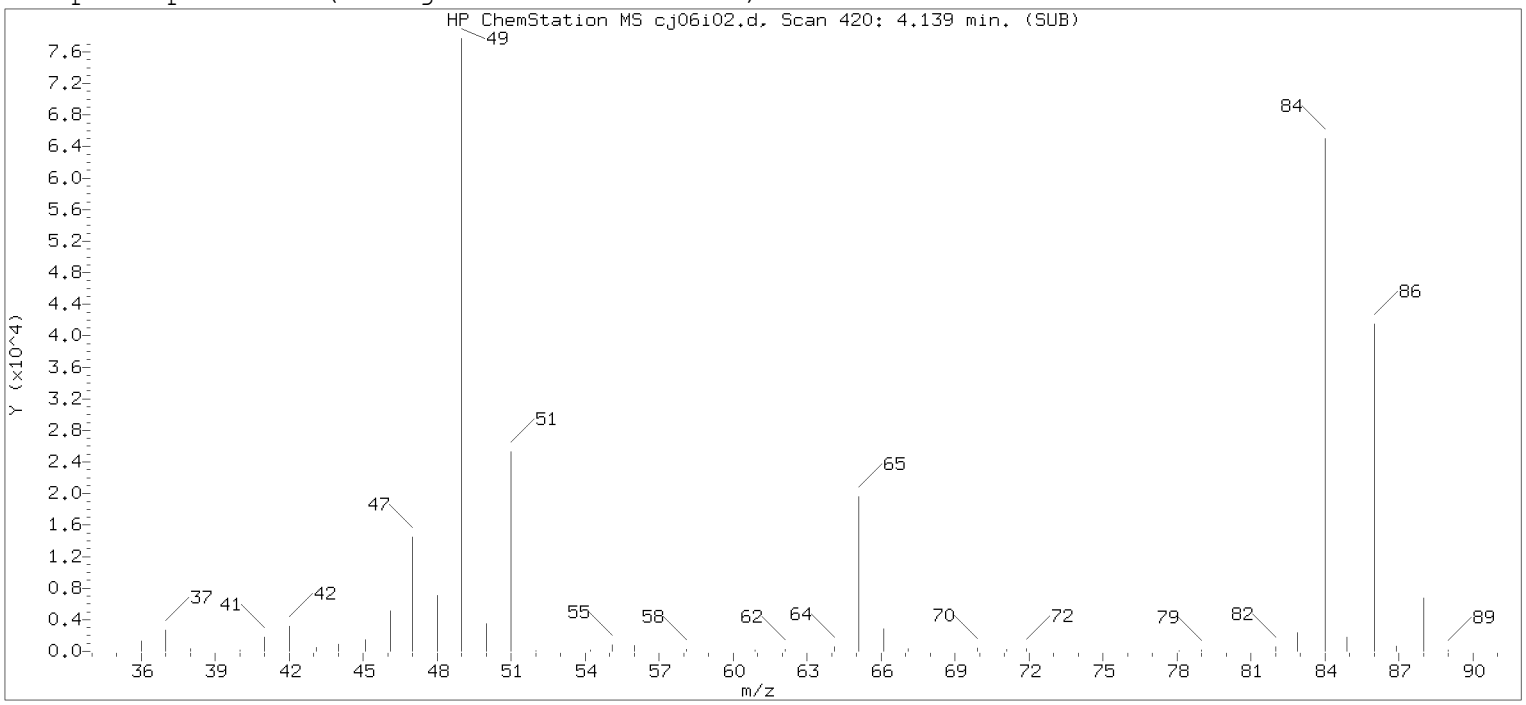
Compound Number : 28
Compound Name : t-Butyl Alcohol-d10
Scan Number : 420
Retention Time (minutes): 4.139
Quant Ion : 65.00
Area (flag) : 157858M
On-Column Amount (ng) : 50.0000
Integration start scan : 402 Integration stop scan: 533
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

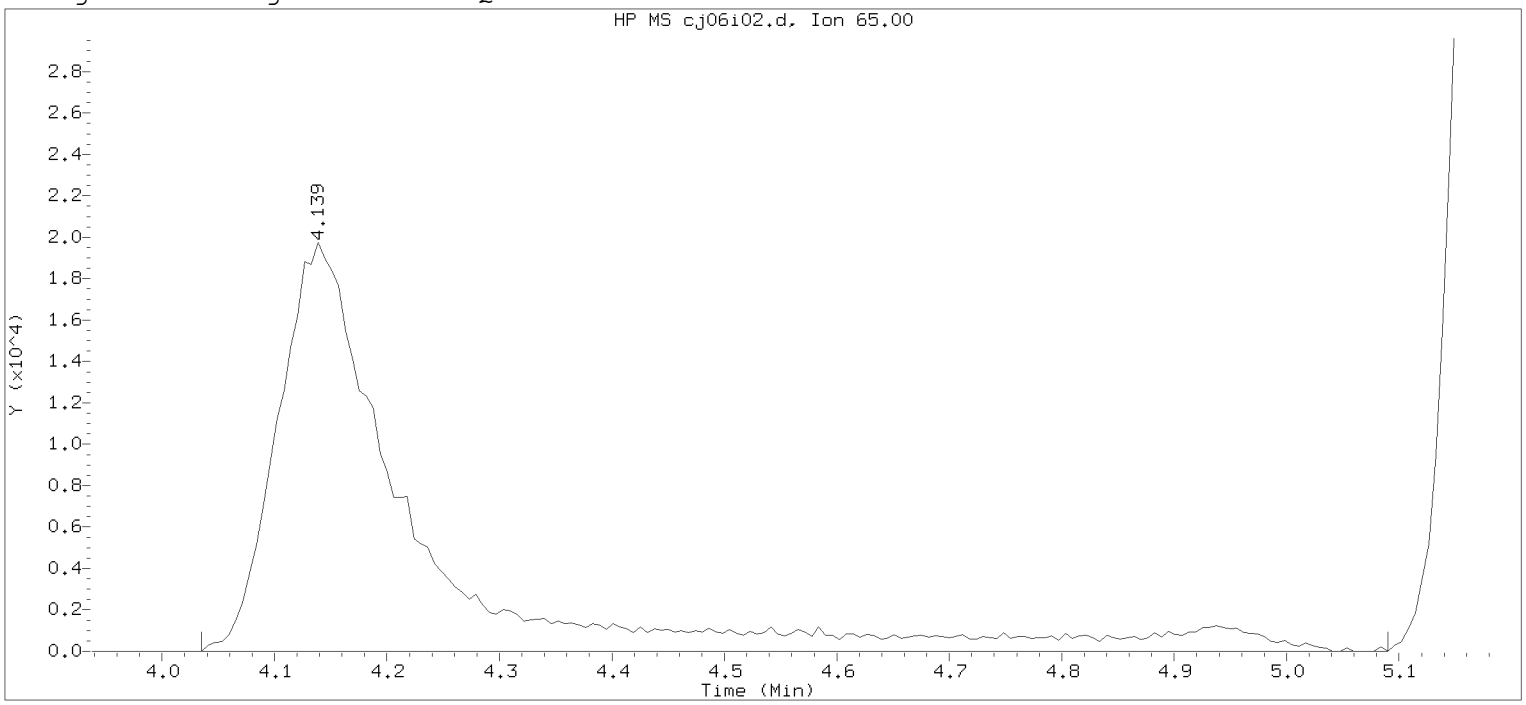
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

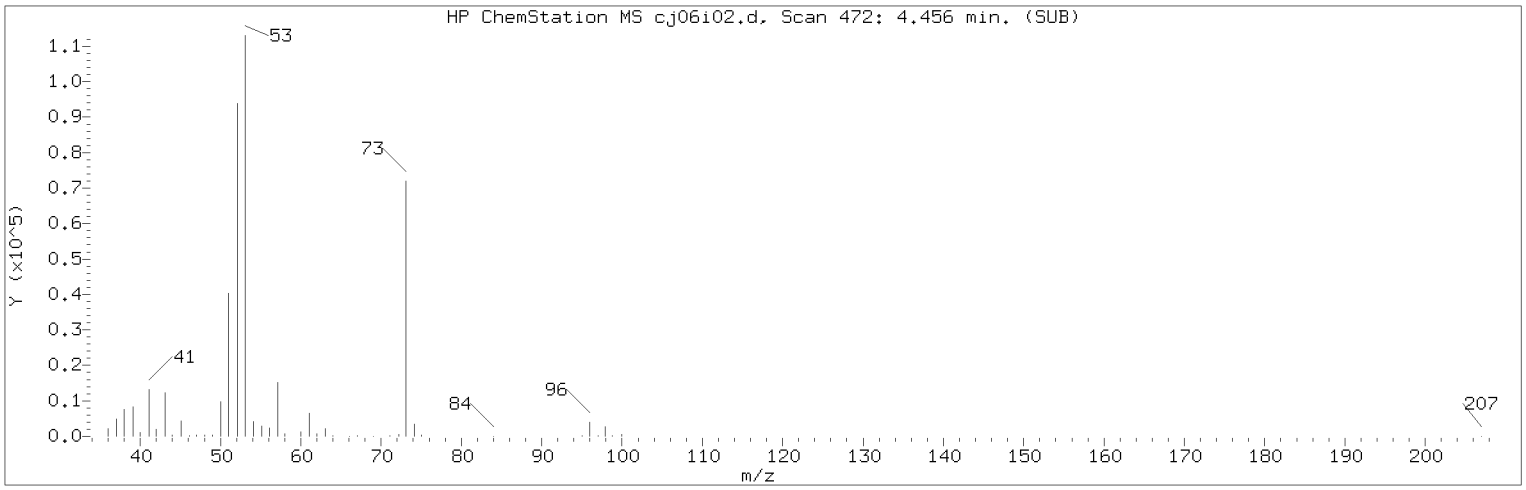
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:18 Automation

Sample Name: VSTD010 Lab Sample ID: VSTD010

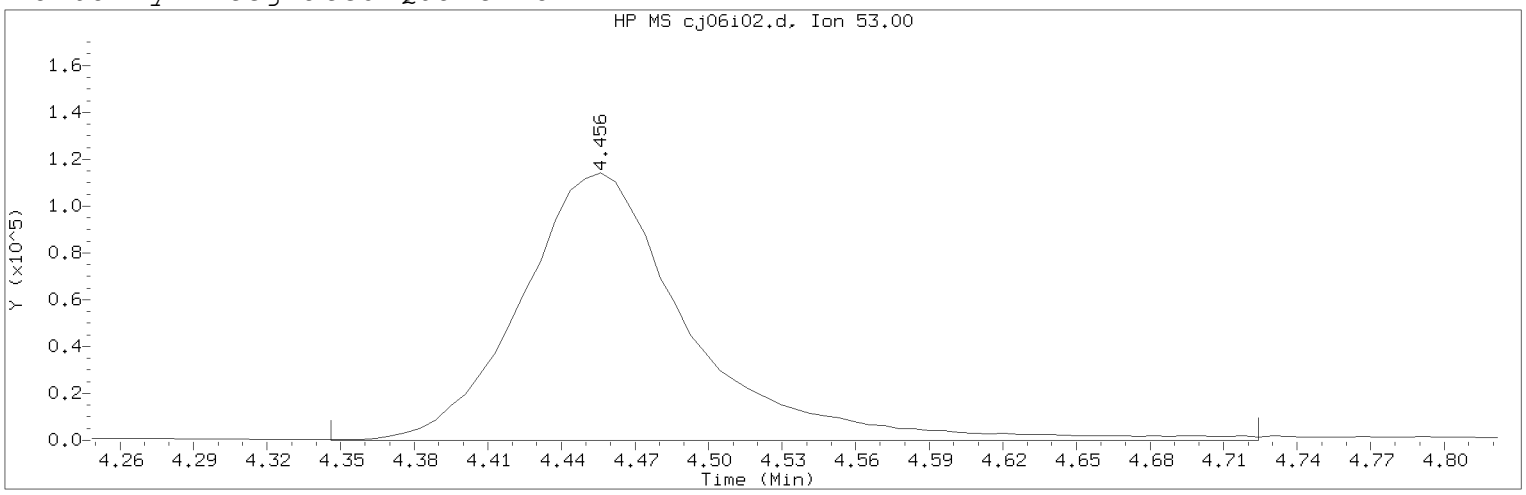
Compound Number : 28
Compound Name : t-Butyl Alcohol-d10
Scan Number : 420
Retention Time (minutes): 4.139
Quant Ion : 65.00
Area : 166728
On-column Amount (ng) : 50.0000
Integration start scan : 402 Integration stop scan: 575
Y at integration start : 0 Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:21 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

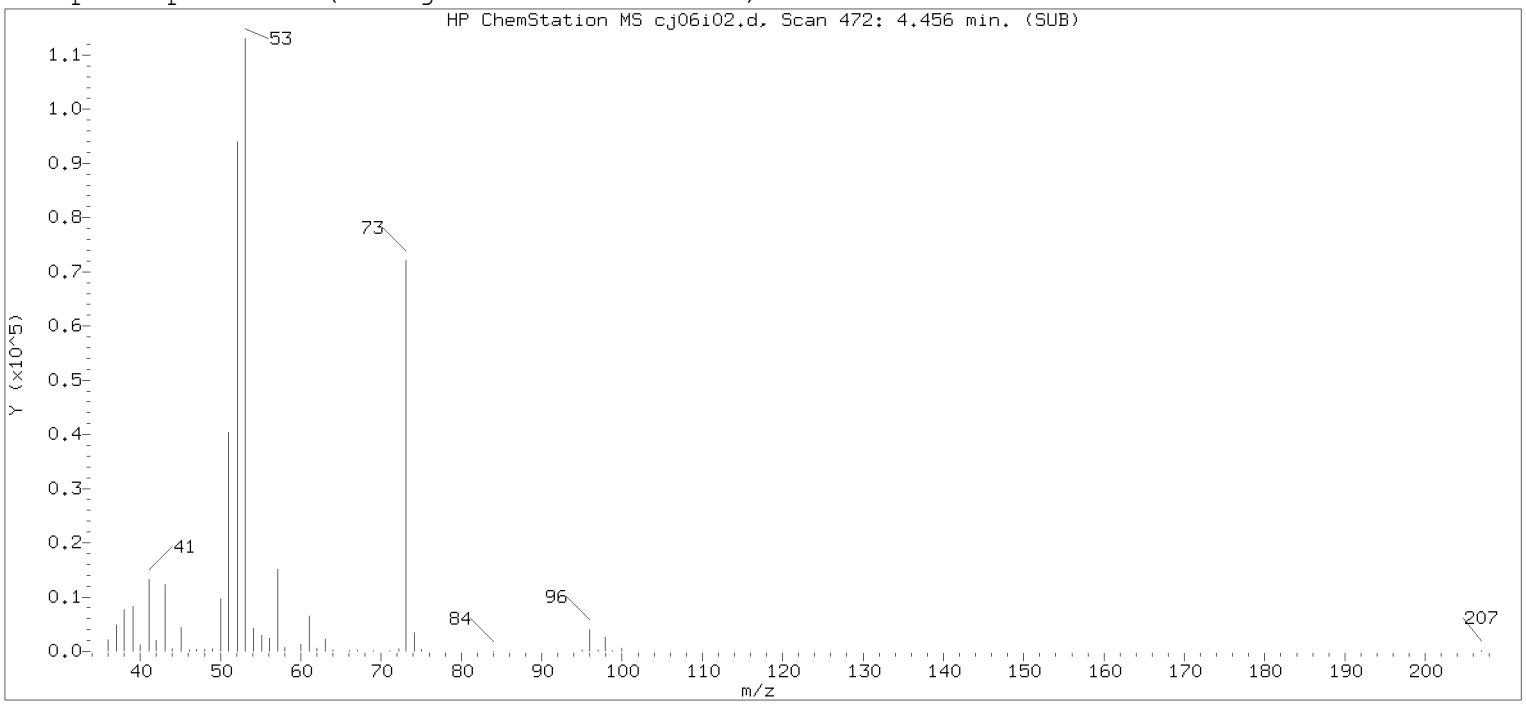
Compound Number : 31
Compound Name : Acrylonitrile
Scan Number : 472
Retention Time (minutes): 4.456
Quant Ion : 53.00
Area (flag) : 543879M
On-Column Amount (ng) : 51.5839
Integration start scan : 453 Integration stop scan: 515
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

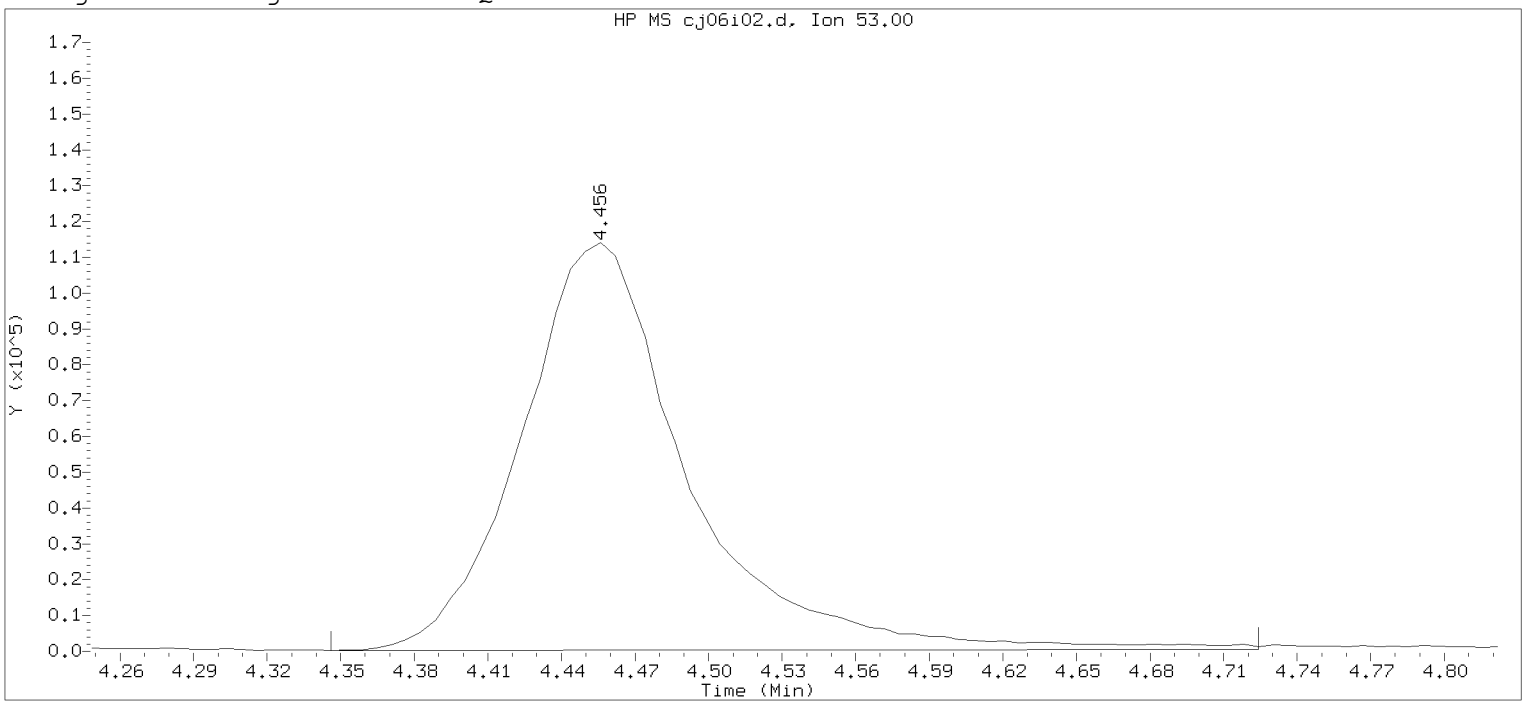
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01  Analyst ID: JKH09052

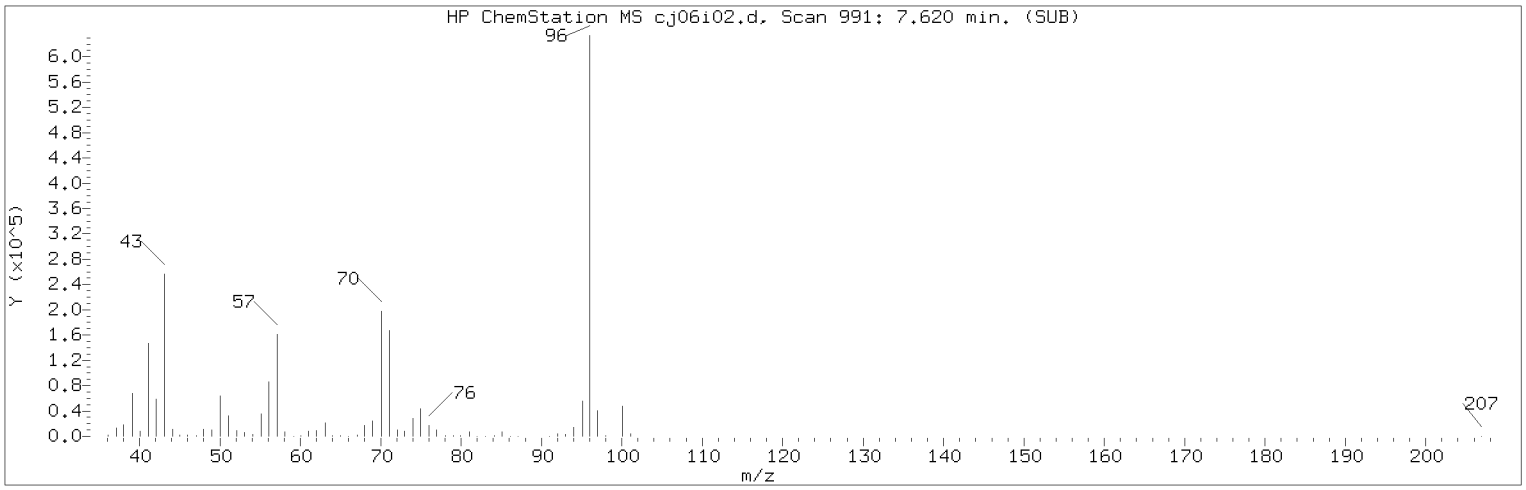
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:18 Automation

Sample Name: VSTD010  Lab Sample ID: VSTD010

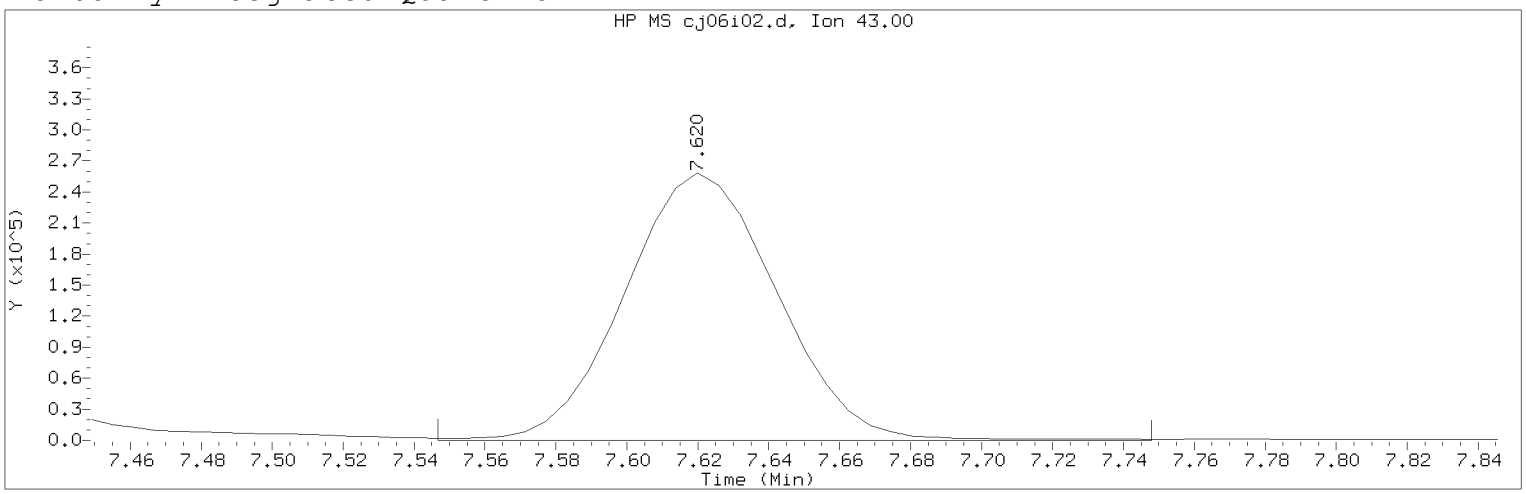
Compound Number : 31
Compound Name : Acrylonitrile
Scan Number : 472
Retention Time (minutes): 4.456
Quant Ion : 53.00
Area : 535643
On-column Amount (ng) : 49.8363
Integration start scan : 453  Integration stop scan: 515
Y at integration start : 213  Y at integration end: 490

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29234

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:21 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

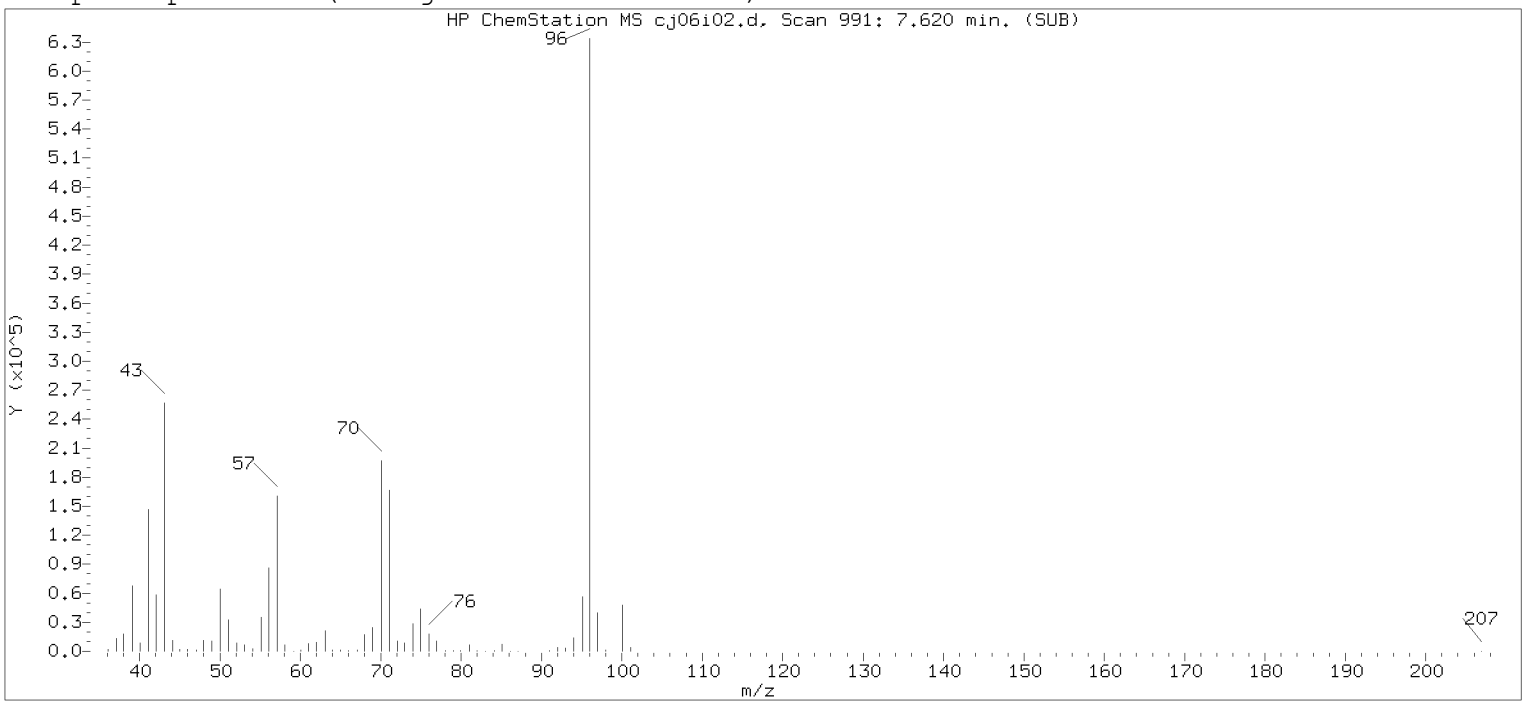
Compound Number : 64
Compound Name : n-Heptane
Scan Number : 991
Retention Time (minutes): 7.620
Quant Ion : 43.00
Area (flag) : 768071M
On-Column Amount (ng) : 10.1526
Integration start scan : 978 Integration stop scan: 1011
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

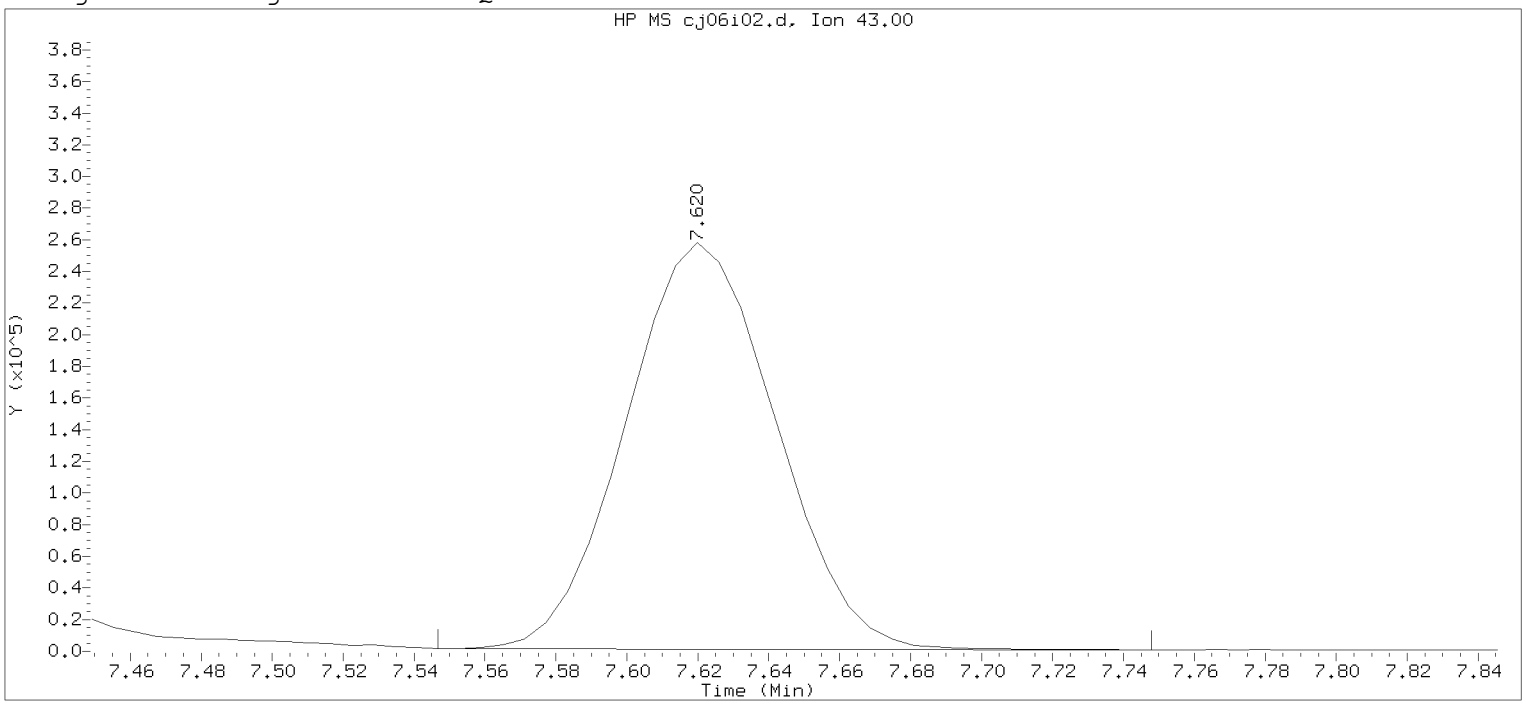
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

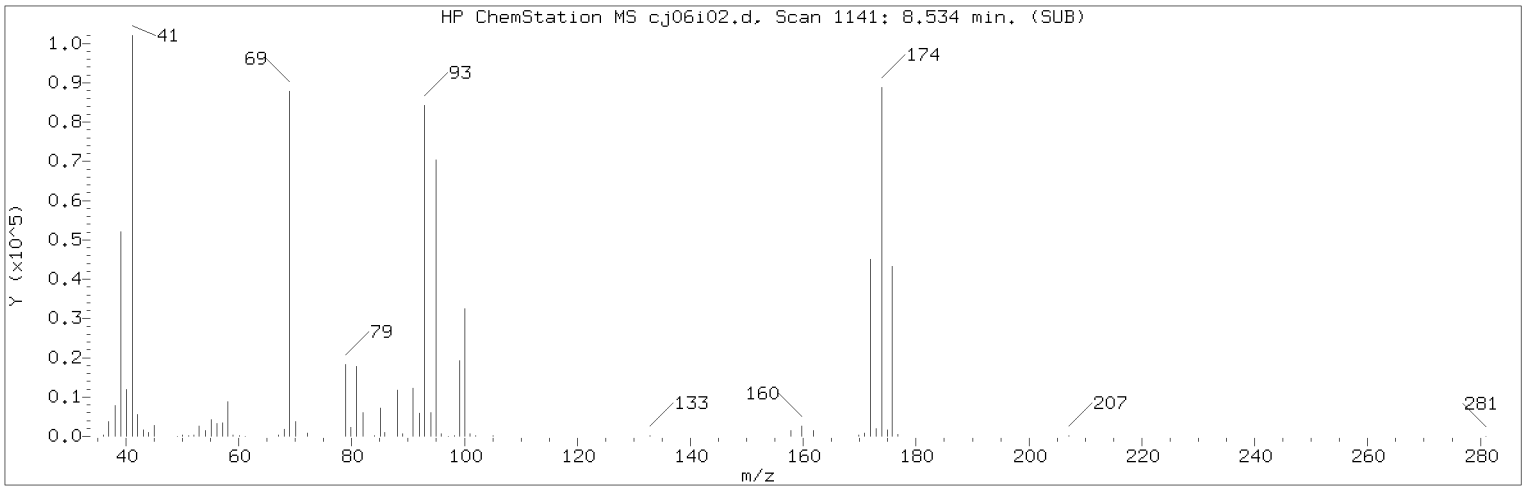
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:18 Automation

Sample Name: VSTD010 Lab Sample ID: VSTD010

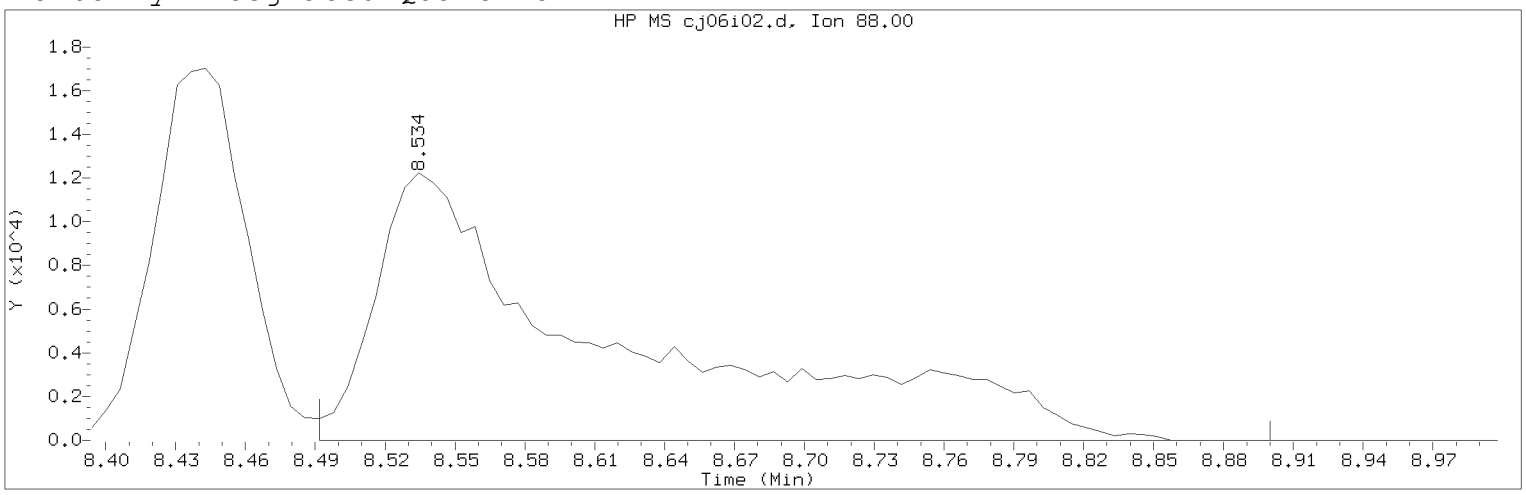
Compound Number : 64
Compound Name : n-Heptane
Scan Number : 991
Retention Time (minutes): 7.620
Quant Ion : 43.00
Area : 751950
On-column Amount (ng) : 10.0466
Integration start scan : 978 Integration stop scan: 1011
Y at integration start : 1729 Y at integration end: 864

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:21 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

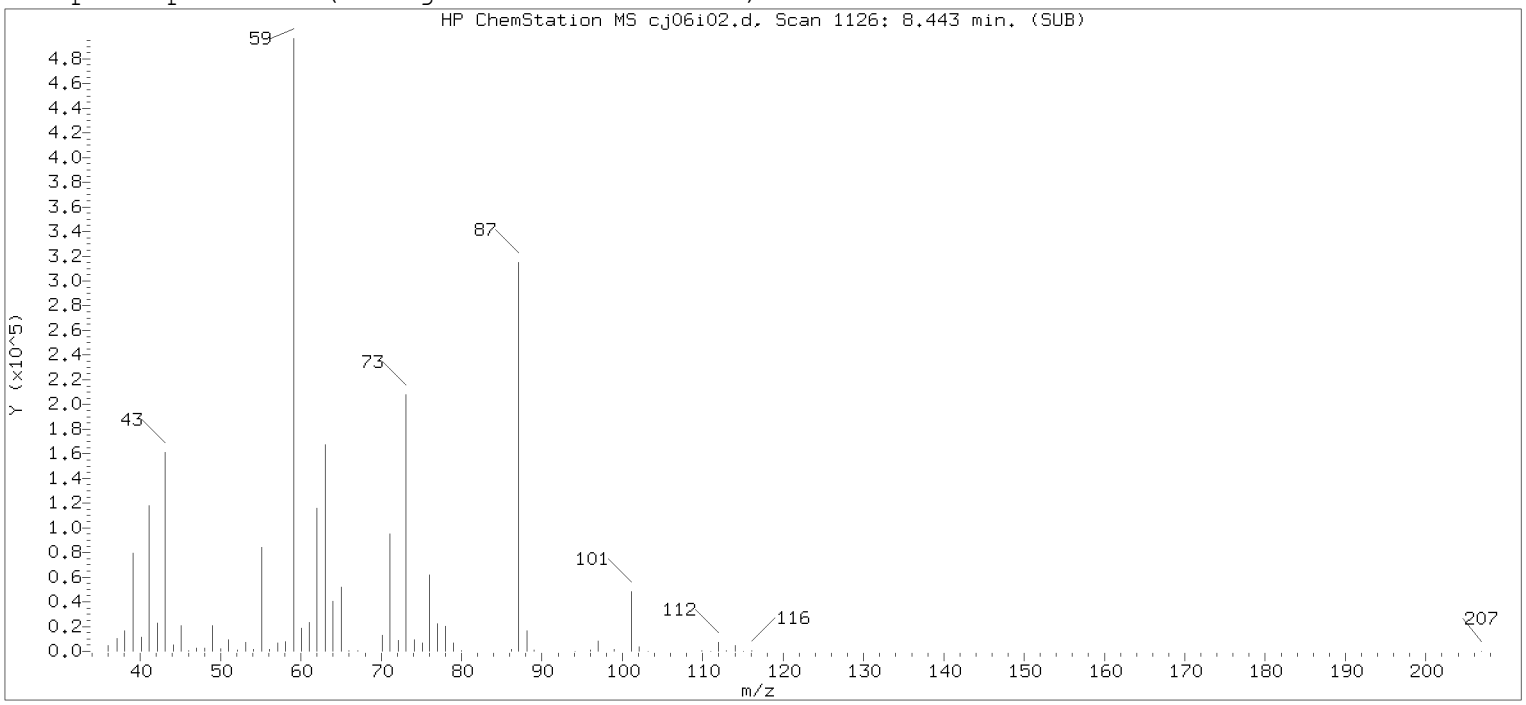
Compound Number : 74
Compound Name : 1,4-Dioxane
Scan Number : 1141
Retention Time (minutes): 8.534
Quant Ion : 88.00
Area (flag) : 86929M
On-Column Amount (ng) : 664.2076
Integration start scan : 1133 Integration stop scan: 1200
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

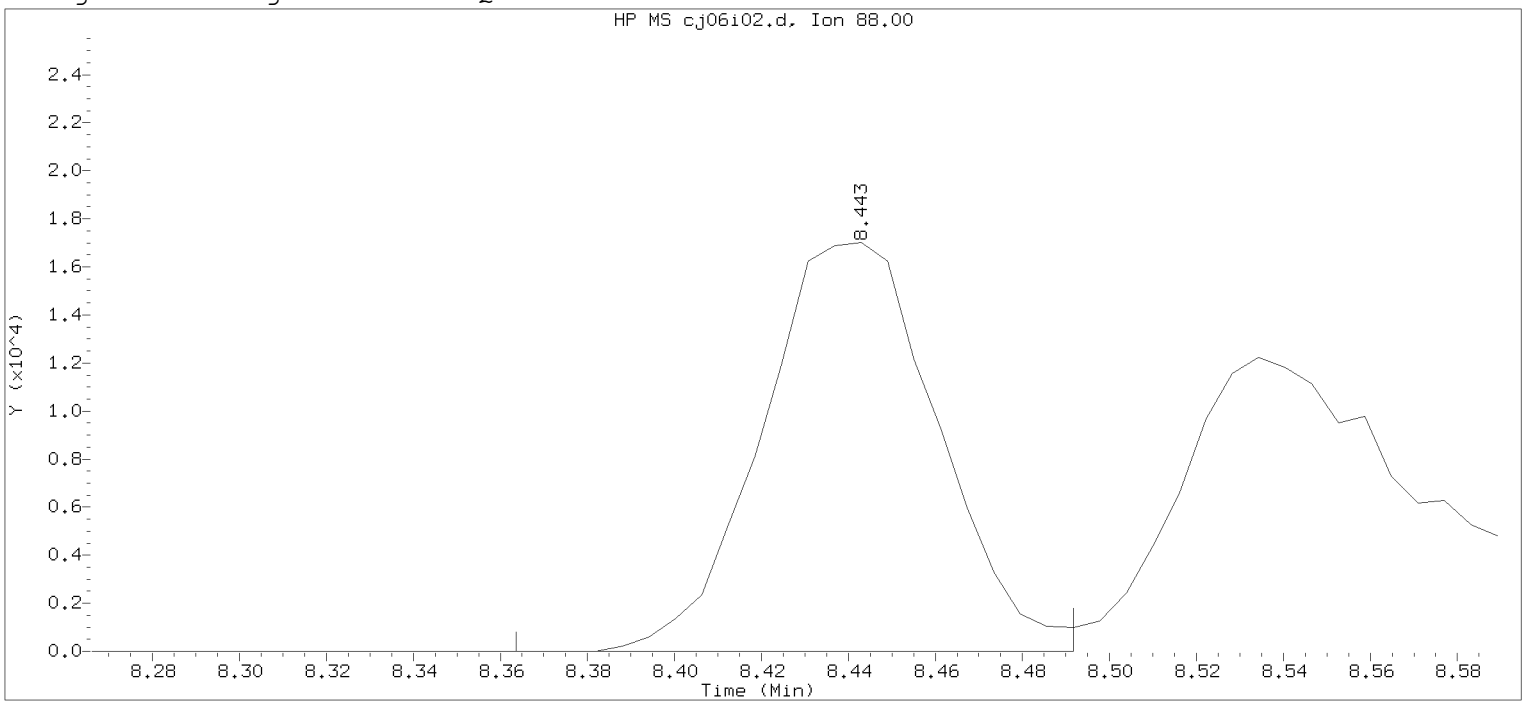
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

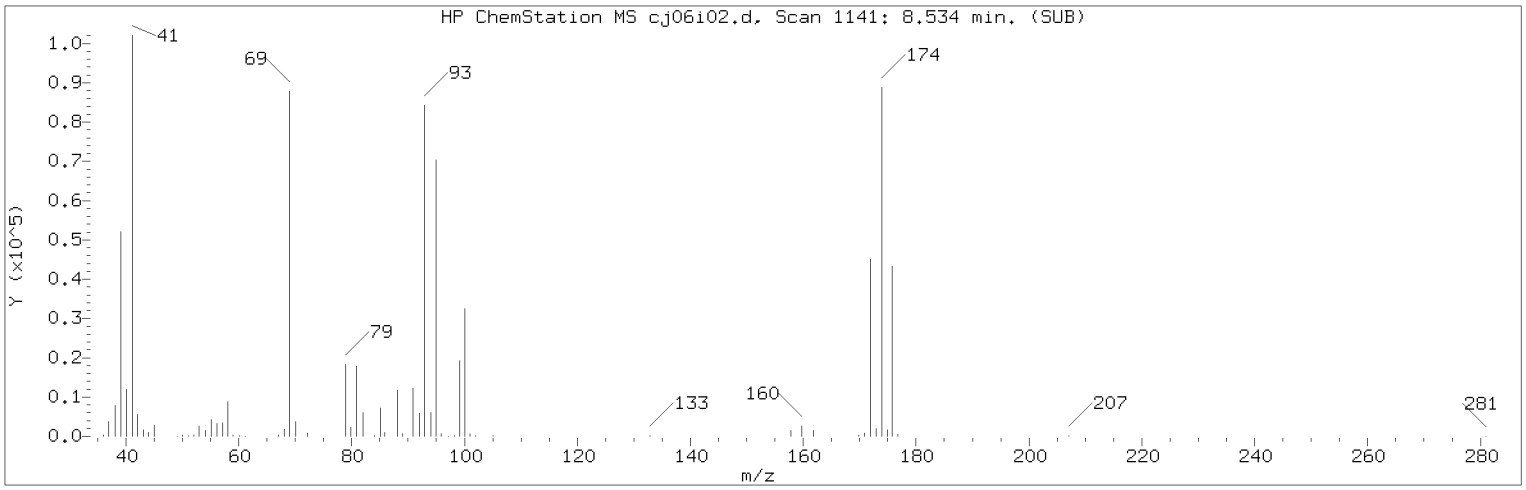
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:18 Automation

Sample Name: VSTD010 Lab Sample ID: VSTD010

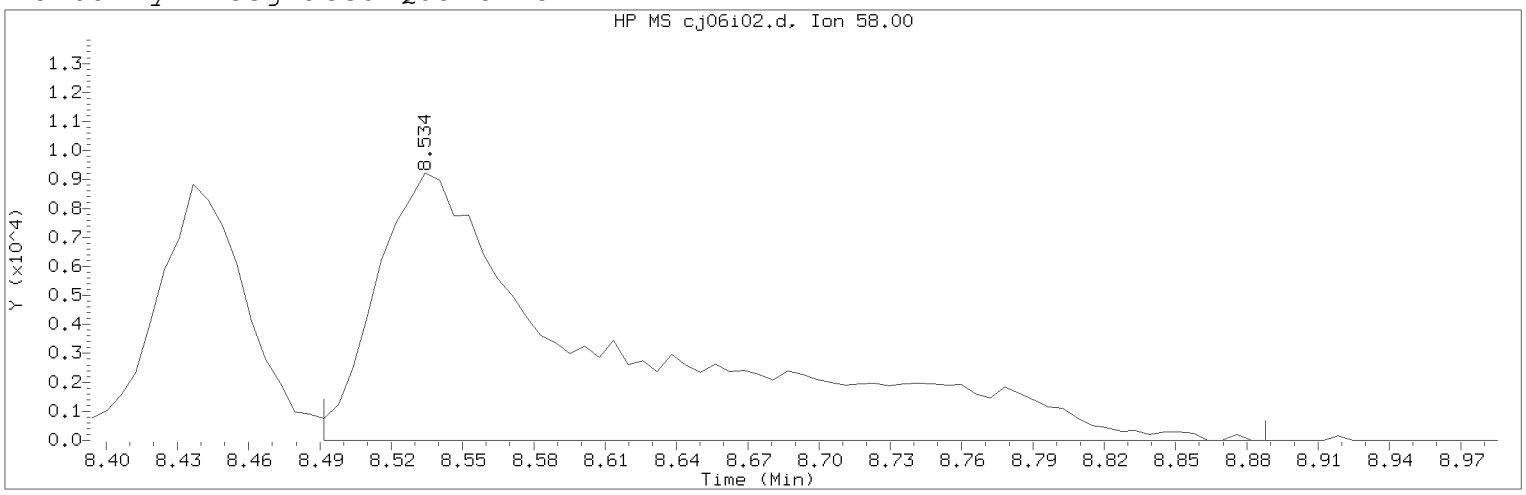
Compound Number : 74
Compound Name : 1,4-Dioxane
Scan Number : 1126
Retention Time (minutes): 8.443
Quant Ion : 88.00
Area : 47559
On-column Amount (ng) : 506.0797
Integration start scan : 1112 Integration stop scan: 1133
Y at integration start : 0 Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:21 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

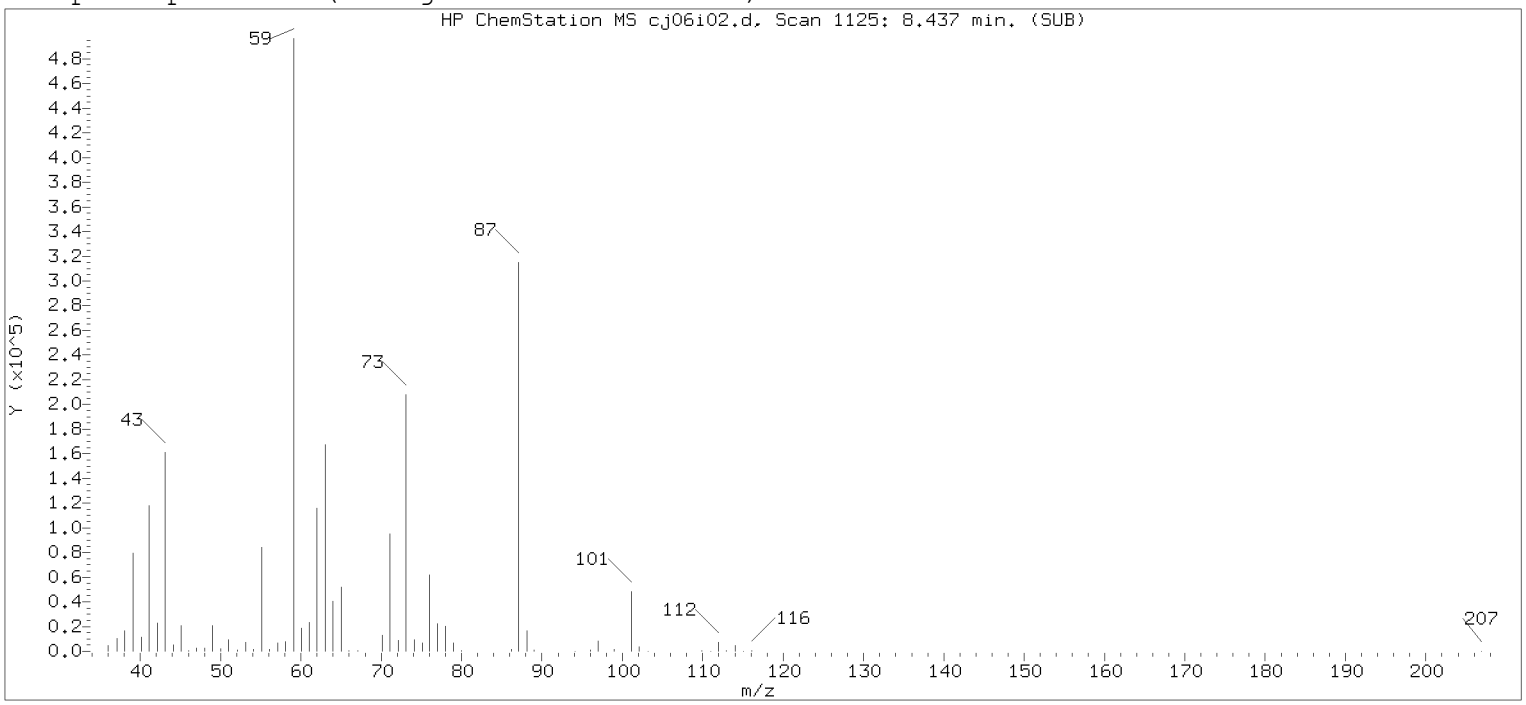
Compound Number : 74
Compound Name : 1,4-Dioxane
Scan Number : 1141
Retention Time (minutes): 8.534
Quant Ion : 58.00
Area (flag) : 63157M
On-Column Amount (ng) : 741.8317
Integration start scan : 1133 Integration stop scan: 1198
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

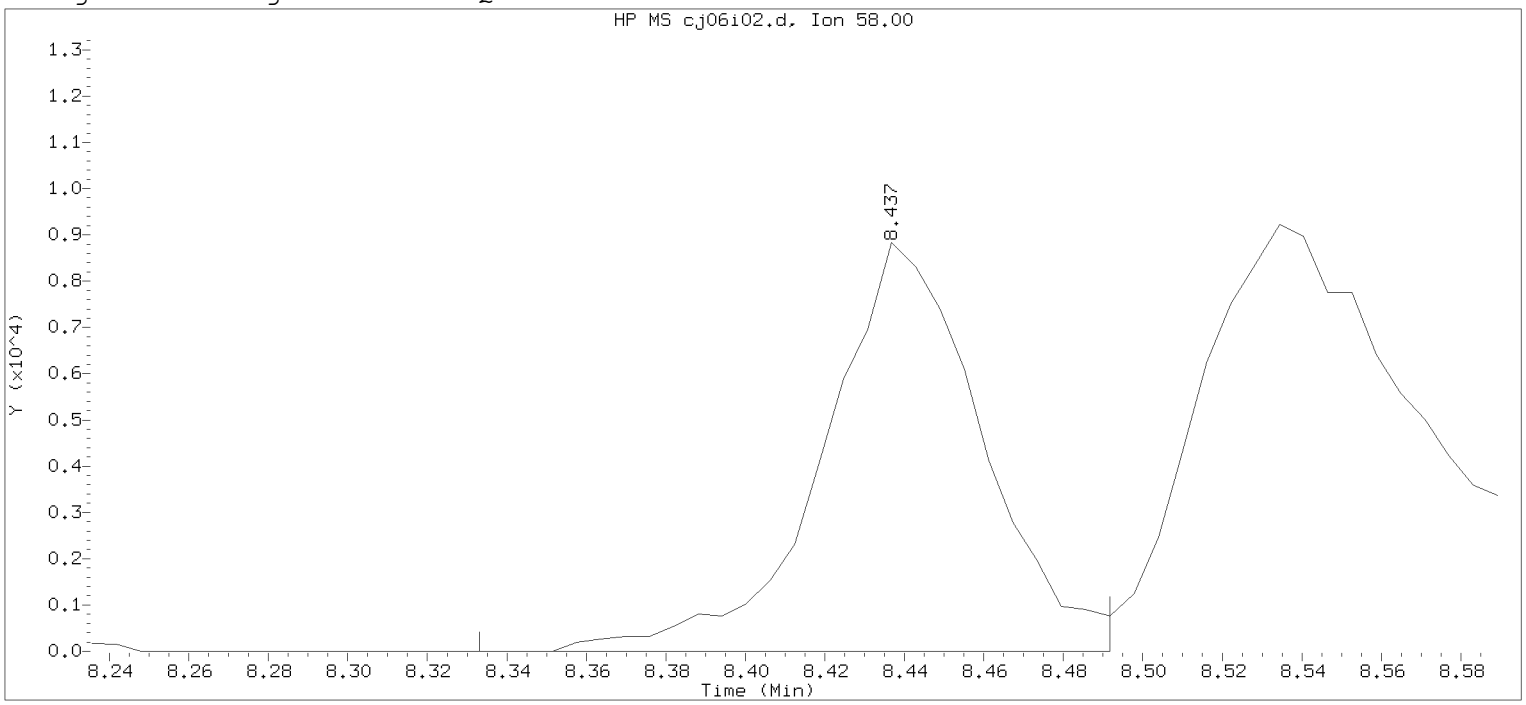
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

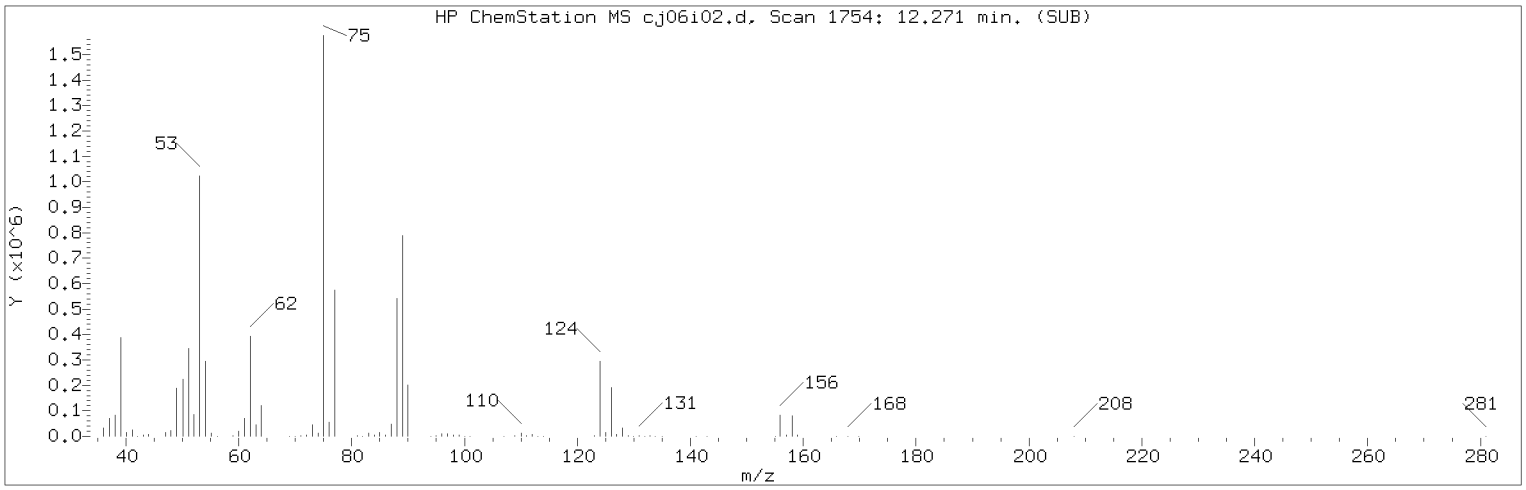
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:18 Automation

Sample Name: VSTD010 Lab Sample ID: VSTD010

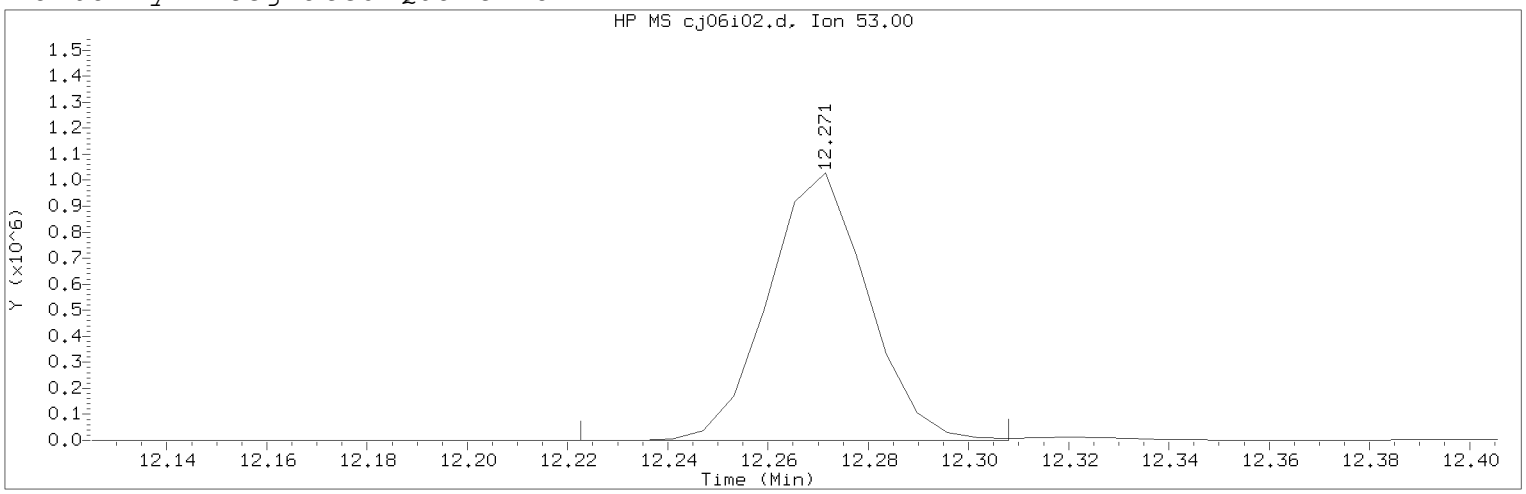
Compound Number : 74
Compound Name : 1,4-Dioxane
Scan Number : 1125
Retention Time (minutes): 8.437
Quant Ion : 58.00
Area : 24413
On-column Amount (ng) : 512.5809
Integration start scan : 1107 Integration stop scan: 1133
Y at integration start : 0 Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:21 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

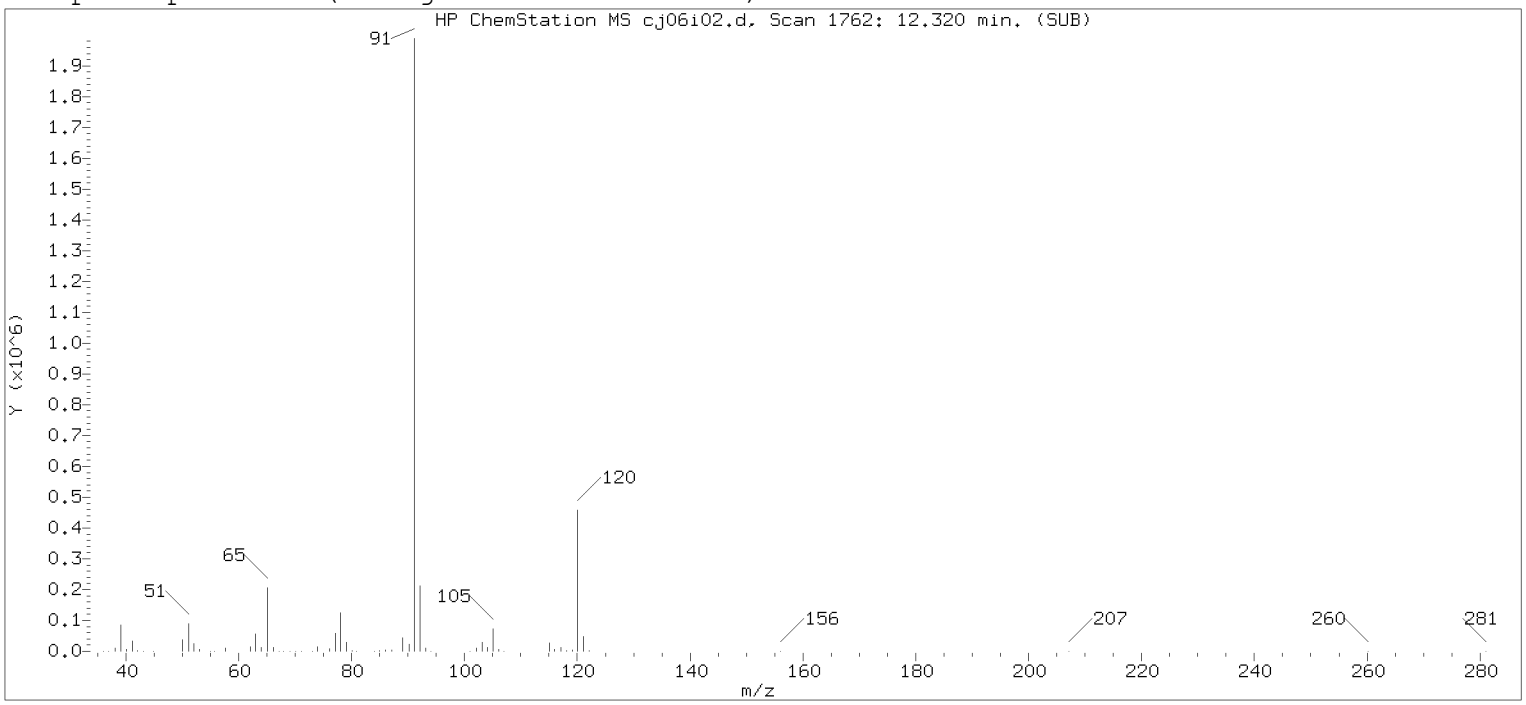
Compound Number : 117
Compound Name : trans-1,4-Dichloro-2-butene
Scan Number : 1754
Retention Time (minutes): 12.271
Quant Ion : 53.00
Area (flag) : 1411145A
On-Column Amount (ng) : 197.7429
Integration start scan : 1745 Integration stop scan: 1759
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

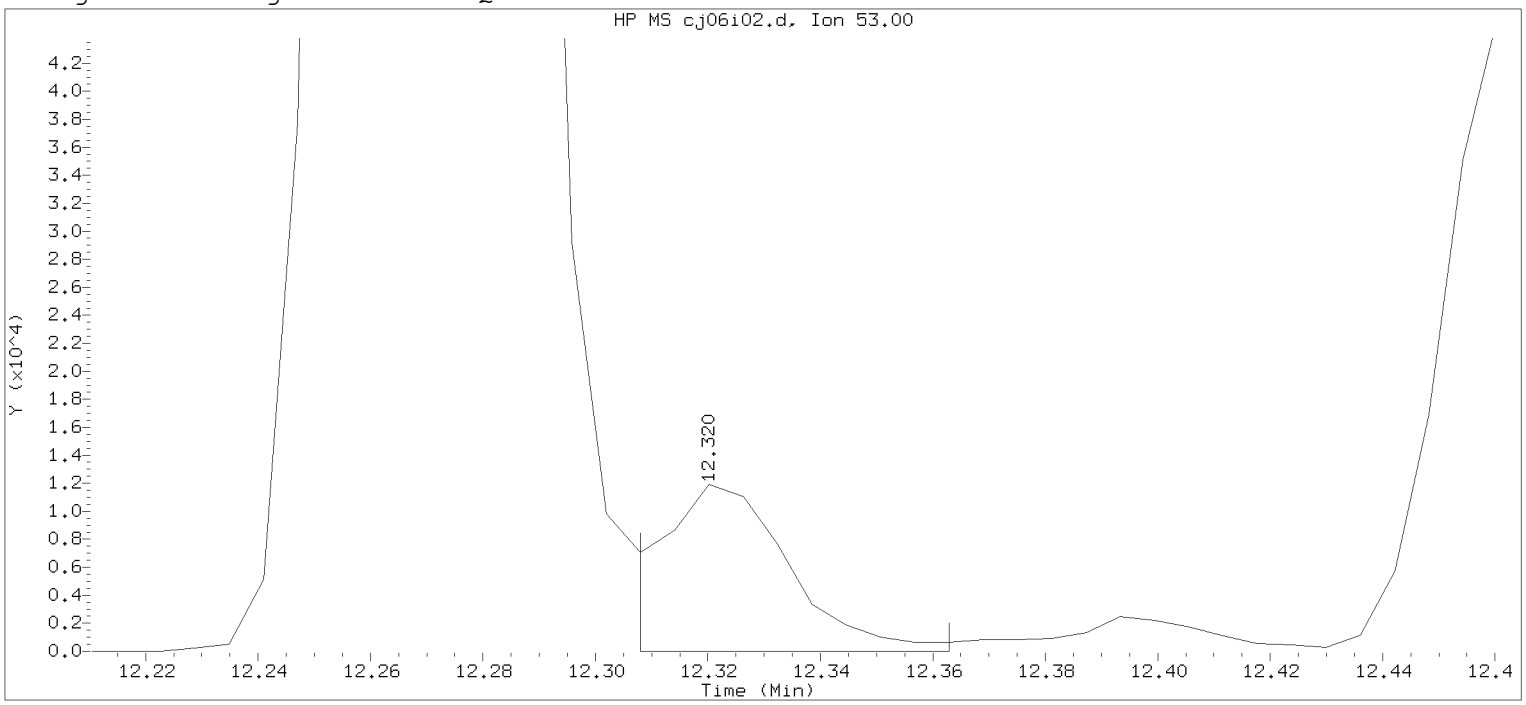
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:18 Automation

Sample Name: VSTD010 Lab Sample ID: VSTD010

Compound Number : 117
Compound Name : trans-1,4-Dichloro-2-butene
Scan Number : 1762
Retention Time (minutes): 12.320
Quant Ion : 53.00
Area : 18274
On-column Amount (ng) : 103.5772
Integration start scan : 1759 Integration stop scan: 1768
Y at integration start : 0 Y at integration end: 0

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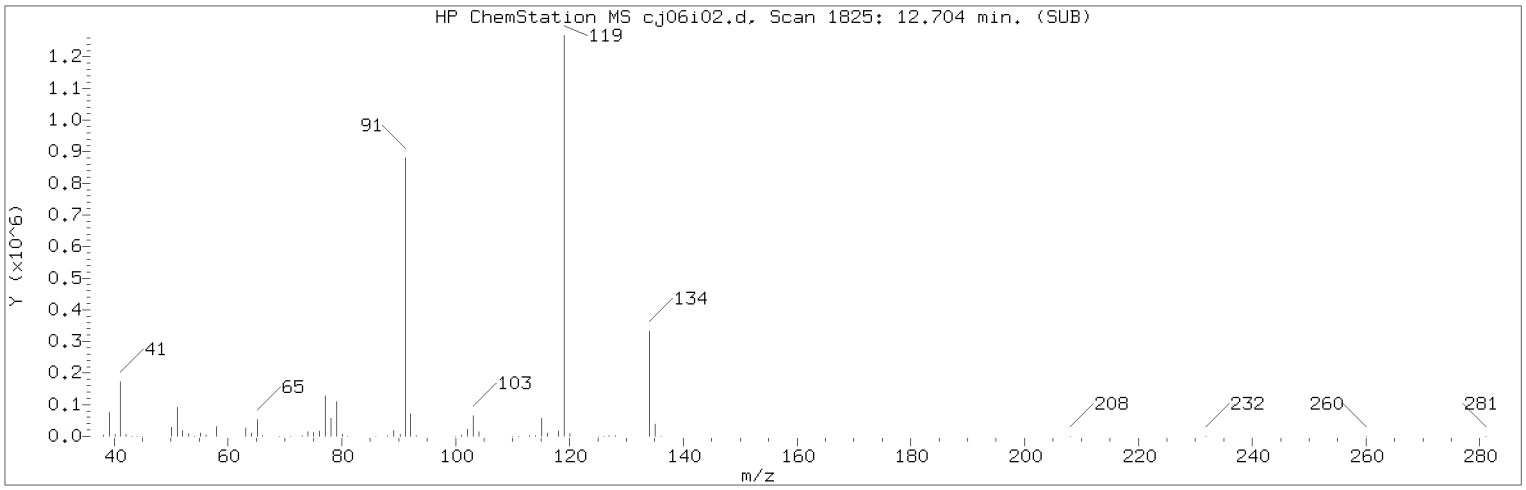
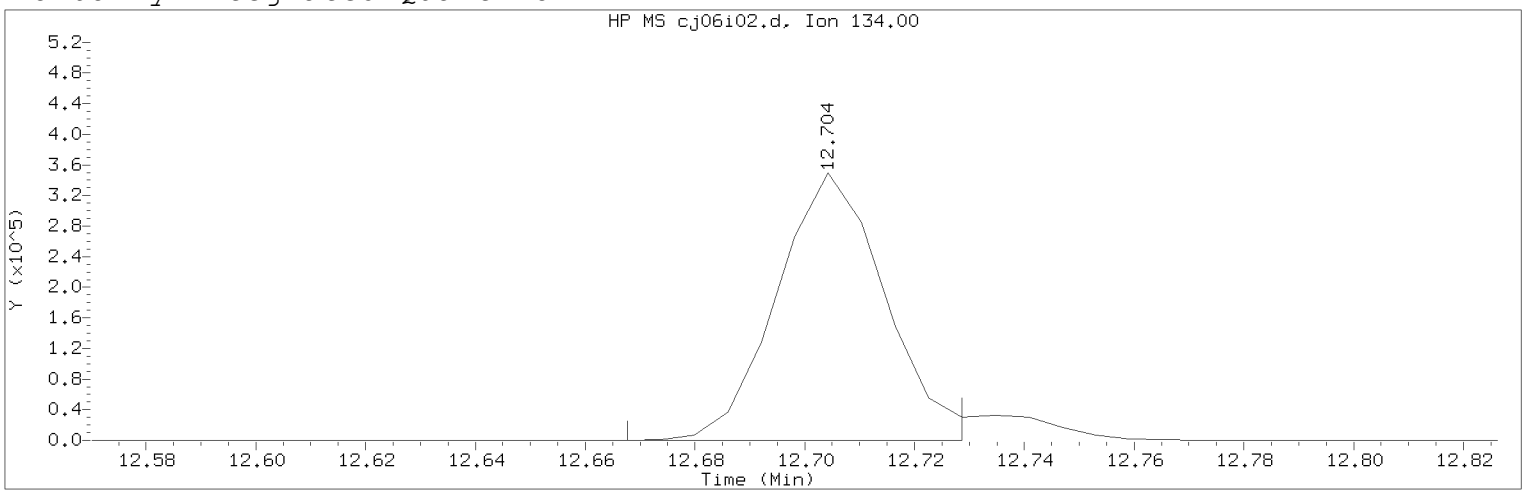
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:21 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

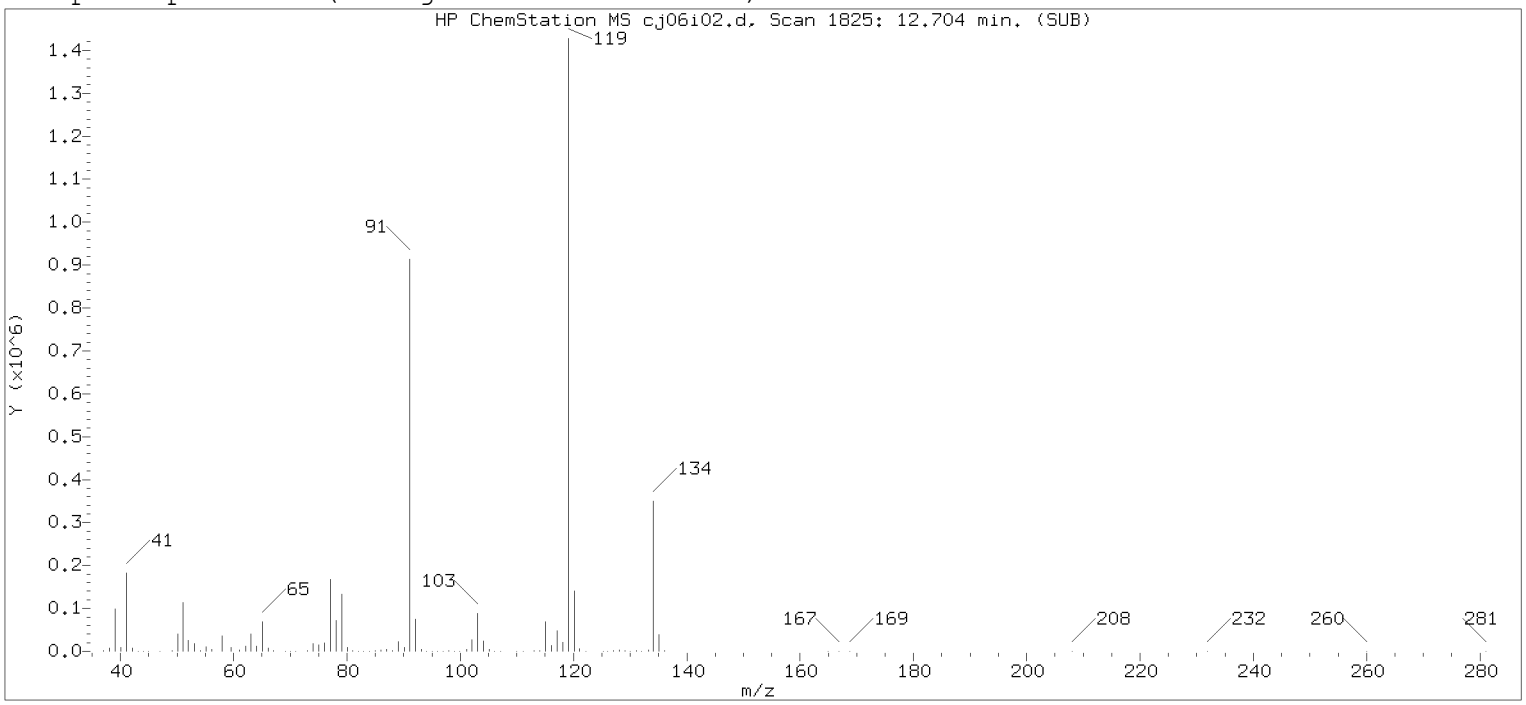
Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1825
Retention Time (minutes): 12.704
Quant Ion : 134.00
Area (flag) : 478735M
On-Column Amount (ng) : 9.6797
Integration start scan : 1818 Integration stop scan: 1828
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

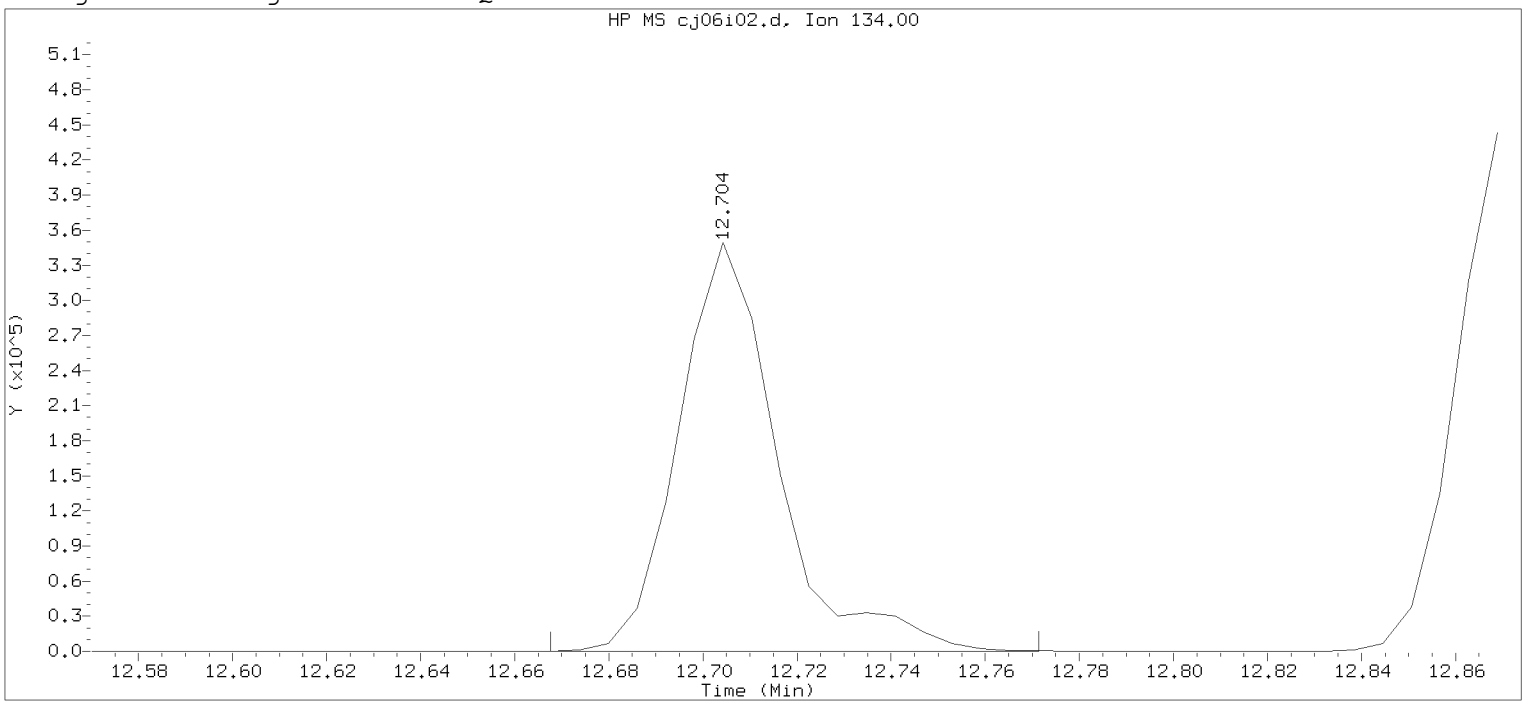
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion



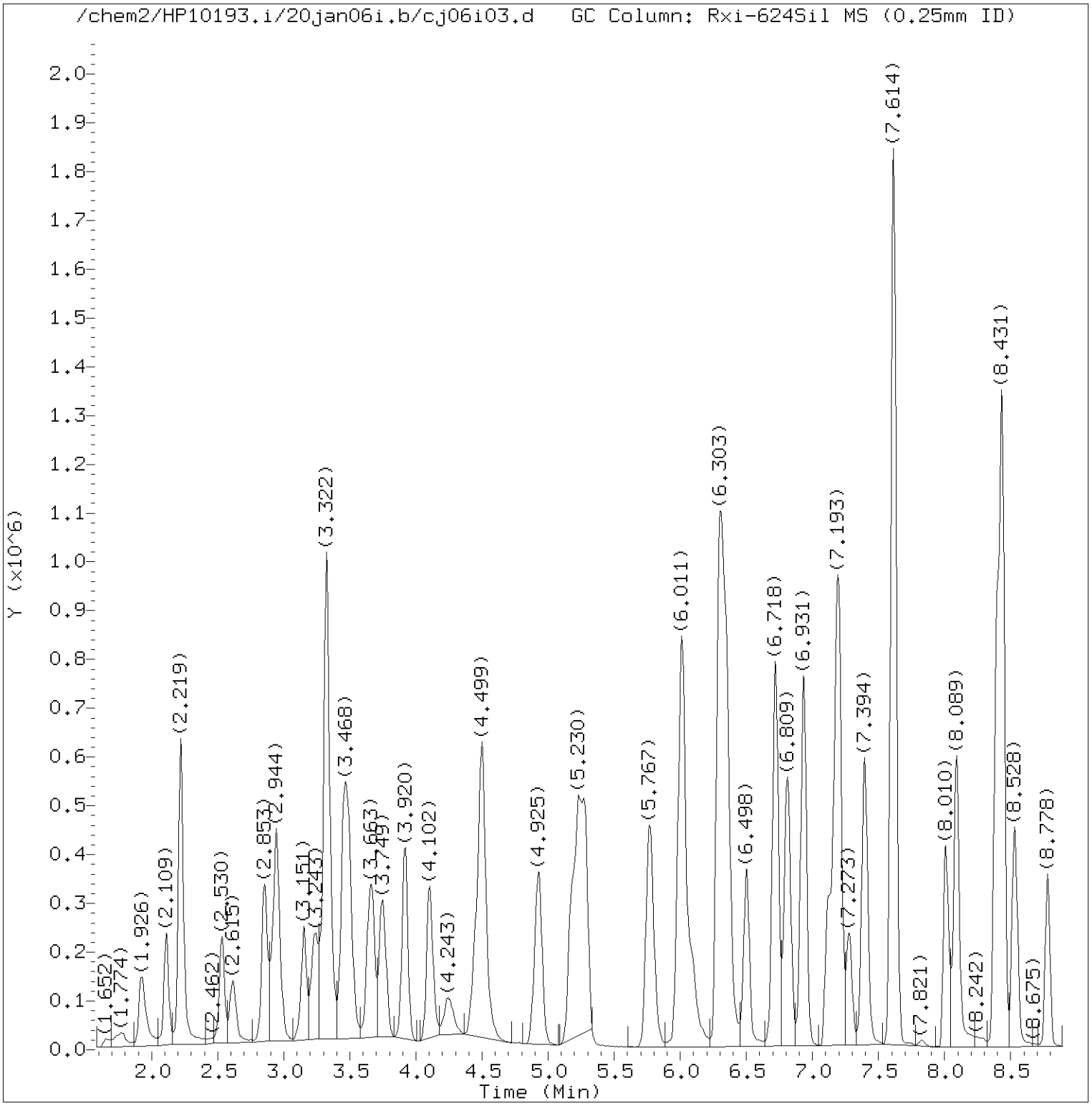

Data File: /chem2/HP10193.i/20jan06i.b/cj06i02.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:01 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:18
Date, time and analyst ID of latest file update: 06-Jan-2020 19:18 Automation

Sample Name: VSTD010 Lab Sample ID: VSTD010

Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1825
Retention Time (minutes): 12.704
Quant Ion : 134.00
Area : 511305
On-column Amount (ng) : 10.0087
Integration start scan : 1818 Integration stop scan: 1835
Y at integration start : 0 Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:41.
Target 3.5 esignature used [illegible]




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:50 mec29284

Sample Name: VSTD005 Lab Sample ID: VSTD005

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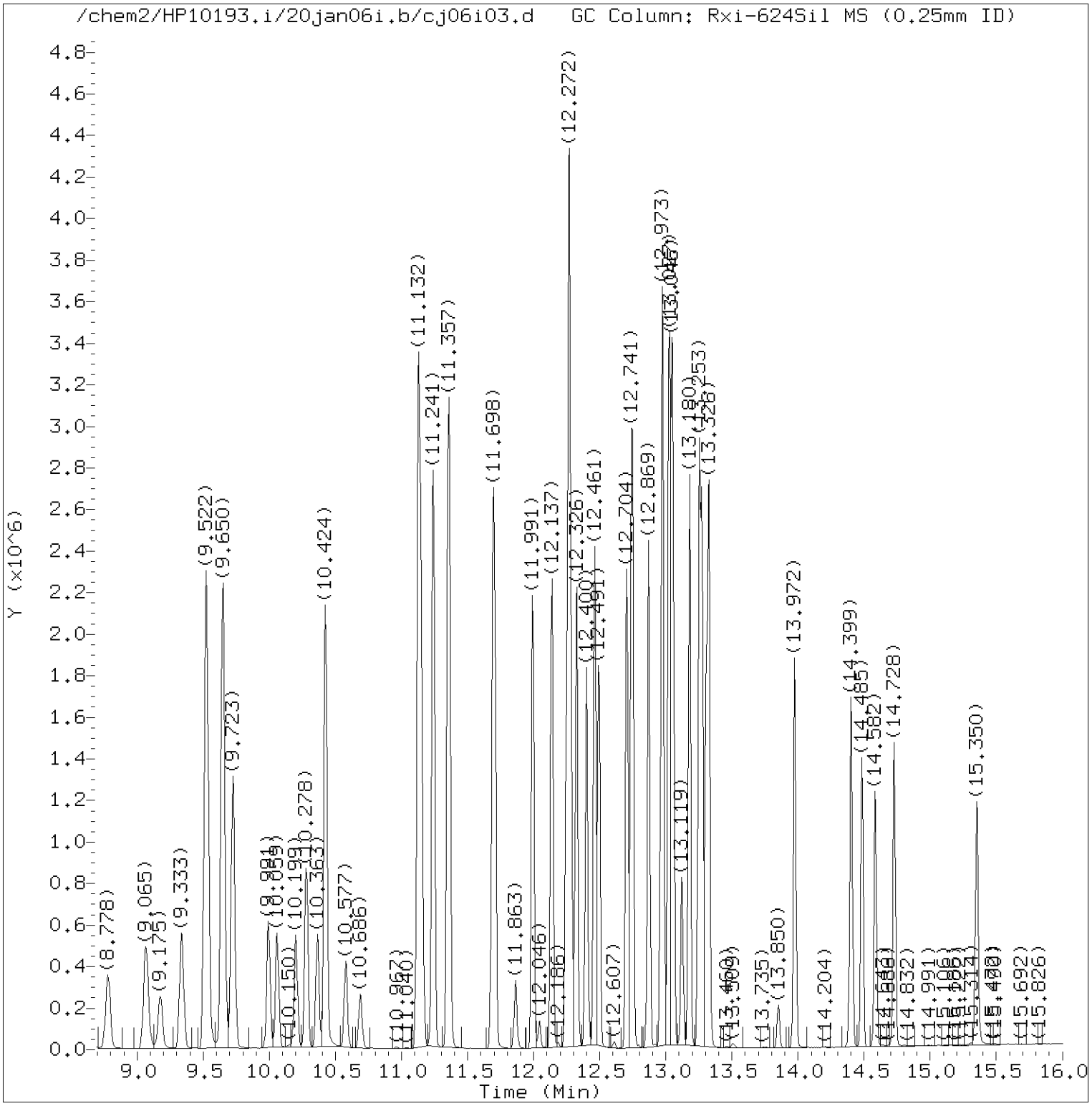
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:50 mec29284

Sample Name: VSTD005 Lab Sample ID: VSTD005

Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:50 mec29284

Sample Name: VSTD005 Lab Sample ID: VSTD005

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | 1.920 | 85 | 325025M | 5.043 |
| 2) Chloromethane | (2) | 2.109 | 50 | 351083 | 5.015 |
| 6) 1,3-Butadiene | (2) | 2.219 | 39 | 291180M | 5.189 |
| 5) Vinyl Chloride | (2) | 2.225 | 62 | 338872M | 5.013 |
| 7) Bromomethane | (2) | 2.530 | 94 | 218498 | 5.075 |
| 8) Chloroethane | (2) | 2.615 | 64 | 188462 | 5.061 |
| 9) Dichlorofluoromethane | (2) | 2.853 | 67 | 411436 | 5.058 |
| 10) Trichlorofluoromethane | (2) | 2.914 | 101 | 343499 | 5.103 |
| 12) Ethyl ether | (2) | 3.151 | 59 | 217158 | 5.053 |
| 13) Freon 123a | (2) | 3.243 | 67 | 278897 | 5.069 |
| 14) Acrolein | (1) | 3.322 | 56 | 1734161 | 248.131 |
| 16) 1,1-Dichloroethene | (2) | 3.456 | 96 | 227631 | 5.147 |
| 17) Freon 113 | (2) | 3.487 | 101 | 227955 | 5.064 |
| 15) Acetone | (1) | 3.493 | 43 | 406894 | 50.785 |
| 18) Methyl Iodide | (2) | 3.645 | 142 | 421269 | 5.077 |
| 19) Bromoethane | (2) | 3.676 | 108 | 191687 | 5.077 |
| 20) Carbon Disulfide | (2) | 3.749 | 76 | 793257 | 5.057 |
| 23) Methyl Acetate | (2) | 3.895 | 43 | 136262 | 4.959 |
| 24) Allyl Chloride | (2) | 3.920 | 41 | 408181 | 5.082 |
| 25) Methylene Chloride | (2) | 4.102 | 84 | 249942 | 5.063 |
| 28)*t-Butyl Alcohol-d10 | (1) | 4.127 | 65 | 162601M | 50.000 |
| 30) t-Butyl Alcohol | (1) | 4.243 | 59 | 349350 | 104.132 |
| 31) Acrylonitrile | (1) | 4.450 | 53 | 283195M | 25.197 |
| 32) Methyl Tertiary Butyl Ether | (2) | 4.493 | 73 | 664603 | 5.101 |
| 33) trans-1,2-Dichloroethene | (2) | 4.505 | 96 | 250315 | 5.072 |
| 34) n-Hexane | (2) | 4.931 | 57 | 384809M | 5.141 |
| 35) 1,1-Dichloroethane | (2) | 5.175 | 63 | 466679 | 5.089 |
| 36) di-Isopropyl Ether | (2) | 5.230 | 45 | 859317 | 5.040 |
| 37) 2-Chloro-1,3-Butadiene | (2) | 5.285 | 53 | 407752 | 5.065 |
| 39) Ethyl t-butyl ether | (2) | 5.767 | 59 | 825093 | 5.102 |
| 40) 2-Butanone | (1) | 5.986 | 43 | 790048 | 50.889 |
| 41) cis-1,2-Dichloroethene | (2) | 6.017 | 96 | 279805 | 5.052 |
| 43) 2,2-Dichloropropane | (2) | 6.023 | 77 | 374860 | 5.095 |
| 44) Propionitrile | (1) | 6.090 | 54 | 405638 | 101.437 |
| 42) 1,2-Dichloroethene (Total) | (2) | | 96 | 530120 | 10.124 |
| 47) Methacrylonitrile | (1) | 6.297 | 67 | 742624 | 50.264 |
| 49) Bromochloromethane | (2) | 6.346 | 128 | 127020 | 5.066 |
| 50) Tetrahydrofuran | (1) | 6.358 | 71 | 229600 | 50.442 |

M = Compound was manually integrated.
* = Compound is an internal standard.



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Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:50 mec29284

Sample Name: VSTD005 Lab Sample ID: VSTD005

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 51) Chloroform | (2) | 6.498 | 83 | 426863 | 5.056 |
| 52)$Dibromofluoromethane | (2) | 6.718 | 113 | 437031 | 9.977 |
| 52)$Dibromofluoromethane | (2) | 6.718 | 111 | 448389 | 10.004 |
| 53) 1,1,1-Trichloroethane | (2) | 6.724 | 97 | 384111 | 5.102 |
| 54) Cyclohexane | (2) | 6.809 | 56 | 465694 | 5.069 |
| 54) Cyclohexane | (2) | 6.809 | 84 | 397559 | 5.095 |
| 54) Cyclohexane | (2) | 6.590 | 69 | 302 | 5.083 |
| 56) Carbon Tetrachloride | (2) | 6.925 | 117 | 327819 | 5.056 |
| 57) 1,1-Dichloropropene | (2) | 6.937 | 75 | 362724 | 5.068 |
| 58) Isobutyl Alcohol | (1) | 7.120 | 41 | 288434 | 256.621 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 102 | 97967 | 10.116 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.175 | 65 | 454545 | 10.246 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.175 | 104 | 61365 | 9.987 |
| 60) Benzene | (2) | 7.199 | 78 | 1057914 | 5.041 |
| 61) 1,2-Dichloroethane | (2) | 7.273 | 62 | 285769 | 5.025 |
| 61) 1,2-Dichloroethane | (2) | 7.279 | 98 | 27451 | 5.029 |
| 62) t-Amyl methyl ether | (2) | 7.394 | 73 | 757454 | 5.096 |
| 65)*Fluorobenzene | (2) | 7.614 | 96 | 1875348 | 10.000 |
| 64) n-Heptane | (2) | 7.620 | 43 | 390565M | 5.070 |
| 67) n-Butanol | (1) | 8.010 | 56 | 524871 | 511.781 |
| 69) Trichloroethene | (2) | 8.089 | 95 | 264628 | 5.077 |
| 71) Methylcyclohexane | (2) | 8.394 | 83 | 491233 | 5.093 |
| 72) 1,2-Dichloropropane | (2) | 8.431 | 63 | 272338 | 5.006 |
| 73) Methyl Methacrylate | (1) | 8.522 | 69 | 149227 | 4.994 |
| 75) Dibromomethane | (2) | 8.534 | 93 | 129459 | 5.082 |
| 74) 1,4-Dioxane | (1) | 8.534 | 88 | 45781 | 255.254 |
| 74) 1,4-Dioxane | (1) | 8.534 | 58 | 33047 | 252.999 |
| 76) Bromodichloromethane | (2) | 8.778 | 83 | 325520 | 5.056 |
| 78) 2-Nitropropane | (1) | 9.065 | 41 | 464954 | 50.436 |
| 81) 1-Bromo-2-chloroethane | (2) | 9.175 | 63 | 295317 | 5.102 |
| 82) cis-1,3-Dichloropropene | (2) | 9.333 | 75 | 422830 | 5.011 |
| 83) 4-Methyl-2-Pentanone | (2) | 9.522 | 43 | 2044825 | 50.738 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1845444 | 10.005 |
| 84)$Toluene-d8 | (3) | 9.650 | 100 | 1204001 | 9.954 |
| 85) Toluene | (3) | 9.723 | 92 | 673961 | 5.082 |
| 87) 1,3-Dichloropropene (total) | (3) | | 75 | 789624 | 10.037 |
| 86) trans-1,3-Dichloropropene | (3) | 9.991 | 75 | 366794 | 5.026 |
| 88) Ethyl Methacrylate | (3) | 10.059 | 69 | 322174 | 5.060 |

M = Compound was manually integrated.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.



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Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:50 mec29284

Sample Name: VSTD005 Lab Sample ID: VSTD005

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 90) 1,1,2-Trichloroethane | (3) | 10.199 | 97 | 191232 | 5.077 |
| 91) Tetrachloroethene | (3) | 10.278 | 166 | 289455 | 5.052 |
| 92) 1,3-Dichloropropane | (3) | 10.363 | 76 | 338801 | 5.038 |
| 93) 2-Hexanone | (3) | 10.424 | 43 | 1455384 | 50.767 |
| 95) Dibromochloromethane | (3) | 10.577 | 129 | 236700 | 5.008 |
| 97) 1,2-Dibromoethane | (3) | 10.686 | 107 | 188149 | 5.075 |
| 99)*Chlorobenzene-d5 | (3) | 11.125 | 117 | 1386872 | 10.000 |
| 98) 1-Chlorohexane | (3) | 11.138 | 91 | 380537 | 5.084 |
| 100) Chlorobenzene | (3) | 11.150 | 112 | 757071 | 5.062 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | 11.235 | 131 | 265739 | 5.042 |
| 102) Ethylbenzene | (3) | 11.241 | 91 | 1309113 | 5.054 |
| 103) m+p-Xylene | (3) | 11.357 | 106 | 1028676 | 10.121 |
| 106) o-Xylene | (3) | 11.692 | 106 | 509499 | 5.079 |
| 108) Styrene | (3) | 11.705 | 104 | 865821 | 5.054 |
| 107) Xylene (Total) | (3) | | 106 | 1538175 | 15.200 |
| 109) Bromoform | (3) | 11.863 | 173 | 147743 | 5.012 |
| 110) Isopropylbenzene | (3) | 11.991 | 105 | 1326584 | 5.089 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 694528 | 10.024 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 174 | 578368 | 9.952 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | 12.247 | 83 | 255303 | 5.089 |
| 116) Bromobenzene | (4) | 12.253 | 156 | 325677 | 5.078 |
| 117) trans-1,4-Dichloro-2-butene | (1) | 12.272 | 53 | 712664 | 49.374 |
| 118) 1,2,3-Trichloropropane | (4) | 12.290 | 110 | 67088M | 5.114 |
| 119) n-Propylbenzene | (4) | 12.326 | 91 | 1562071 | 5.097 |
| 121) 2-Chlorotoluene | (4) | 12.400 | 126 | 320143 | 5.080 |
| 123) 1,3,5-Trimethylbenzene | (4) | 12.461 | 105 | 1150540 | 5.058 |
| 124) 4-Chlorotoluene | (4) | 12.491 | 126 | 332593 | 5.090 |
| 127) tert-Butylbenzene | (4) | 12.704 | 134 | 245250M | 5.086 |
| 128) Pentachloroethane | (4) | 12.735 | 167 | 211176 | 5.072 |
| 129) 1,2,4-Trimethylbenzene | (4) | 12.747 | 105 | 1211343 | 5.066 |
| 130) sec-Butylbenzene | (4) | 12.869 | 105 | 1476642 | 5.079 |
| 133) 1,3-Dichlorobenzene | (4) | 12.967 | 146 | 644382 | 5.065 |
| 134) p-Isopropyltoluene | (4) | 12.979 | 119 | 1294238 | 5.068 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.021 | 152 | 762392 | 10.000 |
| 136) 1,4-Dichlorobenzene | (4) | 13.040 | 146 | 654109 | 5.081 |
| 137) 1,2,3-Trimethylbenzene | (4) | 13.052 | 120 | 527021 | 5.068 |
| 138) Benzyl Chloride | (4) | 13.125 | 126 | 113680 | 4.991 |
| 140) n-Butylbenzene | (4) | 13.271 | 92 | 653824 | 5.082 |

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on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:50 mec29284

Sample Name: VSTD005 Lab Sample ID: VSTD005

| | Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|---|
| 141) | 1,2-Dichlorobenzene | (4) | 13.302 | 146 | 606567 | 5.117 |
| 145) | 1,2-Dibromo-3-chloropropane | (1) | 13.850 | 155 | 39235 | 4.931 |
| 146) | 1,3,5-Trichlorobenzene | (4) | 13.972 | 180 | 539888 | 5.133 |
| 147) | 1,2,4-Trichlorobenzene | (4) | 14.399 | 180 | 483208 | 5.130 |
| 148) | Hexachlorobutadiene | (4) | 14.485 | 225 | 231003 | 5.102 |
| 149) | Naphthalene | (4) | 14.582 | 128 | 885012 | 5.116 |
| 150) | 1,2,3-Trichlorobenzene | (4) | 14.728 | 180 | 412311 | 5.083 |



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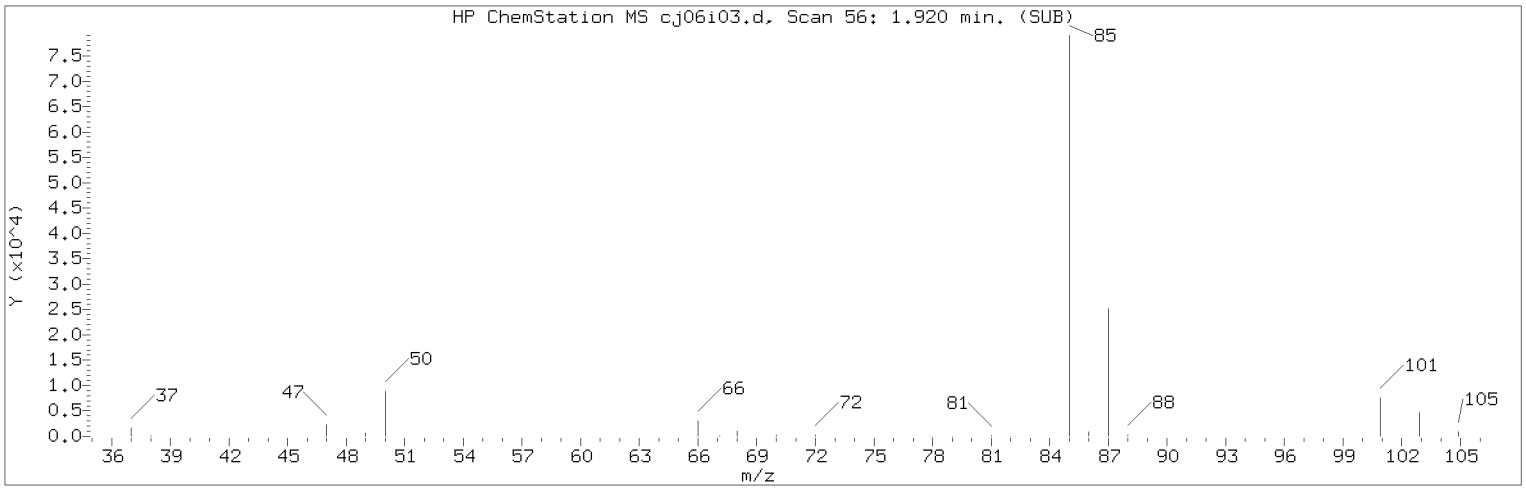
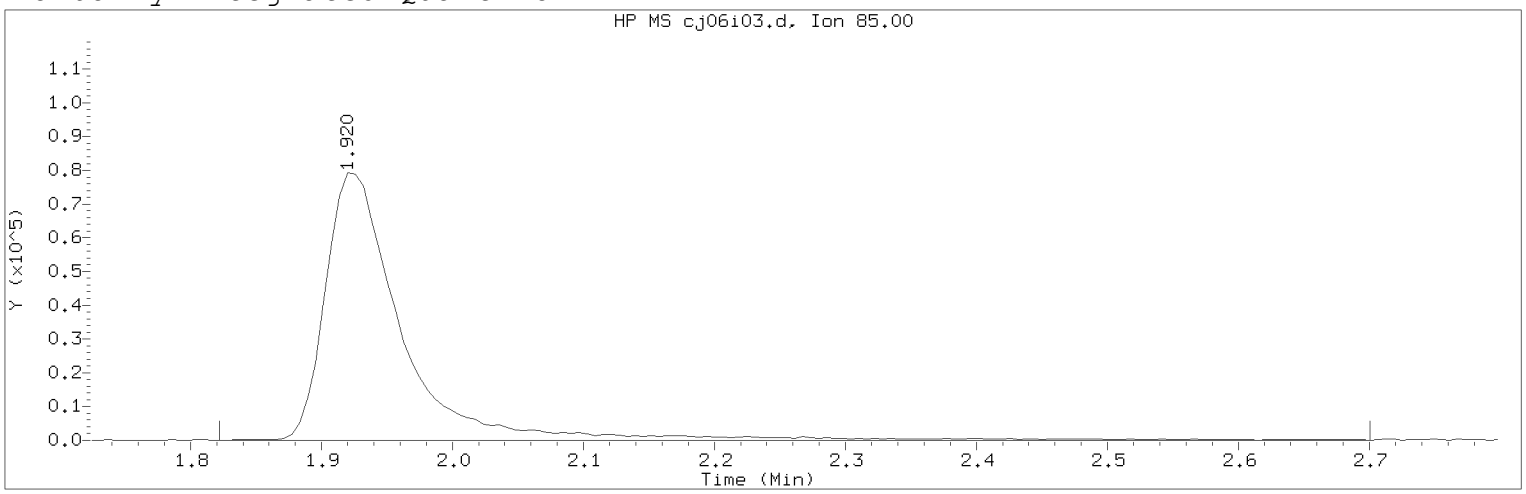
Target 3.5 esignature user ID: mec29284

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:50 mec29284

Sample Name: VSTD005 Lab Sample ID: VSTD005

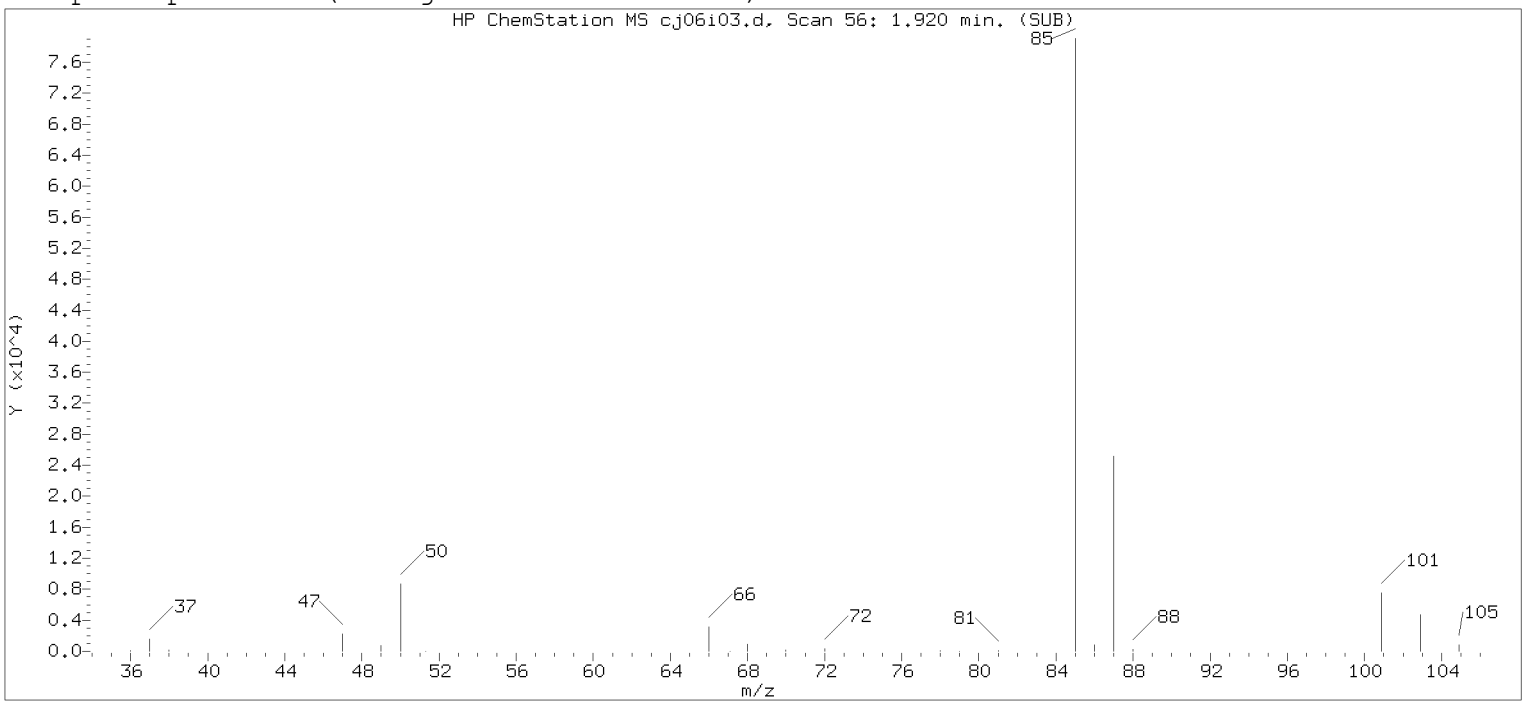
Compound Number : 1
Compound Name : Dichlorodifluoromethane
Scan Number : 56
Retention Time (minutes): 1.920
Quant Ion : 85.00
Area (flag) : 325025M
On-Column Amount (ng) : 5.0433
Integration start scan : 39 Integration stop scan: 183
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

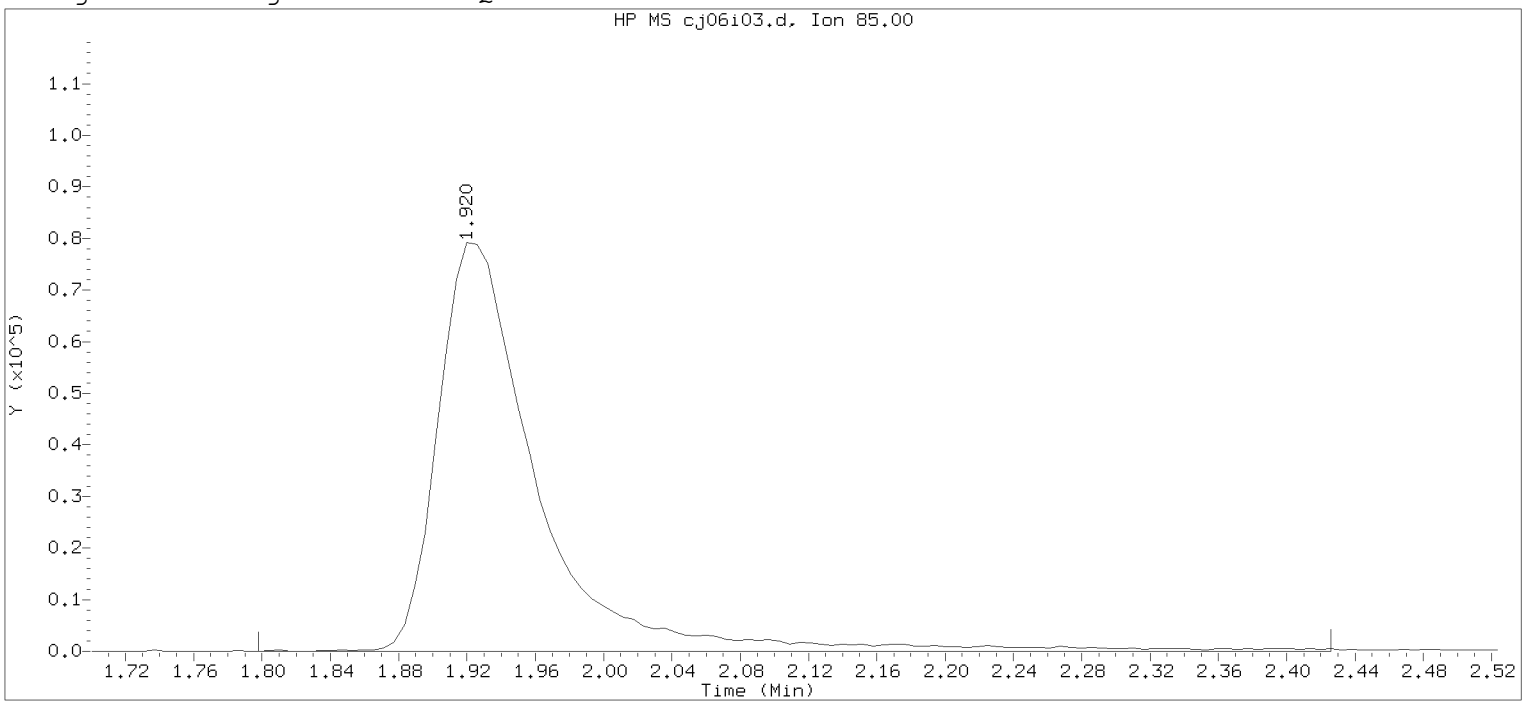
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

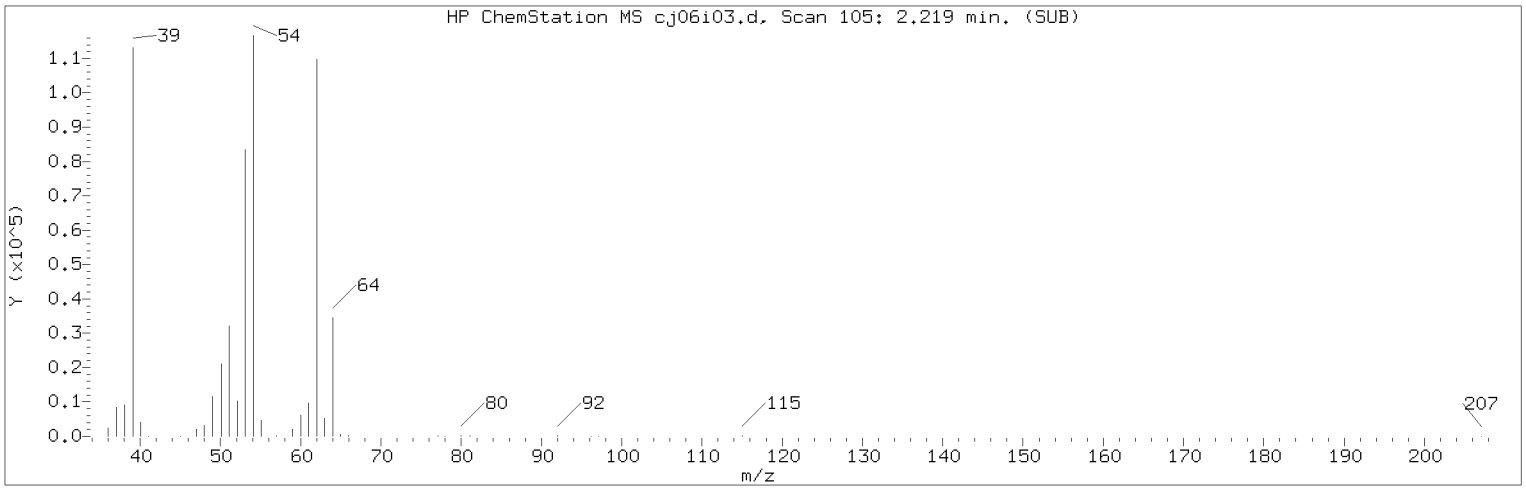
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:41 Automation

Sample Name: VSTD005 Lab Sample ID: VSTD005

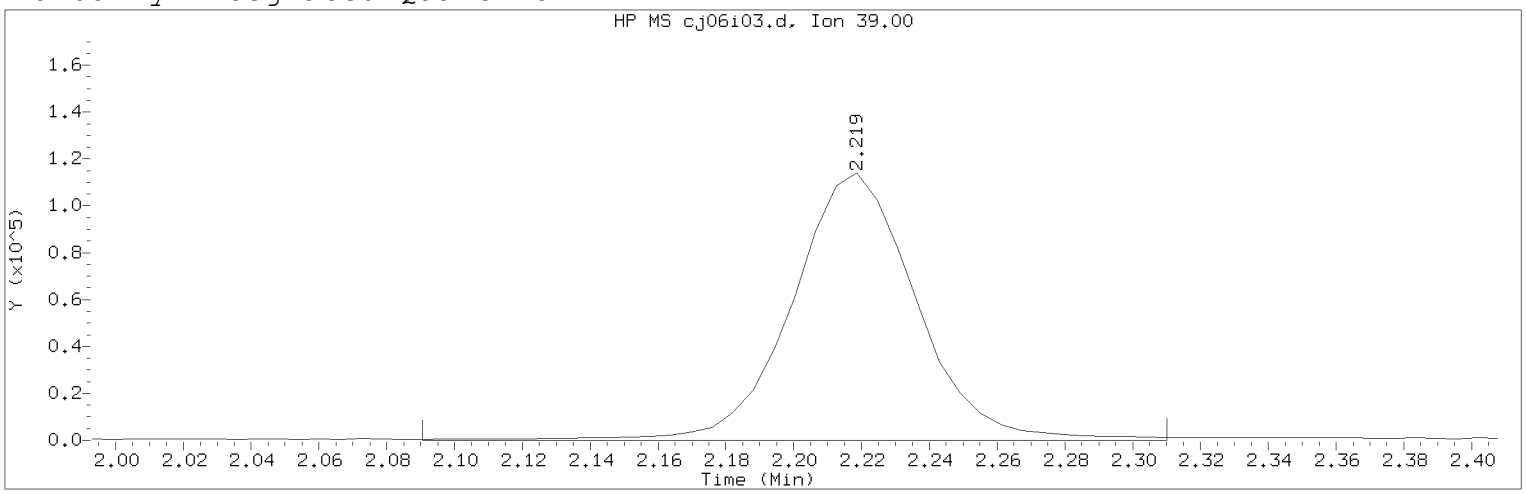
Compound Number : 1
Compound Name : Dichlorodifluoromethane
Scan Number : 56
Retention Time (minutes): 1.920
Quant Ion : 85.00
Area : 321057
On-column Amount (ng) : 5.0022
Integration start scan : 35 Integration stop scan: 138
Y at integration start : 0 Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:50 mec29284

Sample Name: VSTD005 Lab Sample ID: VSTD005

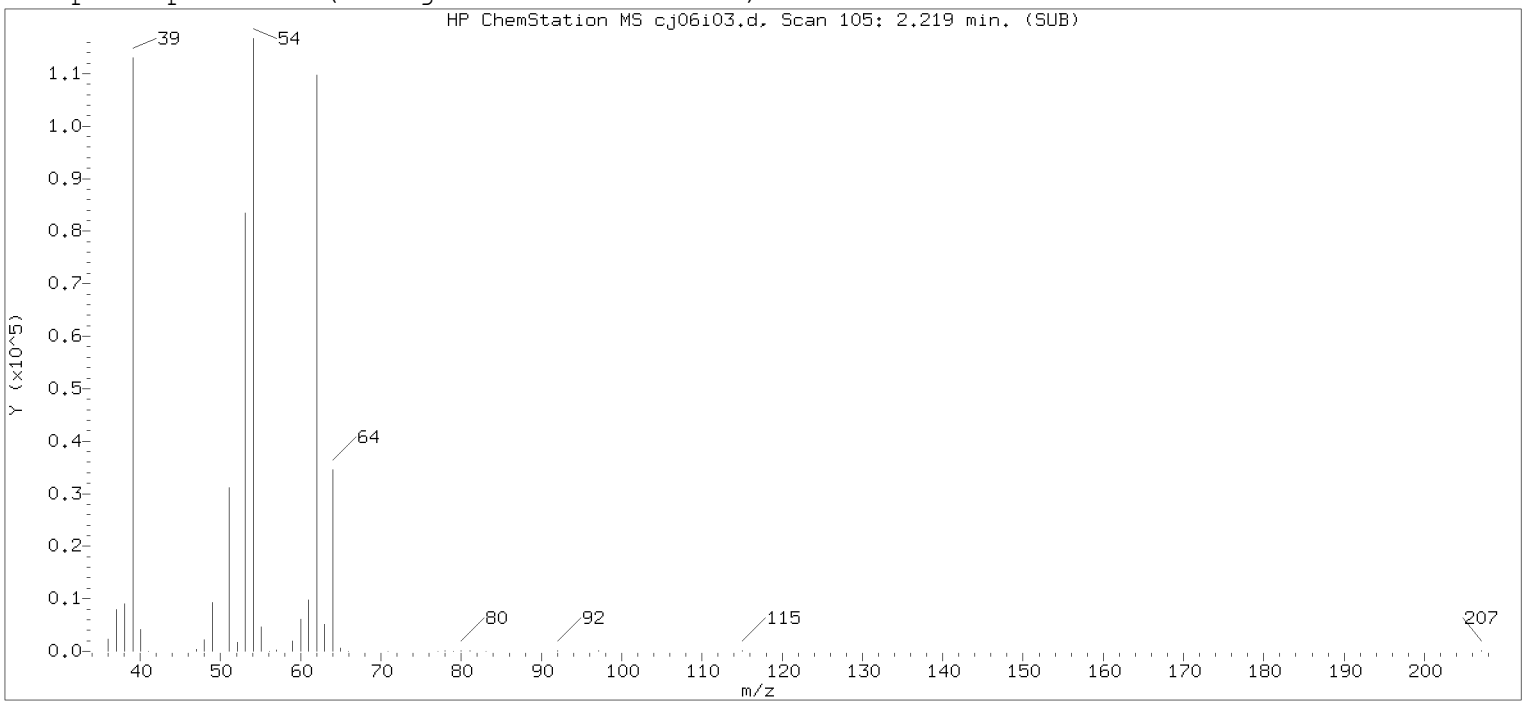
Compound Number : 6
Compound Name : 1,3-Butadiene
Scan Number : 105
Retention Time (minutes): 2.219
Quant Ion : 39.00
Area (flag) : 291180M
On-Column Amount (ng) : 5.1890
Integration start scan : 83 Integration stop scan: 119
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

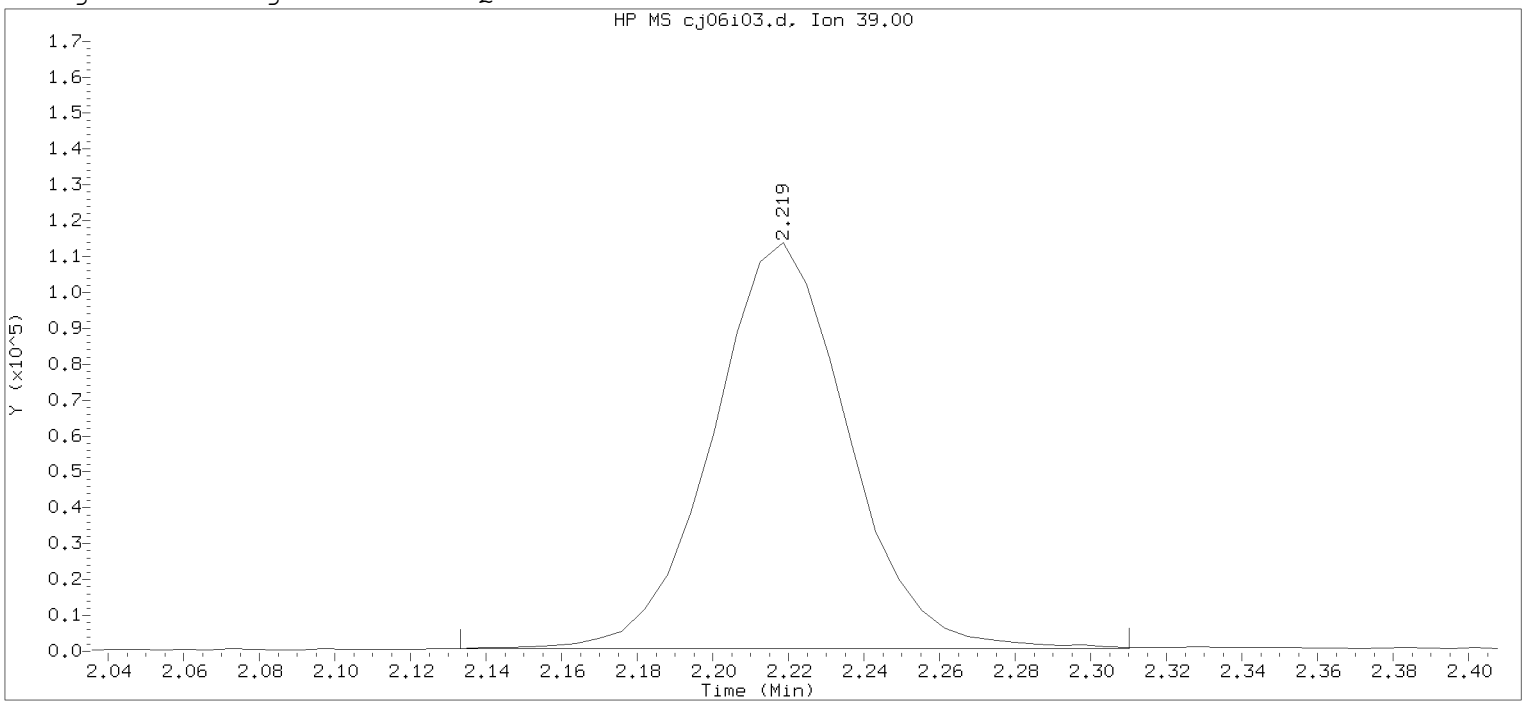
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

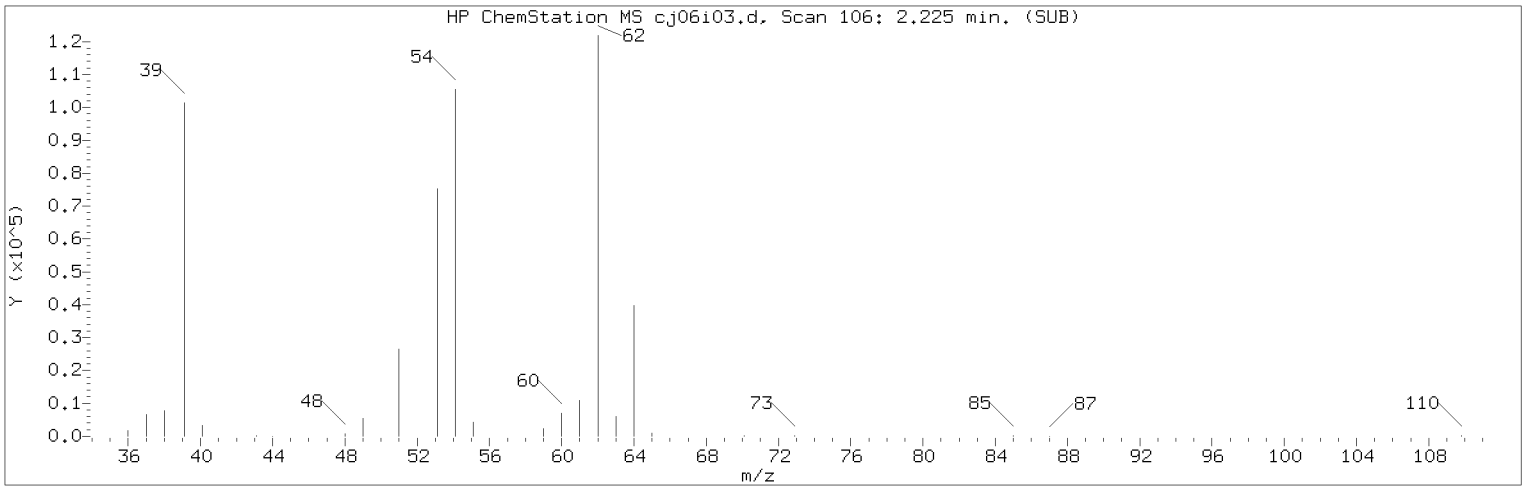
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:41 Automation

Sample Name: VSTD005 Lab Sample ID: VSTD005

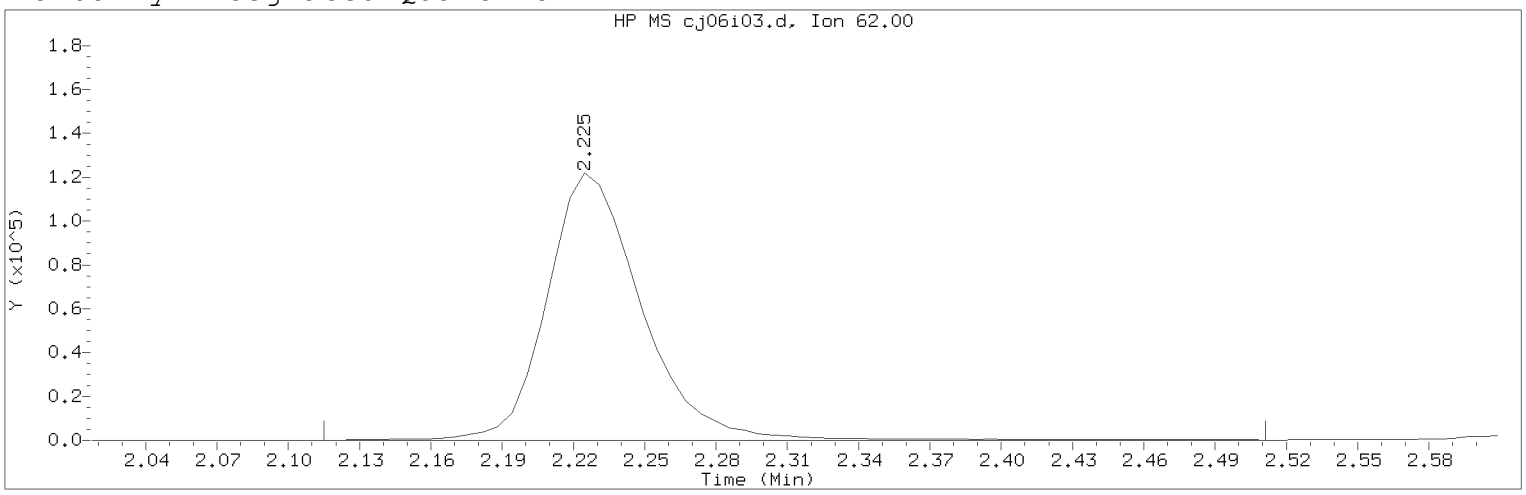
Compound Number : 6
Compound Name : 1,3-Butadiene
Scan Number : 105
Retention Time (minutes): 2.219
Quant Ion : 39.00
Area : 281803
On-column Amount (ng) : 5.0785
Integration start scan : 90 Integration stop scan: 119
Y at integration start : 721 Y at integration end: 721

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:50 mec29284

Sample Name: VSTD005 Lab Sample ID: VSTD005

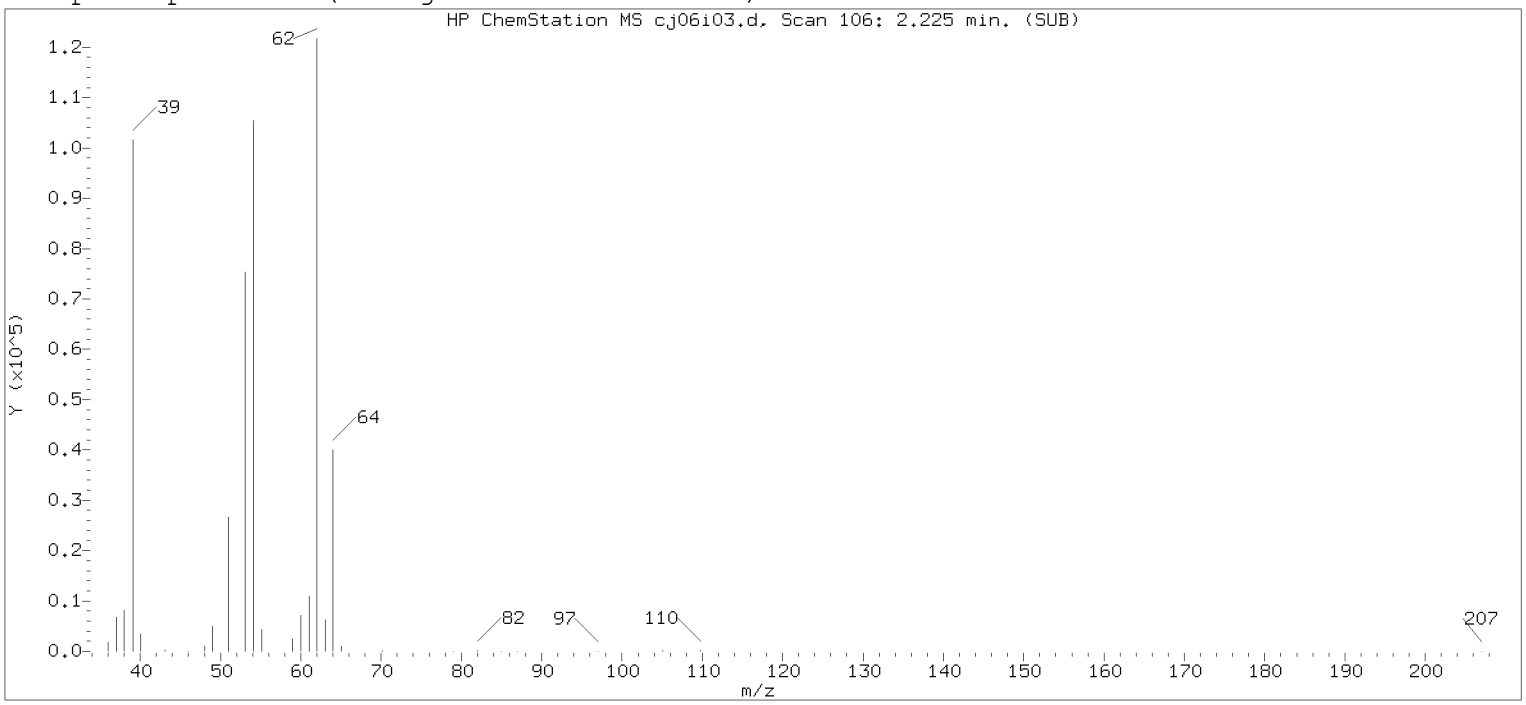
Compound Number : 5
Compound Name : Vinyl Chloride
Scan Number : 106
Retention Time (minutes): 2.225
Quant Ion : 62.00
Area (flag) : 338872M
On-Column Amount (ng) : 5.0130
Integration start scan : 87 Integration stop scan: 152
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

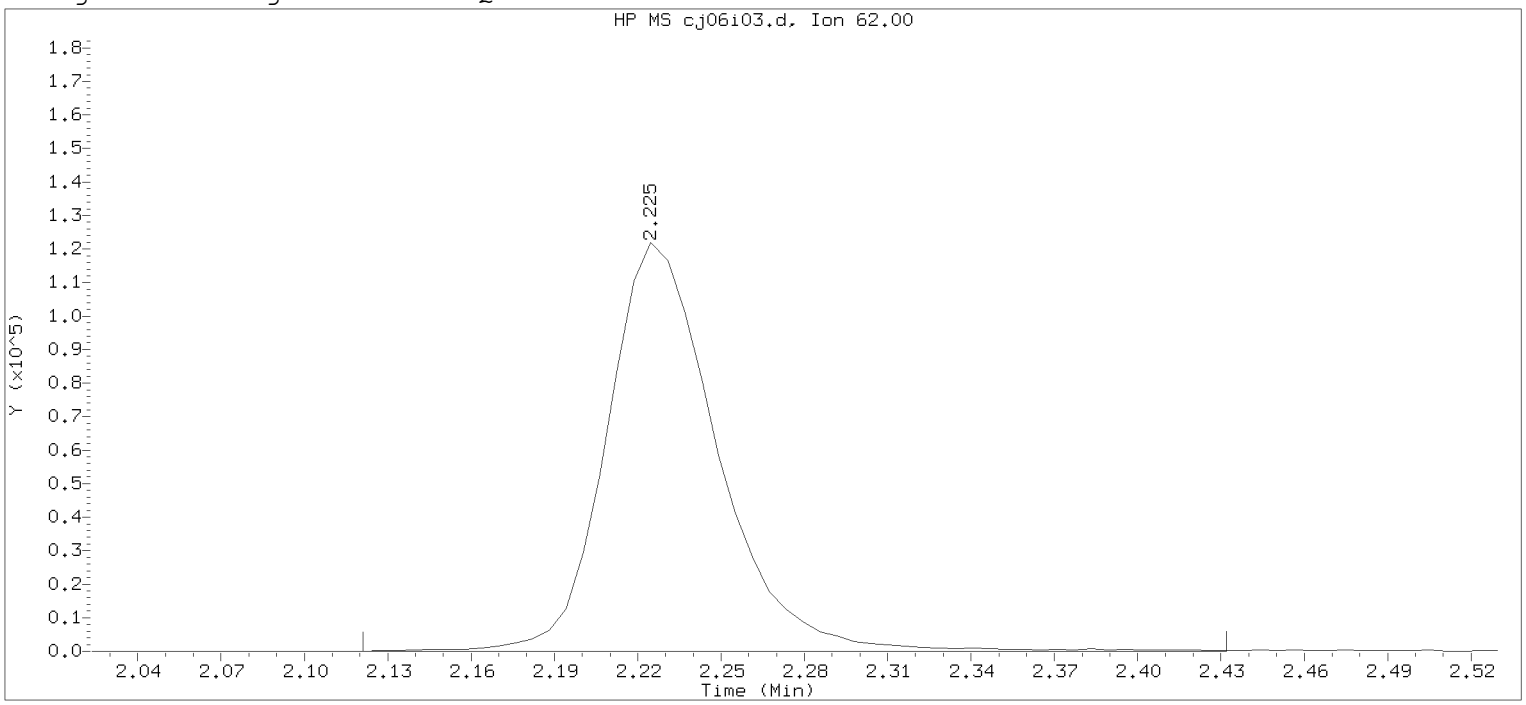
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23  Analyst ID: JKH09052

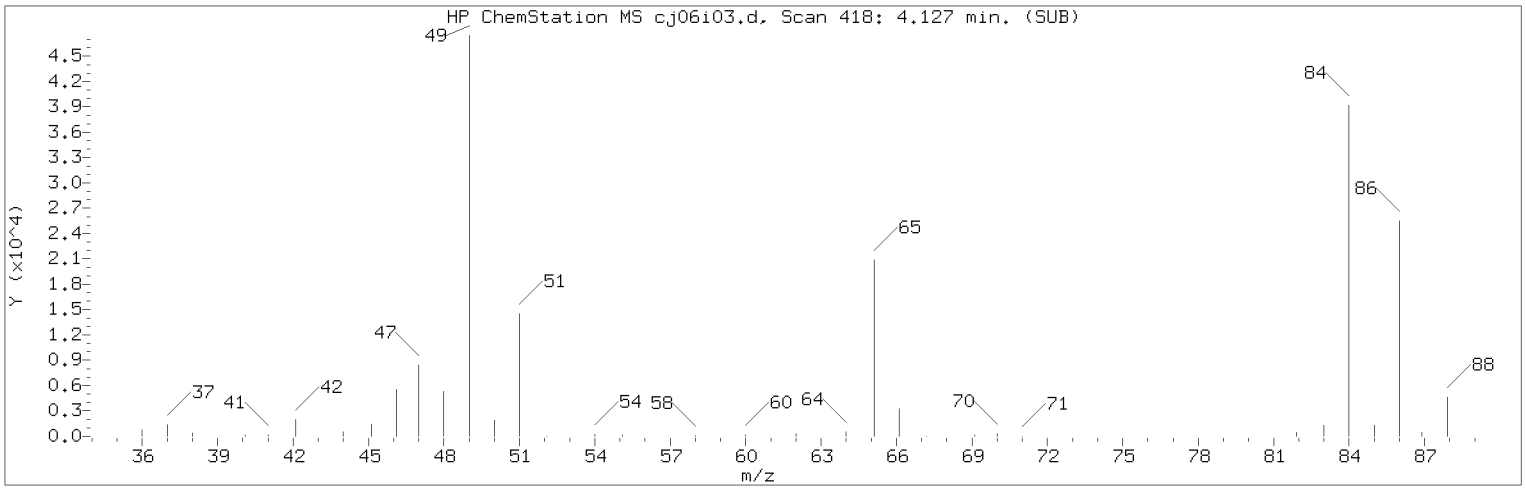
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:41 Automation

Sample Name: VSTD005  Lab Sample ID: VSTD005

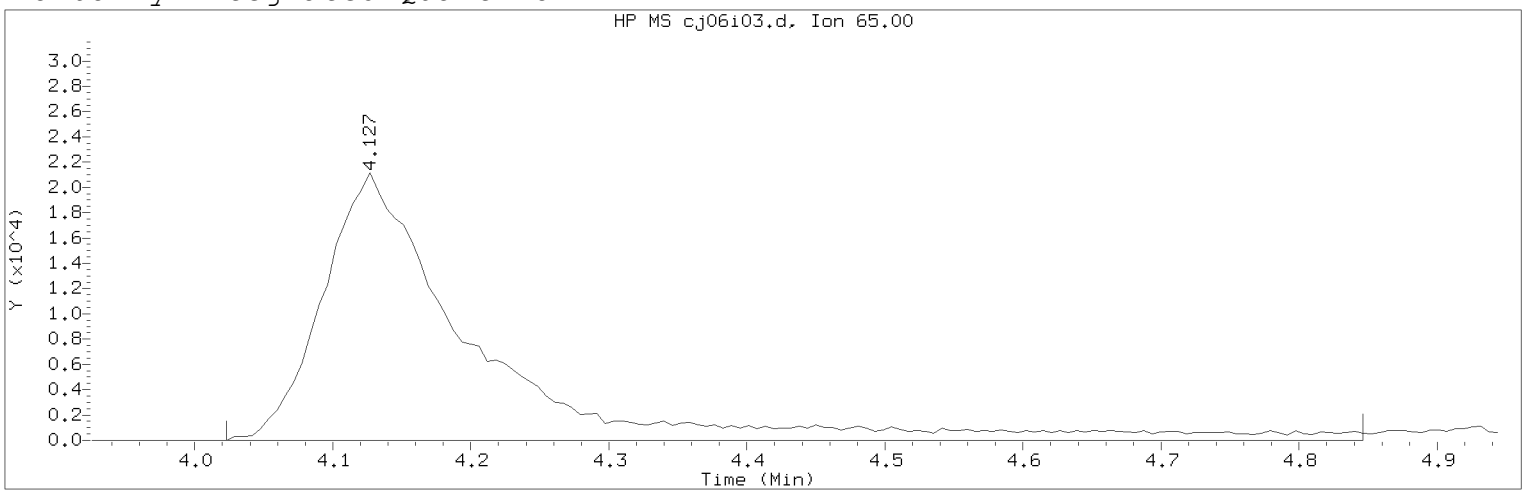
Compound Number : 5
Compound Name : Vinyl Chloride
Scan Number : 106
Retention Time (minutes): 2.225
Quant Ion : 62.00
Area : 336854
On-column Amount (ng) : 4.9931
Integration start scan : 88  Integration stop scan: 139
Y at integration start : 0  Y at integration end: 91

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29247

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:50 mec29284

Sample Name: VSTD005 Lab Sample ID: VSTD005

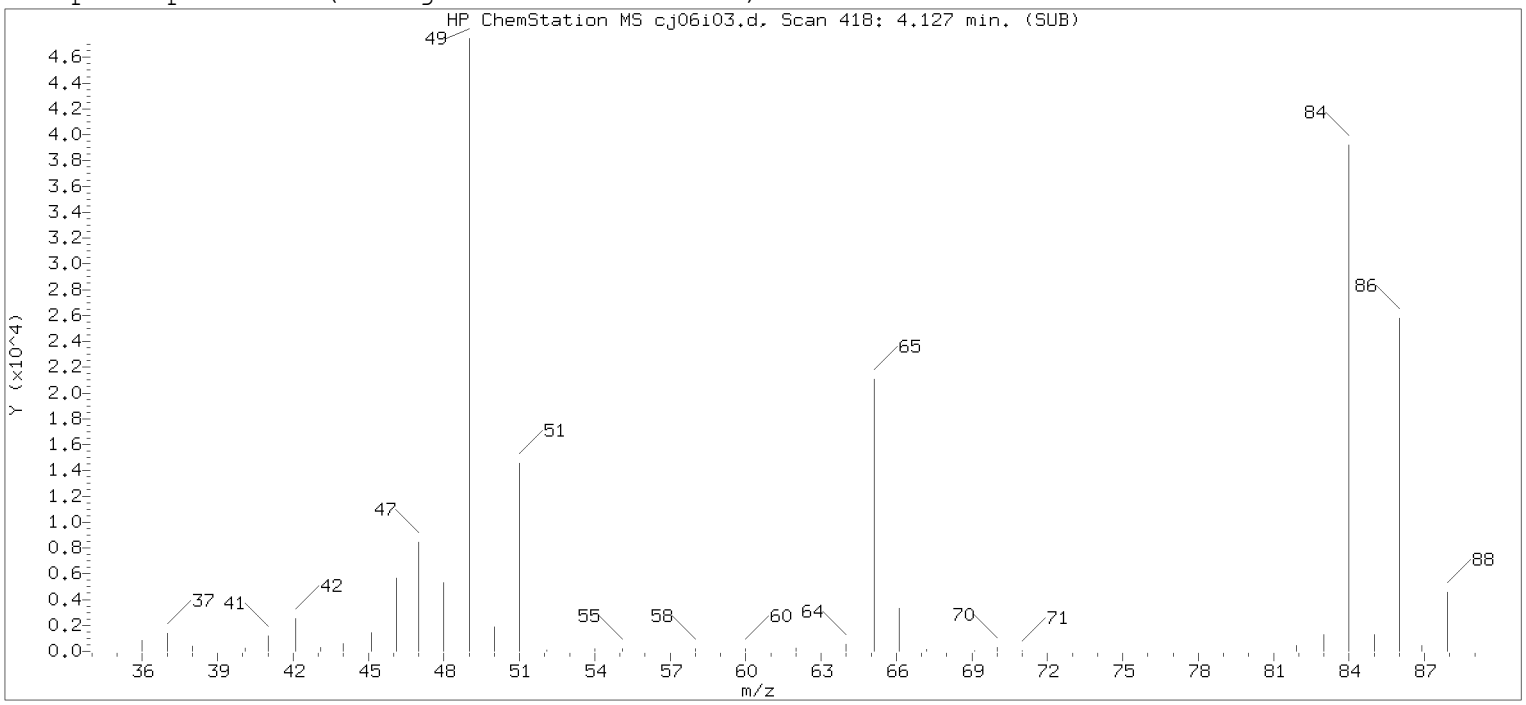
Compound Number : 28
Compound Name : t-Butyl Alcohol-d10
Scan Number : 418
Retention Time (minutes): 4.127
Quant Ion : 65.00
Area (flag) : 162601M
On-Column Amount (ng) : 50.0000
Integration start scan : 400 Integration stop scan: 535
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

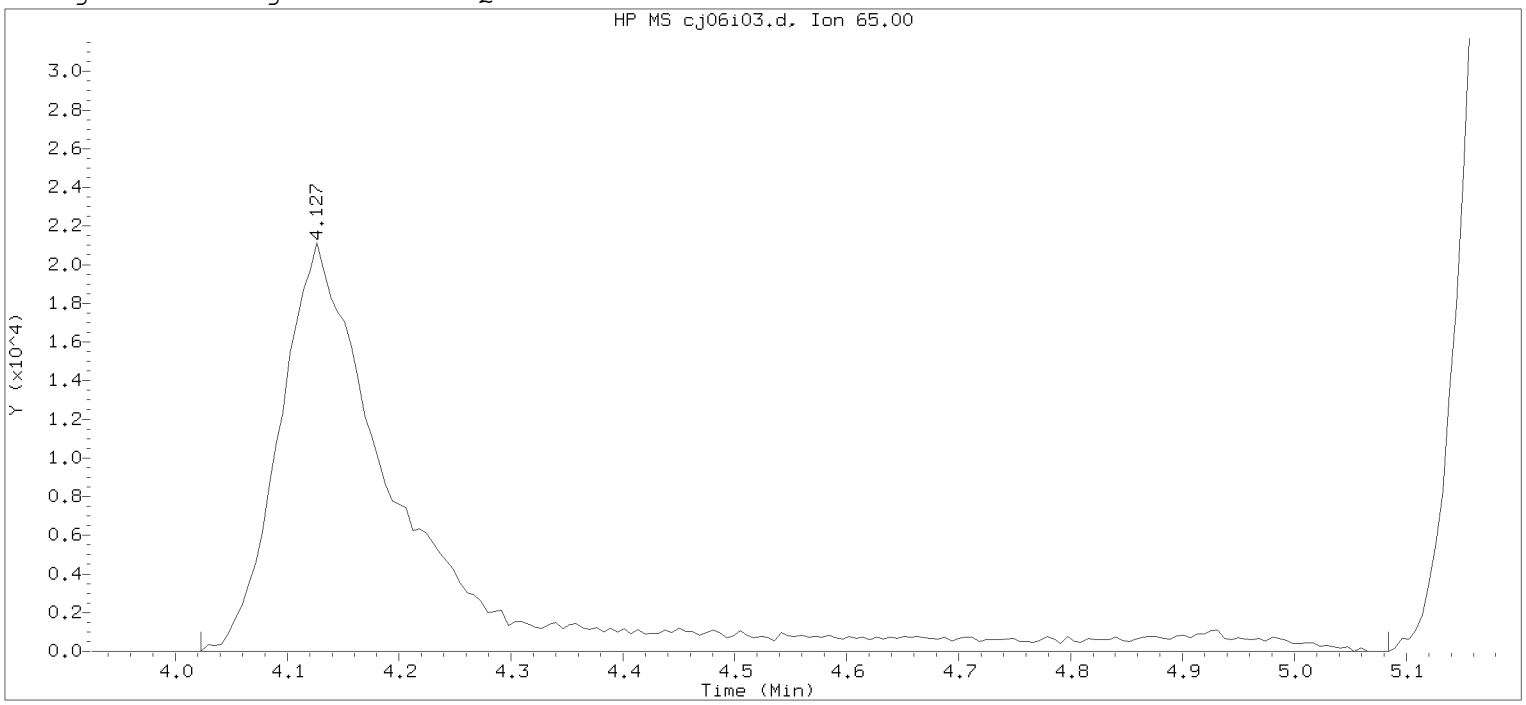
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23  Analyst ID: JKH09052

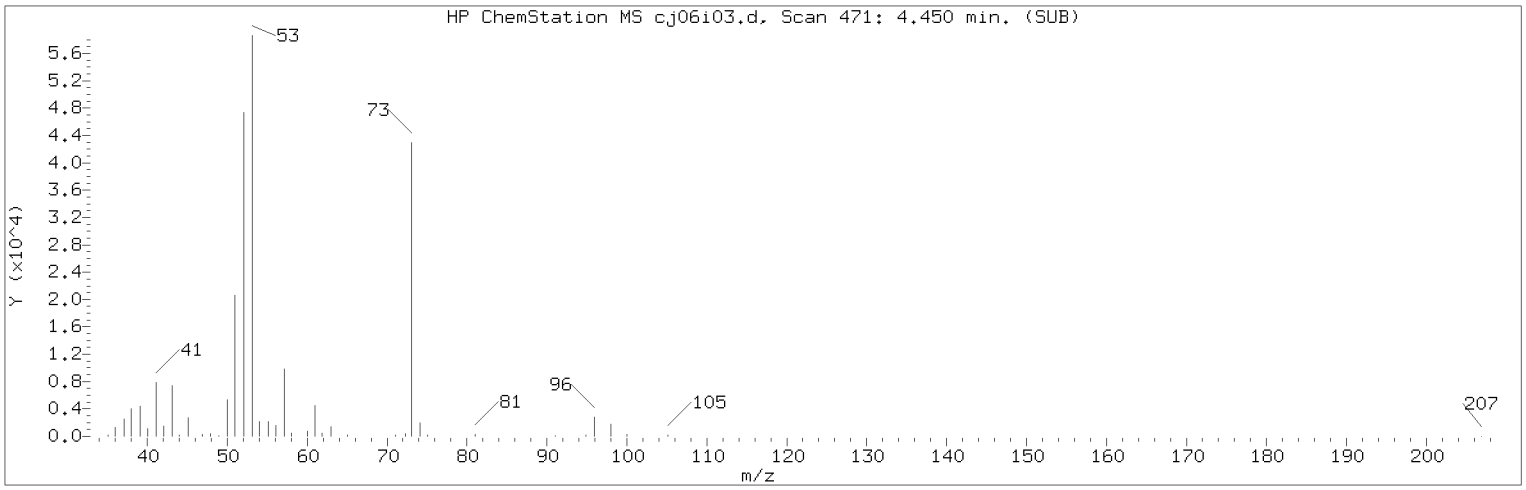
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:41 Automation

Sample Name: VSTD005  Lab Sample ID: VSTD005

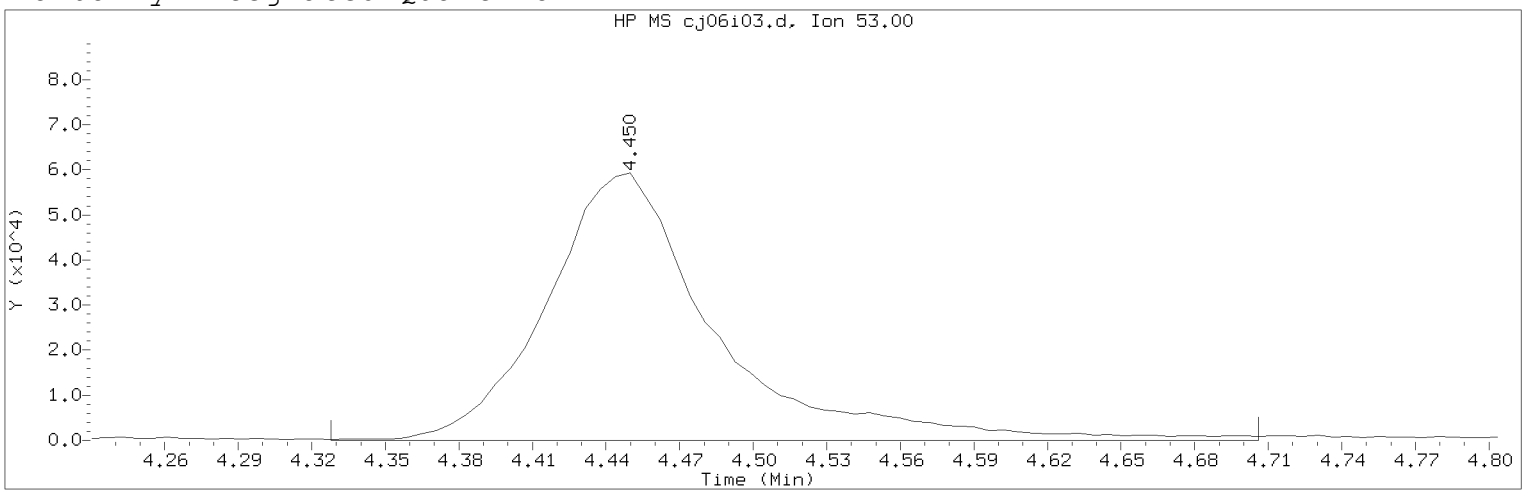
Compound Number : 28
Compound Name : t-Butyl Alcohol-d10
Scan Number : 418
Retention Time (minutes): 4.127
Quant Ion : 65.00
Area : 170054
On-column Amount (ng) : 50.0000
Integration start scan : 400  Integration stop scan: 574
Y at integration start : 0  Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29244

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:50 mec29284

Sample Name: VSTD005 Lab Sample ID: VSTD005

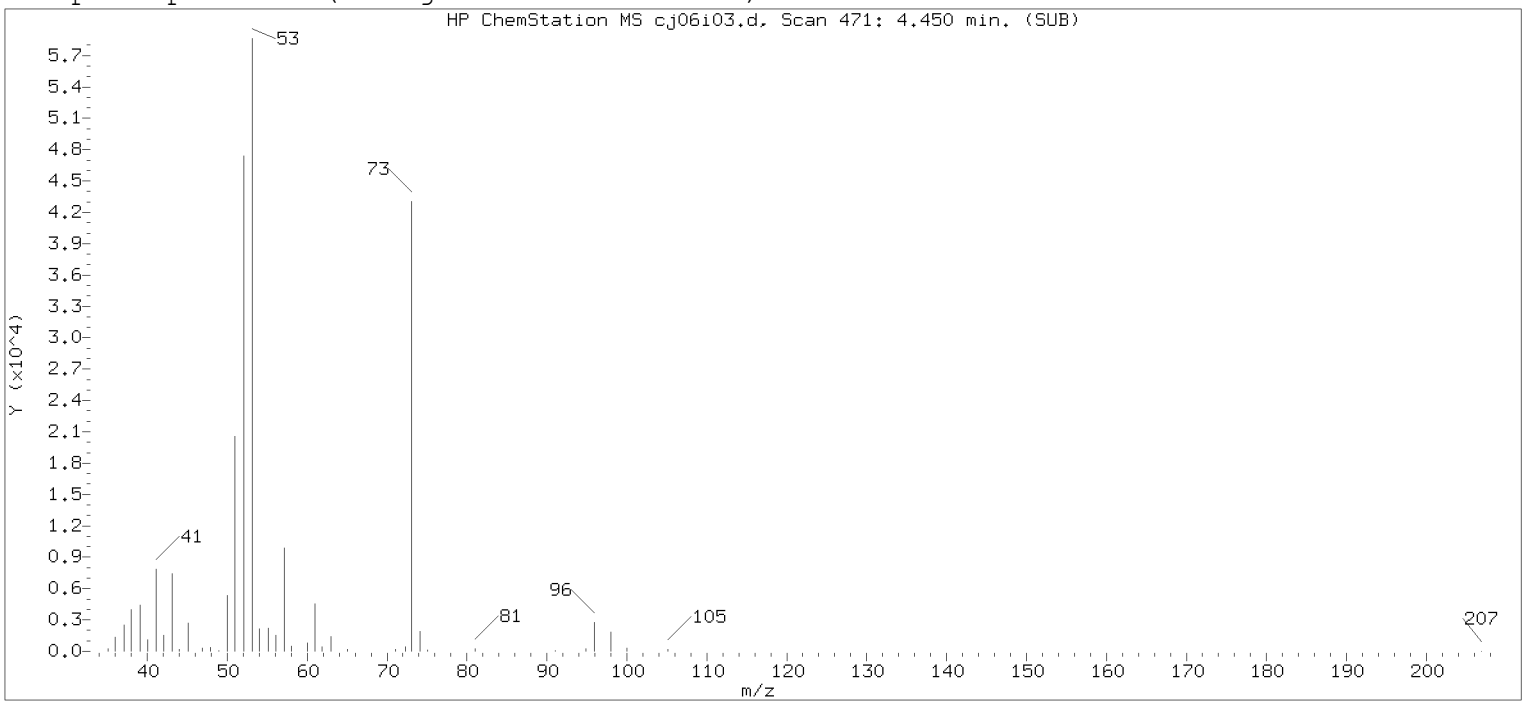
Compound Number : 31
Compound Name : Acrylonitrile
Scan Number : 471
Retention Time (minutes): 4.450
Quant Ion : 53.00
Area (flag) : 283195M
On-Column Amount (ng) : 25.1969
Integration start scan : 450 Integration stop scan: 512
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

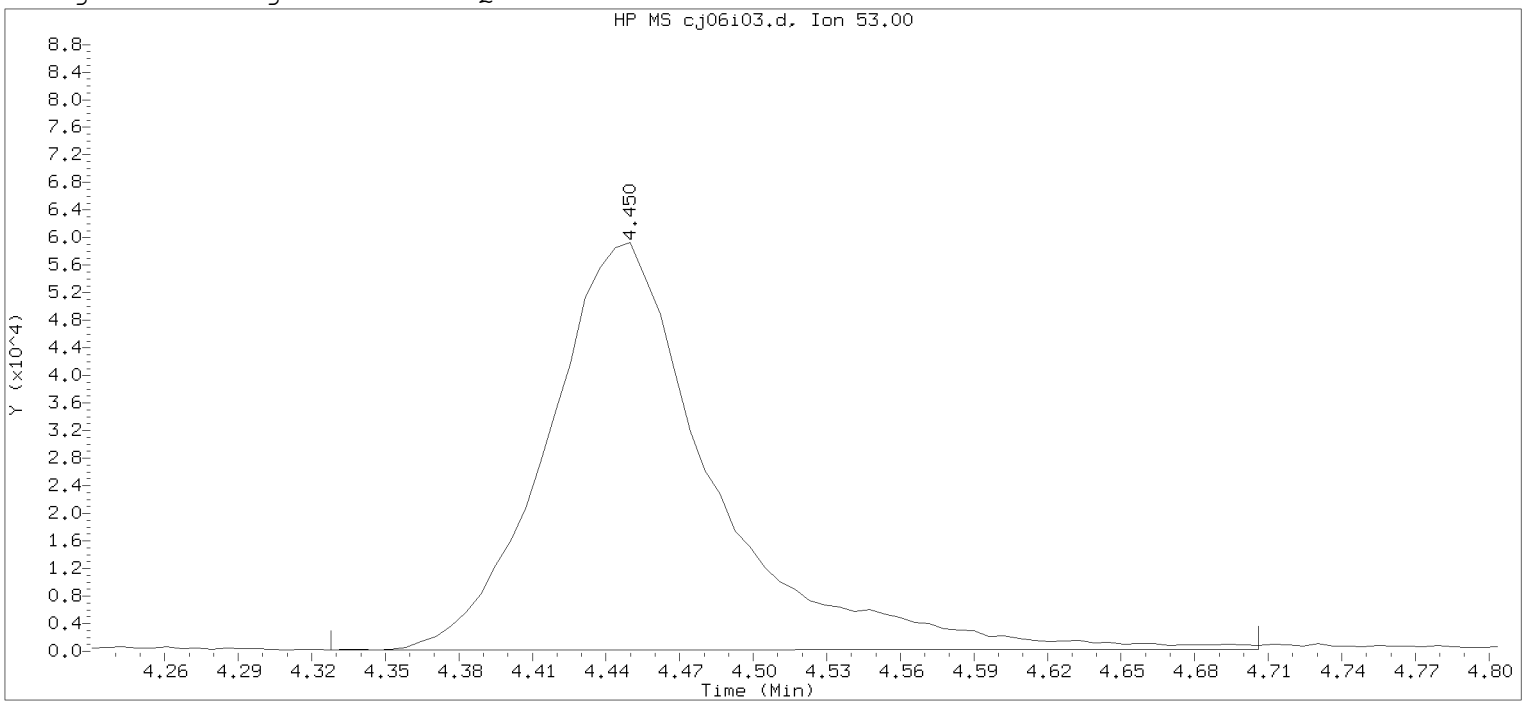
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

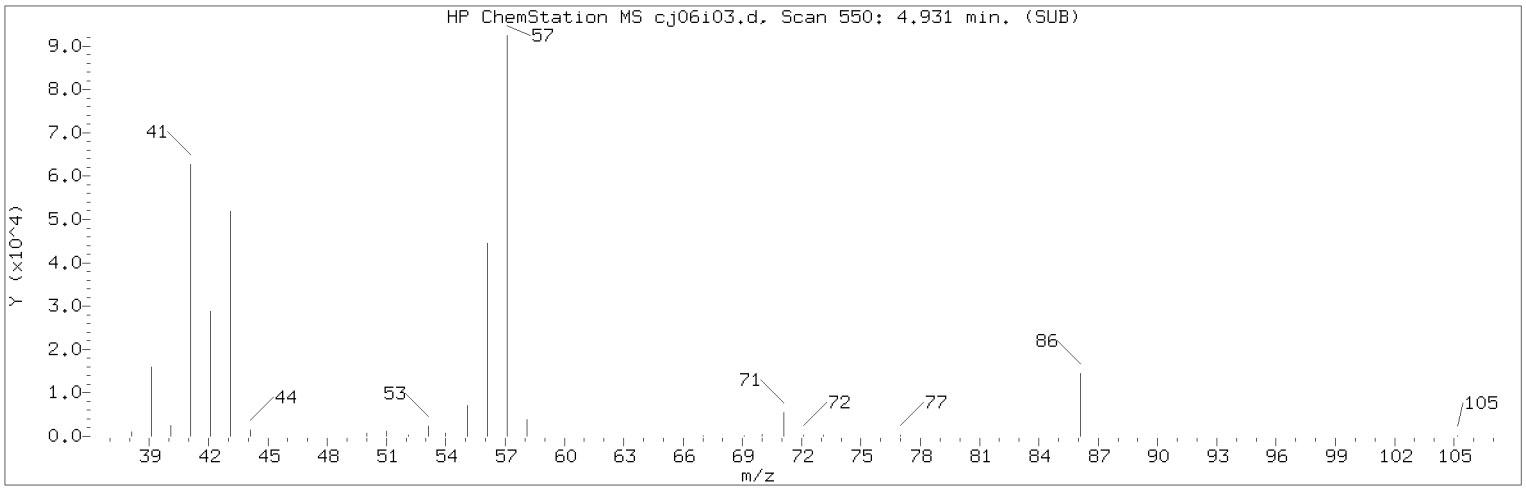
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:41 Automation

Sample Name: VSTD005 Lab Sample ID: VSTD005

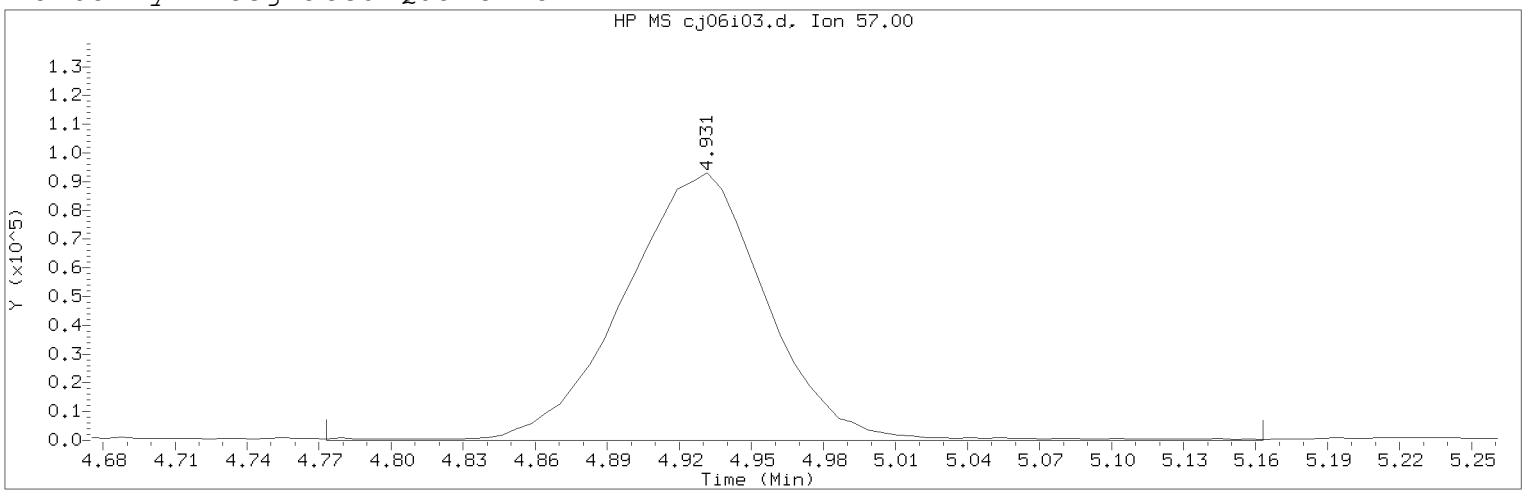
Compound Number : 31
Compound Name : Acrylonitrile
Scan Number : 471
Retention Time (minutes): 4.450
Quant Ion : 53.00
Area : 278413
On-column Amount (ng) : 24.1728
Integration start scan : 450 Integration stop scan: 512
Y at integration start : 165 Y at integration end: 241

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:50 mec29284

Sample Name: VSTD005 Lab Sample ID: VSTD005

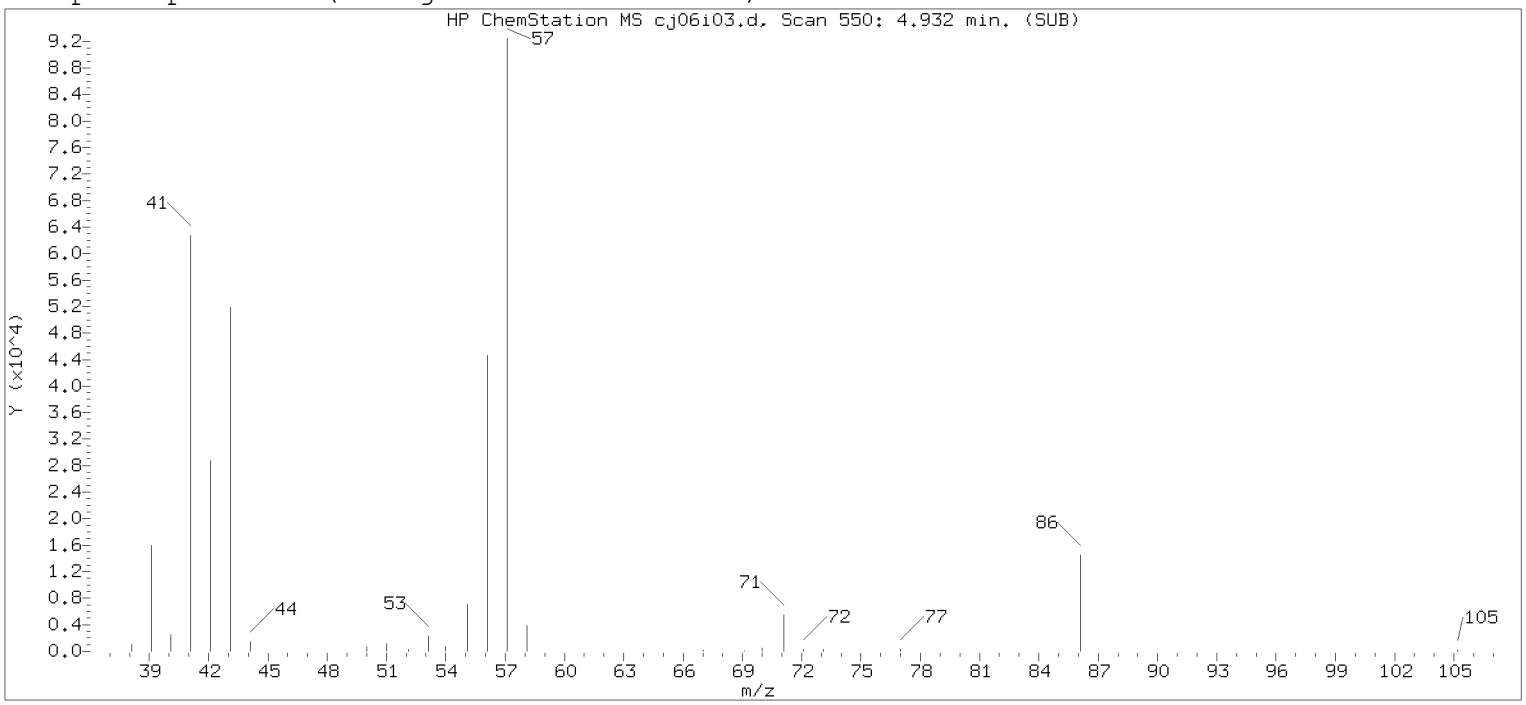
Compound Number : 34
Compound Name : n-Hexane
Scan Number : 550
Retention Time (minutes): 4.931
Quant Ion : 57.00
Area (flag) : 384809M
On-Column Amount (ng) : 5.1413
Integration start scan : 523 Integration stop scan: 587
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

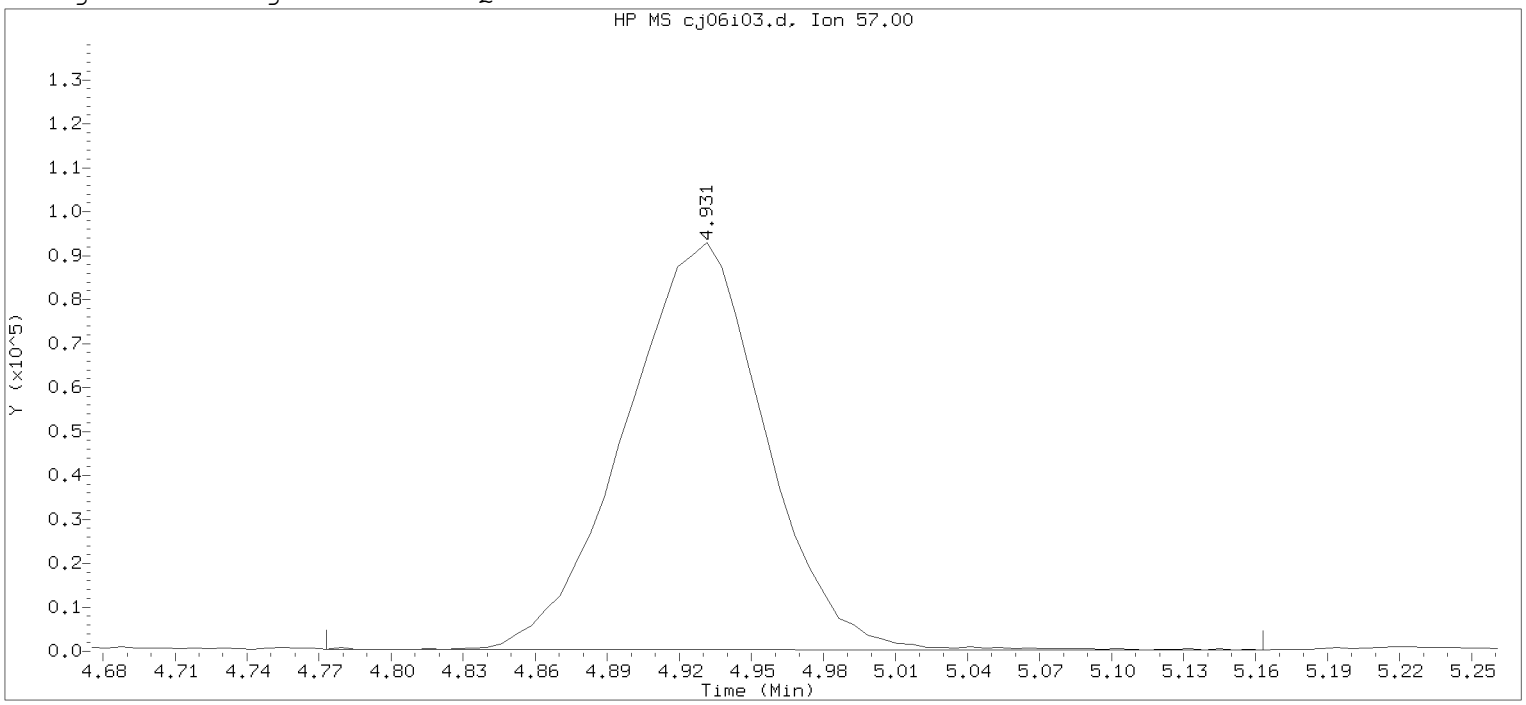
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23  Analyst ID: JKH09052

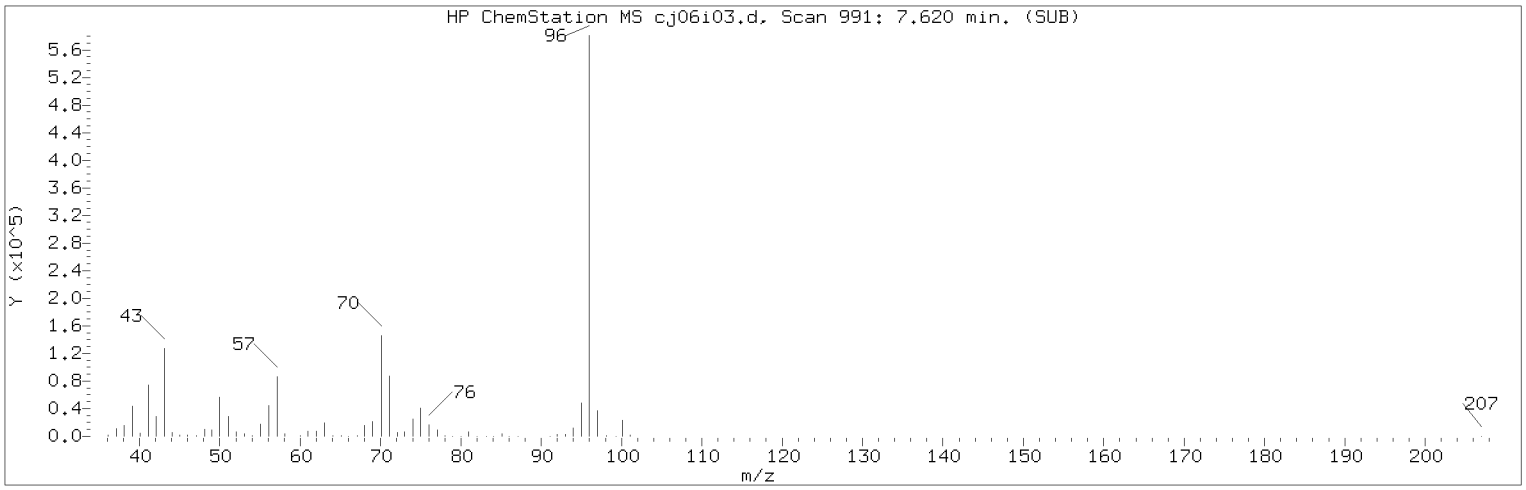
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:41 Automation

Sample Name: VSTD005  Lab Sample ID: VSTD005

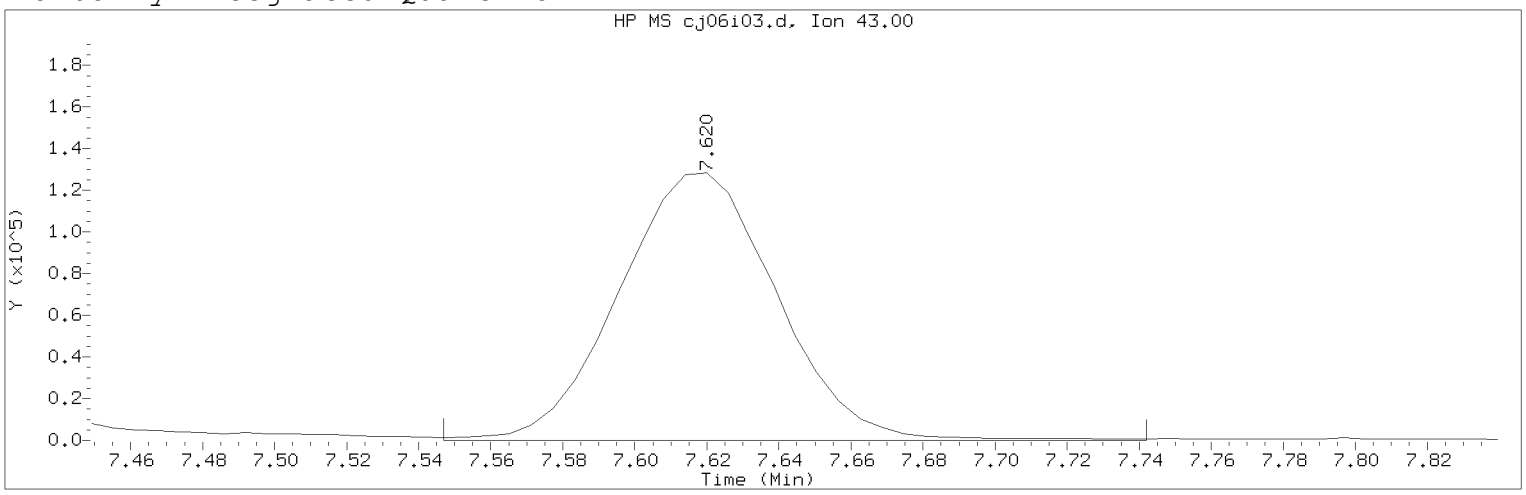
Compound Number : 34
Compound Name : n-Hexane
Scan Number : 550
Retention Time (minutes): 4.931
Quant Ion : 57.00
Area : 376815
On-column Amount (ng) : 5.0706
Integration start scan : 523  Integration stop scan: 587
Y at integration start : 387  Y at integration end: 285

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29254

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:50 mec29284

Sample Name: VSTD005 Lab Sample ID: VSTD005

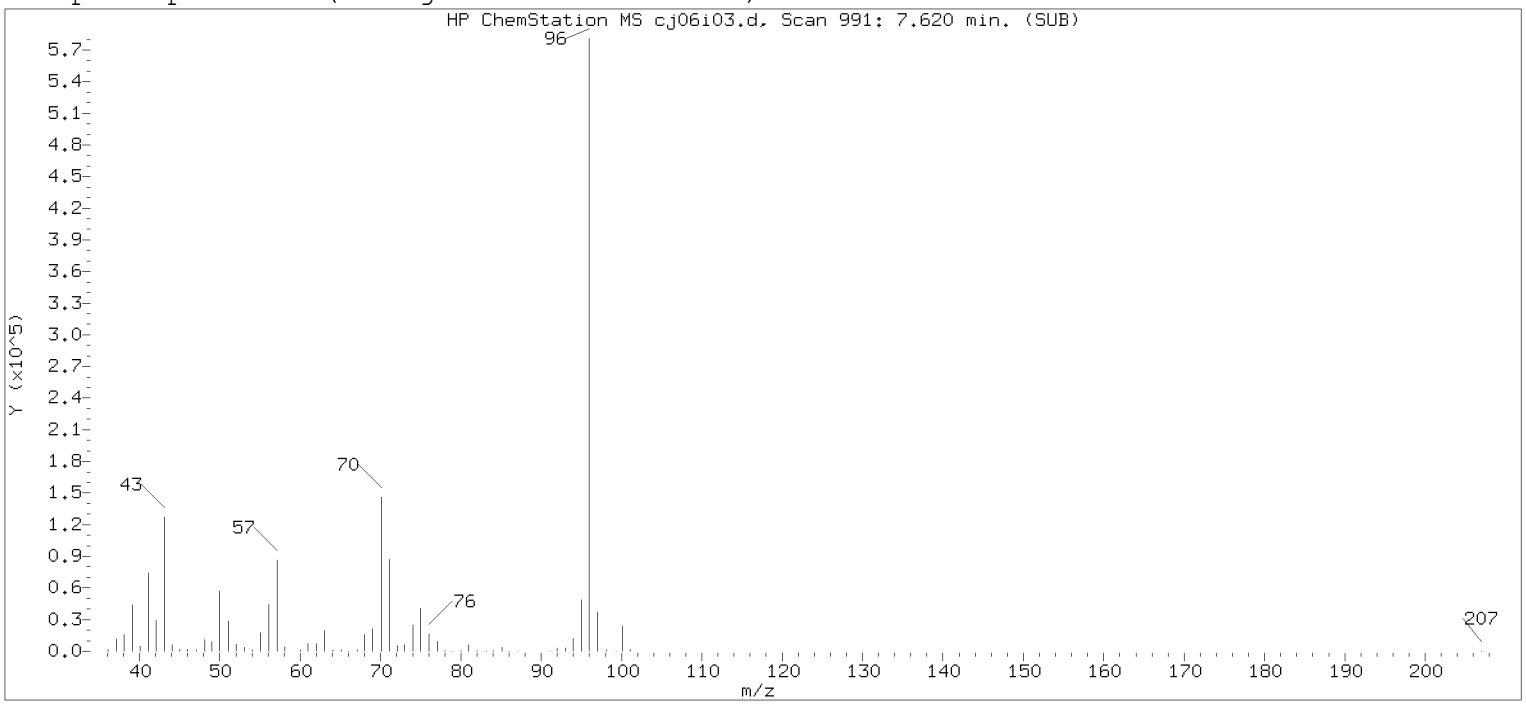
Compound Number : 64
Compound Name : n-Heptane
Scan Number : 991
Retention Time (minutes): 7.620
Quant Ion : 43.00
Area (flag) : 390565M
On-Column Amount (ng) : 5.0701
Integration start scan : 978 Integration stop scan: 1010
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

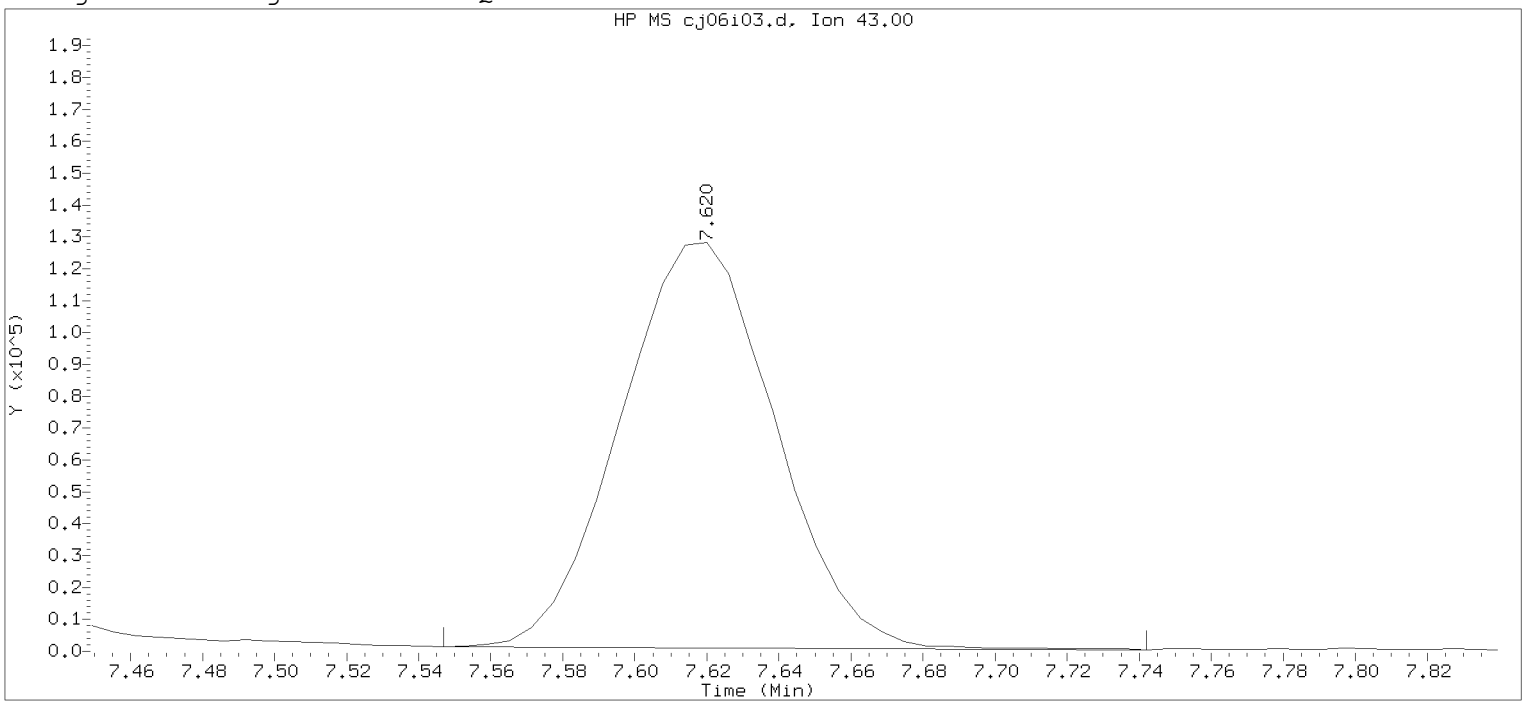
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:41 Automation

Sample Name: VSTD005 Lab Sample ID: VSTD005

Compound Number : 64
Compound Name : n-Heptane
Scan Number : 991
Retention Time (minutes): 7.620
Quant Ion : 43.00
Area : 379588
On-column Amount (ng) : 4.9749
Integration start scan : 978 Integration stop scan: 1010
Y at integration start : 1338 Y at integration end: 481

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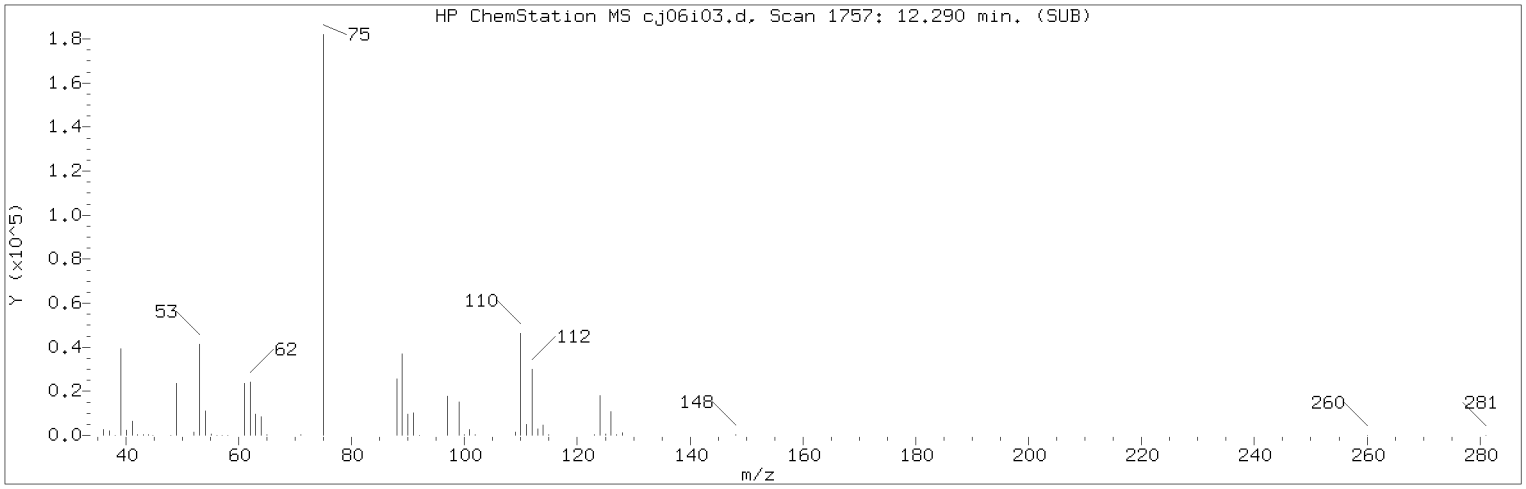
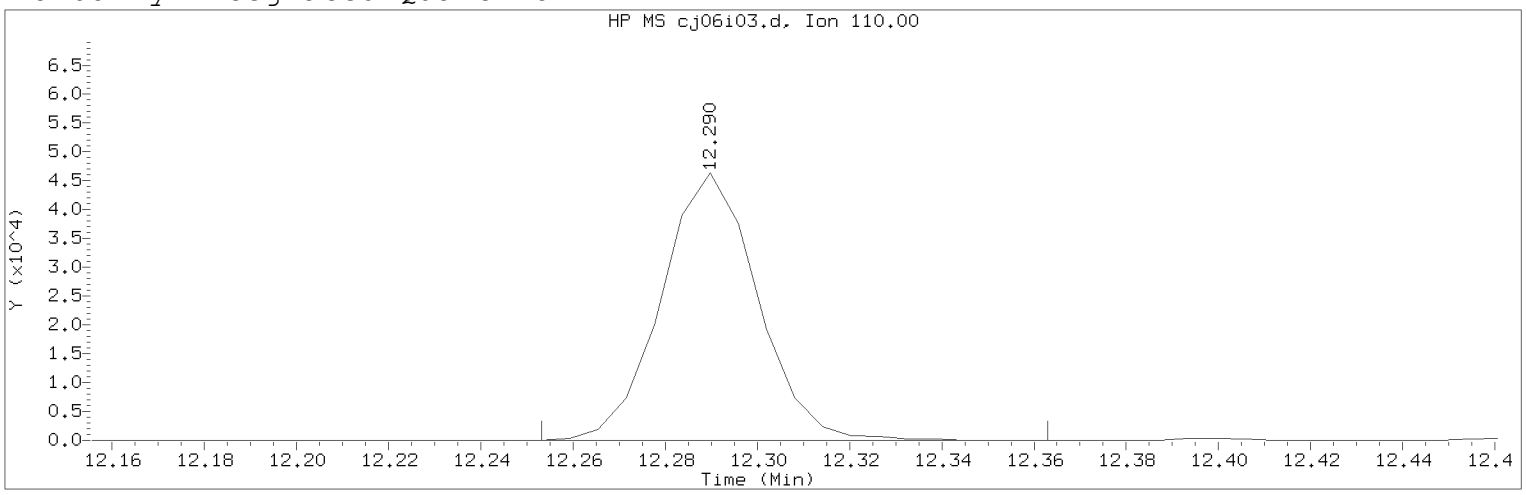
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:50 mec29284

Sample Name: VSTD005 Lab Sample ID: VSTD005

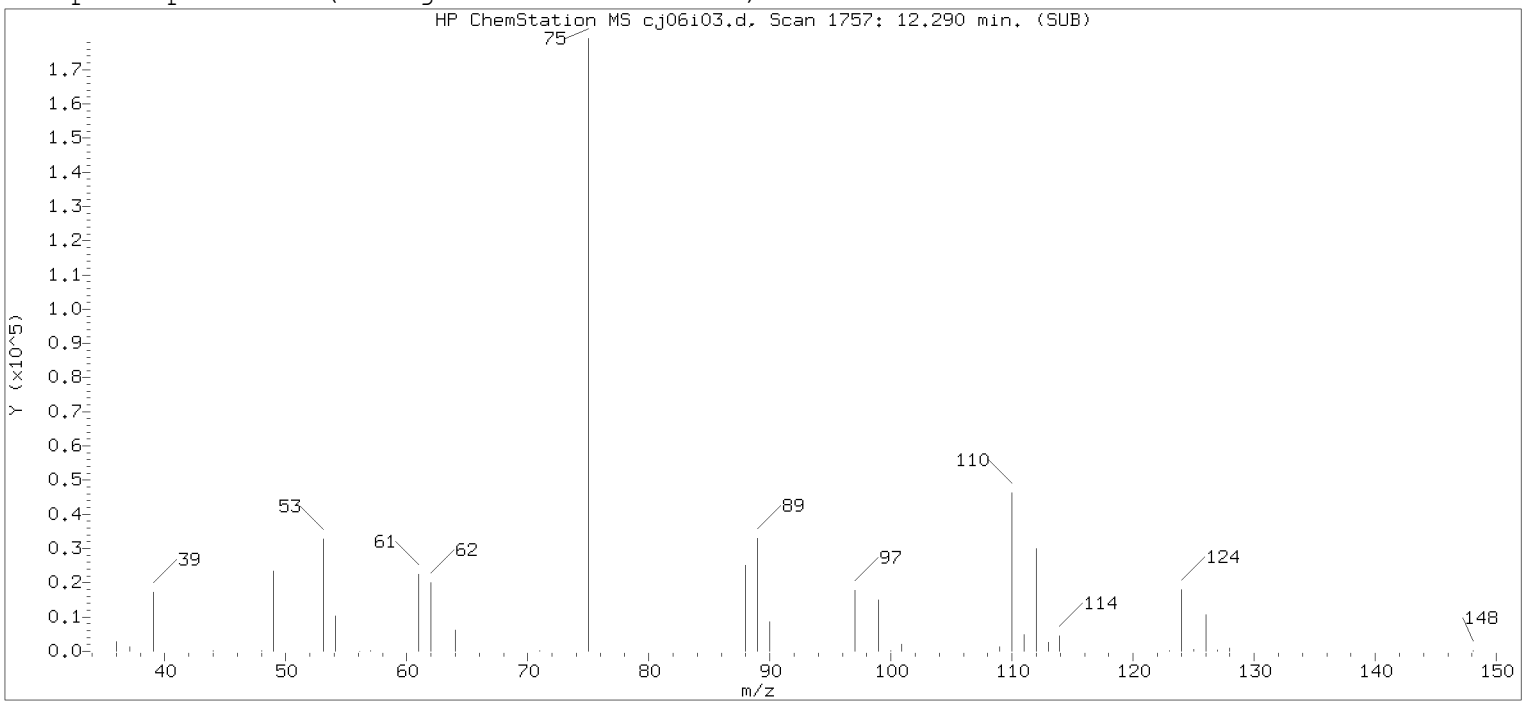
Compound Number : 118
Compound Name : 1,2,3-Trichloropropane
Scan Number : 1757
Retention Time (minutes): 12.290
Quant Ion : 110.00
Area (flag) : 67088M
On-Column Amount (ng) : 5.1138
Integration start scan : 1750 Integration stop scan: 1768
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

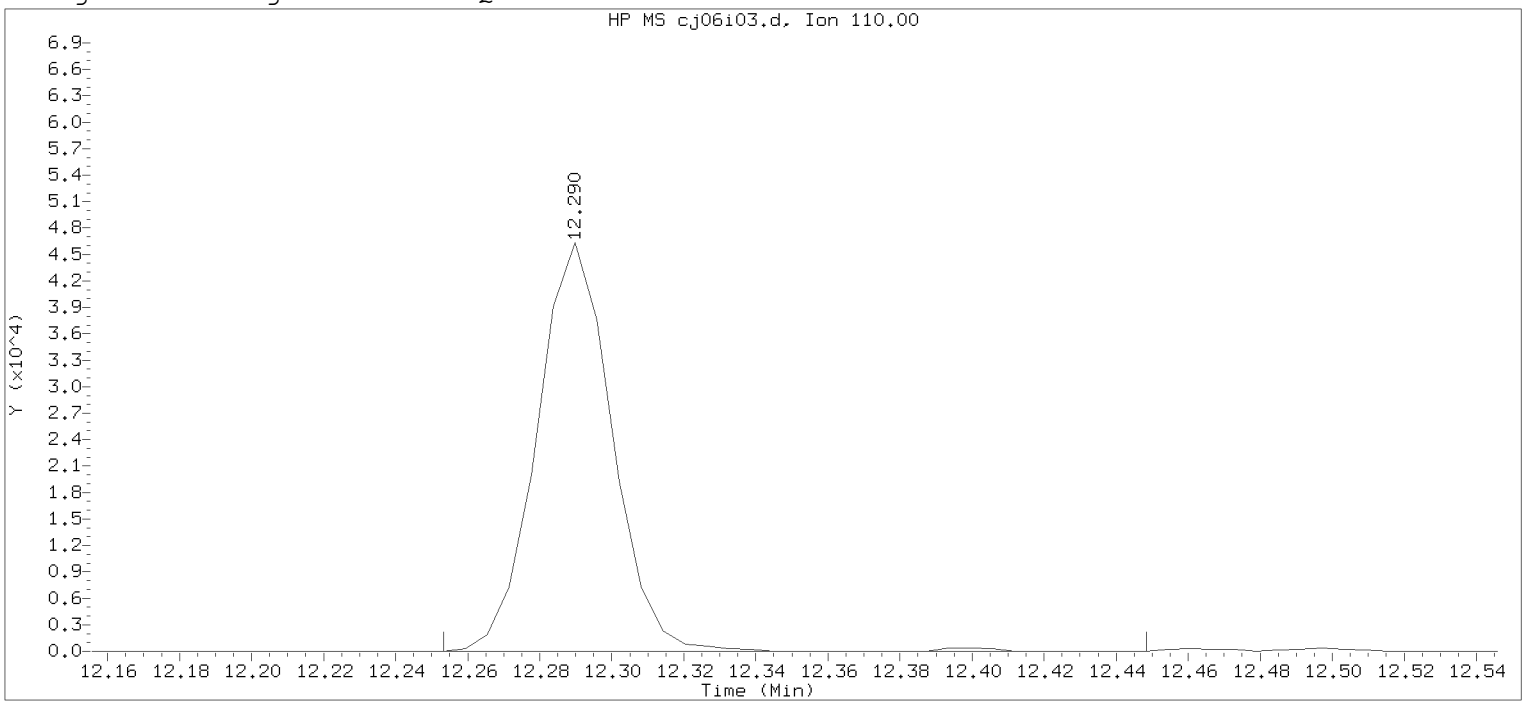
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23  Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:41 Automation

Sample Name: VSTD005  Lab Sample ID: VSTD005

Compound Number : 118
Compound Name : 1,2,3-Trichloropropane
Scan Number : 1757
Retention Time (minutes): 12.290
Quant Ion : 110.00
Area : 67448
On-column Amount (ng) : 5.1319
Integration start scan : 1750  Integration stop scan: 1782
Y at integration start : 0  Y at integration end: 0

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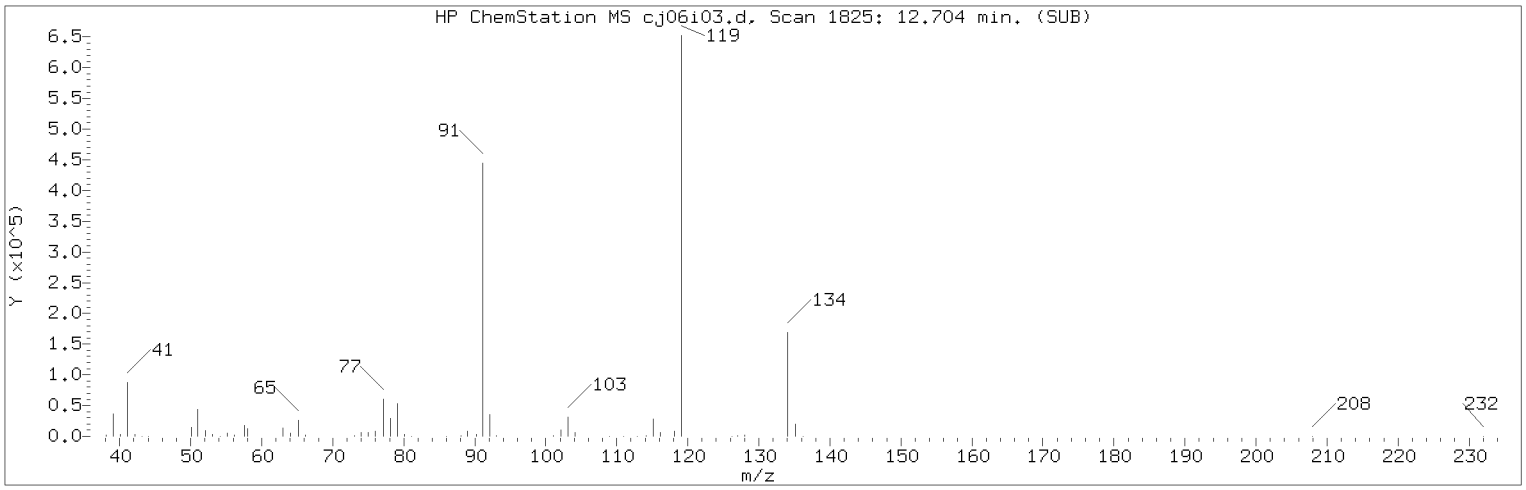
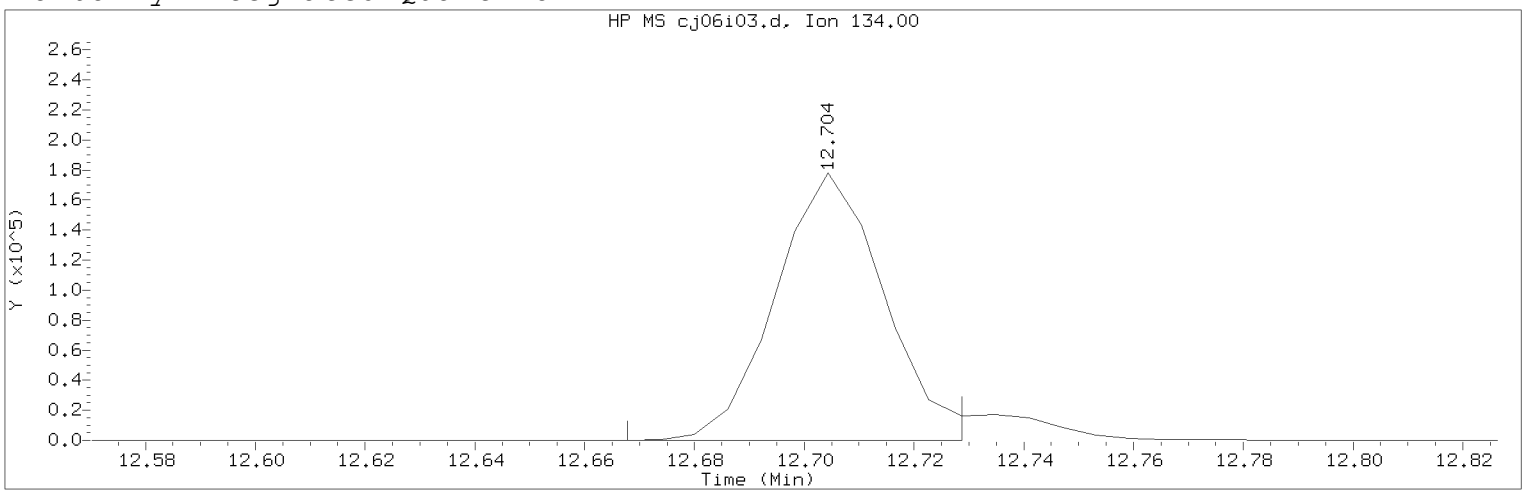
Target 3.5 esignature user ID: mec29254

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:50 mec29284

Sample Name: VSTD005 Lab Sample ID: VSTD005

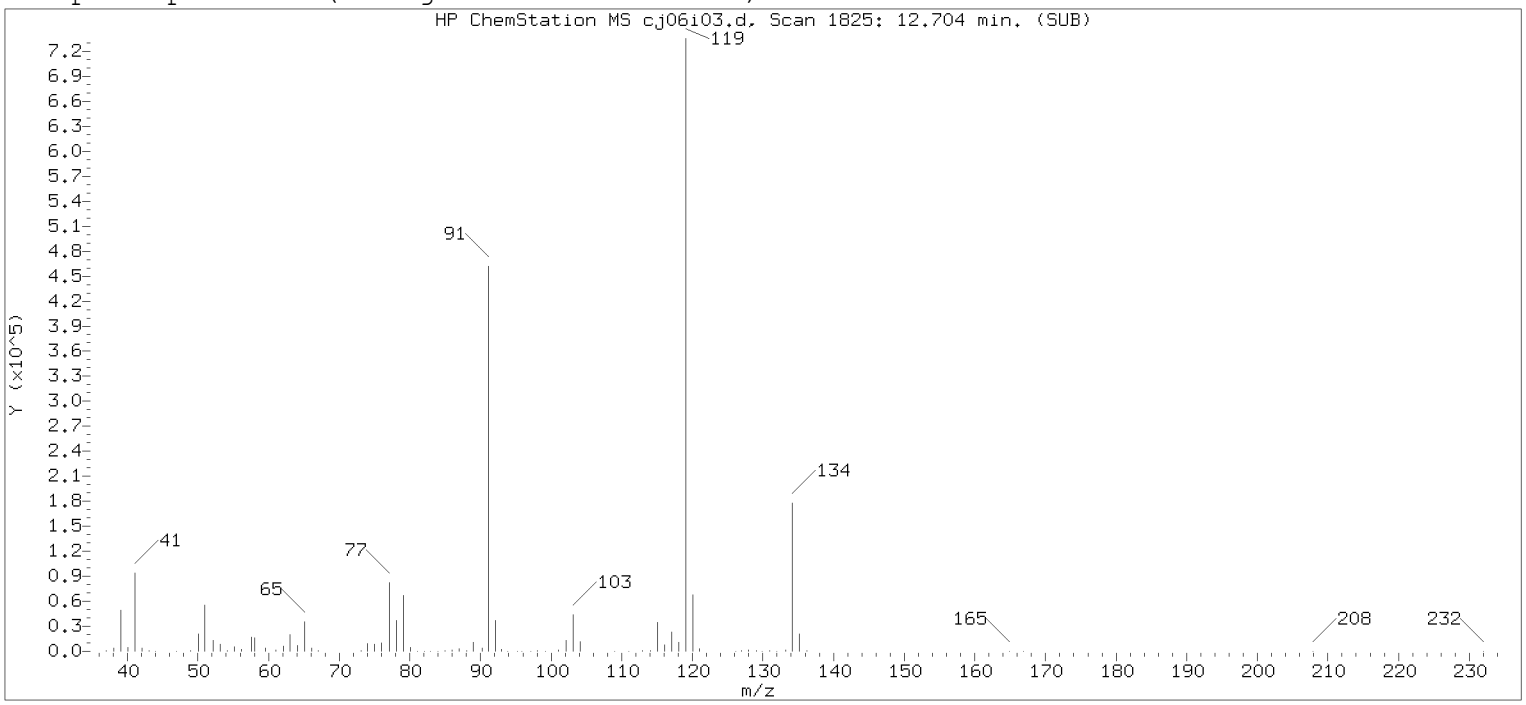
Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1825
Retention Time (minutes): 12.704
Quant Ion : 134.00
Area (flag) : 245250M
On-Column Amount (ng) : 5.0856
Integration start scan : 1818 Integration stop scan: 1828
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

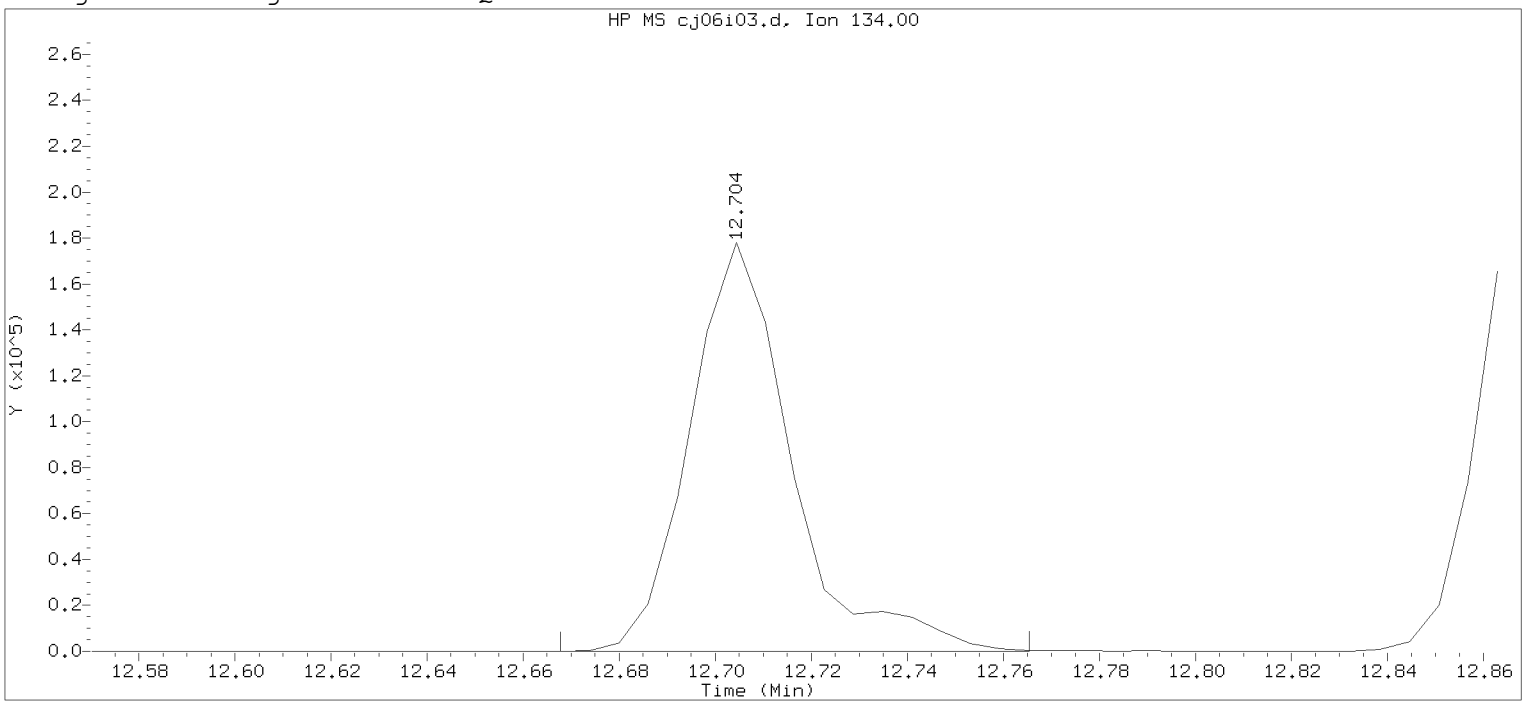
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i03.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:23 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 19:41
Date, time and analyst ID of latest file update: 06-Jan-2020 19:41 Automation

Sample Name: VSTD005 Lab Sample ID: VSTD005

Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1825
Retention Time (minutes): 12.704
Quant Ion : 134.00
Area : 261877
On-column Amount (ng) : 5.3084
Integration start scan : 1818 Integration stop scan: 1834
Y at integration start : 0 Y at integration end: 0

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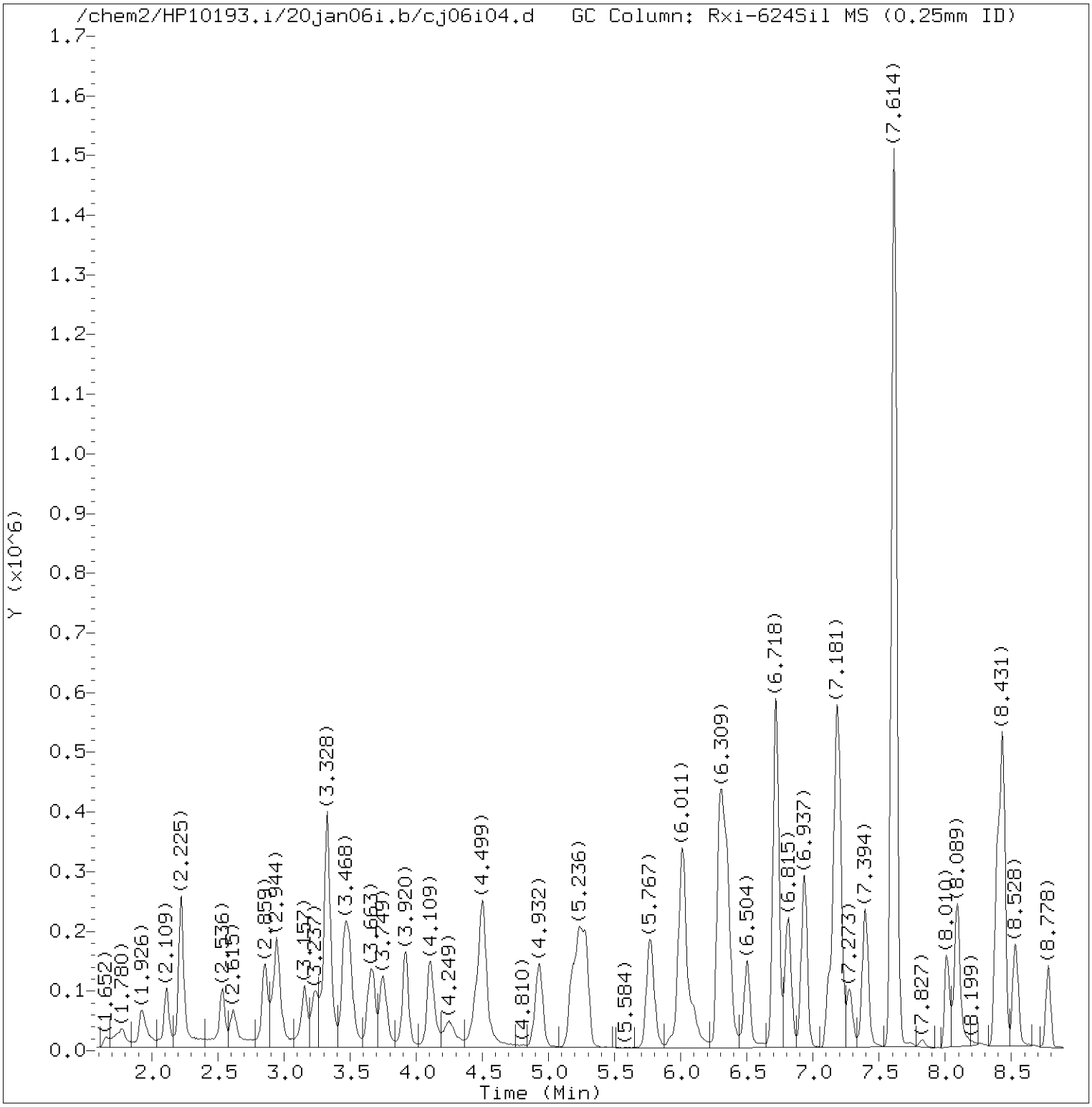
Target 3.5 esignature used [illegible]




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 21:26 mec29284

Sample Name: VSTD002 Lab Sample ID: VSTD002

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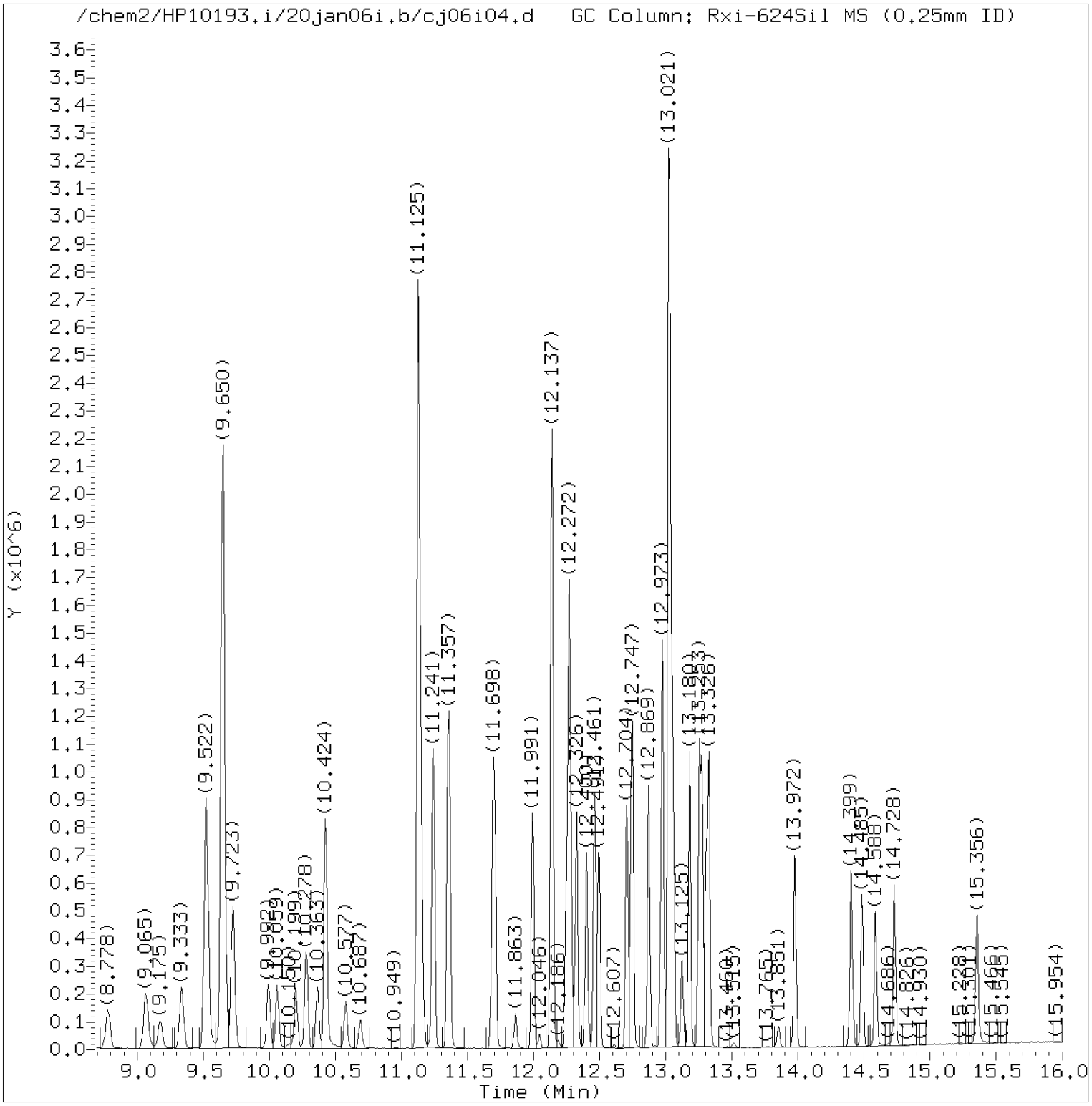
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 21:26 mec29284

Sample Name: VSTD002 Lab Sample ID: VSTD002

Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 21:26 mec29284

Sample Name: VSTD002 Lab Sample ID: VSTD002

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | 1.926 | 85 | 130389M | 2.085 |
| 2) Chloromethane | (2) | 2.109 | 50 | 139544 | 1.988 |
| 6) 1,3-Butadiene | (2) | 2.219 | 39 | 118476M | 2.165 |
| 5) Vinyl Chloride | (2) | 2.231 | 62 | 133476 | 2.027 |
| 7) Bromomethane | (2) | 2.536 | 94 | 87128 | 1.972 |
| 8) Chloroethane | (2) | 2.615 | 64 | 75982 | 1.945 |
| 9) Dichlorofluoromethane | (2) | 2.853 | 67 | 164710 | 1.943 |
| 10) Trichlorofluoromethane | (2) | 2.920 | 101 | 135269 | 2.078 |
| 12) Ethyl ether | (2) | 3.157 | 59 | 86226 | 2.018 |
| 13) Freon 123a | (2) | 3.243 | 67 | 109867 | 1.984 |
| 14) Acrolein | (1) | 3.328 | 56 | 694209 | 96.539 |
| 16) 1,1-Dichloroethene | (2) | 3.456 | 96 | 87880 | 2.024 |
| 17) Freon 113 | (2) | 3.487 | 101 | 88125 | 2.060 |
| 15) Acetone | (1) | 3.493 | 43 | 172930M | 19.328 |
| 18) Methyl Iodide | (2) | 3.645 | 142 | 164069 | 2.014 |
| 19) Bromoethane | (2) | 3.676 | 108 | 75383 | 2.020 |
| 20) Carbon Disulfide | (2) | 3.749 | 76 | 312633 | 2.007 |
| 23) Methyl Acetate | (2) | 3.901 | 43 | 58905 | 2.066 |
| 24) Allyl Chloride | (2) | 3.920 | 41 | 159312 | 1.992 |
| 25) Methylene Chloride | (2) | 4.102 | 84 | 99009 | 2.007 |
| 28)*t-Butyl Alcohol-d10 | (1) | 4.127 | 65 | 173866 | 50.000 |
| 30) t-Butyl Alcohol | (1) | 4.249 | 59 | 134628 | 36.155 |
| 31) Acrylonitrile | (1) | 4.450 | 53 | 108096M | 9.299 |
| 32) Methyl Tertiary Butyl Ether | (2) | 4.499 | 73 | 264829 | 2.038 |
| 33) trans-1,2-Dichloroethene | (2) | 4.511 | 96 | 98307 | 2.002 |
| 34) n-Hexane | (2) | 4.925 | 57 | 147423 | 1.981 |
| 35) 1,1-Dichloroethane | (2) | 5.175 | 63 | 182121 | 2.024 |
| 36) di-Isopropyl Ether | (2) | 5.230 | 45 | 341748 | 2.022 |
| 37) 2-Chloro-1,3-Butadiene | (2) | 5.285 | 53 | 158430 | 2.027 |
| 39) Ethyl t-butyl ether | (2) | 5.773 | 59 | 333142 | 2.063 |
| 40) 2-Butanone | (1) | 5.986 | 43 | 313965 | 19.120 |
| 41) cis-1,2-Dichloroethene | (2) | 6.017 | 96 | 109906 | 1.988 |
| 43) 2,2-Dichloropropane | (2) | 6.023 | 77 | 149306 | 1.992 |
| 44) Propionitrile | (1) | 6.096 | 54 | 162209 | 40.308 |
| 42) 1,2-Dichloroethene (Total) | (2) | | 96 | 208213 | 3.990 |
| 47) Methacrylonitrile | (1) | 6.303 | 67 | 287901 | 18.918 |
| 49) Bromochloromethane | (2) | 6.346 | 128 | 49576 | 2.009 |
| 50) Tetrahydrofuran | (1) | 6.352 | 71 | 93095 | 19.058 |

M = Compound was manually integrated.
* = Compound is an internal standard.



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Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 21:26 mec29284

Sample Name: VSTD002 Lab Sample ID: VSTD002

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 51) Chloroform | (2) | 6.504 | 83 | 169864 | 2.032 |
| 52)$Dibromofluoromethane | (2) | 6.718 | 113 | 431201 | 9.919 |
| 52)$Dibromofluoromethane | (2) | 6.718 | 111 | 444104 | 10.003 |
| 53) 1,1,1-Trichloroethane | (2) | 6.724 | 97 | 150021 | 2.021 |
| 54) Cyclohexane | (2) | 6.815 | 56 | 182846 | 2.015 |
| 54) Cyclohexane | (2) | 6.815 | 84 | 152495 | 2.038 |
| 54) Cyclohexane | (2) | 6.620 | 69 | 598 | 0.695 |
| 56) Carbon Tetrachloride | (2) | 6.925 | 117 | 126106 | 2.027 |
| 57) 1,1-Dichloropropene | (2) | 6.937 | 75 | 139969 | 2.010 |
| 58) Isobutyl Alcohol | (1) | 7.120 | 41 | 114222 | 99.358 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.169 | 102 | 95177 | 9.990 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.175 | 65 | 443543 | 10.087 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 104 | 60551 | 9.998 |
| 60) Benzene | (2) | 7.205 | 78 | 413743 | 2.012 |
| 61) 1,2-Dichloroethane | (2) | 7.273 | 62 | 114481 | 1.974 |
| 61) 1,2-Dichloroethane | (2) | 7.285 | 98 | 11037 | 1.896 |
| 62) t-Amyl methyl ether | (2) | 7.394 | 73 | 297854 | 2.031 |
| 65)*Fluorobenzene | (2) | 7.614 | 96 | 1853524 | 10.000 |
| 64) n-Heptane | (2) | 7.620 | 43 | 158644M | 2.138 |
| 67) n-Butanol | (1) | 8.010 | 56 | 215620 | 204.021 |
| 69) Trichloroethene | (2) | 8.089 | 95 | 102541 | 1.995 |
| 71) Methylcyclohexane | (2) | 8.394 | 83 | 190452 | 2.067 |
| 72) 1,2-Dichloropropane | (2) | 8.431 | 63 | 108408 | 2.050 |
| 73) Methyl Methacrylate | (1) | 8.522 | 69 | 59919 | 1.922 |
| 75) Dibromomethane | (2) | 8.541 | 93 | 50310 | 2.031 |
| 74) 1,4-Dioxane | (1) | 8.541 | 88 | 20816 | 126.227 |
| 74) 1,4-Dioxane | (1) | 8.541 | 58 | 15215 | 128.888 |
| 76) Bromodichloromethane | (2) | 8.778 | 83 | 128212 | 2.024 |
| 78) 2-Nitropropane | (1) | 9.065 | 41 | 183709 | 19.040 |
| 81) 1-Bromo-2-chloroethane | (2) | 9.175 | 63 | 114698 | 2.011 |
| 82) cis-1,3-Dichloropropene | (2) | 9.333 | 75 | 166089 | 2.034 |
| 83) 4-Methyl-2-Pentanone | (2) | 9.522 | 43 | 812495 | 20.723 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1836011 | 10.039 |
| 84)$Toluene-d8 | (3) | 9.650 | 100 | 1182489 | 9.953 |
| 85) Toluene | (3) | 9.723 | 92 | 263292 | 2.015 |
| 87) 1,3-Dichloropropene (total) | (3) | | 75 | 310305 | 4.075 |
| 86) trans-1,3-Dichloropropene | (3) | 9.992 | 75 | 144216 | 2.041 |
| 88) Ethyl Methacrylate | (3) | 10.059 | 69 | 125849 | 1.990 |

M = Compound was manually integrated.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.



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on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 21:26 mec29284

Sample Name: VSTD002 Lab Sample ID: VSTD002

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 90) 1,1,2-Trichloroethane | (3) | 10.199 | 97 | 77312 | 2.069 |
| 91) Tetrachloroethene | (3) | 10.278 | 166 | 114191 | 2.033 |
| 92) 1,3-Dichloropropane | (3) | 10.363 | 76 | 133652 | 2.025 |
| 93) 2-Hexanone | (3) | 10.424 | 43 | 576891 | 20.266 |
| 95) Dibromochloromethane | (3) | 10.577 | 129 | 91883 | 2.031 |
| 97) 1,2-Dibromoethane | (3) | 10.687 | 107 | 73112 | 2.021 |
| 99)*Chlorobenzene-d5 | (3) | 11.125 | 117 | 1372336 | 10.000 |
| 98) 1-Chlorohexane | (3) | 11.138 | 91 | 148169 | 1.483 |
| 100) Chlorobenzene | (3) | 11.150 | 112 | 295199 | 2.007 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | 11.235 | 131 | 101882 | 2.011 |
| 102) Ethylbenzene | (3) | 11.241 | 91 | 510316 | 2.024 |
| 103) m+p-Xylene | (3) | 11.357 | 106 | 399329 | 4.037 |
| 106) o-Xylene | (3) | 11.692 | 106 | 197384 | 2.009 |
| 108) Styrene | (3) | 11.705 | 104 | 336932 | 2.030 |
| 107) Xylene (Total) | (3) | | 106 | 596713 | 6.046 |
| 109) Bromoform | (3) | 11.863 | 173 | 56041 | 2.012 |
| 110) Isopropylbenzene | (3) | 11.991 | 105 | 513137 | 2.026 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 686783 | 9.995 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 174 | 570649 | 9.897 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | 12.241 | 83 | 100141 | 2.028 |
| 116) Bromobenzene | (4) | 12.253 | 156 | 127999 | 2.039 |
| 117) trans-1,4-Dichloro-2-butene | (1) | 12.272 | 53 | 272938 | 18.975 |
| 118) 1,2,3-Trichloropropane | (4) | 12.290 | 110 | 26231M | 2.000 |
| 119) n-Propylbenzene | (4) | 12.326 | 91 | 606437 | 2.044 |
| 121) 2-Chlorotoluene | (4) | 12.400 | 126 | 125295 | 2.026 |
| 123) 1,3,5-Trimethylbenzene | (4) | 12.461 | 105 | 446896 | 2.042 |
| 124) 4-Chlorotoluene | (4) | 12.497 | 126 | 129993 | 2.015 |
| 127) tert-Butylbenzene | (4) | 12.704 | 134 | 96436M | 2.000 |
| 128) Pentachloroethane | (4) | 12.735 | 167 | 80051 | 1.993 |
| 129) 1,2,4-Trimethylbenzene | (4) | 12.747 | 105 | 466980 | 2.025 |
| 130) sec-Butylbenzene | (4) | 12.869 | 105 | 572691 | 2.040 |
| 133) 1,3-Dichlorobenzene | (4) | 12.967 | 146 | 252143 | 2.028 |
| 134) p-Isopropyltoluene | (4) | 12.979 | 119 | 497102 | 2.024 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.021 | 152 | 753578 | 10.000 |
| 136) 1,4-Dichlorobenzene | (4) | 13.040 | 146 | 254528 | 1.994 |
| 137) 1,2,3-Trimethylbenzene | (4) | 13.052 | 120 | 201542 | 1.950 |
| 138) Benzyl Chloride | (4) | 13.125 | 126 | 43674 | 2.038 |
| 140) n-Butylbenzene | (4) | 13.271 | 92 | 248617 | 2.015 |

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on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 21:26 mec29284

Sample Name: VSTD002 Lab Sample ID: VSTD002

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 141) 1,2-Dichlorobenzene | (4) | 13.302 | 146 | 235639 | 2.017 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | 13.851 | 155 | 14885 | 1.880 |
| 146) 1,3,5-Trichlorobenzene | (4) | 13.979 | 180 | 206103 | 2.000 |
| 147) 1,2,4-Trichlorobenzene | (4) | 14.405 | 180 | 185971 | 1.994 |
| 148) Hexachlorobutadiene | (4) | 14.485 | 225 | 90651 | 2.024 |
| 149) Naphthalene | (4) | 14.588 | 128 | 349992 | 2.030 |
| 150) 1,2,3-Trichlorobenzene | (4) | 14.728 | 180 | 163885 | 2.006 |



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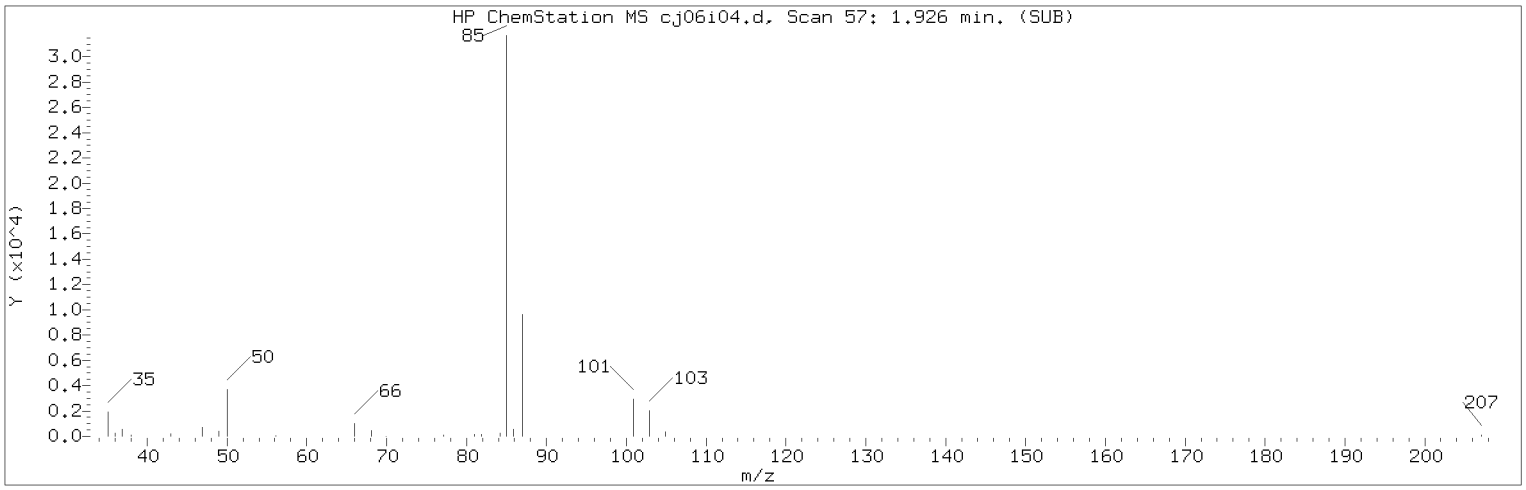
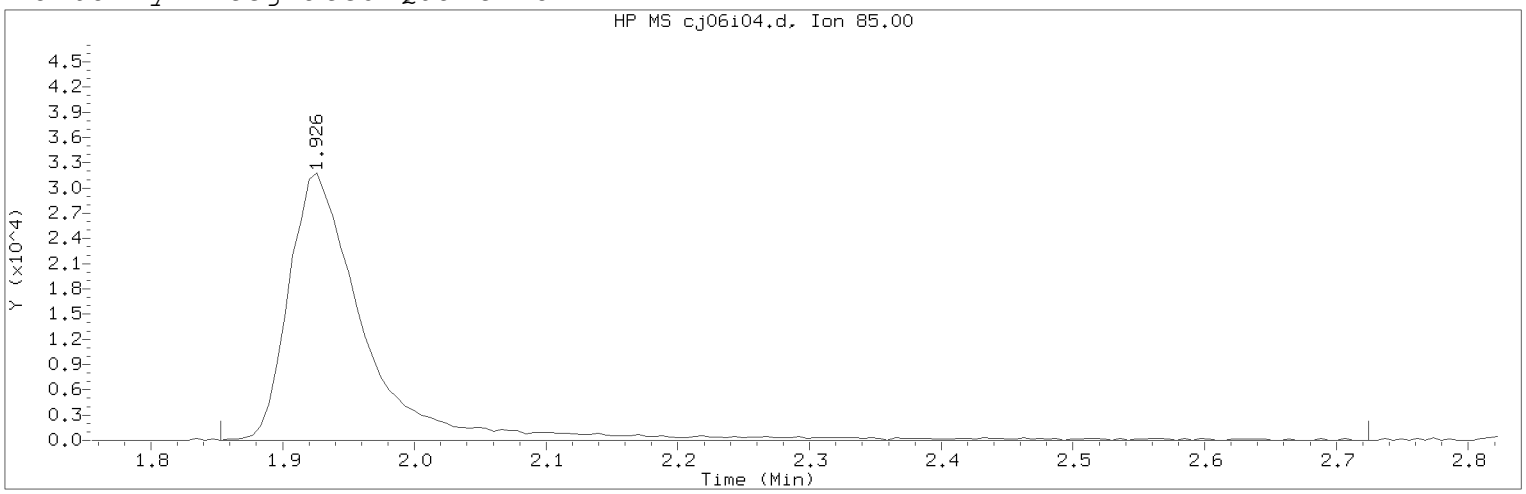
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 21:26 mec29284

Sample Name: VSTD002 Lab Sample ID: VSTD002

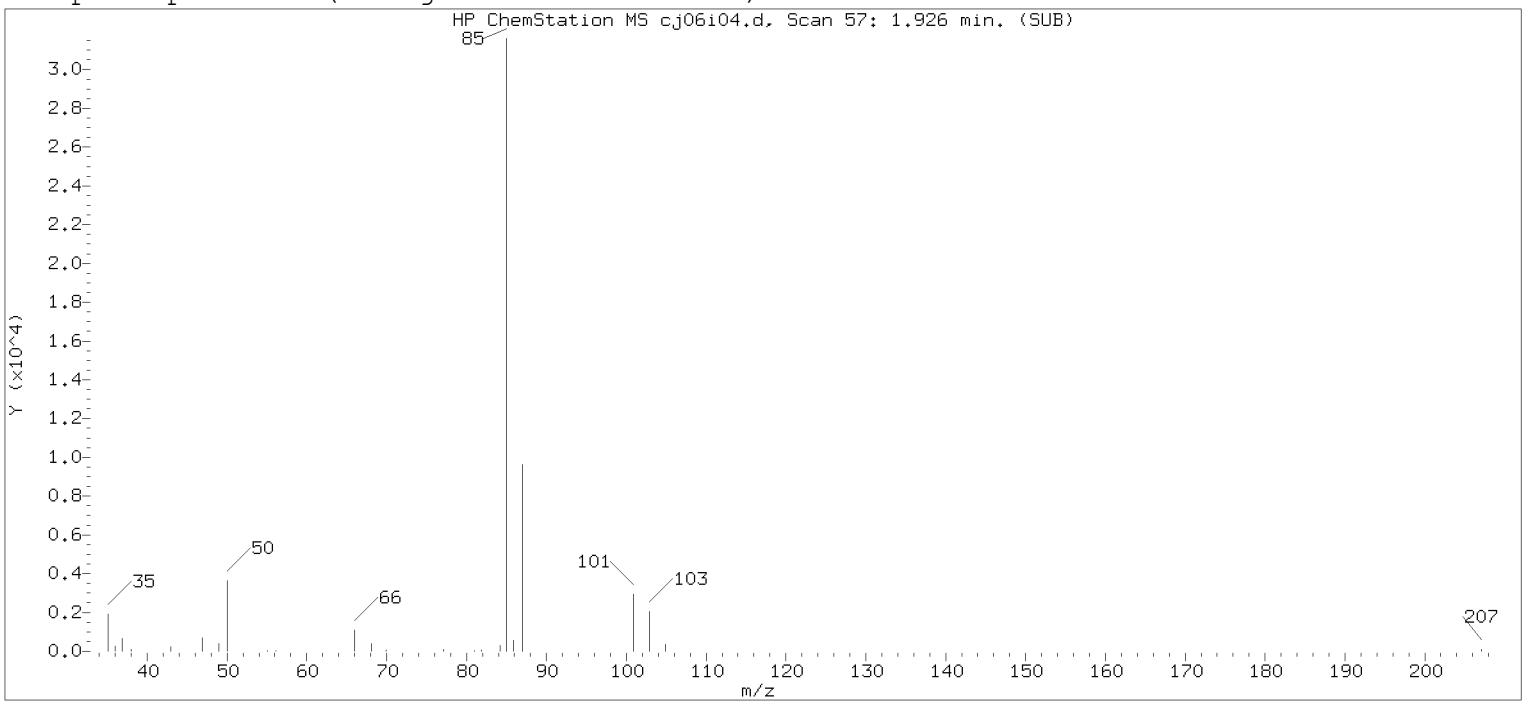
Compound Number : 1
Compound Name : Dichlorodifluoromethane
Scan Number : 57
Retention Time (minutes): 1.926
Quant Ion : 85.00
Area (flag) : 130389M
On-Column Amount (ng) : 2.0849
Integration start scan : 44 Integration stop scan: 187
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

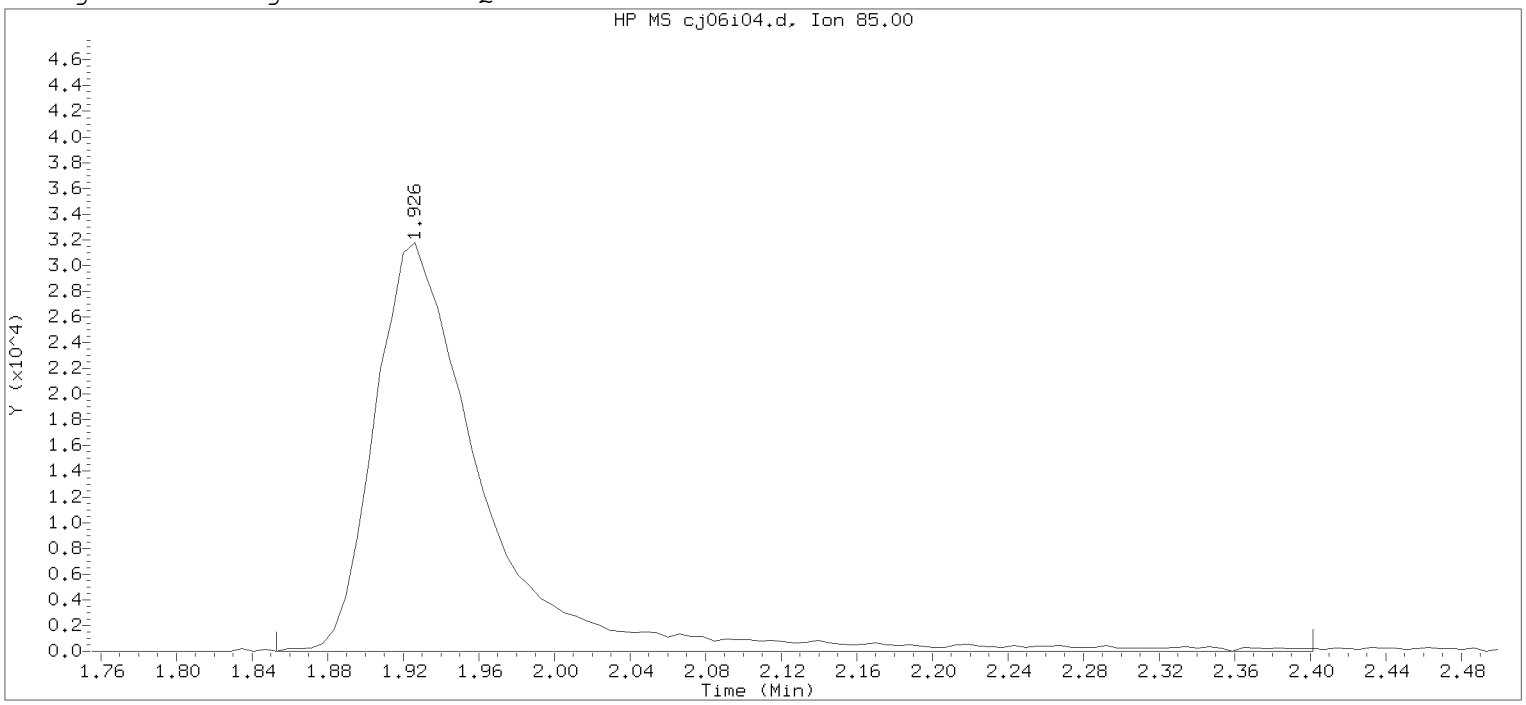
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45 Analyst ID: JKH09052

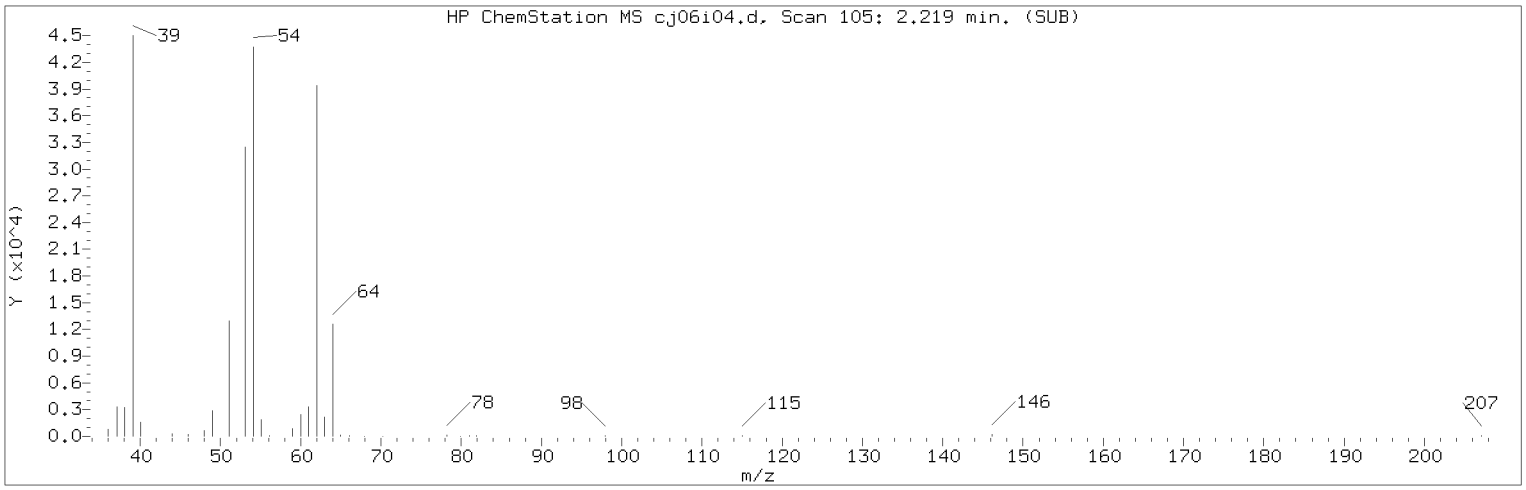
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 20:03 Automation

Sample Name: VSTD002 Lab Sample ID: VSTD002

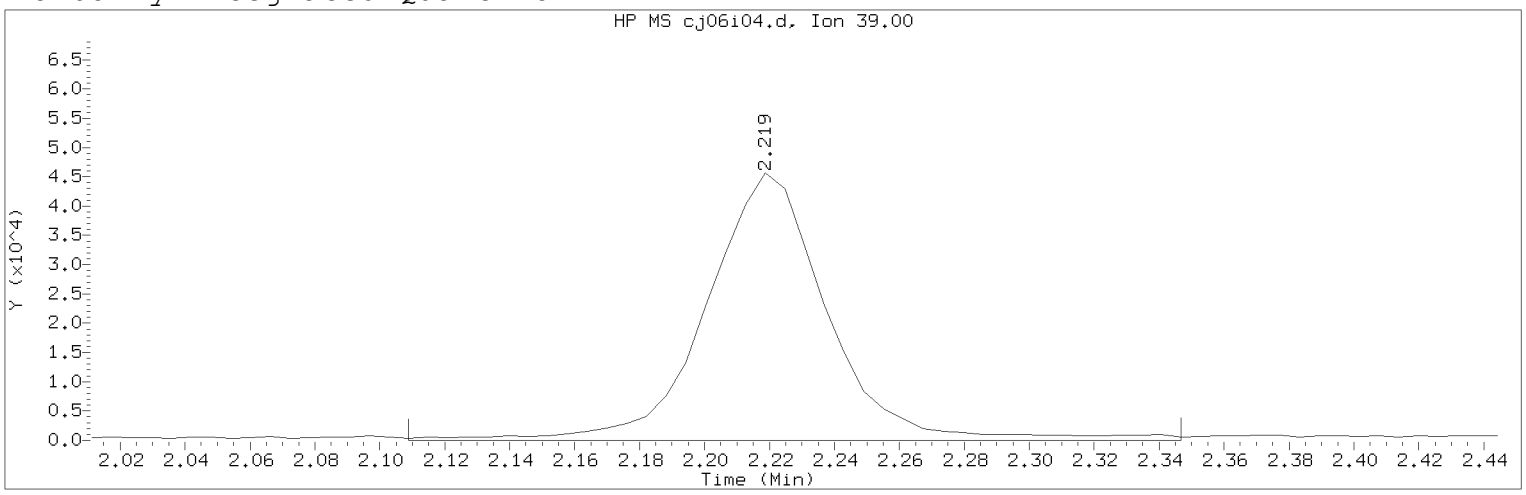
Compound Number : 1
Compound Name : Dichlorodifluoromethane
Scan Number : 57
Retention Time (minutes): 1.926
Quant Ion : 85.00
Area : 127758
On-column Amount (ng) : 2.0043
Integration start scan : 44 Integration stop scan: 134
Y at integration start : 0 Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 21:26 mec29284

Sample Name: VSTD002 Lab Sample ID: VSTD002

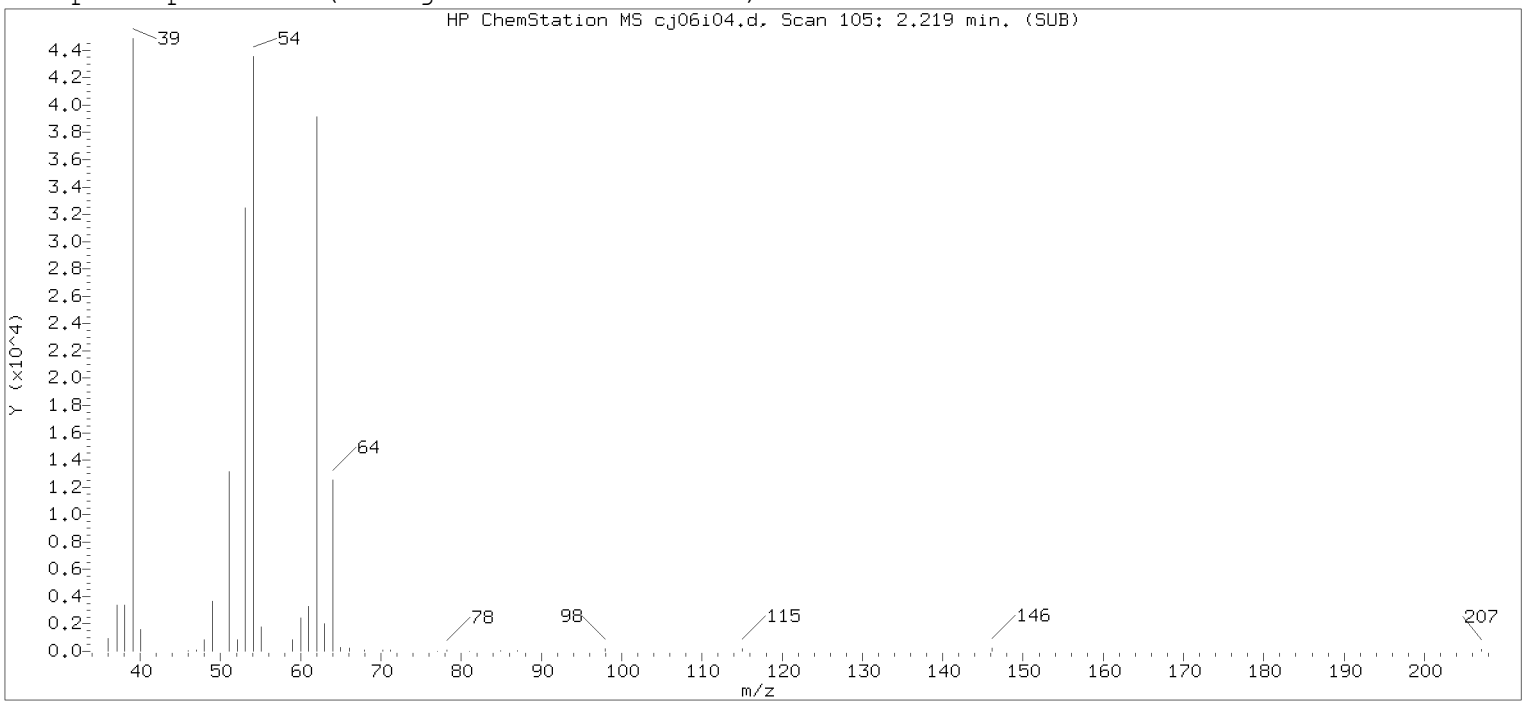
Compound Number : 6
Compound Name : 1,3-Butadiene
Scan Number : 105
Retention Time (minutes): 2.219
Quant Ion : 39.00
Area (flag) : 118476M
On-Column Amount (ng) : 2.1654
Integration start scan : 86 Integration stop scan: 125
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

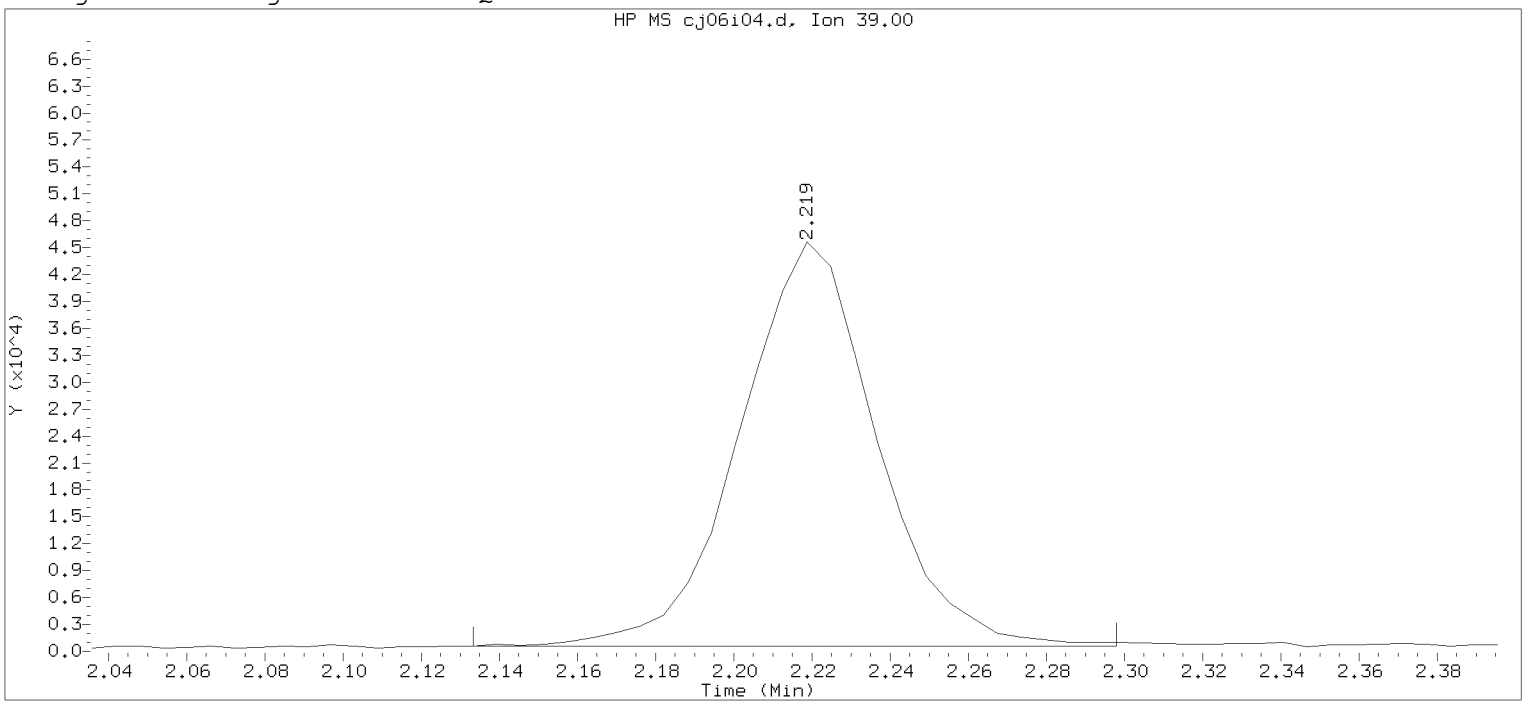
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45  Analyst ID: JKH09052

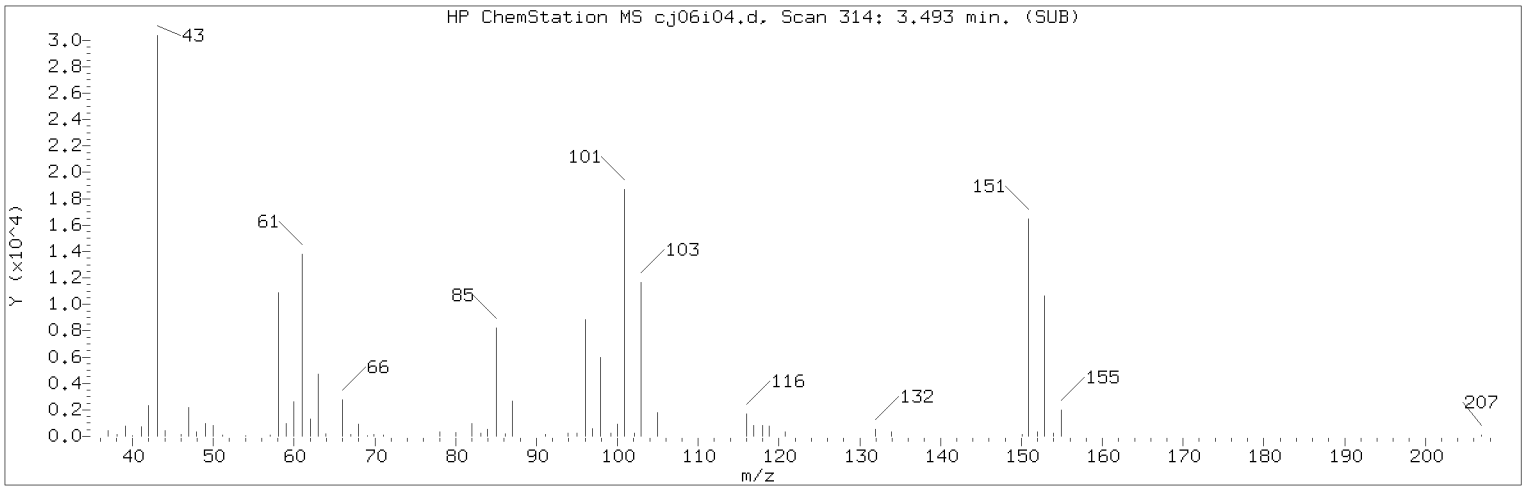
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 20:03 Automation

Sample Name: VSTD002  Lab Sample ID: VSTD002

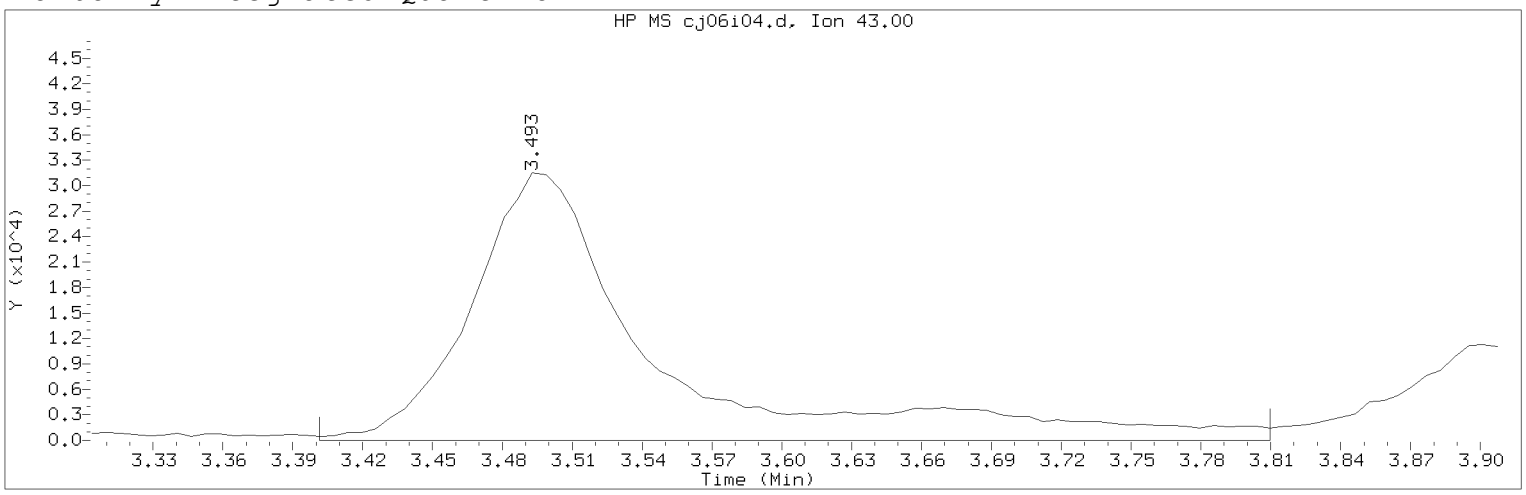
Compound Number : 6
Compound Name : 1,3-Butadiene
Scan Number : 105
Retention Time (minutes): 2.219
Quant Ion : 39.00
Area : 109164
On-column Amount (ng) : 1.9761
Integration start scan : 90  Integration stop scan: 117
Y at integration start : 602  Y at integration end: 602

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29264

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 21:26 mec29284

Sample Name: VSTD002 Lab Sample ID: VSTD002

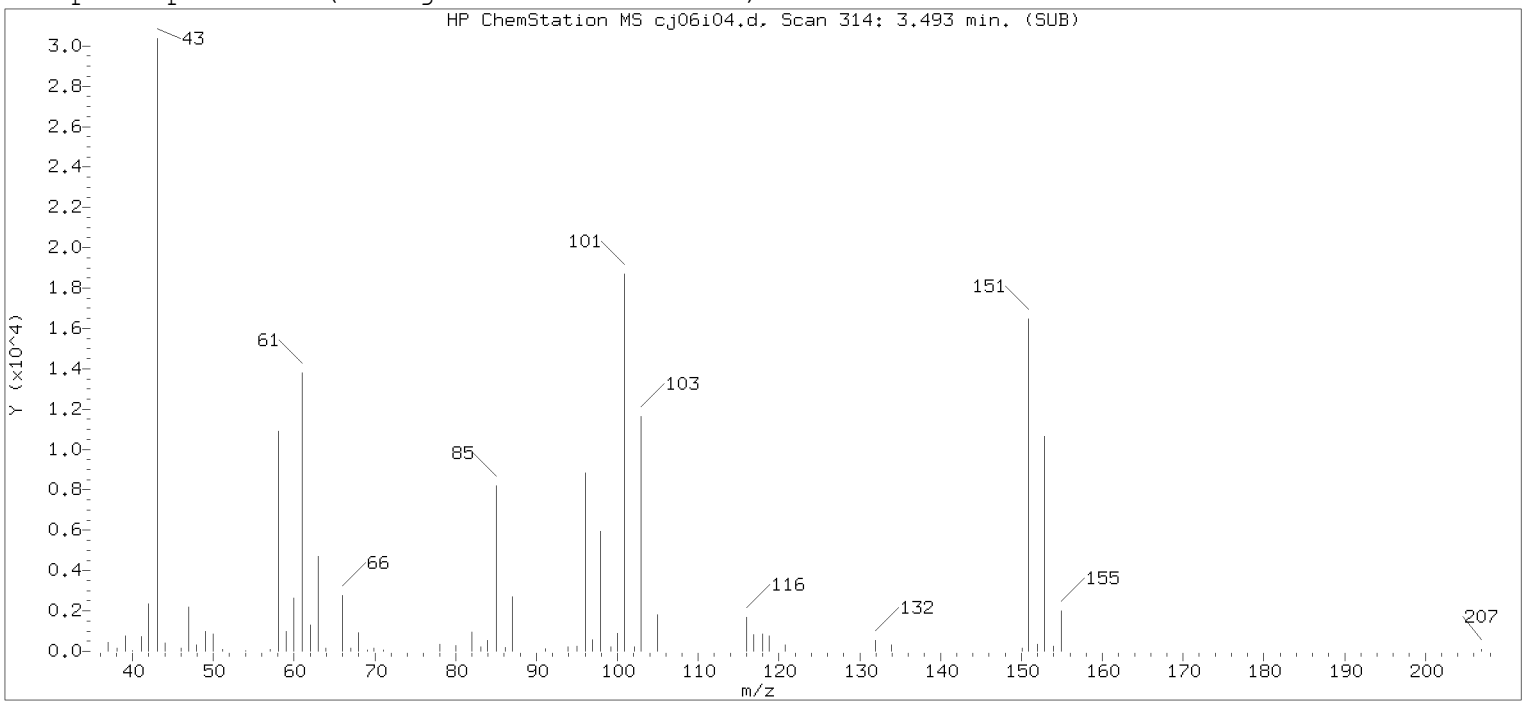
Compound Number : 15
Compound Name : Acetone
Scan Number : 314
Retention Time (minutes): 3.493
Quant Ion : 43.00
Area (flag) : 172930M
On-Column Amount (ng) : 19.3285
Integration start scan : 298 Integration stop scan: 365
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

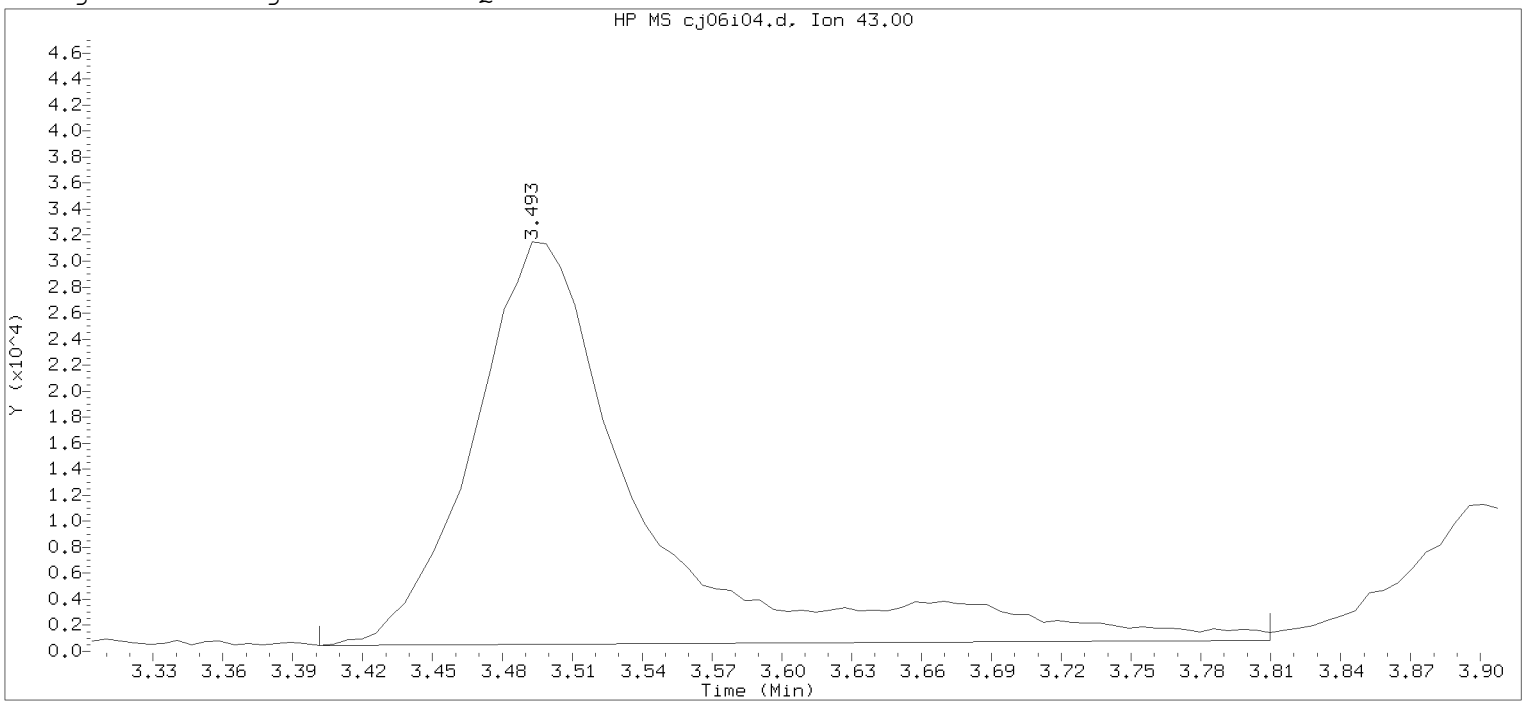
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45 Analyst ID: JKH09052

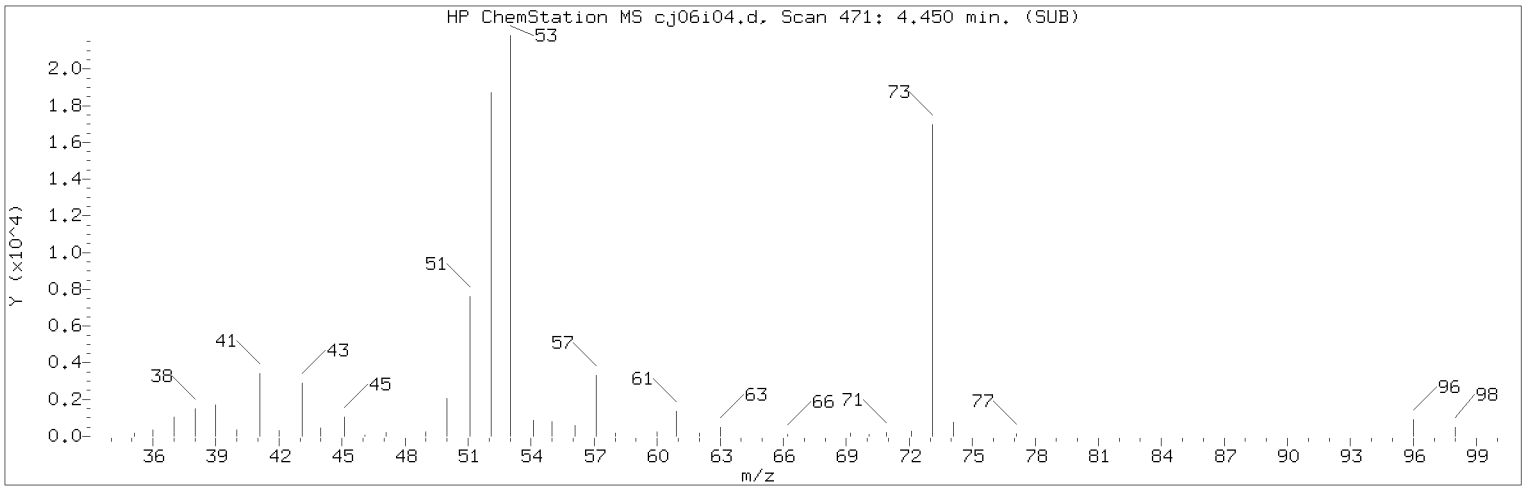
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 20:03 Automation

Sample Name: VSTD002 Lab Sample ID: VSTD002

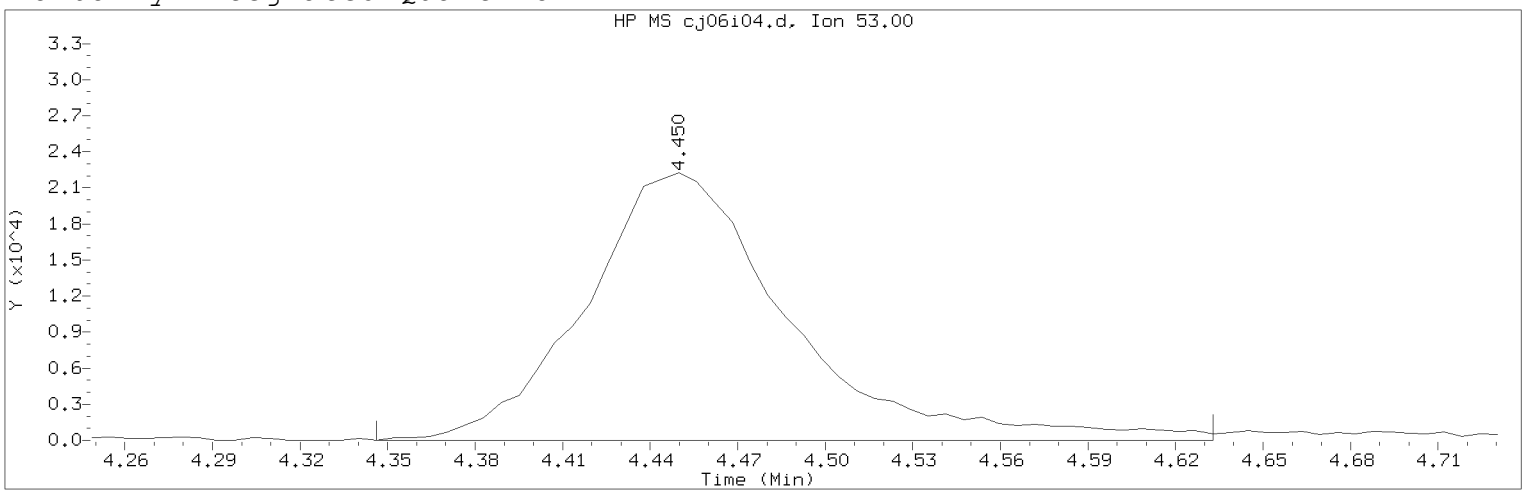
| | | | |
|---|---|---|---|
| Compound Number | : 15 | | |
| Compound Name | : Acetone | | |
| Scan Number | : 314 | | |
| Retention Time (minutes) | : 3.493 | | |
| Quant Ion | : 43.00 | | |
| Area | : 157138 | | |
| On-column Amount (ng) | : 18.7302 | | |
| Integration start scan | : 298 | Integration stop scan: | 365 |
| Y at integration start | : 434 | Y at integration end: | 827 |

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 21:26 mec29284

Sample Name: VSTD002 Lab Sample ID: VSTD002

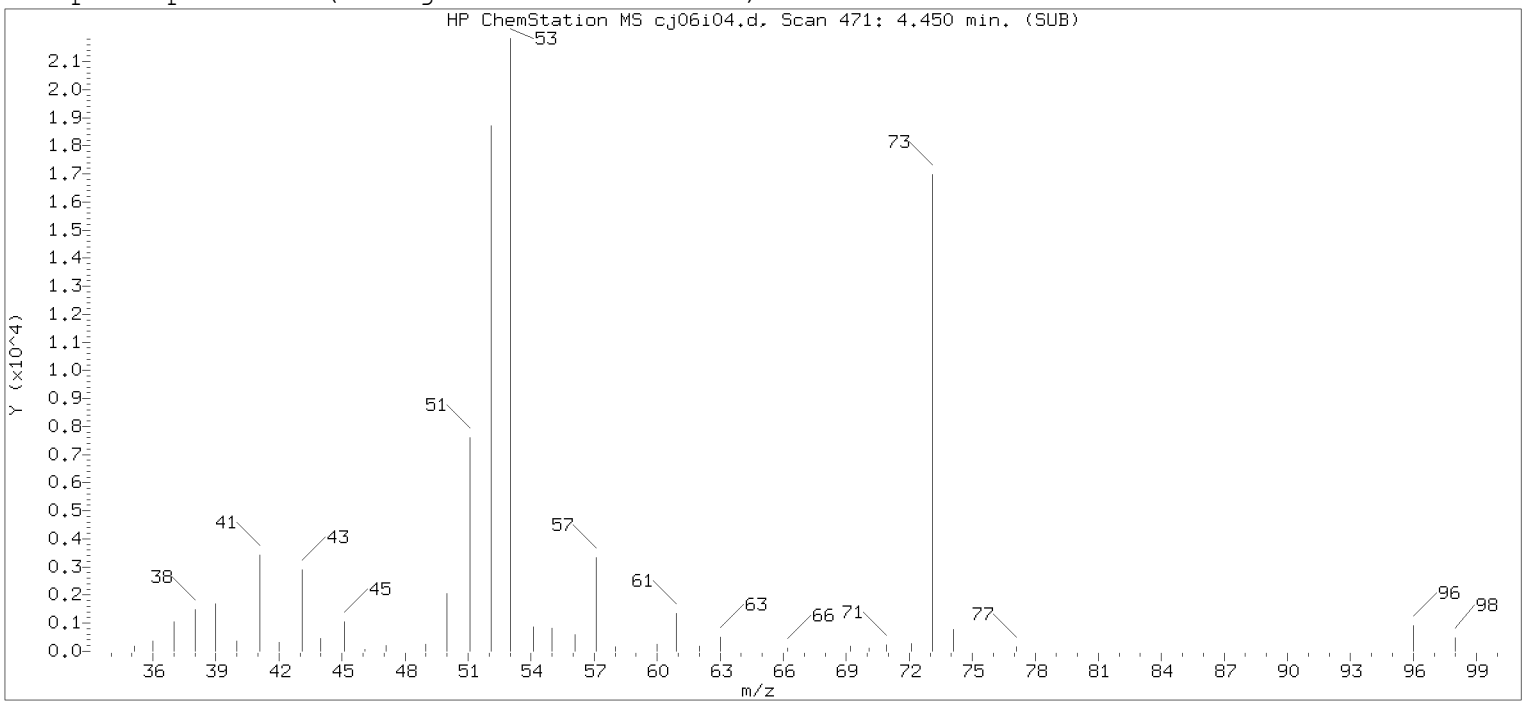
Compound Number : 31
Compound Name : Acrylonitrile
Scan Number : 471
Retention Time (minutes): 4.450
Quant Ion : 53.00
Area (flag) : 108096M
On-Column Amount (ng) : 9.2989
Integration start scan : 453 Integration stop scan: 500
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

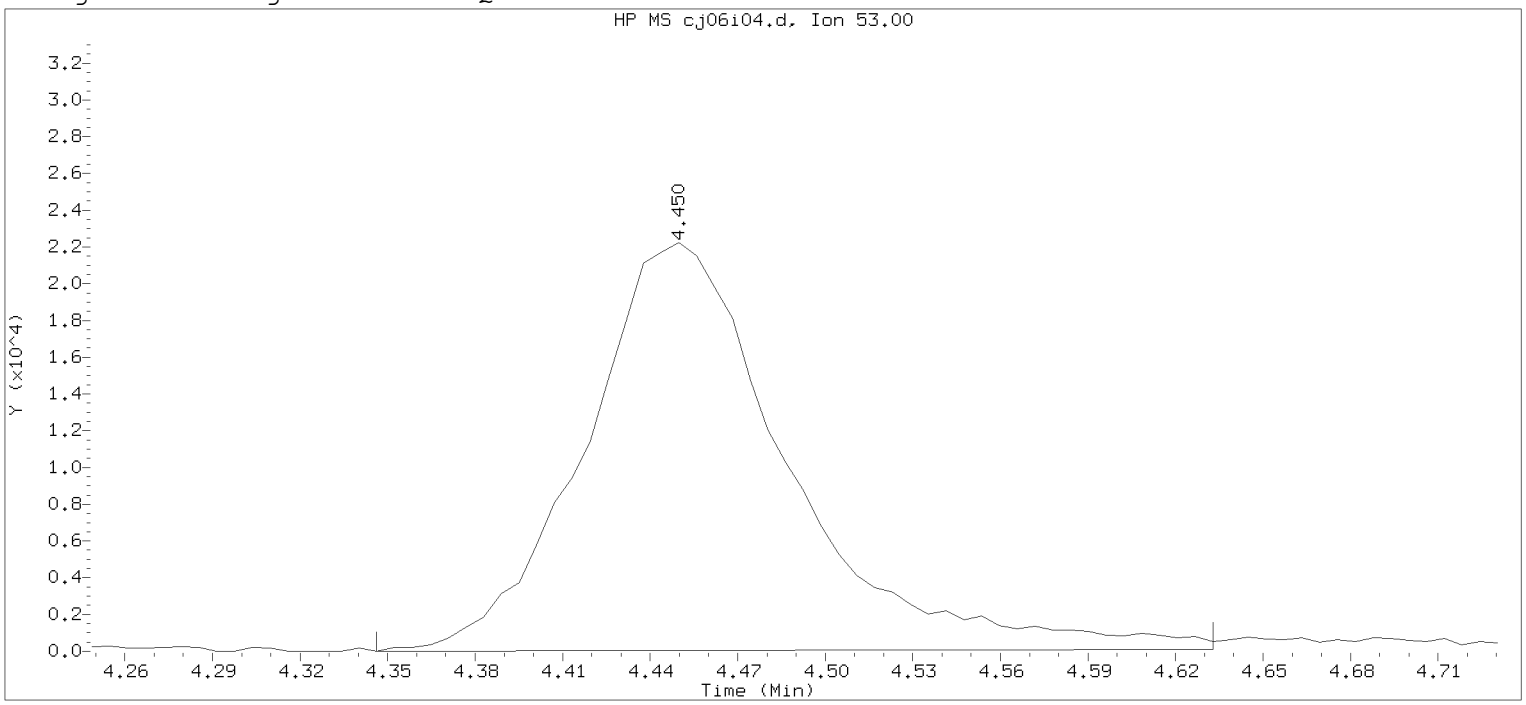
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45  Analyst ID: JKH09052

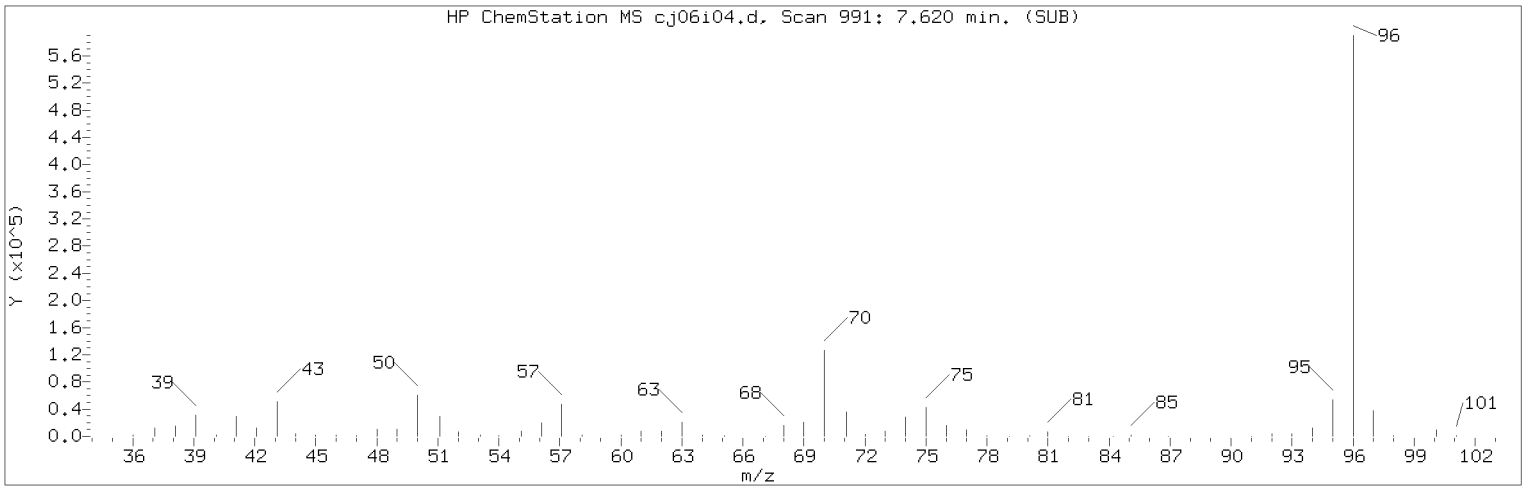
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 20:03 Automation

Sample Name: VSTD002  Lab Sample ID: VSTD002

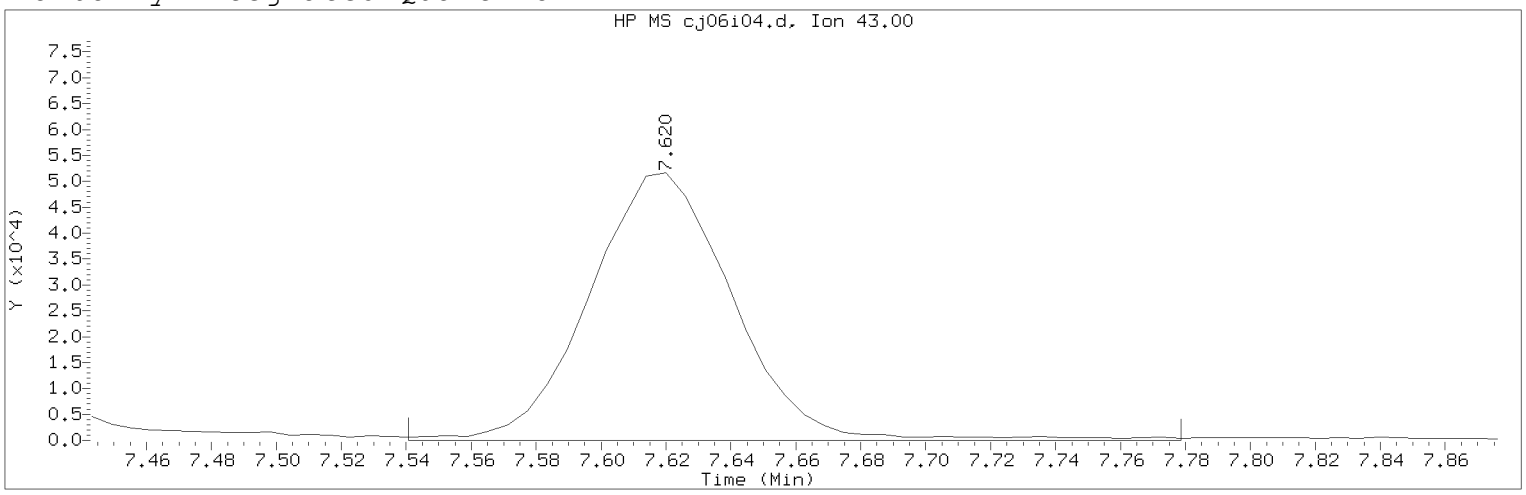
Compound Number : 31
Compound Name : Acrylonitrile
Scan Number : 471
Retention Time (minutes): 4.450
Quant Ion : 53.00
Area : 107156
On-column Amount (ng) : 9.1647
Integration start scan : 453  Integration stop scan: 500
Y at integration start : 0  Y at integration end: 98

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29734

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 21:26 mec29284

Sample Name: VSTD002 Lab Sample ID: VSTD002

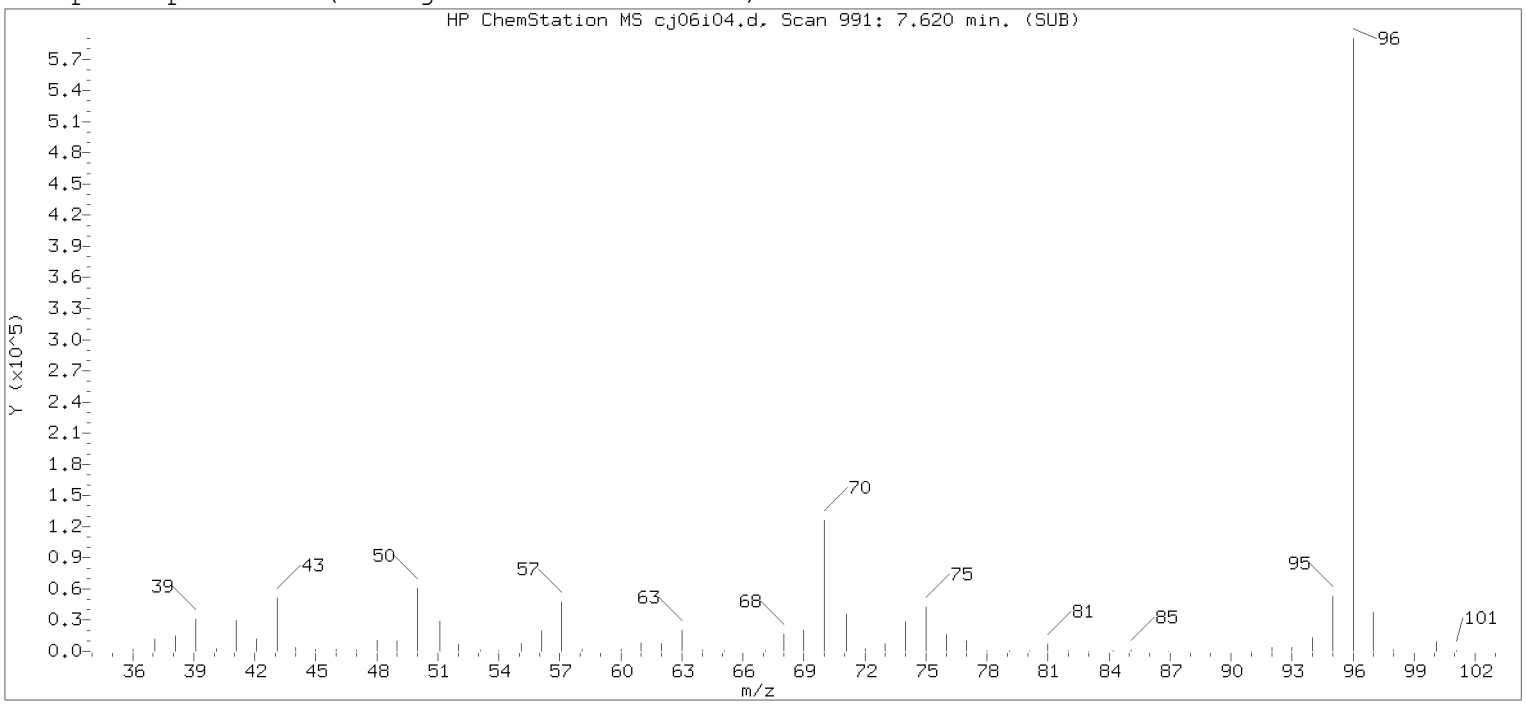
Compound Number : 64
Compound Name : n-Heptane
Scan Number : 991
Retention Time (minutes): 7.620
Quant Ion : 43.00
Area (flag) : 158644M
On-Column Amount (ng) : 2.1377
Integration start scan : 977 Integration stop scan: 1016
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

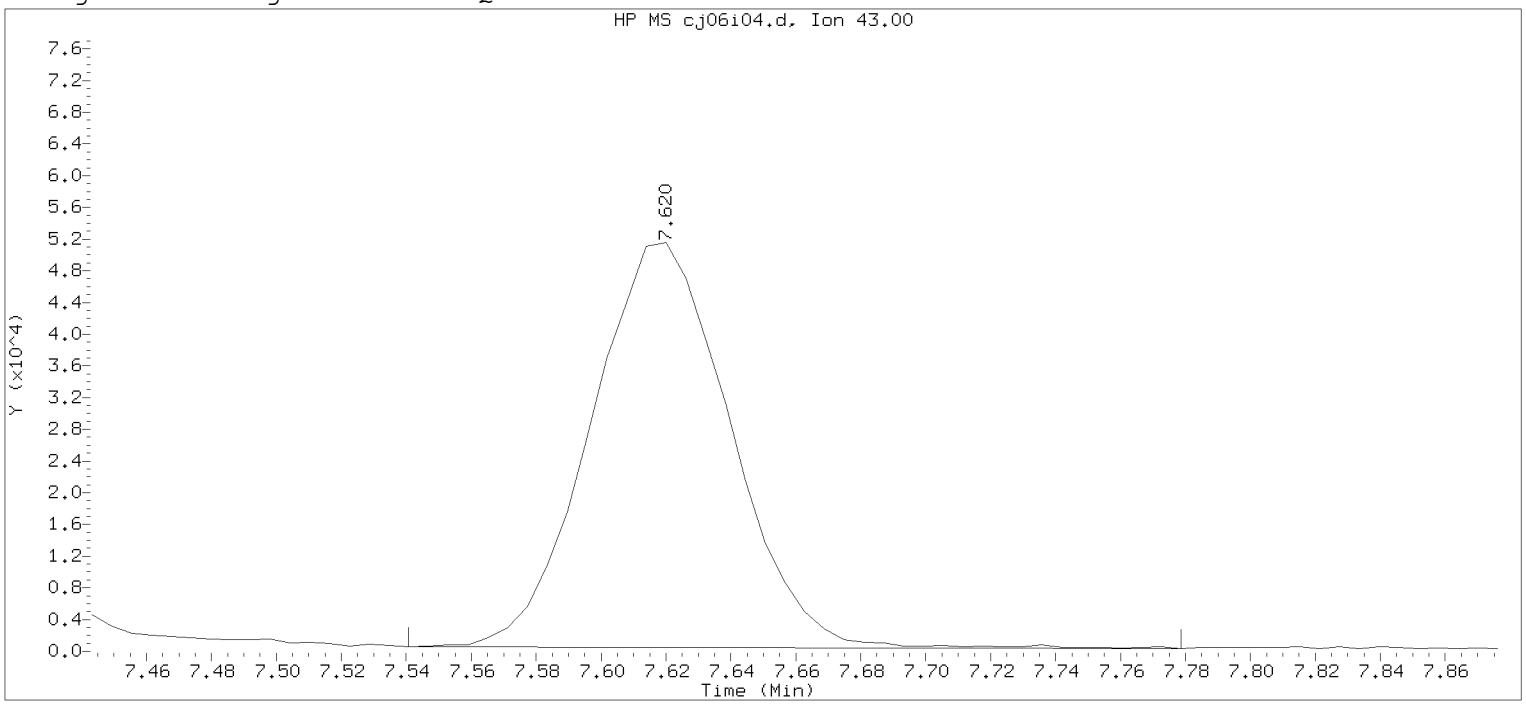
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45 Analyst ID: JKH09052

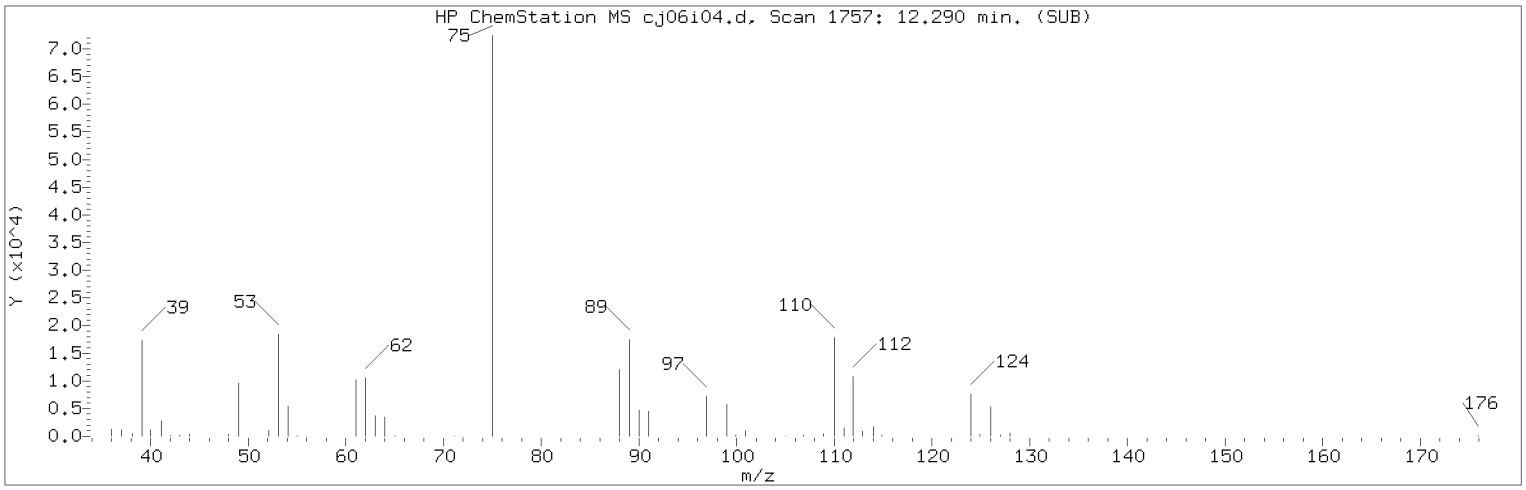
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 20:03 Automation

Sample Name: VSTD002 Lab Sample ID: VSTD002

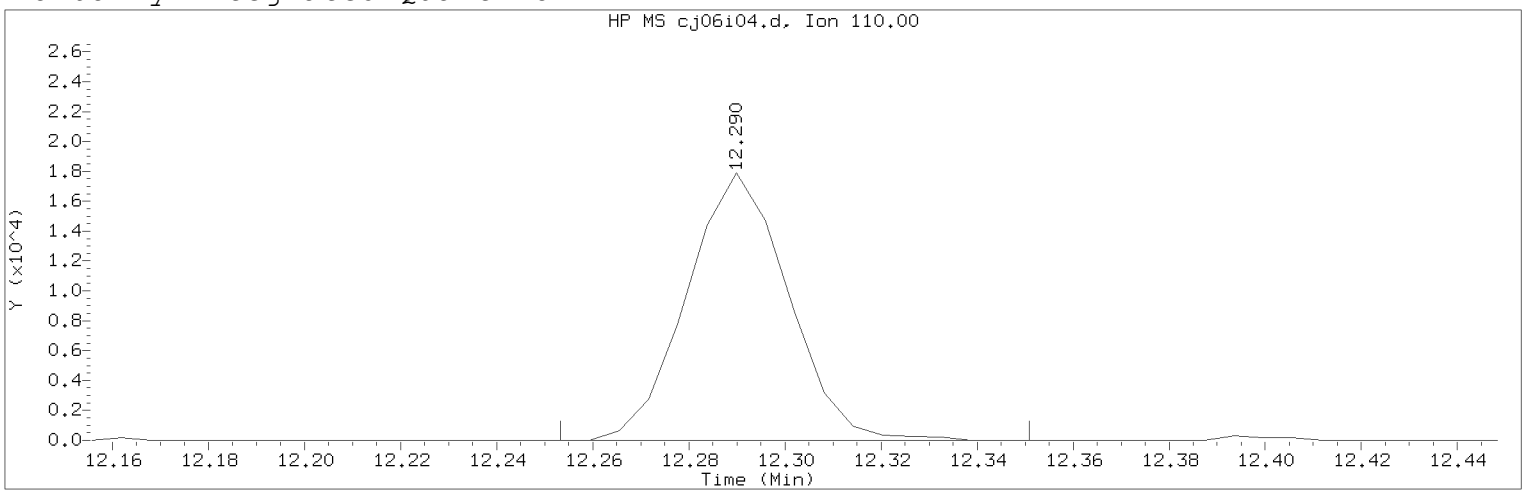
Compound Number : 64
Compound Name : n-Heptane
Scan Number : 991
Retention Time (minutes): 7.620
Quant Ion : 43.00
Area : 151746
On-column Amount (ng) : 1.9948
Integration start scan : 977 Integration stop scan: 1016
Y at integration start : 604 Y at integration end: 339

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 21:26 mec29284

Sample Name: VSTD002 Lab Sample ID: VSTD002

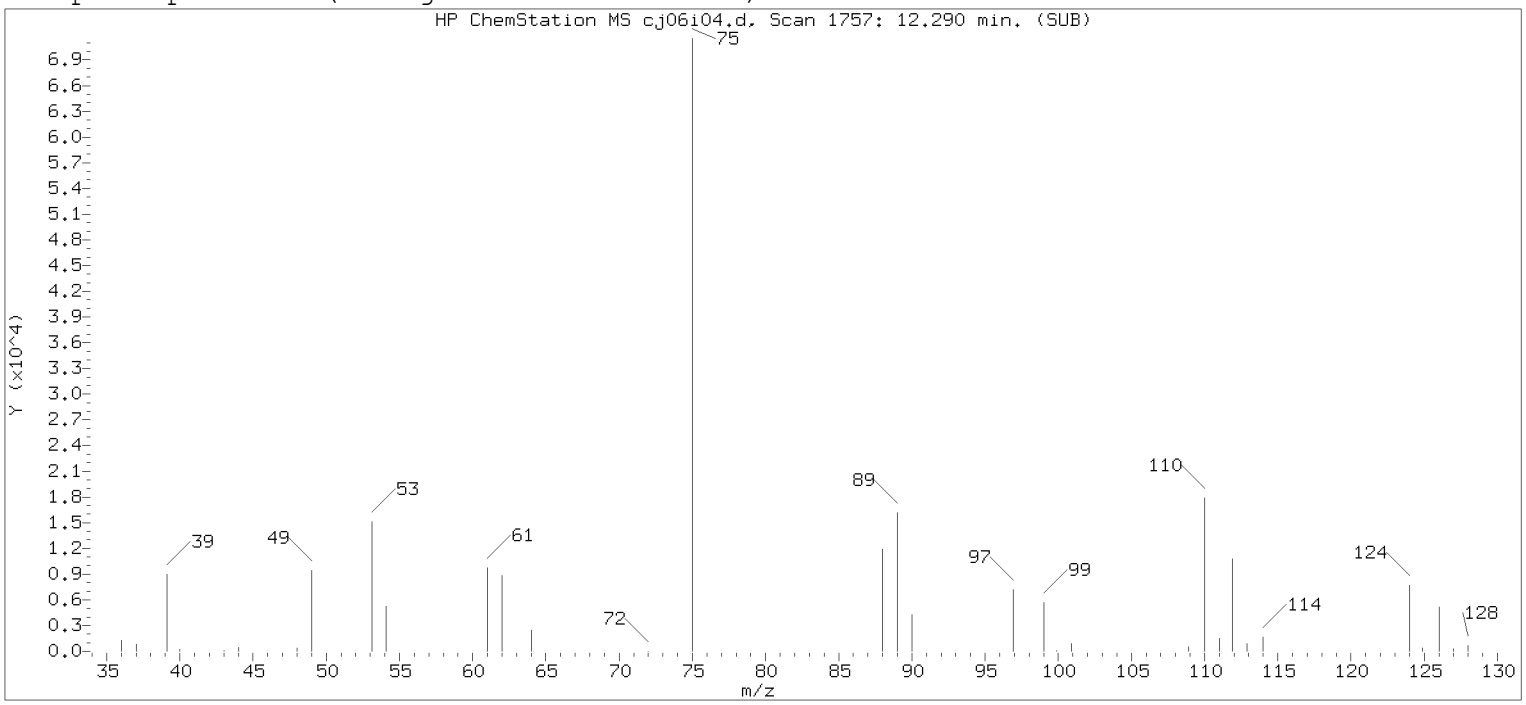
Compound Number : 118
Compound Name : 1,2,3-Trichloropropane
Scan Number : 1757
Retention Time (minutes): 12.290
Quant Ion : 110.00
Area (flag) : 26231M
On-Column Amount (ng) : 2.0000
Integration start scan : 1750 Integration stop scan: 1766
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

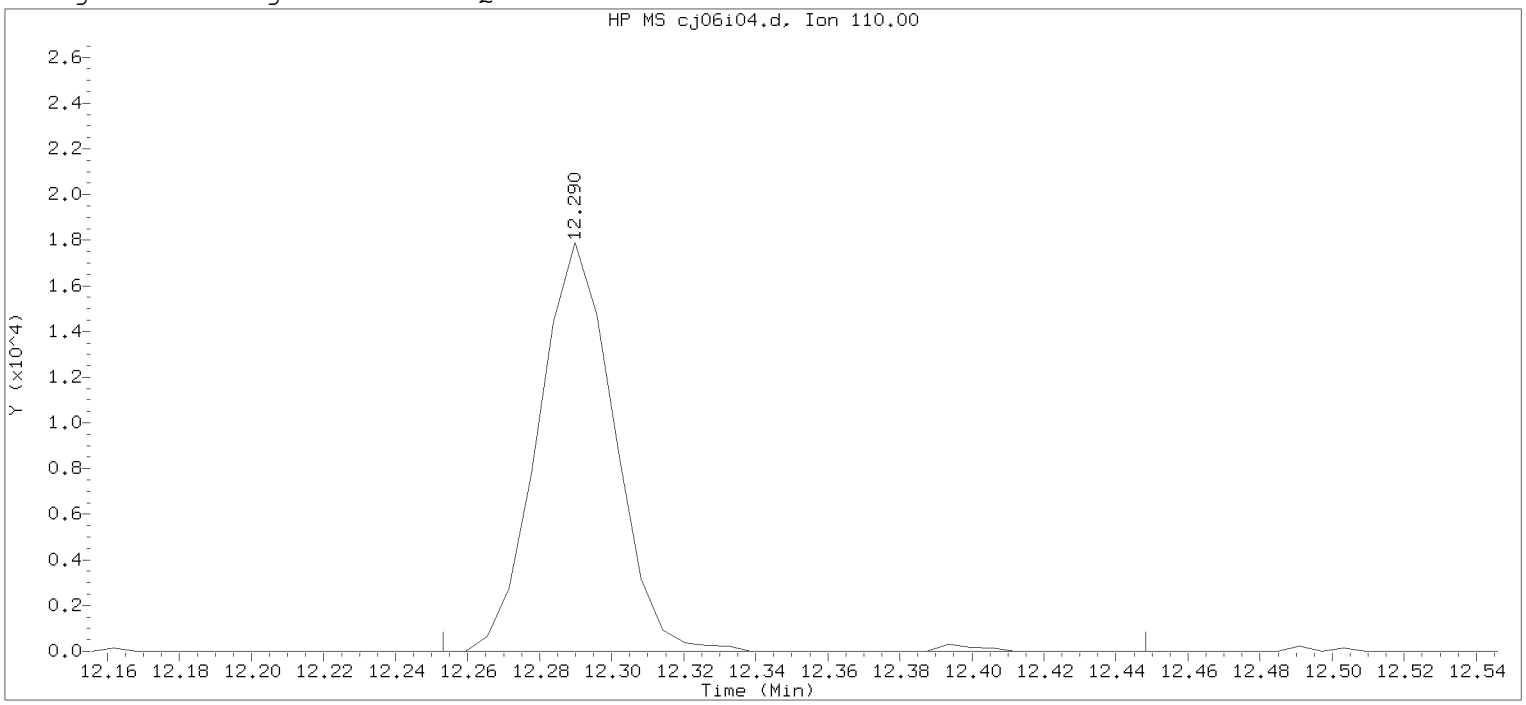
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45  Analyst ID: JKH09052

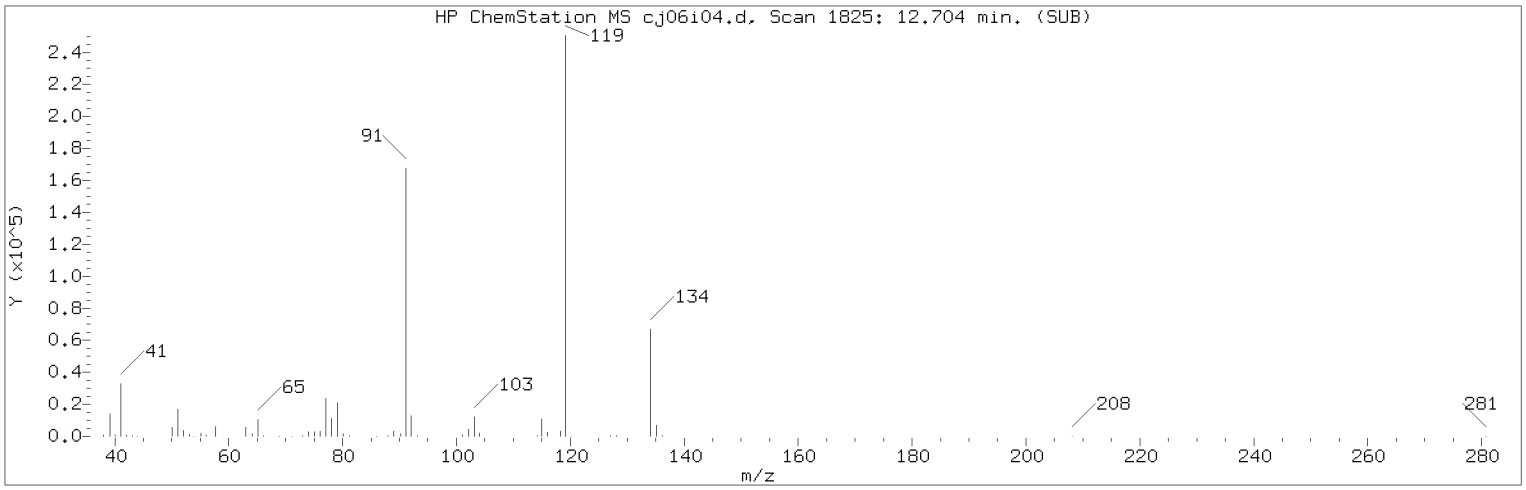
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 20:03 Automation

Sample Name: VSTD002  Lab Sample ID: VSTD002

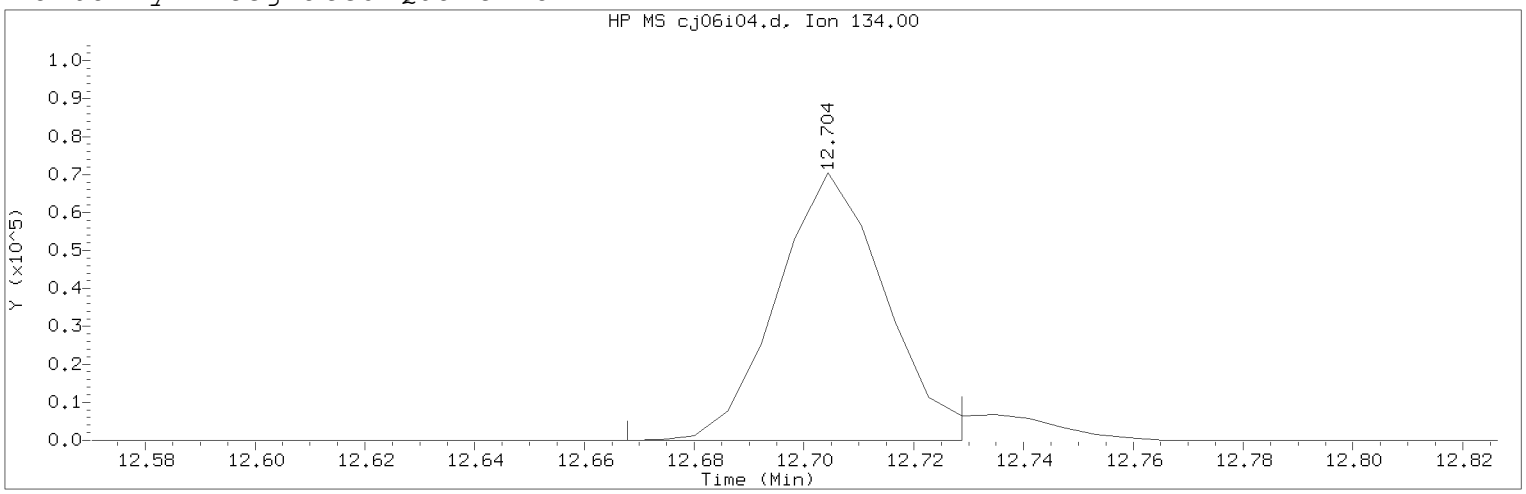
Compound Number : 118
Compound Name : 1,2,3-Trichloropropane
Scan Number : 1757
Retention Time (minutes): 12.290
Quant Ion : 110.00
Area : 26460
On-column Amount (ng) : 2.0302
Integration start scan : 1750  Integration stop scan: 1782
Y at integration start : 0  Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29734

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 21:26 mec29284

Sample Name: VSTD002 Lab Sample ID: VSTD002

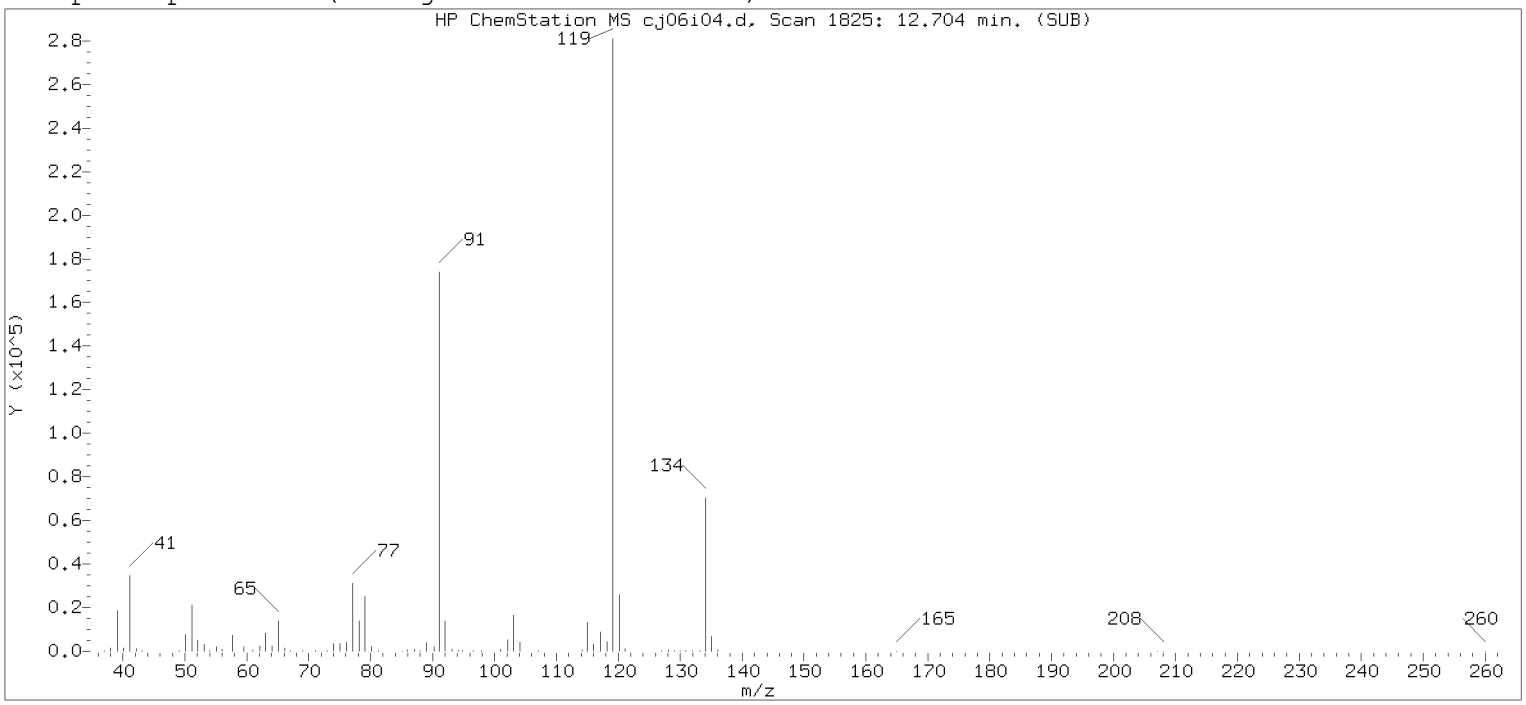
Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1825
Retention Time (minutes): 12.704
Quant Ion : 134.00
Area (flag) : 96436M
On-Column Amount (ng) : 2.0004
Integration start scan : 1818 Integration stop scan: 1828
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

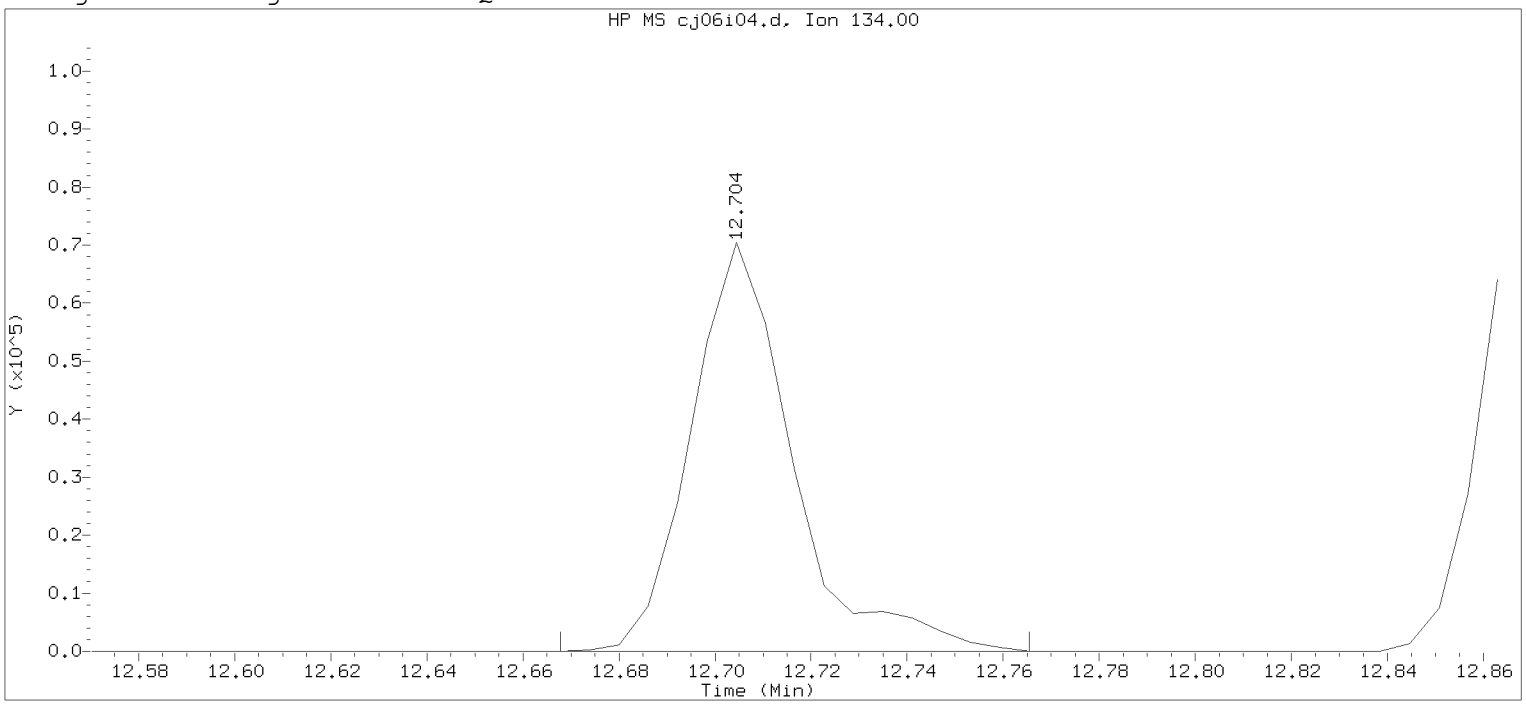
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion



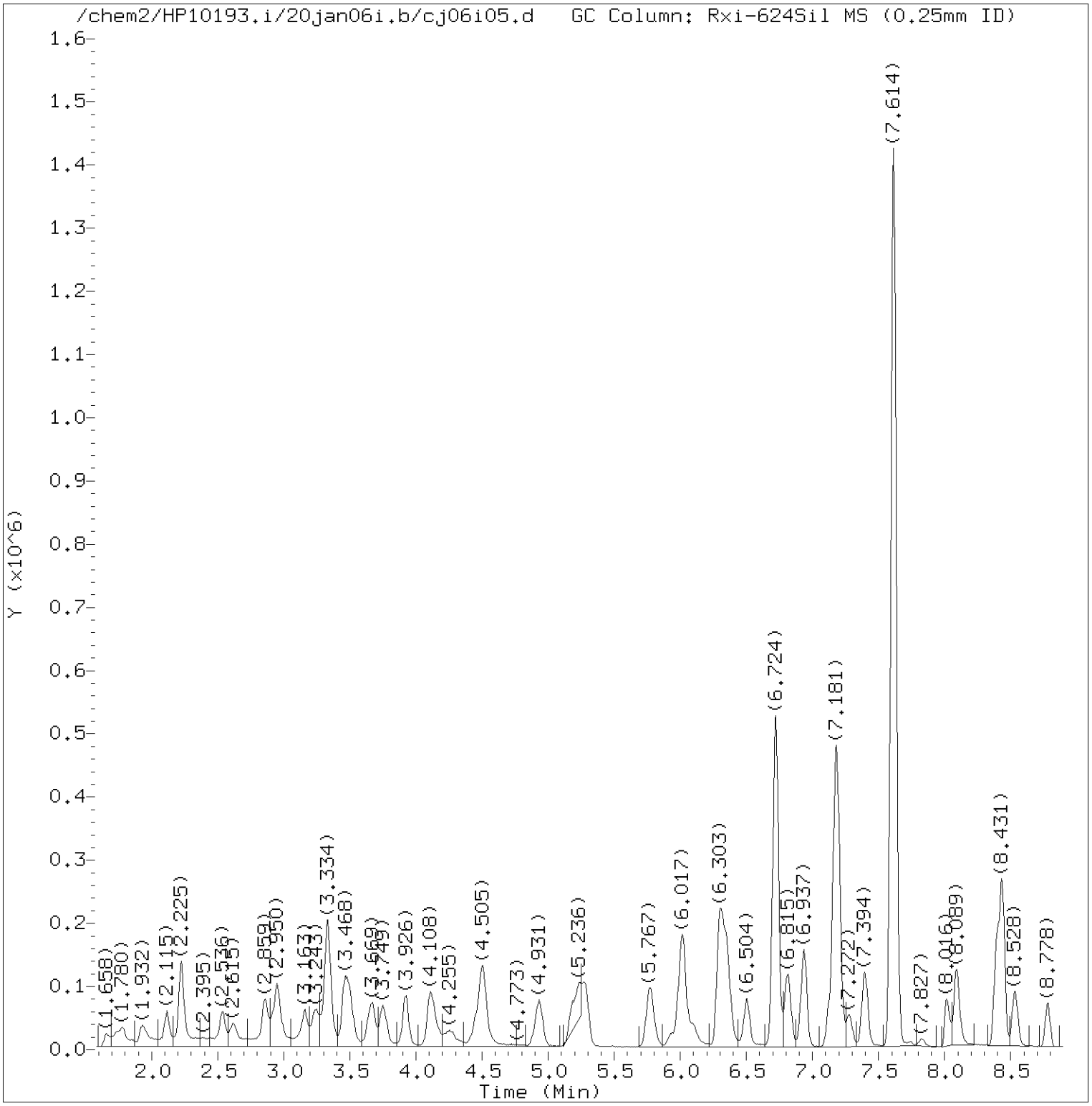

Data File: /chem2/HP10193.i/20jan06i.b/cj06i04.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 19:45  Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:03
Date, time and analyst ID of latest file update: 06-Jan-2020 20:03 Automation

Sample Name: VSTD002  Lab Sample ID: VSTD002

Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1825
Retention Time (minutes): 12.704
Quant Ion : 134.00
Area : 103115
On-column Amount (ng) : 2.1200
Integration start scan : 1818  Integration stop scan: 1834
Y at integration start : 0  Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29734




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 21:28 mec29284

Sample Name: VSTD001 Lab Sample ID: VSTD001

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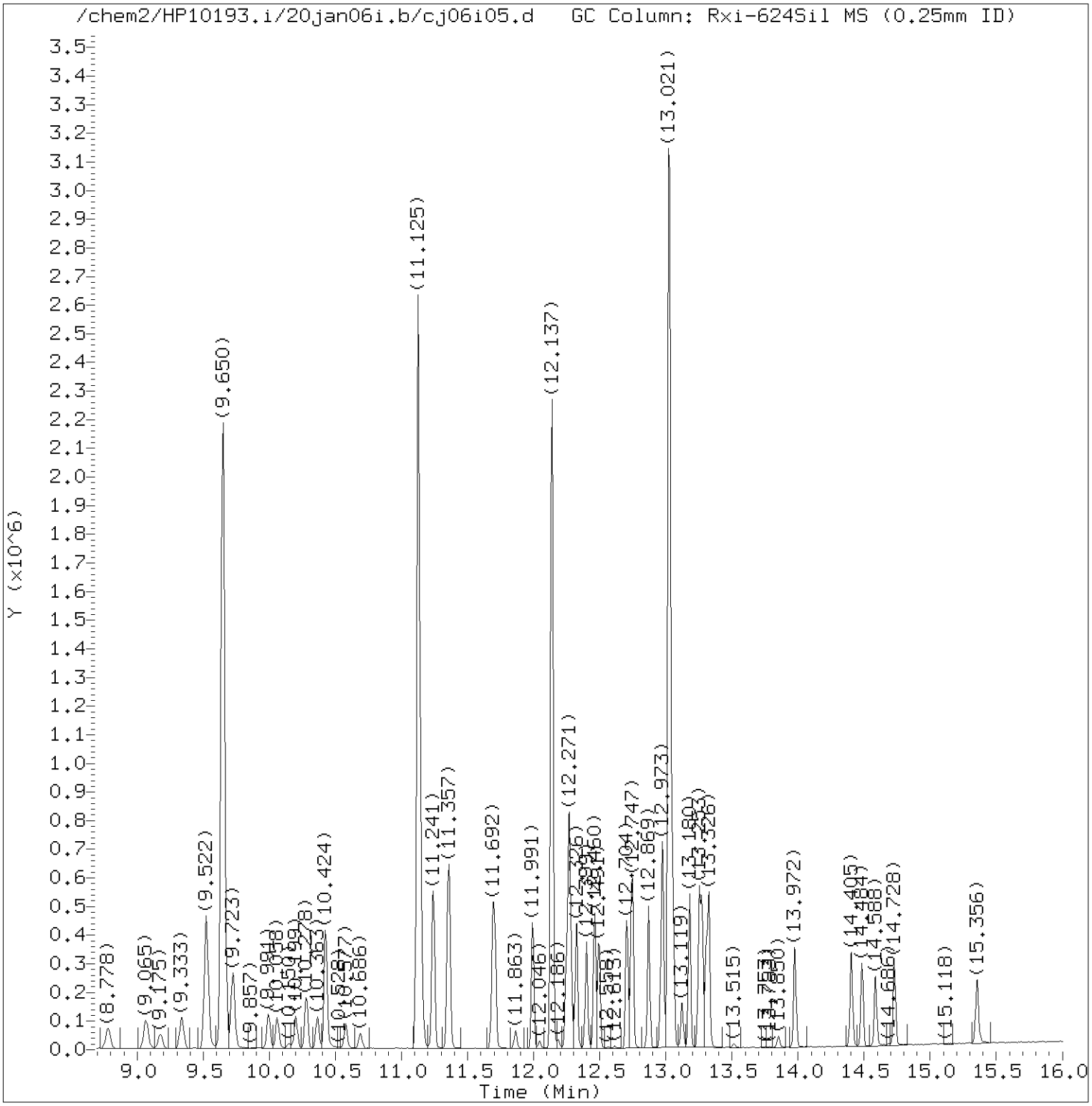
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 21:28 mec29284

Sample Name: VSTD001 Lab Sample ID: VSTD001

Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 21:28 mec29284

Sample Name: VSTD001 Lab Sample ID: VSTD001

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | 1.932 | 85 | 65919M | 1.044 |
| 2) Chloromethane | (2) | 2.115 | 50 | 70243 | 0.995 |
| 6) 1,3-Butadiene | (2) | 2.225 | 39 | 64421M | 1.149 |
| 5) Vinyl Chloride | (2) | 2.231 | 62 | 67683 | 1.022 |
| 7) Bromomethane | (2) | 2.536 | 94 | 44618 | 1.004 |
| 8) Chloroethane | (2) | 2.615 | 64 | 39639 | 1.009 |
| 9) Dichlorofluoromethane | (2) | 2.859 | 67 | 86733M | 1.013 |
| 10) Trichlorofluoromethane | (2) | 2.914 | 101 | 66630 | 1.018 |
| 12) Ethyl ether | (2) | 3.163 | 59 | 42649 | 0.993 |
| 13) Freon 123a | (2) | 3.237 | 67 | 57685 | 1.036 |
| 14) Acrolein | (1) | 3.334 | 56 | 349644 | 51.093 |
| 16) 1,1-Dichloroethene | (2) | 3.456 | 96 | 45326 | 1.038 |
| 17) Freon 113 | (2) | 3.493 | 101 | 45389 | 1.055 |
| 15) Acetone | (1) | 3.499 | 43 | 92868M | 10.842 |
| 18) Methyl Iodide | (2) | 3.645 | 142 | 85320M | 1.042 |
| 19) Bromoethane | (2) | 3.676 | 108 | 37793 | 1.007 |
| 20) Carbon Disulfide | (2) | 3.749 | 76 | 163755 | 1.045 |
| 23) Methyl Acetate | (2) | 3.901 | 43 | 26176 | 0.913 |
| 24) Allyl Chloride | (2) | 3.926 | 41 | 79875 | 0.993 |
| 25) Methylene Chloride | (2) | 4.108 | 84 | 51177 | 1.032 |
| 28)*t-Butyl Alcohol-d10 | (1) | 4.139 | 65 | 165460 | 50.000 |
| 30) t-Butyl Alcohol | (1) | 4.267 | 59 | 68871M | 19.749 |
| 31) Acrylonitrile | (1) | 4.450 | 53 | 56190 | 5.079 |
| 33) trans-1,2-Dichloroethene | (2) | 4.505 | 96 | 50755 | 1.028 |
| 32) Methyl Tertiary Butyl Ether | (2) | 4.511 | 73 | 131715 | 1.008 |
| 34) n-Hexane | (2) | 4.931 | 57 | 79338 | 1.060 |
| 35) 1,1-Dichloroethane | (2) | 5.175 | 63 | 92741 | 1.025 |
| 36) di-Isopropyl Ether | (2) | 5.236 | 45 | 173006 | 1.018 |
| 37) 2-Chloro-1,3-Butadiene | (2) | 5.285 | 53 | 82894 | 1.054 |
| 39) Ethyl t-butyl ether | (2) | 5.767 | 59 | 169440 | 1.044 |
| 40) 2-Butanone | (1) | 5.998 | 43 | 160553 | 10.274 |
| 41) cis-1,2-Dichloroethene | (2) | 6.017 | 96 | 56656 | 1.019 |
| 43) 2,2-Dichloropropane | (2) | 6.023 | 77 | 80241 | 1.064 |
| 44) Propionitrile | (1) | 6.096 | 54 | 77827 | 20.322 |
| 42) 1,2-Dichloroethene (Total) | (2) | | 96 | 107411 | 2.047 |
| 47) Methacrylonitrile | (1) | 6.303 | 67 | 147506 | 10.185 |
| 49) Bromochloromethane | (2) | 6.346 | 128 | 24804 | 0.999 |
| 50) Tetrahydrofuran | (1) | 6.364 | 71 | 47680 | 10.257 |

M = Compound was manually integrated.
* = Compound is an internal standard.



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Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 21:28 mec29284

Sample Name: VSTD001 Lab Sample ID: VSTD001

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 51) Chloroform | (2) | 6.498 | 83 | 87797 | 1.045 |
| 53) 1,1,1-Trichloroethane | (2) | 6.724 | 97 | 78514 | 1.052 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 113 | 440734 | 10.082 |
| 52)$Dibromofluoromethane | (2) | 6.718 | 111 | 444614 | 9.958 |
| 54) Cyclohexane | (2) | 6.815 | 56 | 94747 | 1.038 |
| 54) Cyclohexane | (2) | 6.815 | 84 | 80002 | 1.063 |
| 54) Cyclohexane | (2) | 6.547 | 69 | 460 | 0.532 |
| 56) Carbon Tetrachloride | (2) | 6.925 | 117 | 65532 | 1.048 |
| 57) 1,1-Dichloropropene | (2) | 6.937 | 75 | 72916 | 1.041 |
| 58) Isobutyl Alcohol | (1) | 7.120 | 41 | 56422 | 51.573 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.175 | 102 | 96492 | 10.071 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.175 | 65 | 442596 | 10.009 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 104 | 60201 | 9.885 |
| 60) Benzene | (2) | 7.205 | 78 | 213951 | 1.035 |
| 61) 1,2-Dichloroethane | (2) | 7.279 | 62 | 60775 | 1.042 |
| 61) 1,2-Dichloroethane | (2) | 7.175 | 98 | 6334 | 1.082 |
| 62) t-Amyl methyl ether | (2) | 7.394 | 73 | 151103 | 1.024 |
| 65)*Fluorobenzene | (2) | 7.614 | 96 | 1863948 | 10.000 |
| 64) n-Heptane | (2) | 7.620 | 43 | 83933M | 1.111 |
| 67) n-Butanol | (1) | 8.016 | 56 | 98745 | 98.180 |
| 69) Trichloroethene | (2) | 8.089 | 95 | 53311 | 1.032 |
| 71) Methylcyclohexane | (2) | 8.394 | 83 | 95032 | 1.026 |
| 72) 1,2-Dichloropropane | (2) | 8.425 | 63 | 55241 | 1.039 |
| 73) Methyl Methacrylate | (1) | 8.522 | 69 | 29208 | 0.985 |
| 74) 1,4-Dioxane | (1) | 8.540 | 88 | 9327M | 54.700 |
| 74) 1,4-Dioxane | (1) | 8.534 | 58 | 7230M | 57.292 |
| 75) Dibromomethane | (2) | 8.547 | 93 | 25276 | 1.015 |
| 76) Bromodichloromethane | (2) | 8.784 | 83 | 65492 | 1.028 |
| 78) 2-Nitropropane | (1) | 9.065 | 41 | 93491 | 10.182 |
| 81) 1-Bromo-2-chloroethane | (2) | 9.175 | 63 | 57787 | 1.008 |
| 82) cis-1,3-Dichloropropene | (2) | 9.333 | 75 | 84006 | 1.023 |
| 83) 4-Methyl-2-Pentanone | (2) | 9.522 | 43 | 399921 | 10.143 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1838621 | 10.065 |
| 84)$Toluene-d8 | (3) | 9.650 | 100 | 1185590 | 9.990 |
| 85) Toluene | (3) | 9.723 | 92 | 135298 | 1.036 |
| 87) 1,3-Dichloropropene (total) | (3) | | 75 | 156650 | 2.052 |
| 86) trans-1,3-Dichloropropene | (3) | 9.991 | 75 | 72644 | 1.029 |
| 88) Ethyl Methacrylate | (3) | 10.058 | 69 | 64501 | 1.021 |

M = Compound was manually integrated.
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$ = Compound is a surrogate standard.



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Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 21:28 mec29284

Sample Name: VSTD001 Lab Sample ID: VSTD001

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 90) 1,1,2-Trichloroethane | (3) | 10.199 | 97 | 38803 | 1.040 |
| 91) Tetrachloroethene | (3) | 10.278 | 166 | 58553 | 1.044 |
| 92) 1,3-Dichloropropane | (3) | 10.363 | 76 | 67060 | 1.017 |
| 93) 2-Hexanone | (3) | 10.424 | 43 | 292825 | 10.298 |
| 95) Dibromochloromethane | (3) | 10.577 | 129 | 45590 | 1.009 |
| 97) 1,2-Dibromoethane | (3) | 10.686 | 107 | 37750 | 1.044 |
| 99)*Chlorobenzene-d5 | (3) | 11.125 | 117 | 1370851 | 10.000 |
| 98) 1-Chlorohexane | (3) | 11.138 | 91 | 77718 | 0.779 |
| 100) Chlorobenzene | (3) | 11.156 | 112 | 152516 | 1.038 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | 11.235 | 131 | 52880 | 1.045 |
| 102) Ethylbenzene | (3) | 11.241 | 91 | 259784 | 1.031 |
| 103) m+p-Xylene | (3) | 11.357 | 106 | 205979 | 2.085 |
| 106) o-Xylene | (3) | 11.692 | 106 | 101268 | 1.032 |
| 108) Styrene | (3) | 11.704 | 104 | 170824 | 1.030 |
| 107) Xylene (Total) | (3) | | 106 | 307247 | 3.116 |
| 109) Bromoform | (3) | 11.863 | 173 | 27935 | 1.004 |
| 110) Isopropylbenzene | (3) | 11.991 | 105 | 260429 | 1.029 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 692452 | 10.088 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 174 | 580957 | 10.087 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | 12.241 | 83 | 51410 | 1.029 |
| 116) Bromobenzene | (4) | 12.253 | 156 | 65167 | 1.027 |
| 117) trans-1,4-Dichloro-2-butene | (1) | 12.271 | 53 | 138969 | 10.152 |
| 118) 1,2,3-Trichloropropane | (4) | 12.290 | 110 | 13852 | 1.044 |
| 119) n-Propylbenzene | (4) | 12.326 | 91 | 307992 | 1.027 |
| 121) 2-Chlorotoluene | (4) | 12.399 | 126 | 64748 | 1.035 |
| 123) 1,3,5-Trimethylbenzene | (4) | 12.460 | 105 | 224544 | 1.015 |
| 124) 4-Chlorotoluene | (4) | 12.491 | 126 | 67917 | 1.041 |
| 127) tert-Butylbenzene | (4) | 12.704 | 134 | 47894M | 0.994 |
| 128) Pentachloroethane | (4) | 12.735 | 167 | 39538 | 0.973 |
| 129) 1,2,4-Trimethylbenzene | (4) | 12.747 | 105 | 237041 | 1.016 |
| 130) sec-Butylbenzene | (4) | 12.869 | 105 | 294240 | 1.036 |
| 133) 1,3-Dichlorobenzene | (4) | 12.966 | 146 | 129406 | 1.029 |
| 134) p-Isopropyltoluene | (4) | 12.979 | 119 | 255380 | 1.028 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.027 | 152 | 762163 | 10.000 |
| 136) 1,4-Dichlorobenzene | (4) | 13.040 | 146 | 132419 | 1.026 |
| 137) 1,2,3-Trimethylbenzene | (4) | 13.052 | 120 | 101797 | 0.974 |
| 138) Benzyl Chloride | (4) | 13.125 | 126 | 21838 | 1.008 |
| 140) n-Butylbenzene | (4) | 13.271 | 92 | 128874 | 1.033 |

M = Compound was manually integrated.
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Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 21:28 mec29284

Sample Name: VSTD001 Lab Sample ID: VSTD001

| | Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|---|
| 141) | 1,2-Dichlorobenzene | (4) | 13.302 | 146 | 120927 | 1.024 |
| 145) | 1,2-Dibromo-3-chloropropane | (1) | 13.850 | 155 | 7426 | 0.986 |
| 146) | 1,3,5-Trichlorobenzene | (4) | 13.978 | 180 | 105630 | 1.013 |
| 147) | 1,2,4-Trichlorobenzene | (4) | 14.405 | 180 | 97118 | 1.030 |
| 148) | Hexachlorobutadiene | (4) | 14.484 | 225 | 47098 | 1.040 |
| 149) | Naphthalene | (4) | 14.588 | 128 | 177501 | 1.018 |
| 150) | 1,2,3-Trichlorobenzene | (4) | 14.728 | 180 | 85733 | 1.037 |



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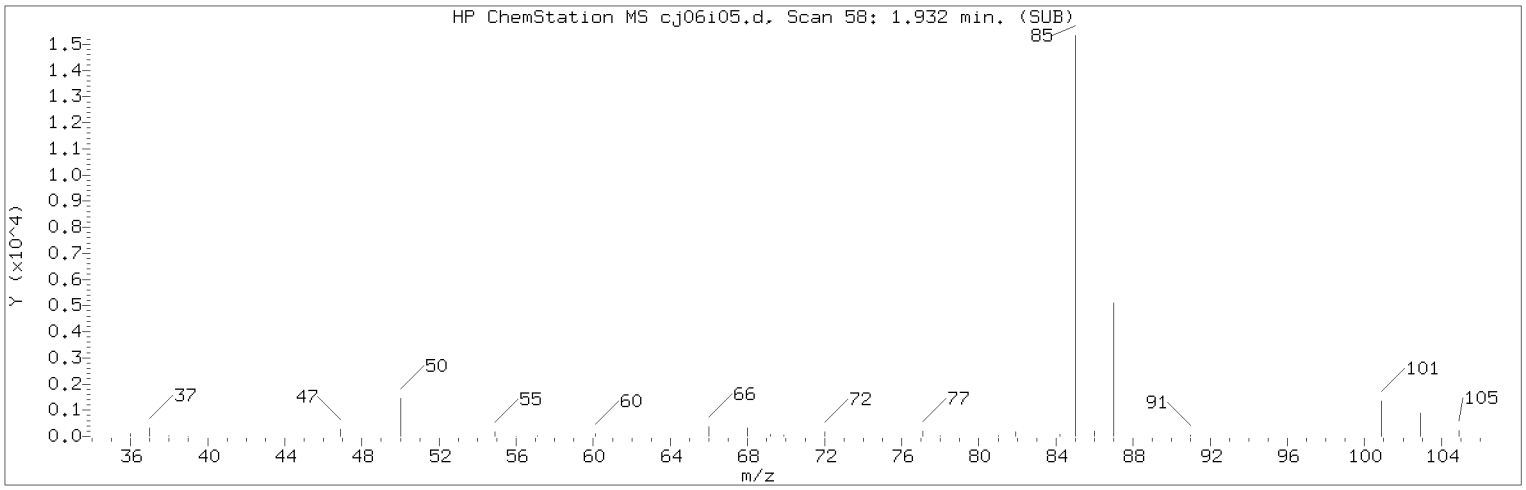
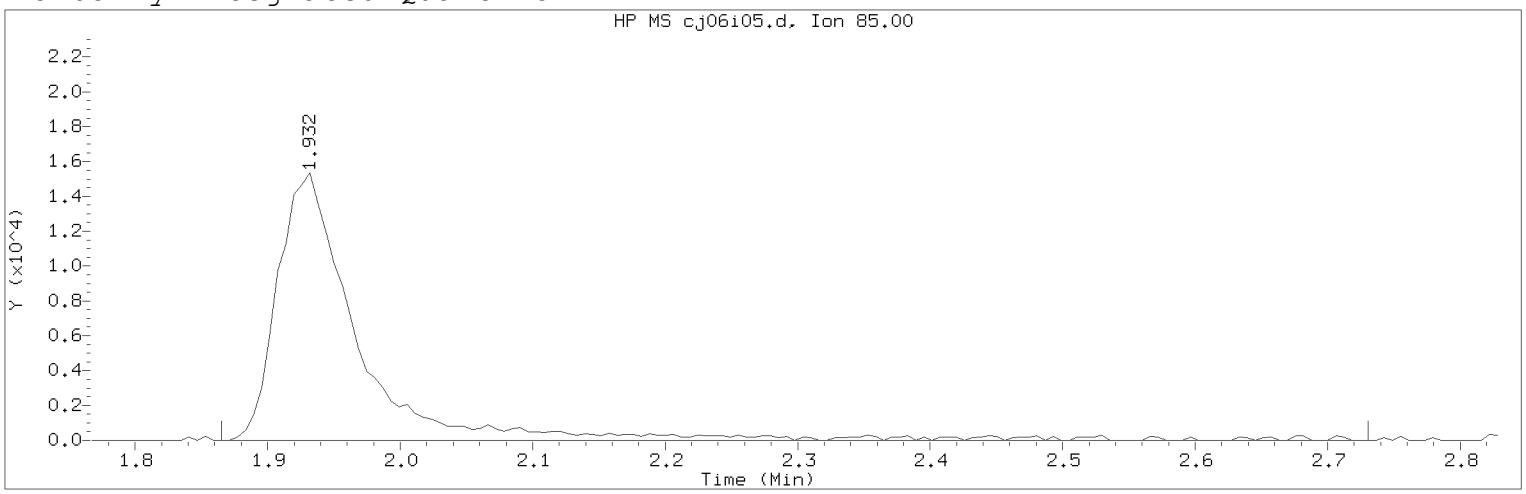
Target 3.5 esignature user ID: mec29284

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 21:28 mec29284

Sample Name: VSTD001 Lab Sample ID: VSTD001

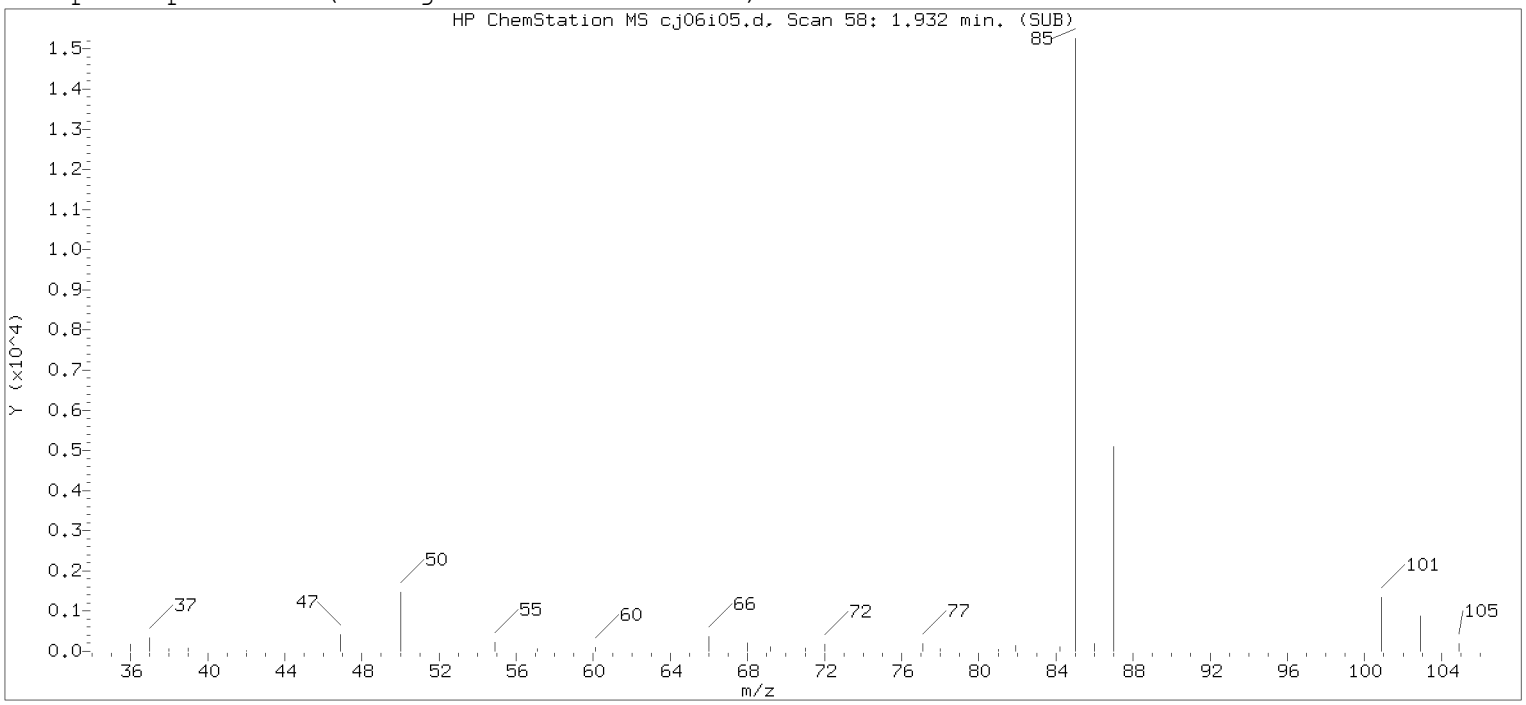
Compound Number : 1
Compound Name : Dichlorodifluoromethane
Scan Number : 58
Retention Time (minutes): 1.932
Quant Ion : 85.00
Area (flag) : 65919M
On-Column Amount (ng) : 1.0443
Integration start scan : 46 Integration stop scan: 188
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

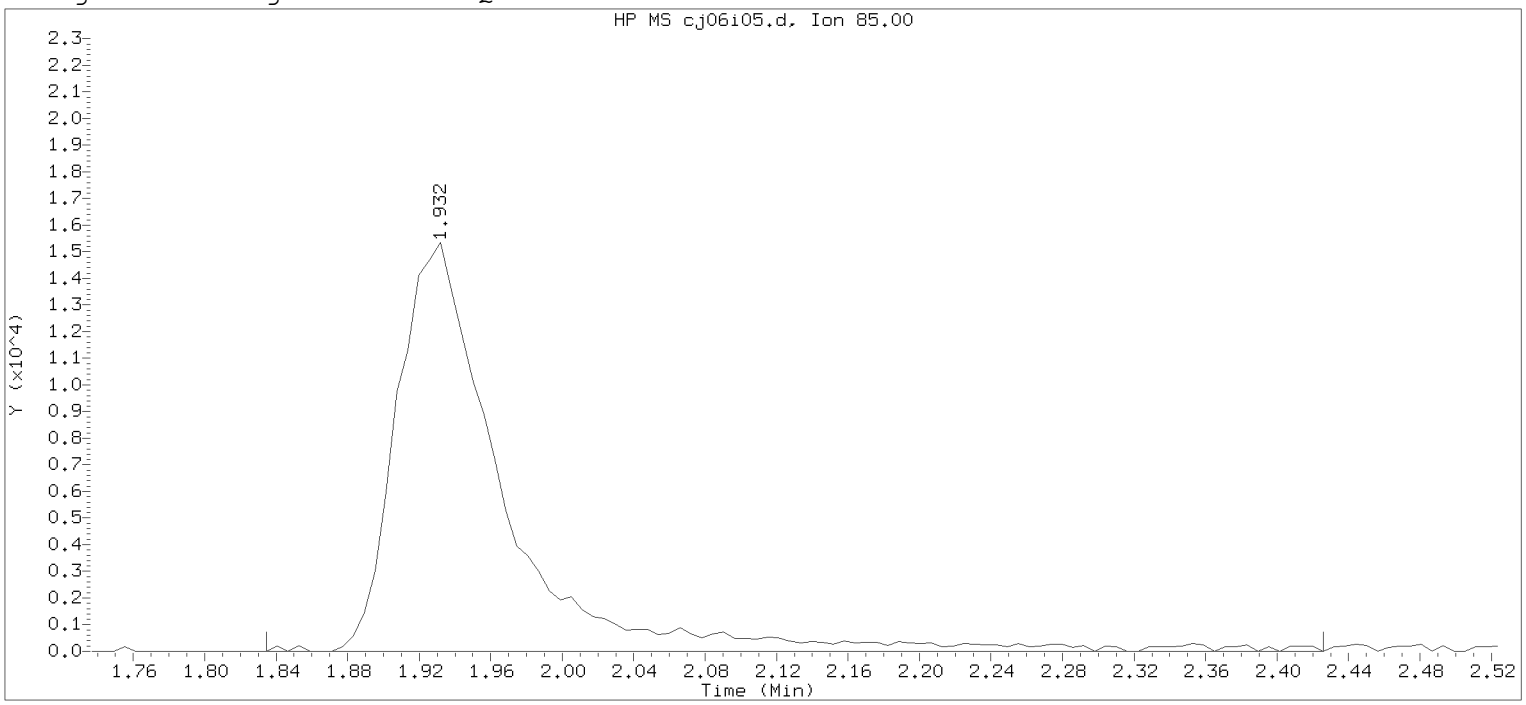
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08  Analyst ID: JKH09052

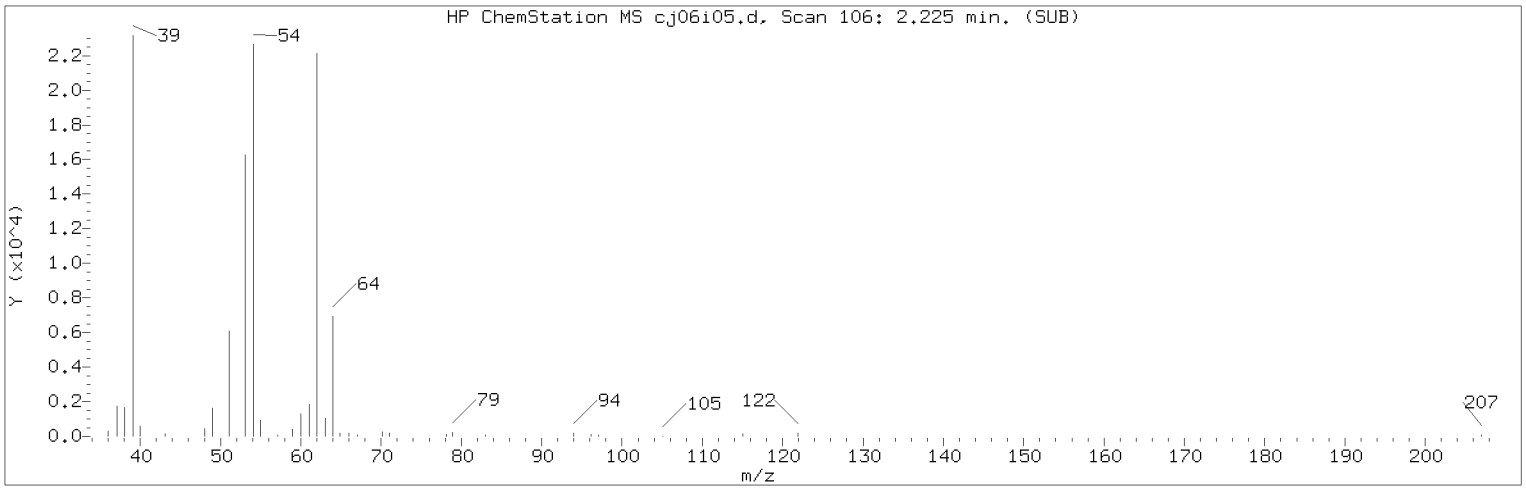
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 20:25 Automation

Sample Name: VSTD001  Lab Sample ID: VSTD001

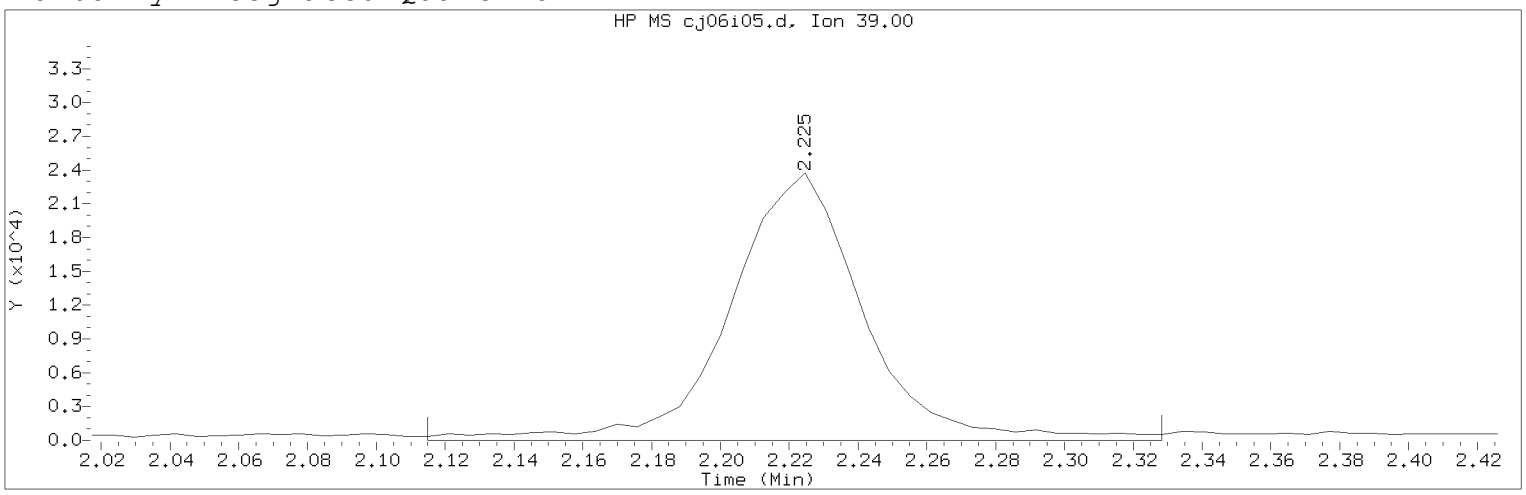
Compound Number : 1
Compound Name : Dichlorodifluoromethane
Scan Number : 58
Retention Time (minutes): 1.932
Quant Ion : 85.00
Area : 64290
On-column Amount (ng) : 1.0024
Integration start scan : 41  Integration stop scan: 138
Y at integration start : 0  Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec2984

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 21:28 mec29284

Sample Name: VSTD001 Lab Sample ID: VSTD001

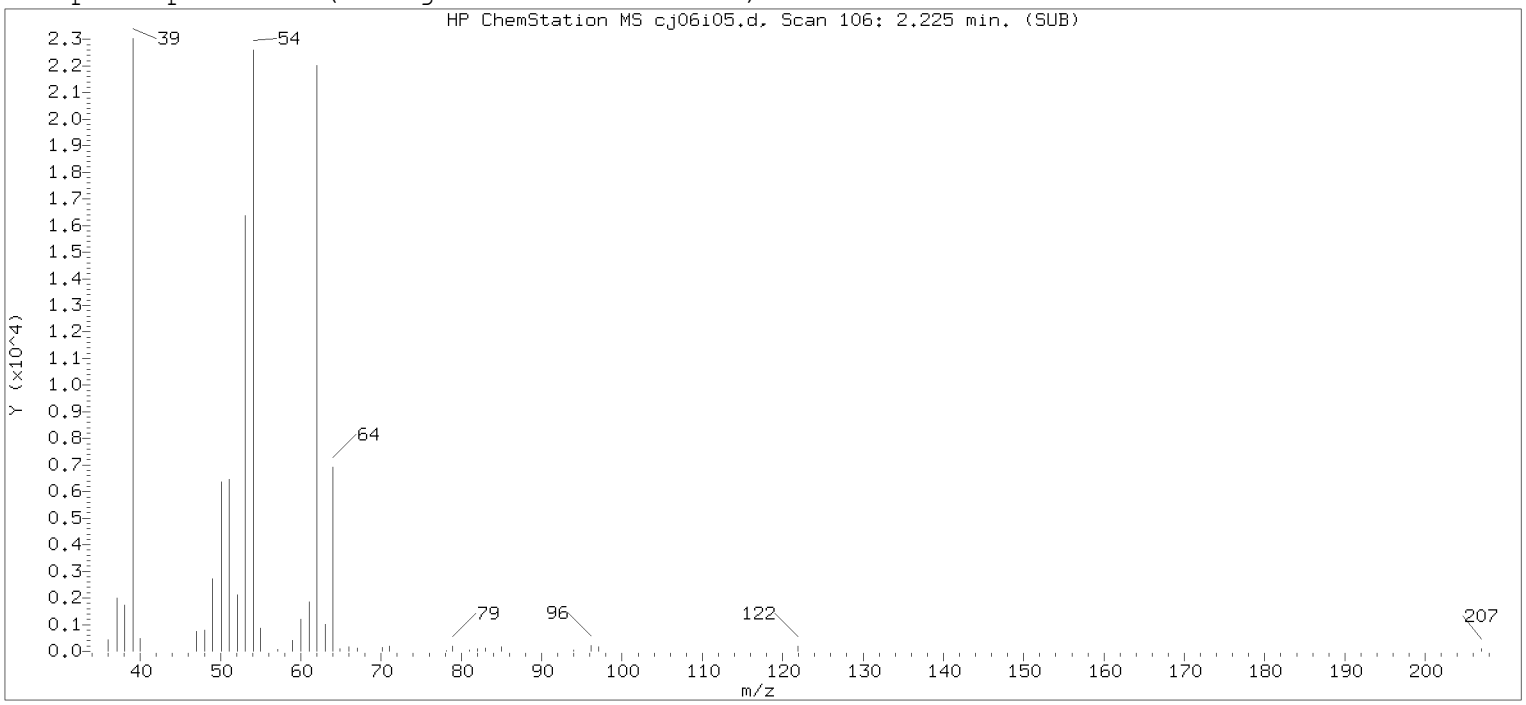
Compound Number : 6
Compound Name : 1,3-Butadiene
Scan Number : 106
Retention Time (minutes): 2.225
Quant Ion : 39.00
Area (flag) : 64421M
On-Column Amount (ng) : 1.1486
Integration start scan : 87 Integration stop scan: 122
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

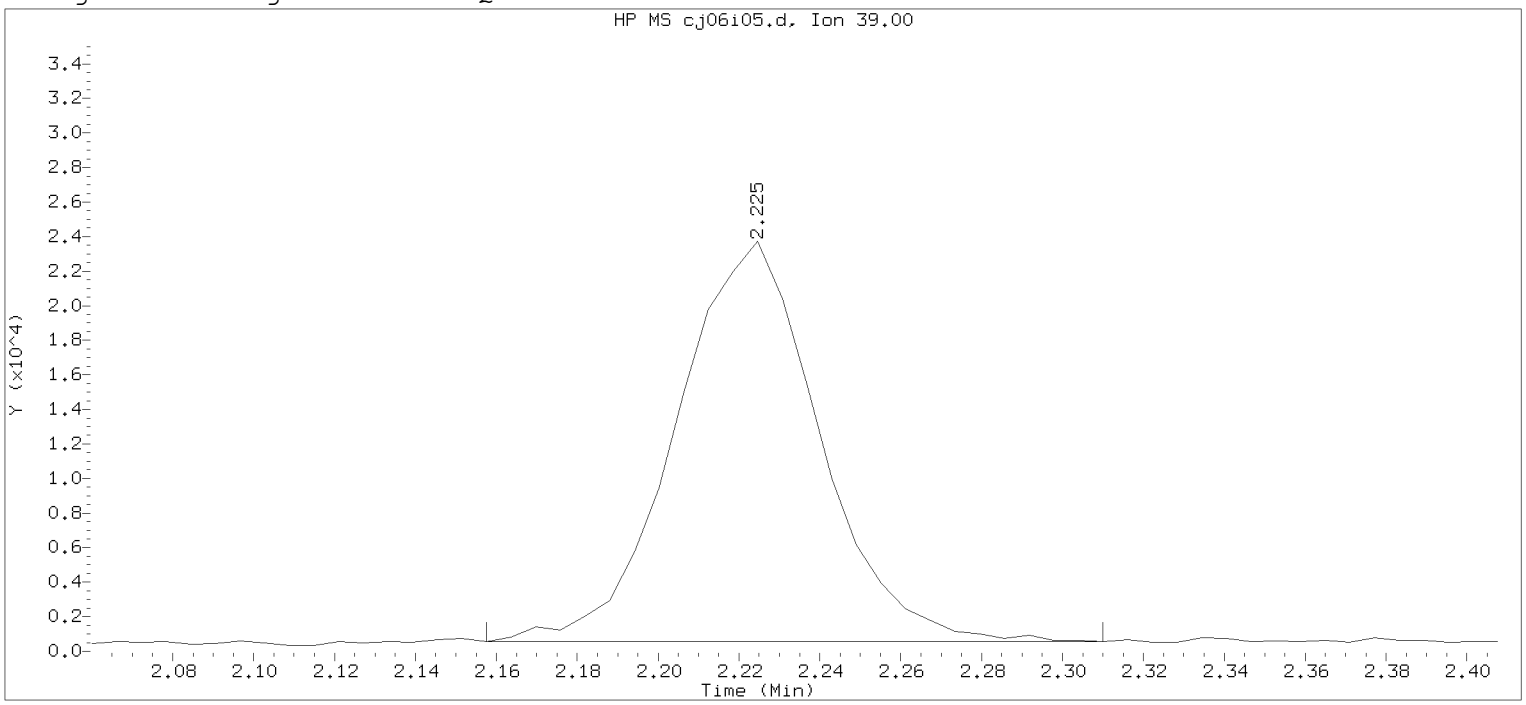
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08  Analyst ID: JKH09052

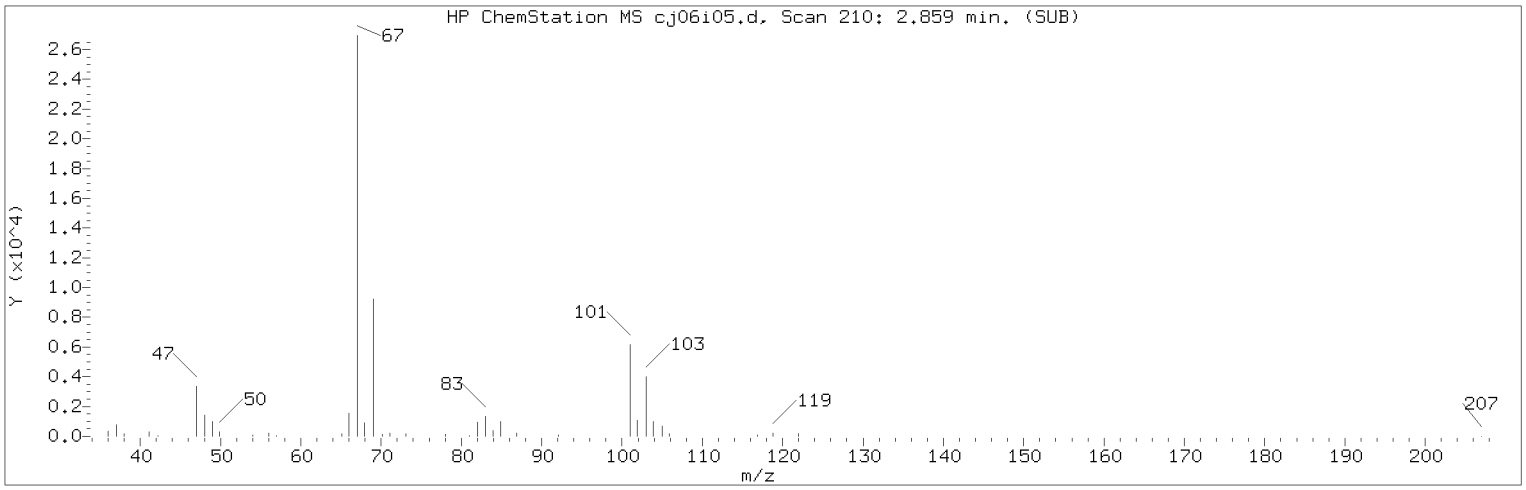
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 20:25 Automation

Sample Name: VSTD001  Lab Sample ID: VSTD001

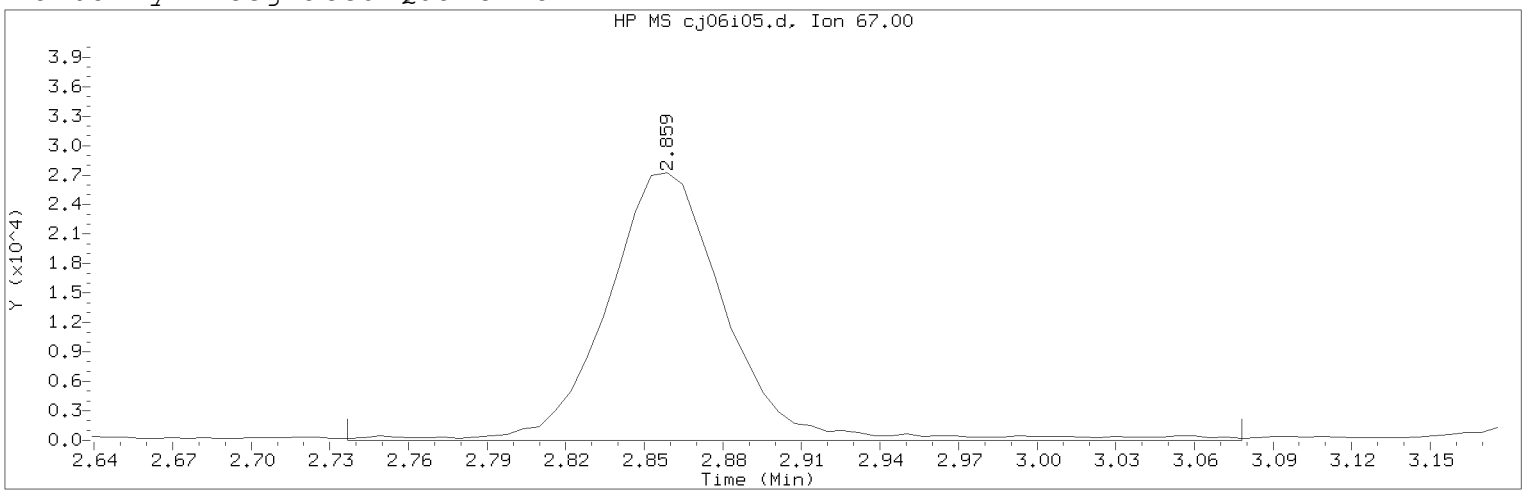
Compound Number : 6
Compound Name : 1,3-Butadiene
Scan Number : 106
Retention Time (minutes): 2.225
Quant Ion : 39.00
Area : 56963
On-column Amount (ng) : 1.0202
Integration start scan : 94  Integration stop scan: 119
Y at integration start : 571  Y at integration end: 571

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 21:28 mec29284

Sample Name: VSTD001 Lab Sample ID: VSTD001

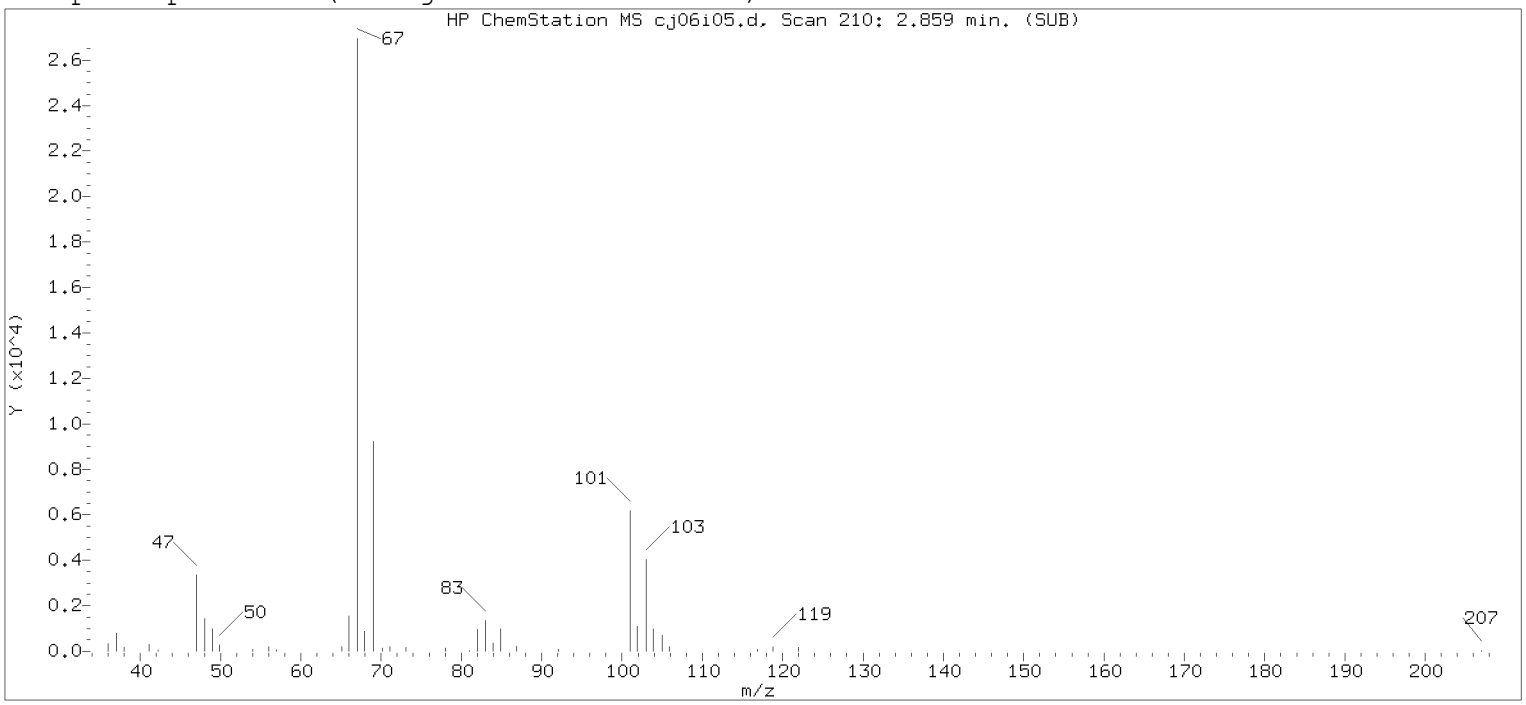
Compound Number : 9
Compound Name : Dichlorofluoromethane
Scan Number : 210
Retention Time (minutes): 2.859
Quant Ion : 67.00
Area (flag) : 86733M
On-Column Amount (ng) : 1.0126
Integration start scan : 189 Integration stop scan: 245
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

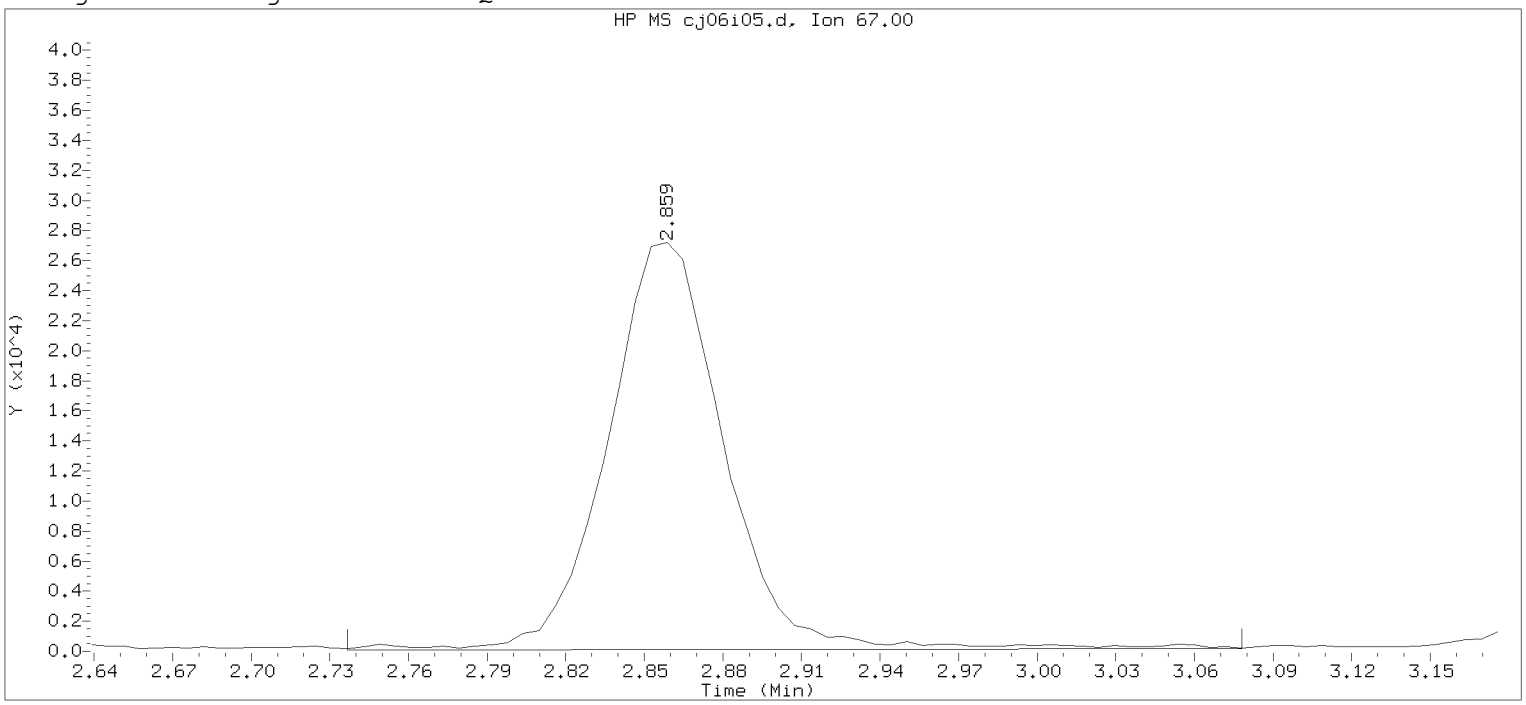
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08  Analyst ID: JKH09052

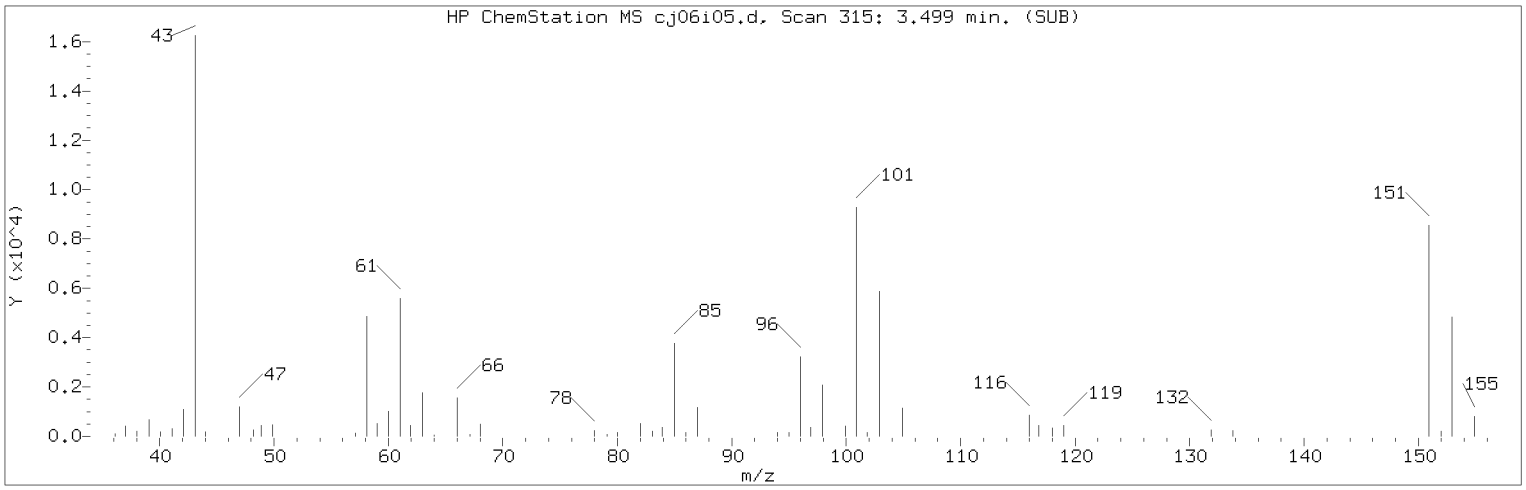
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 20:25 Automation

Sample Name: VSTD001  Lab Sample ID: VSTD001

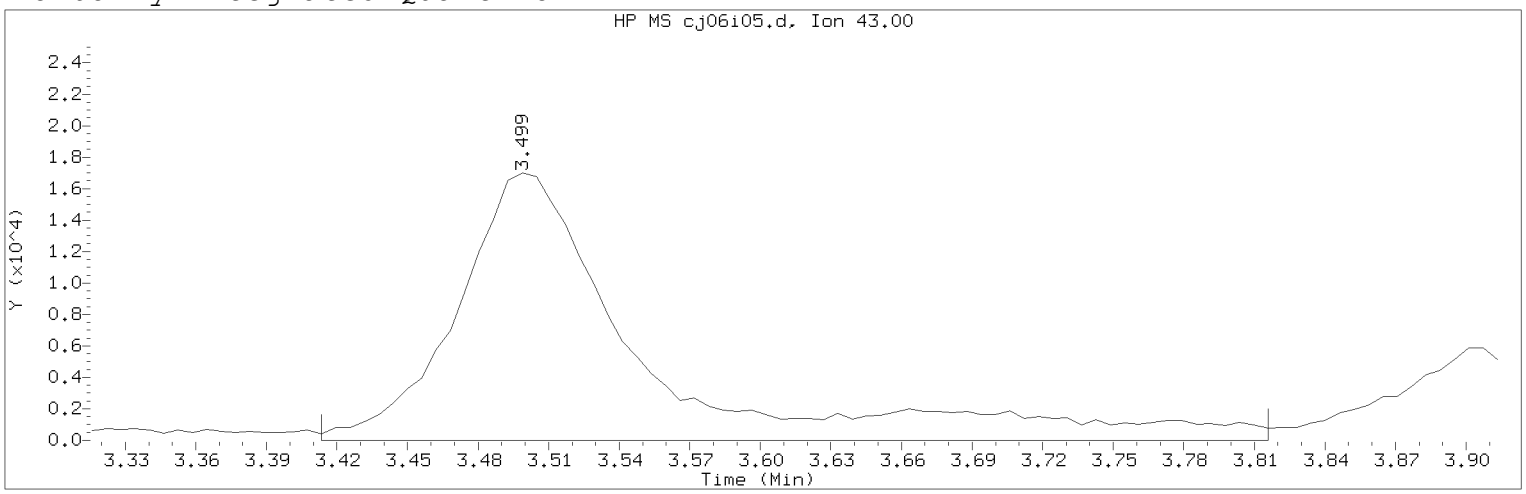
Compound Number : 9
Compound Name : Dichlorofluoromethane
Scan Number : 210
Retention Time (minutes): 2.859
Quant Ion : 67.00
Area : 83915
On-column Amount (ng) : 1.0251
Integration start scan : 189  Integration stop scan: 245
Y at integration start : 102  Y at integration end: 166

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec2931

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 21:28 mec29284

Sample Name: VSTD001 Lab Sample ID: VSTD001

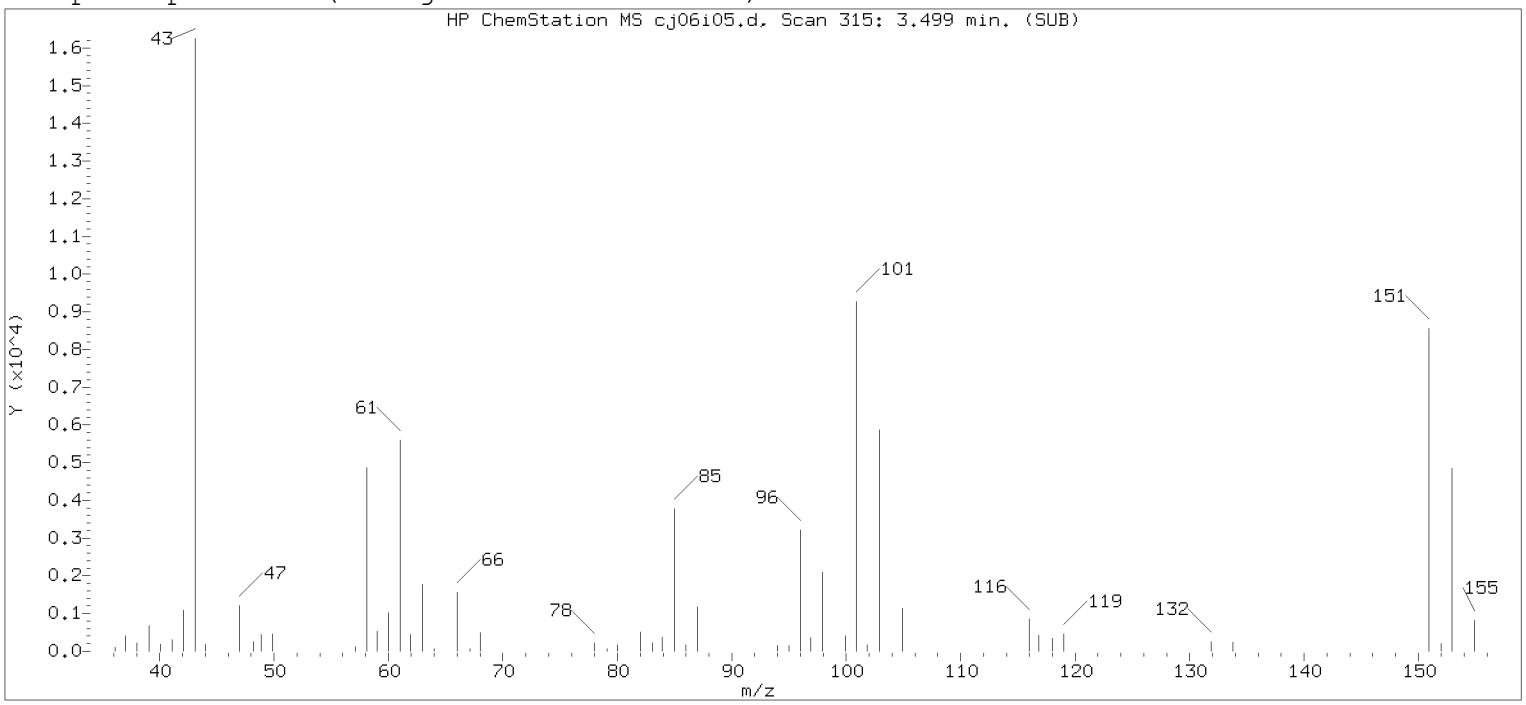
Compound Number : 15
Compound Name : Acetone
Scan Number : 315
Retention Time (minutes): 3.499
Quant Ion : 43.00
Area (flag) : 92868M
On-Column Amount (ng) : 10.8419
Integration start scan : 300 Integration stop scan: 366
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

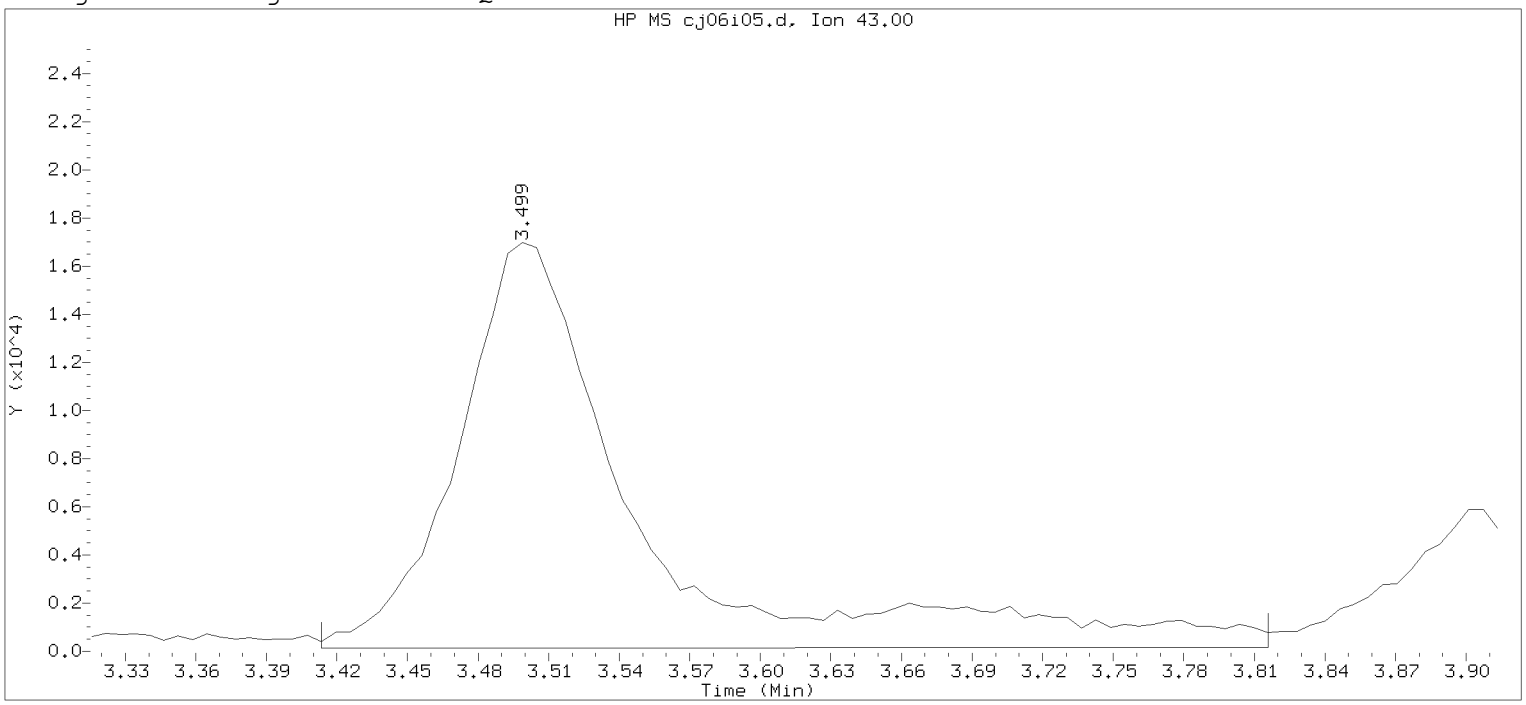
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

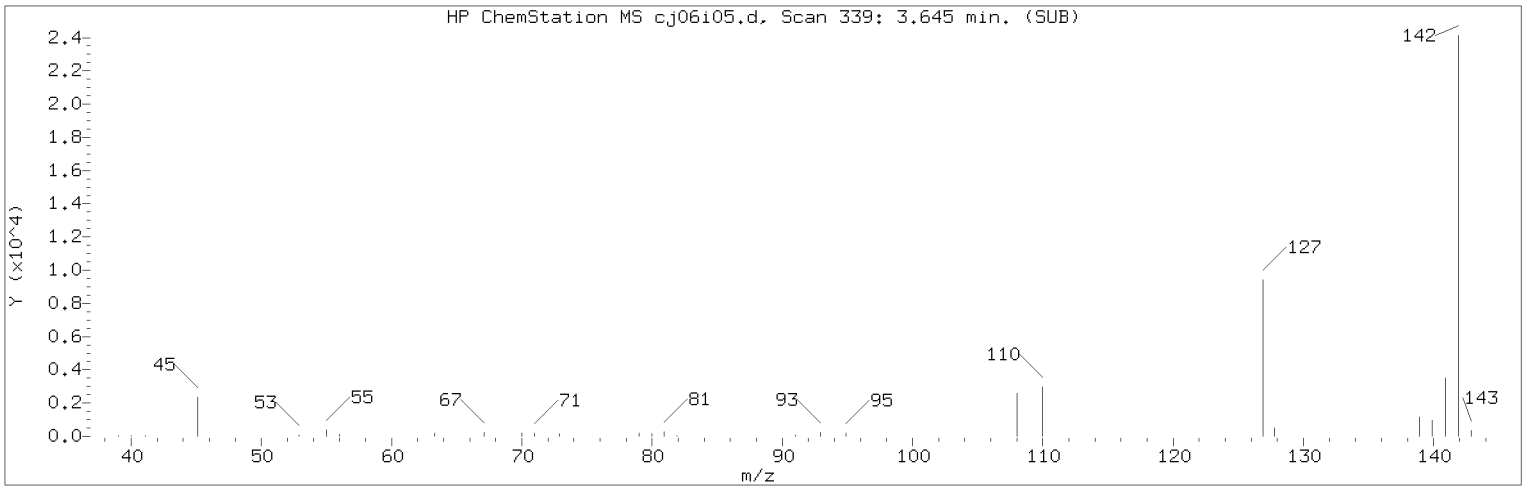
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 20:25 Automation

Sample Name: VSTD001 Lab Sample ID: VSTD001

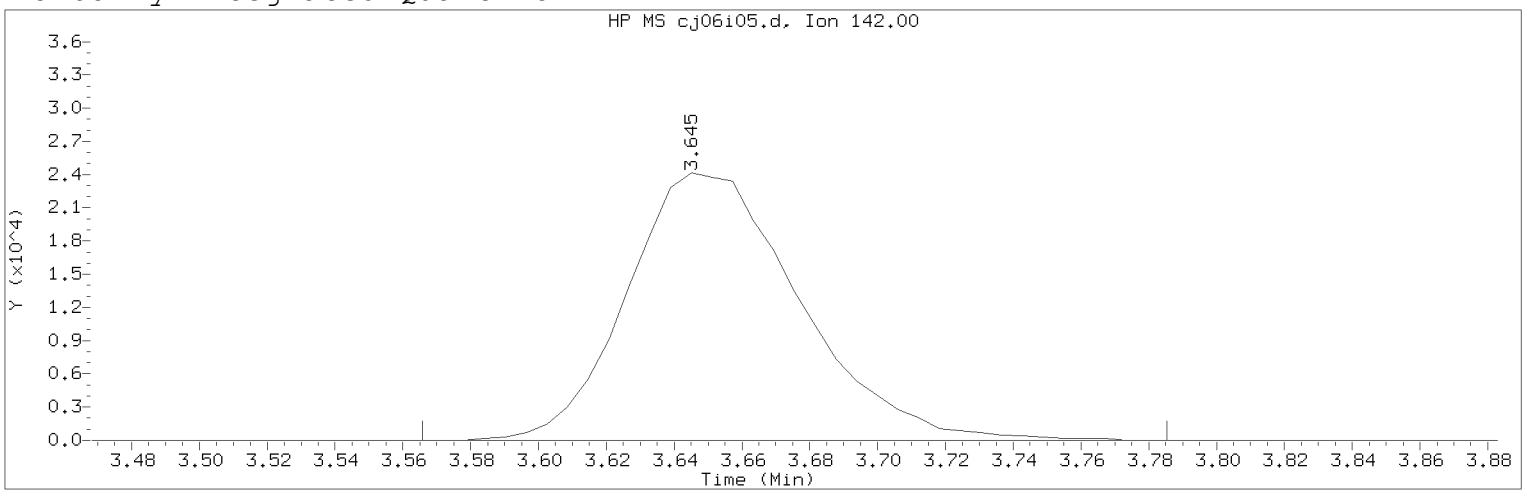
Compound Number : 15
Compound Name : Acetone
Scan Number : 315
Retention Time (minutes): 3.499
Quant Ion : 43.00
Area : 89277
On-column Amount (ng) : 10.9239
Integration start scan : 300 Integration stop scan: 366
Y at integration start : 122 Y at integration end: 158

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 21:28 mec29284

Sample Name: VSTD001 Lab Sample ID: VSTD001

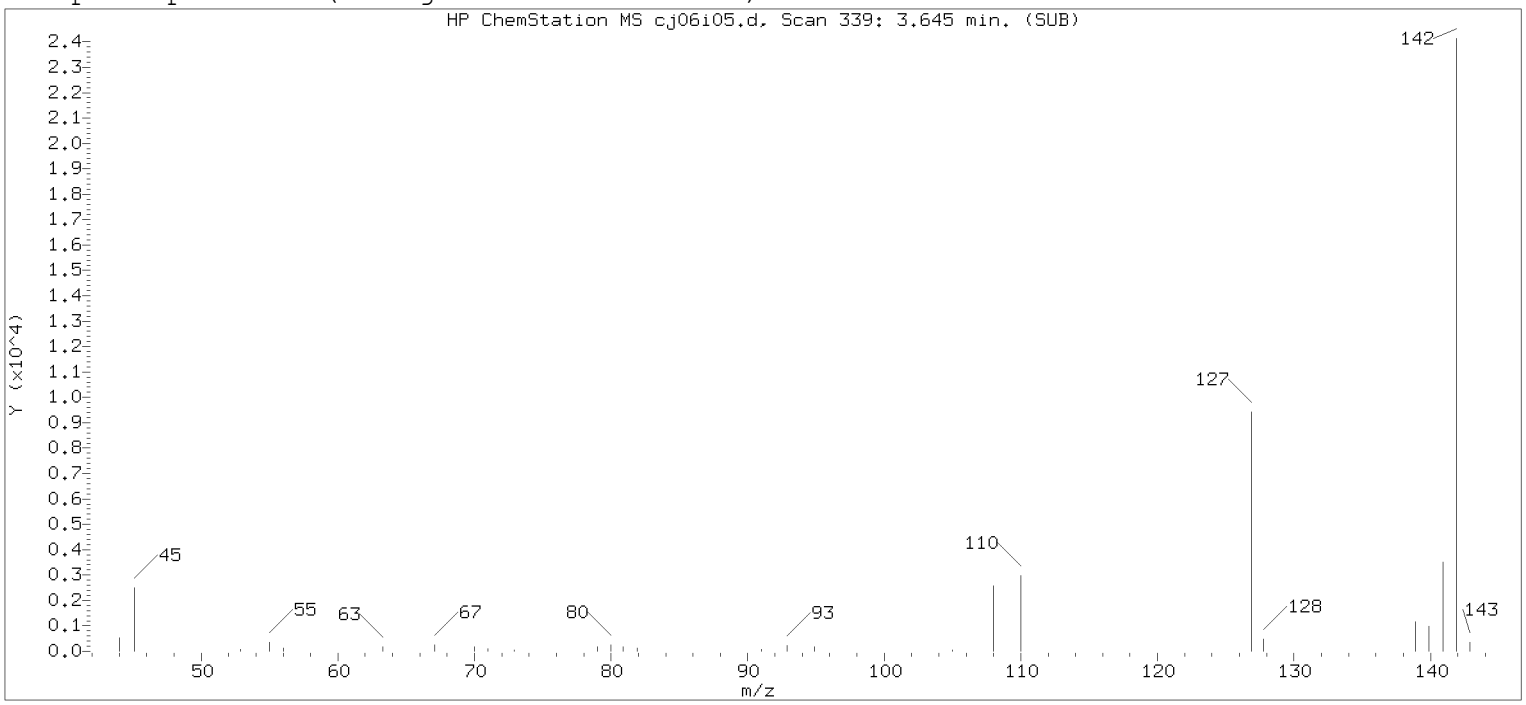
Compound Number : 18
Compound Name : Methyl Iodide
Scan Number : 339
Retention Time (minutes): 3.645
Quant Ion : 142.00
Area (flag) : 85320M
On-Column Amount (ng) : 1.0417
Integration start scan : 325 Integration stop scan: 361
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

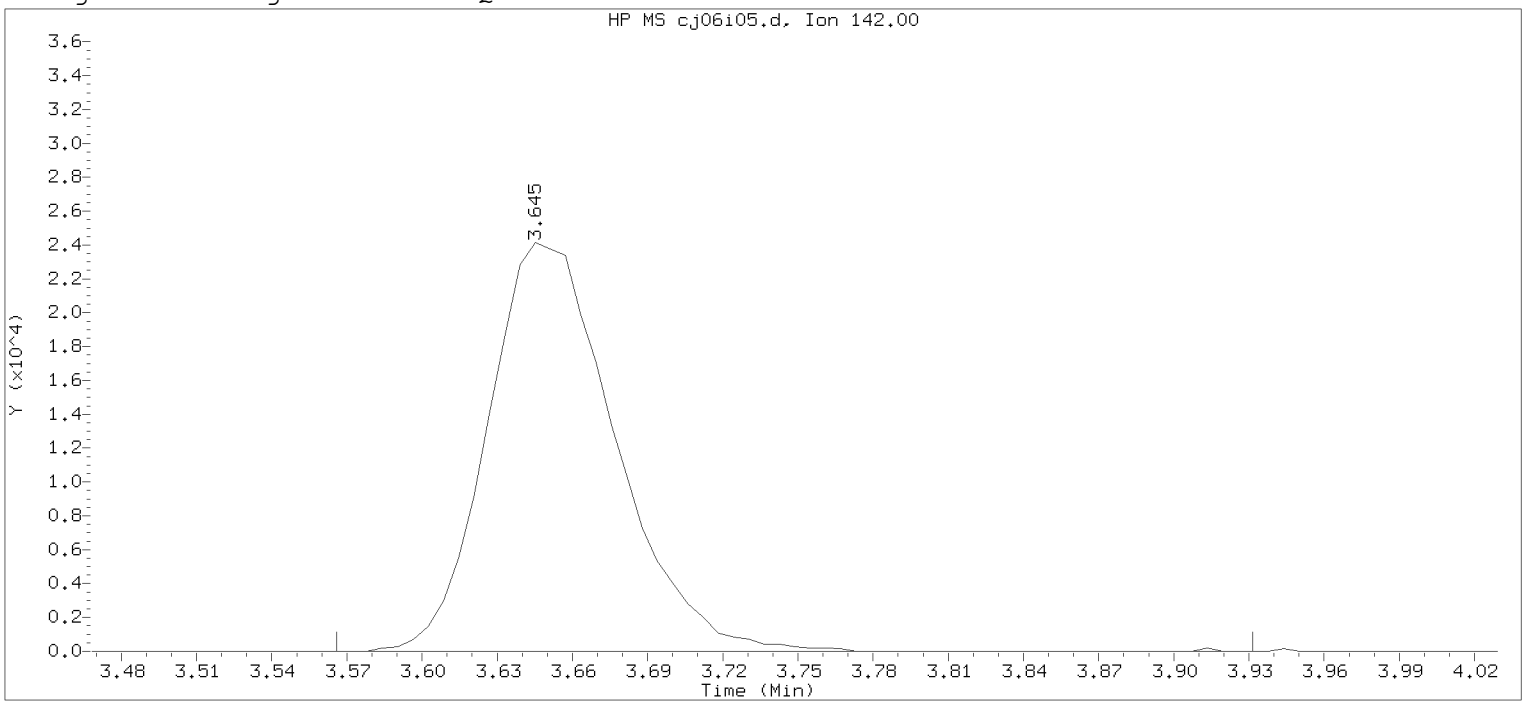
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

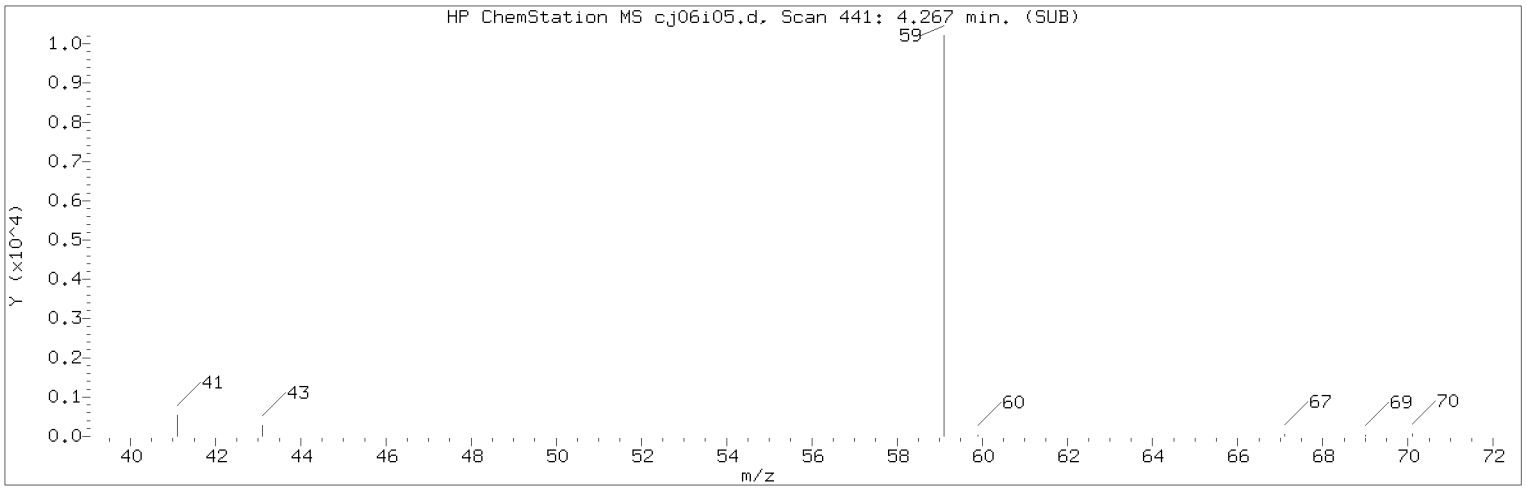
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 20:25 Automation

Sample Name: VSTD001 Lab Sample ID: VSTD001

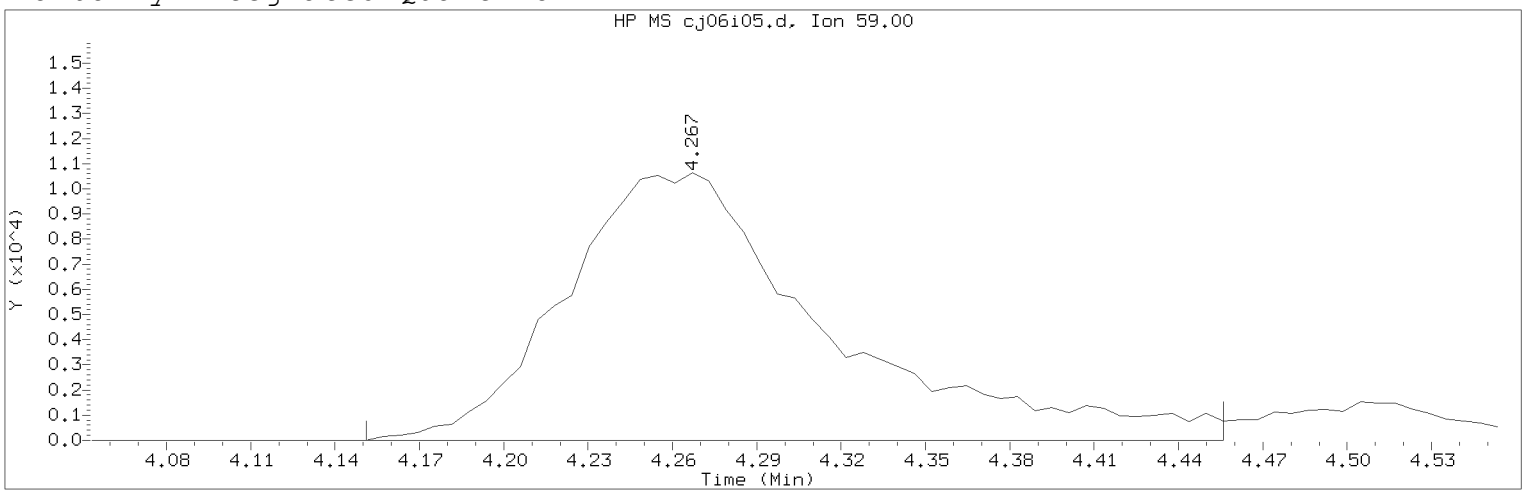
Compound Number : 18
Compound Name : Methyl Iodide
Scan Number : 339
Retention Time (minutes): 3.645
Quant Ion : 142.00
Area : 85383
On-column Amount (ng) : 1.0280
Integration start scan : 325 Integration stop scan: 385
Y at integration start : 0 Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 21:28 mec29284

Sample Name: VSTD001 Lab Sample ID: VSTD001

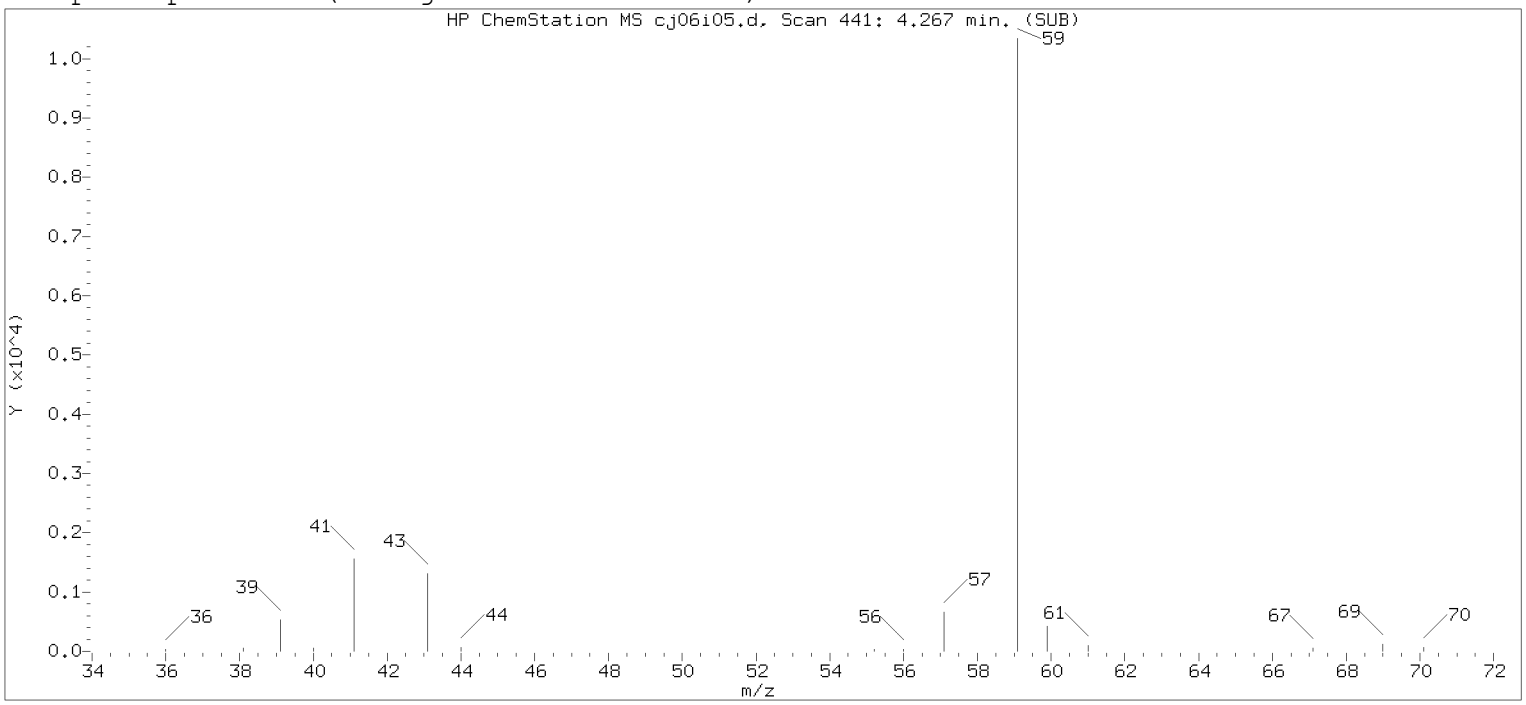
Compound Number : 30
Compound Name : t-Butyl Alcohol
Scan Number : 441
Retention Time (minutes): 4.267
Quant Ion : 59.00
Area (flag) : 68871M
On-Column Amount (ng) : 19.7492
Integration start scan : 421 Integration stop scan: 471
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

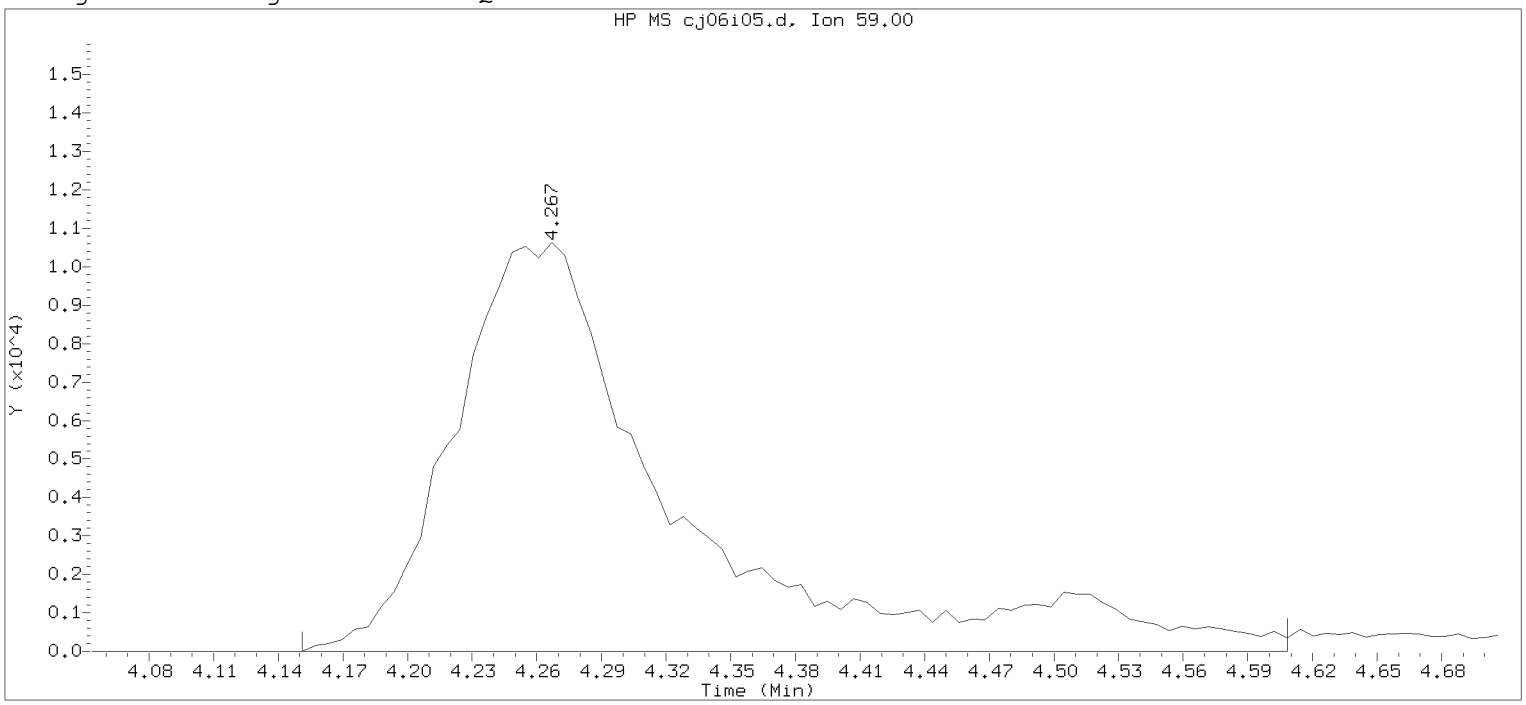
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08  Analyst ID: JKH09052

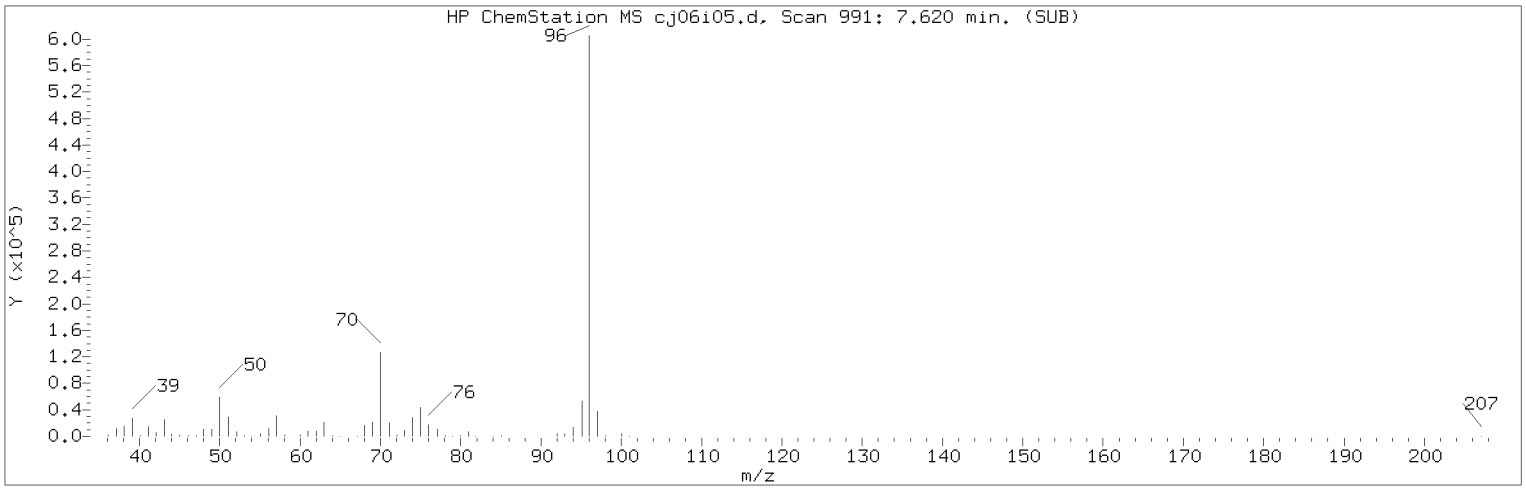
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 20:25 Automation

Sample Name: VSTD001  Lab Sample ID: VSTD001

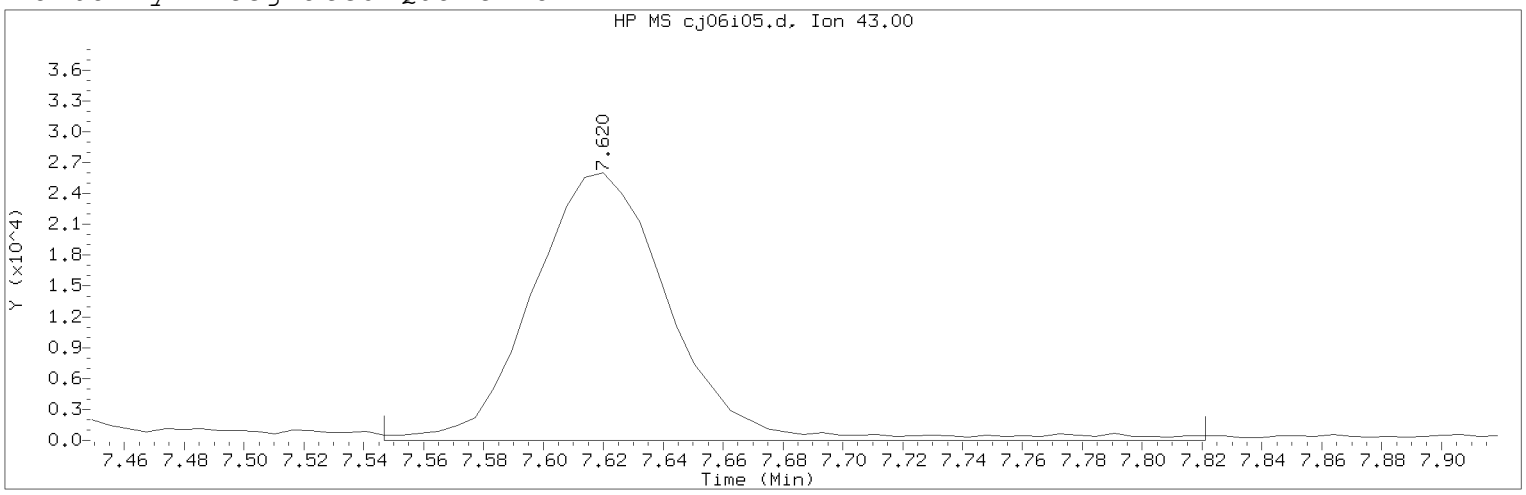
Compound Number : 30
Compound Name : t-Butyl Alcohol
Scan Number : 441
Retention Time (minutes): 4.267
Quant Ion : 59.00
Area : 76757
On-column Amount (ng) : 22.2067
Integration start scan : 421  Integration stop scan: 496
Y at integration start : 0  Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec2934

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 21:28 mec29284

Sample Name: VSTD001 Lab Sample ID: VSTD001

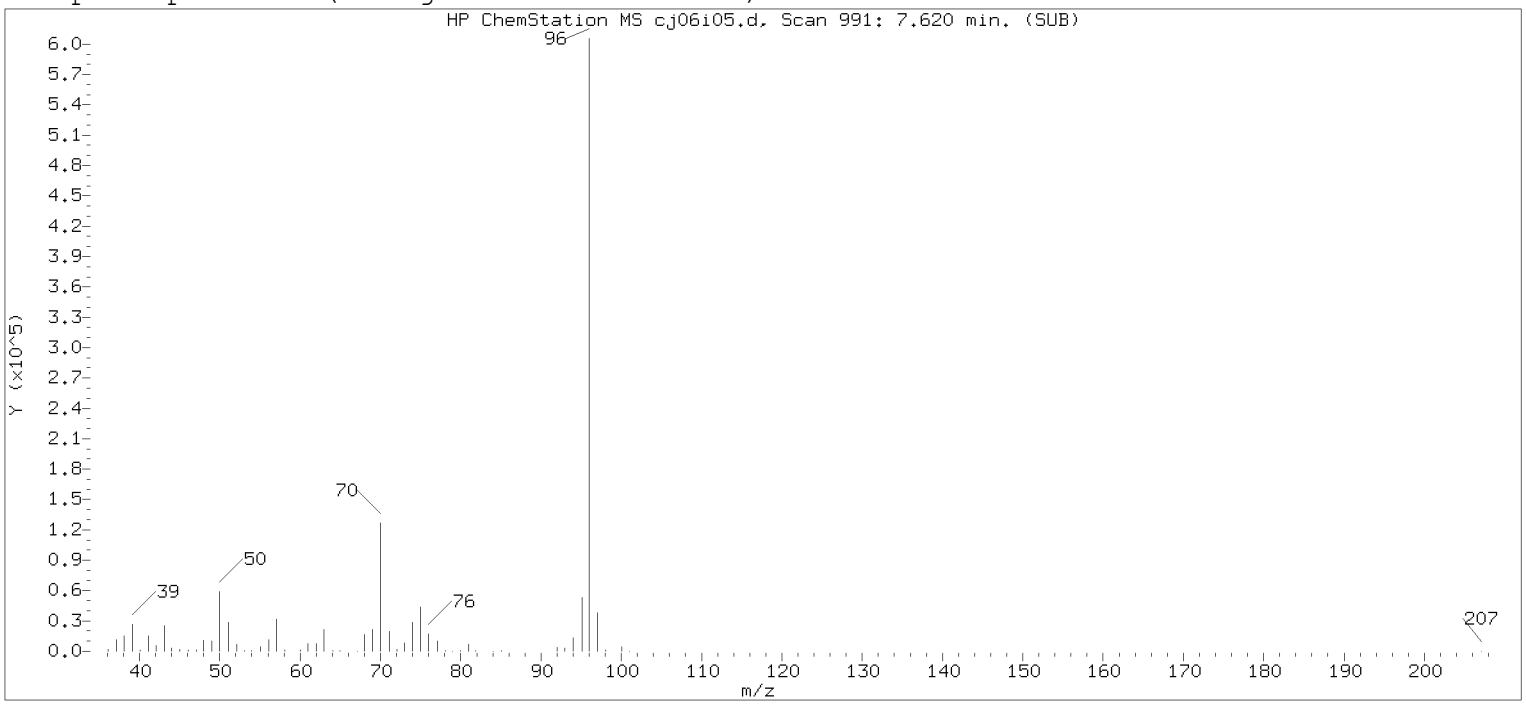
Compound Number : 64
Compound Name : n-Heptane
Scan Number : 991
Retention Time (minutes): 7.620
Quant Ion : 43.00
Area (flag) : 83933M
On-Column Amount (ng) : 1.1111
Integration start scan : 978 Integration stop scan: 1023
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

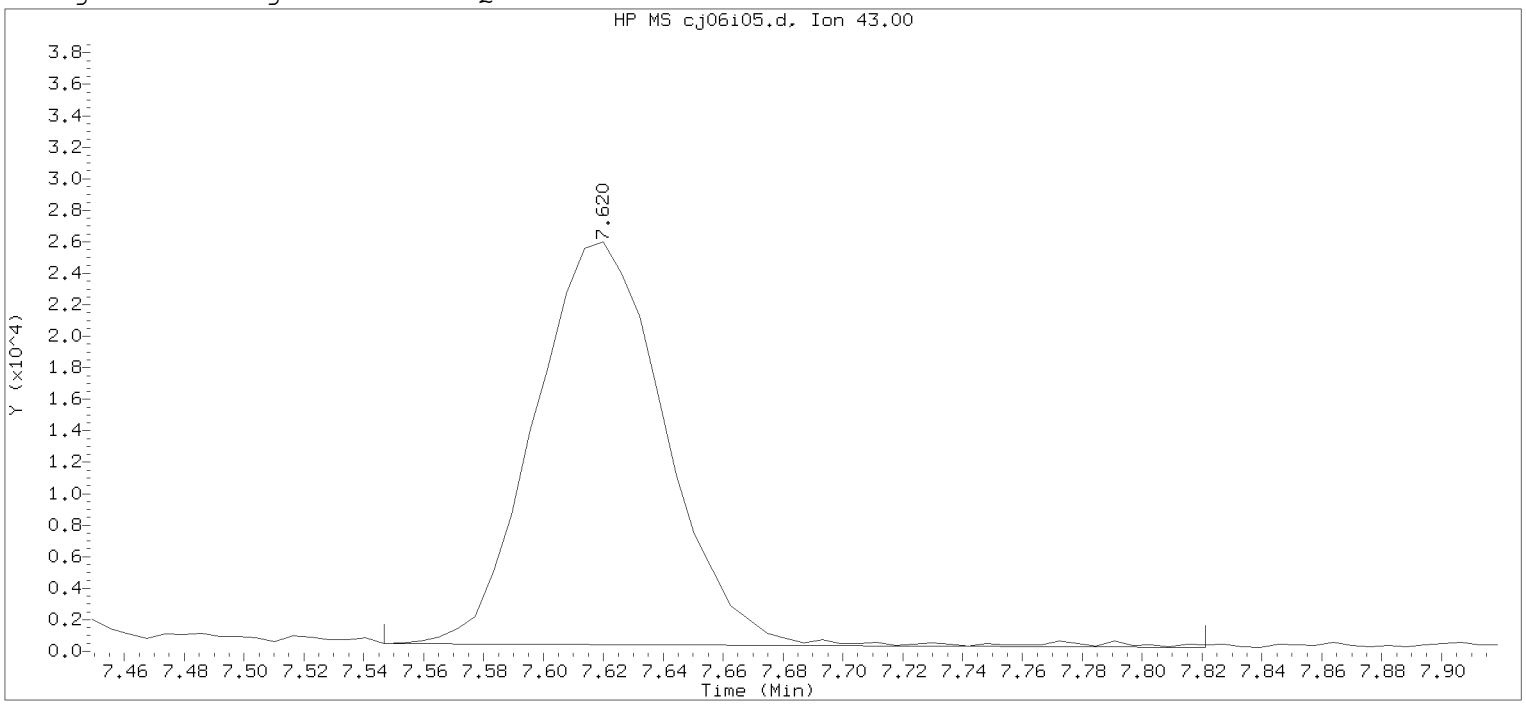
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08  Analyst ID: JKH09052

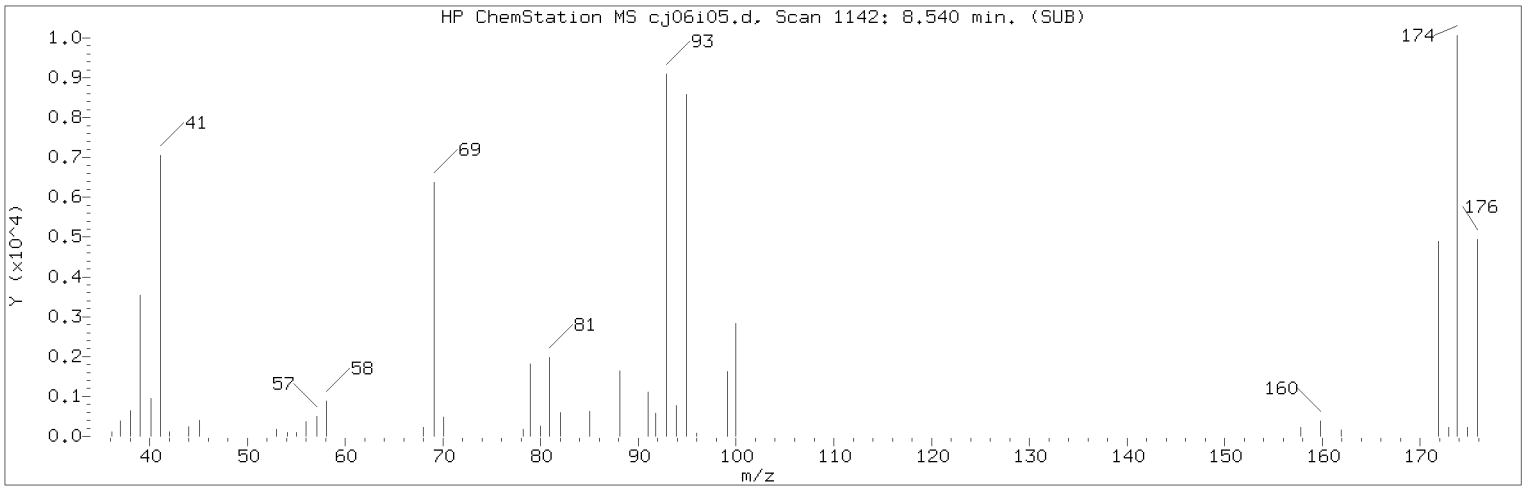
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 20:25 Automation

Sample Name: VSTD001  Lab Sample ID: VSTD001

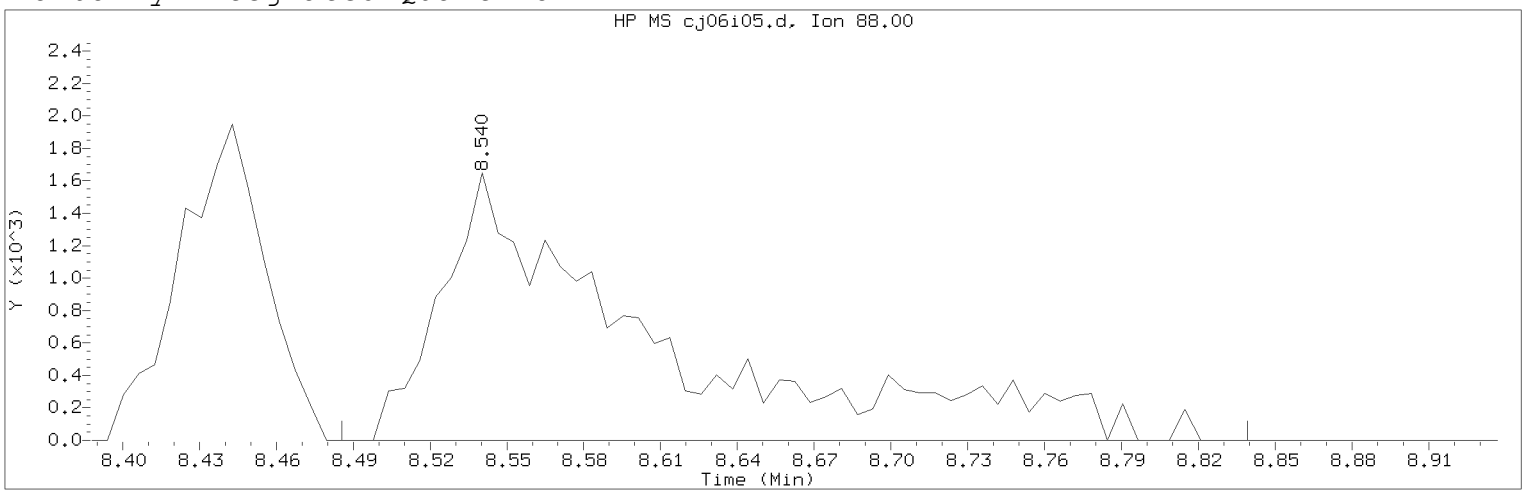
Compound Number : 64
Compound Name : n-Heptane
Scan Number : 991
Retention Time (minutes): 7.620
Quant Ion : 43.00
Area : 77585
On-column Amount (ng) : 1.0113
Integration start scan : 978  Integration stop scan: 1023
Y at integration start : 494  Y at integration end: 257

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29294

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 21:28 mec29284

Sample Name: VSTD001 Lab Sample ID: VSTD001

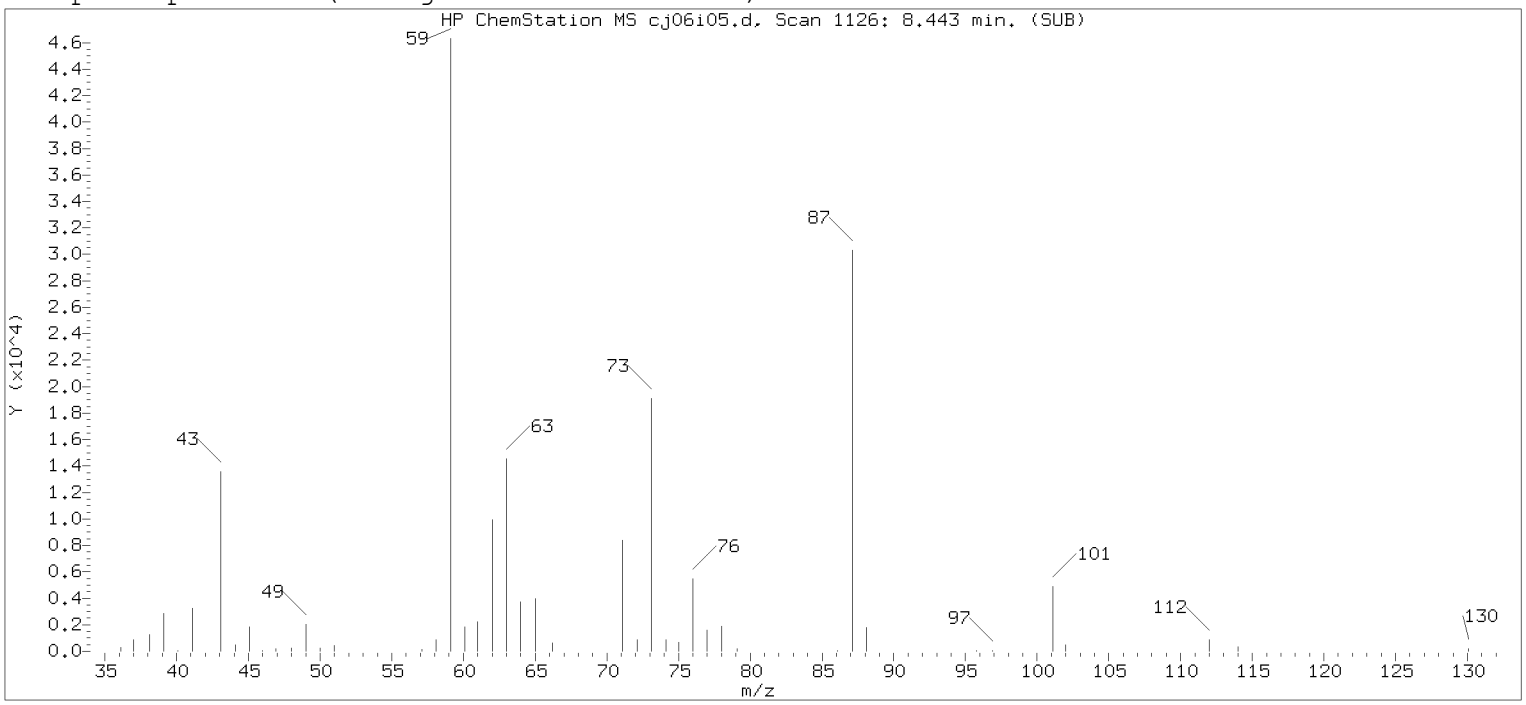
Compound Number : 74
Compound Name : 1,4-Dioxane
Scan Number : 1142
Retention Time (minutes): 8.540
Quant Ion : 88.00
Area (flag) : 9327M
On-Column Amount (ng) : 54.7002
Integration start scan : 1132 Integration stop scan: 1190
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

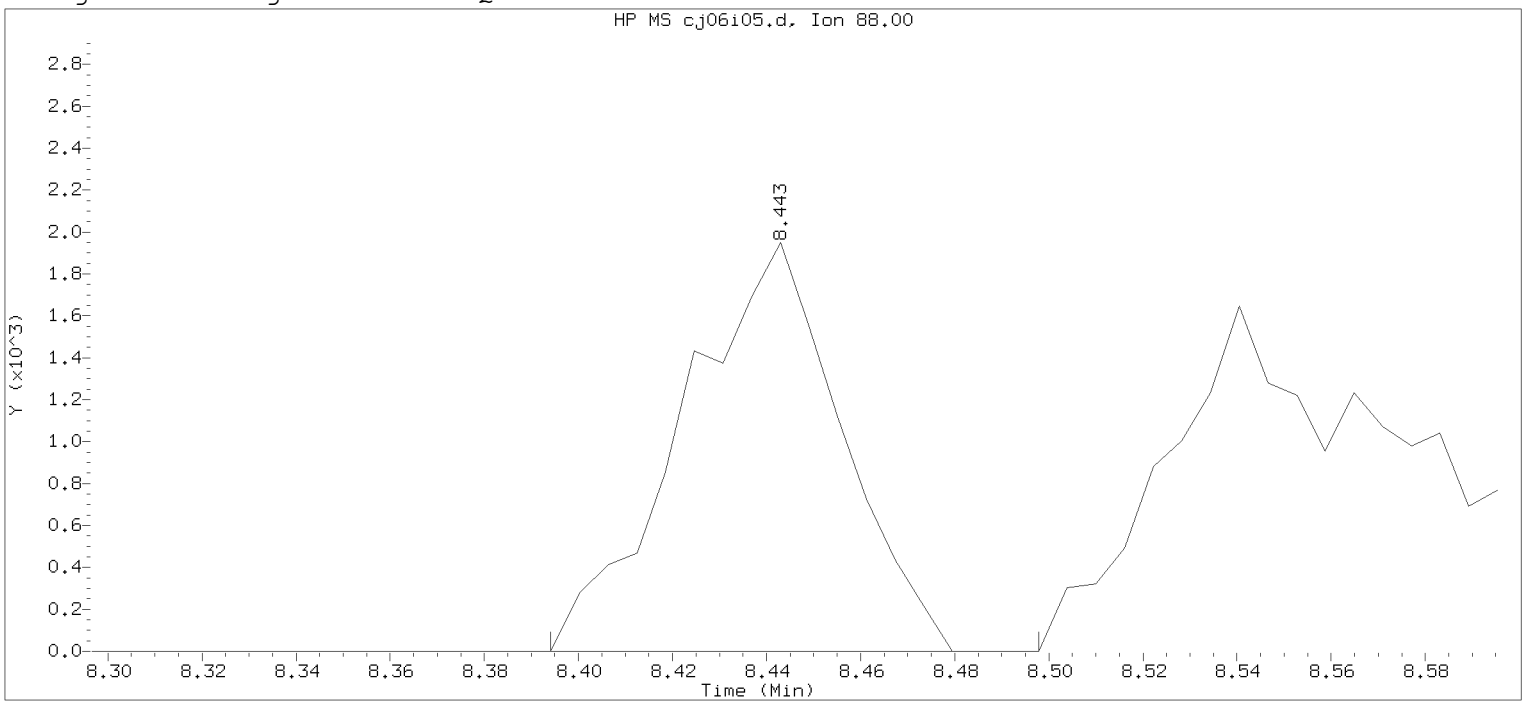
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

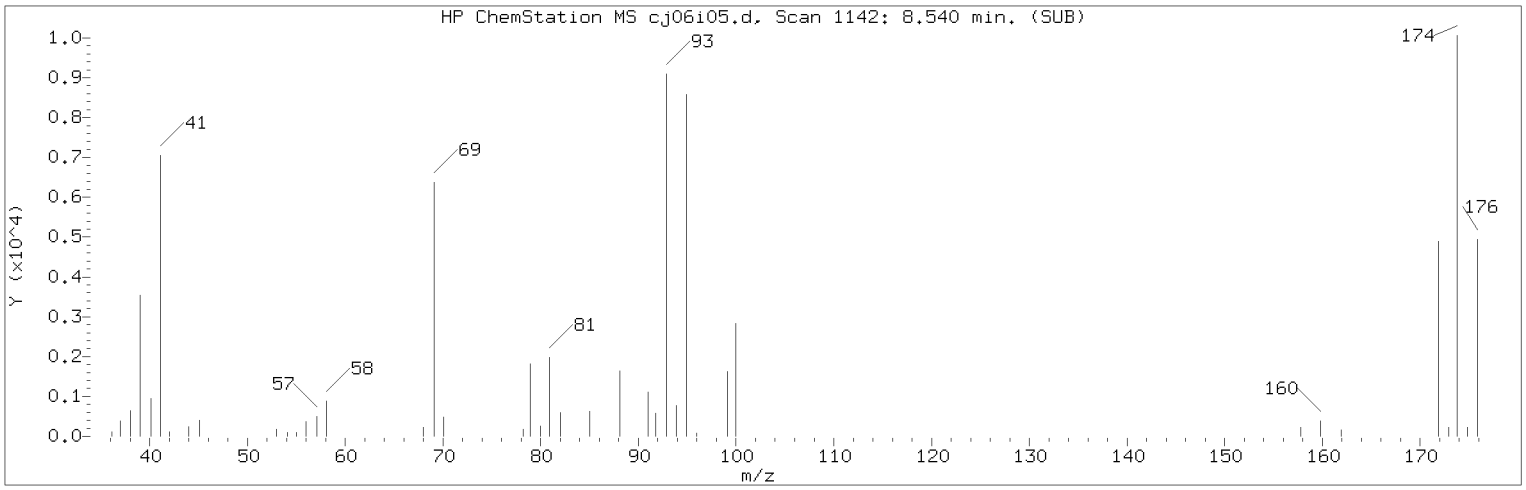
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 20:25 Automation

Sample Name: VSTD001 Lab Sample ID: VSTD001

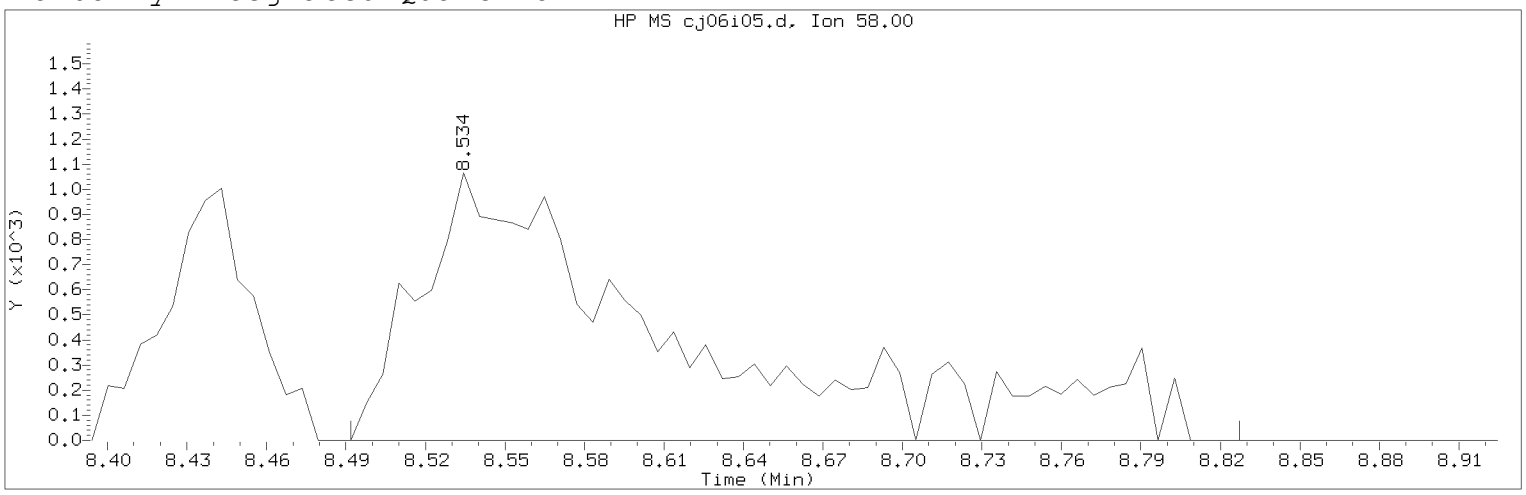
| | | | |
|---|---|---|---|
| Compound Number | : 74 | | |
| Compound Name | : 1,4-Dioxane | | |
| Scan Number | : 1126 | | |
| Retention Time (minutes) | : 8.443 | | |
| Quant Ion | : 88.00 | | |
| Area | : 4575 | | |
| On-column Amount (ng) | : 27.3287 | | |
| Integration start scan | : 1117 | Integration stop scan: | 1134 |
| Y at integration start | : 0 | Y at integration end: | 0 |

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 21:28 mec29284

Sample Name: VSTD001 Lab Sample ID: VSTD001

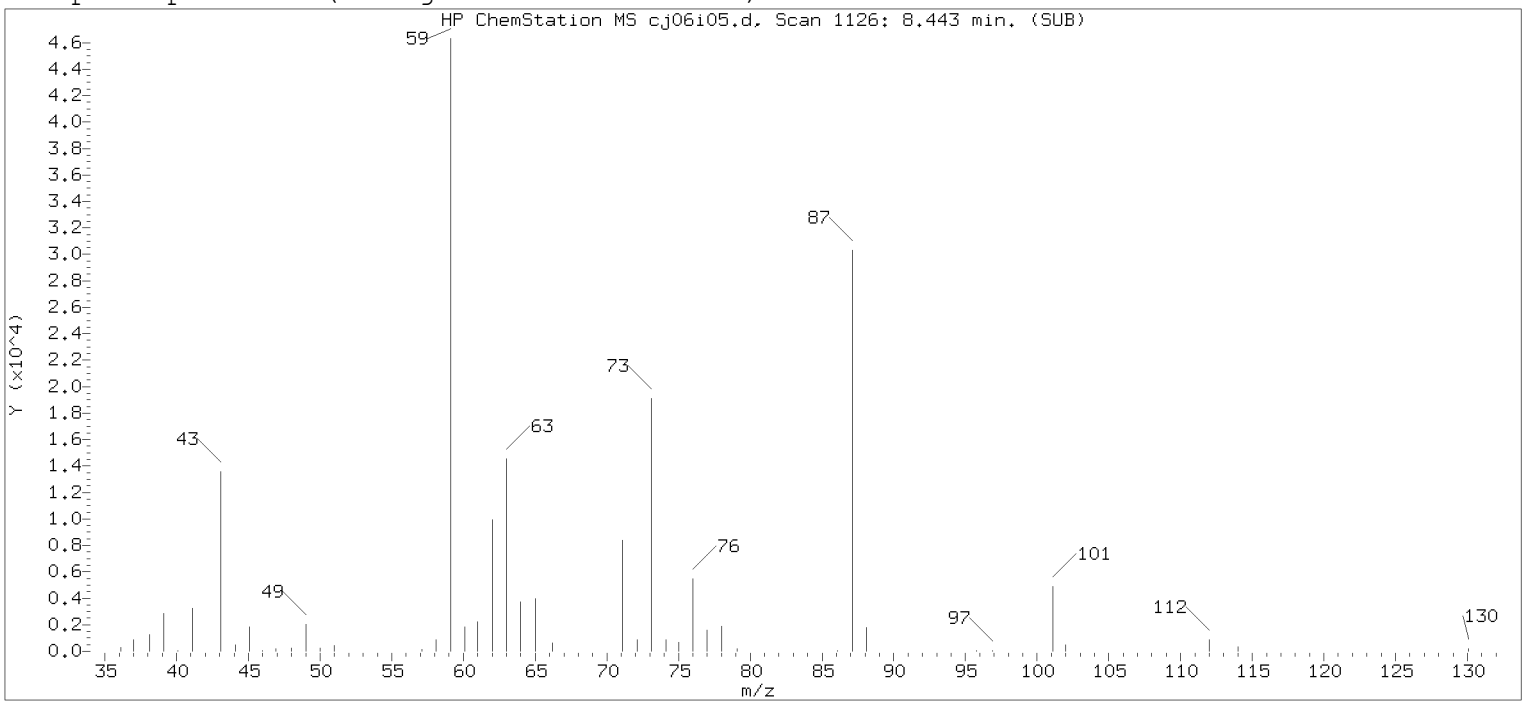
Compound Number : 74
Compound Name : 1,4-Dioxane
Scan Number : 1141
Retention Time (minutes): 8.534
Quant Ion : 58.00
Area (flag) : 7230M
On-Column Amount (ng) : 57.2924
Integration start scan : 1133 Integration stop scan: 1188
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

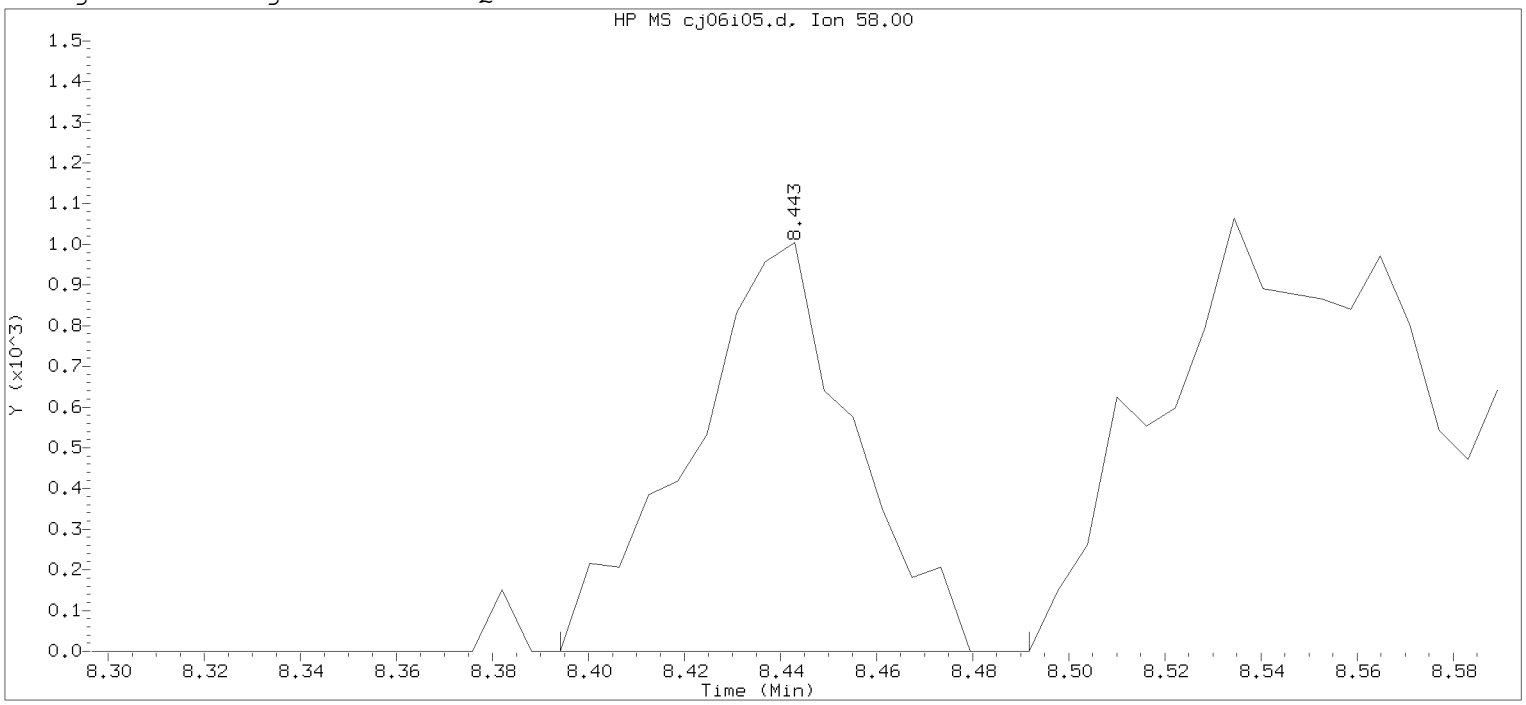
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08  Analyst ID: JKH09052

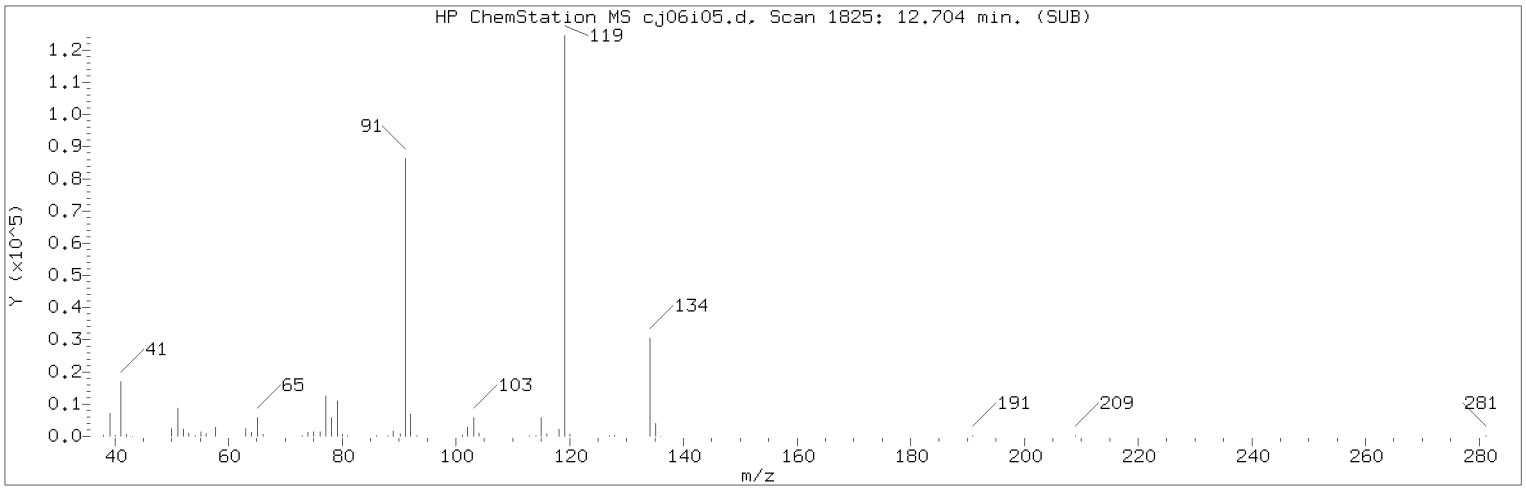
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 20:25 Automation

Sample Name: VSTD001  Lab Sample ID: VSTD001

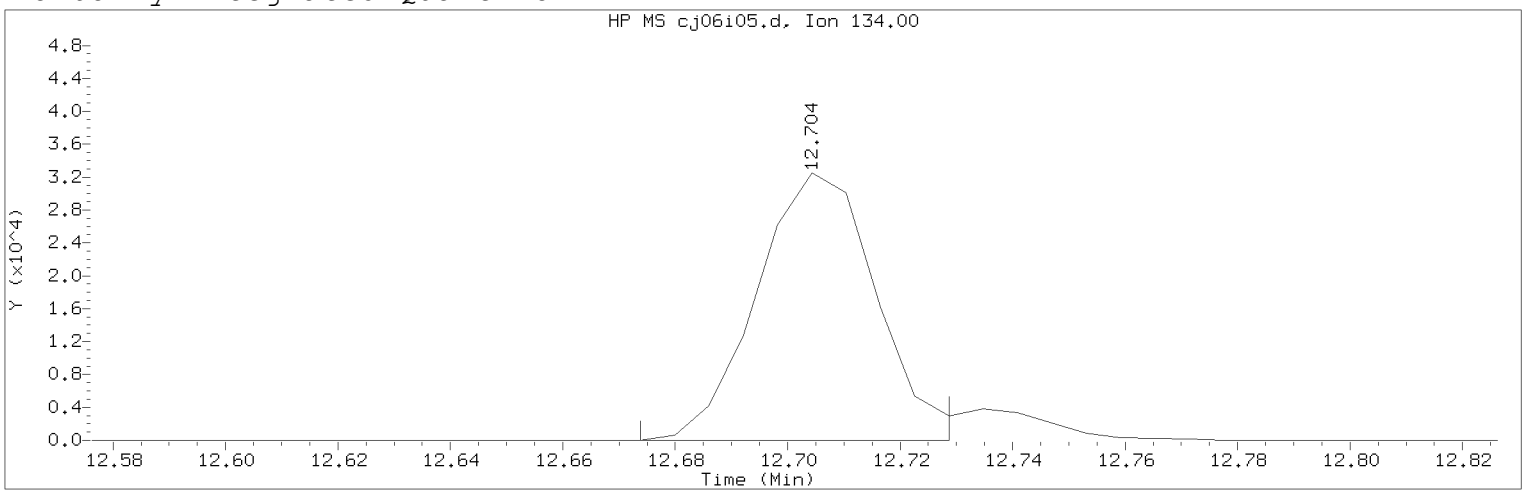
Compound Number : 74
Compound Name : 1,4-Dioxane
Scan Number : 1126
Retention Time (minutes): 8.443
Quant Ion : 58.00
Area : 2377
On-column Amount (ng) : 20.1143
Integration start scan : 1117  Integration stop scan: 1133
Y at integration start : 0  Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29384

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 21:28 mec29284

Sample Name: VSTD001 Lab Sample ID: VSTD001

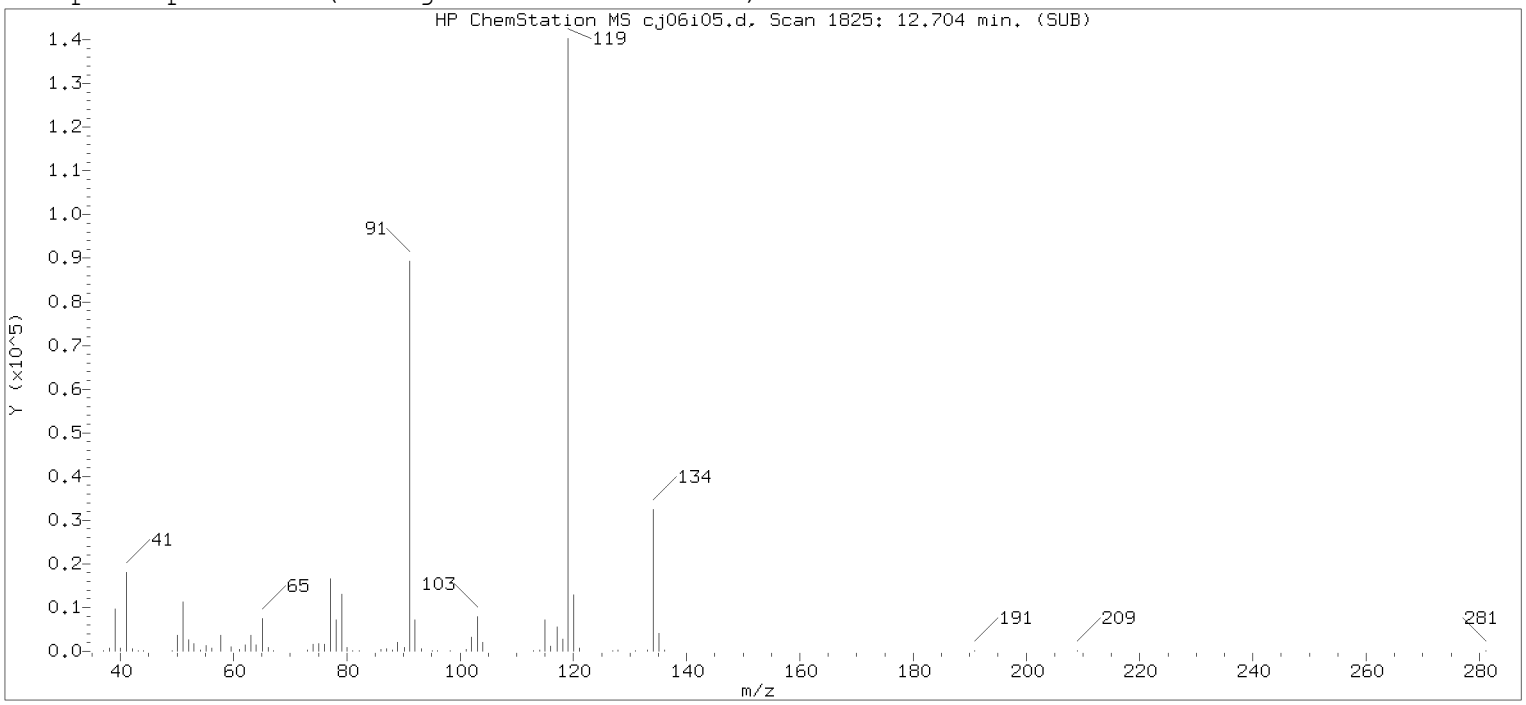
Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1825
Retention Time (minutes): 12.704
Quant Ion : 134.00
Area (flag) : 47894M
On-Column Amount (ng) : 0.9936
Integration start scan : 1819 Integration stop scan: 1828
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

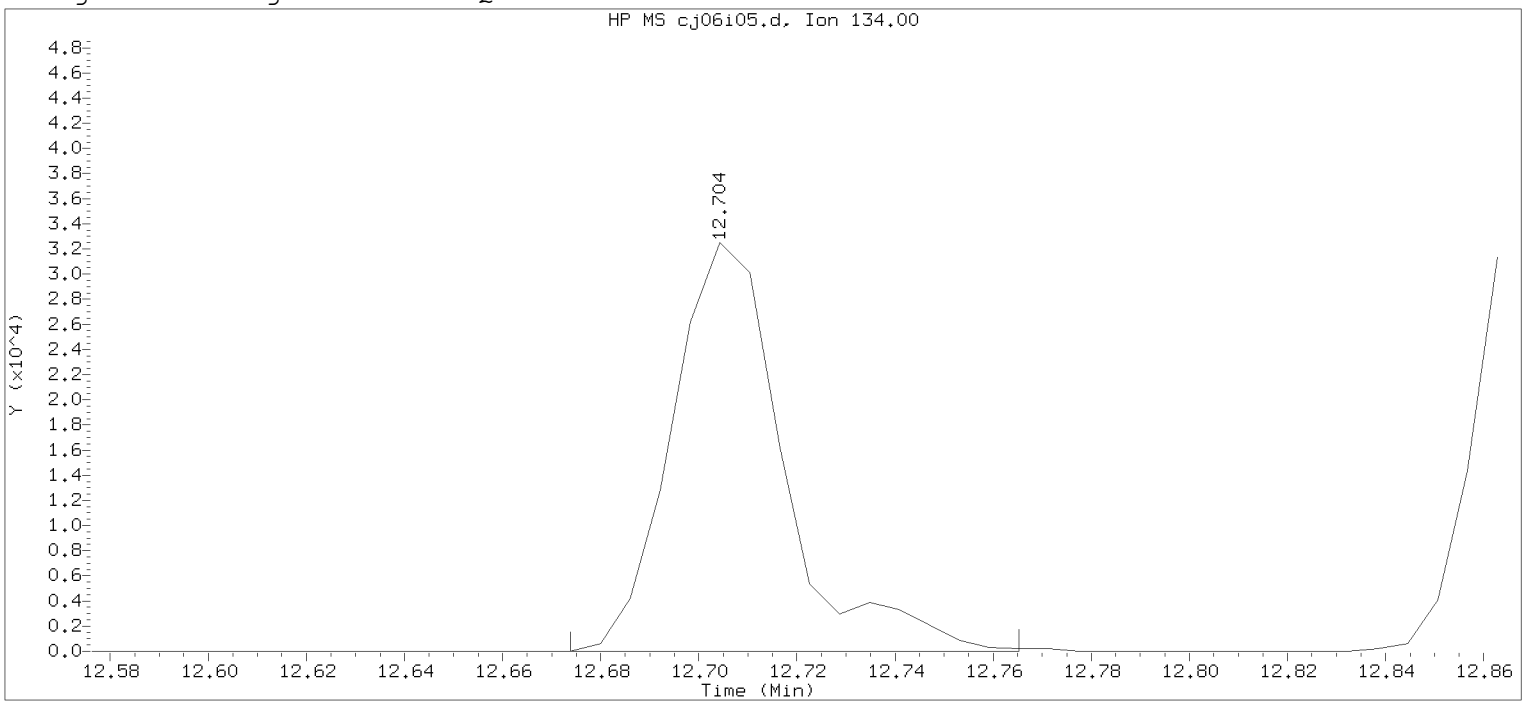
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion



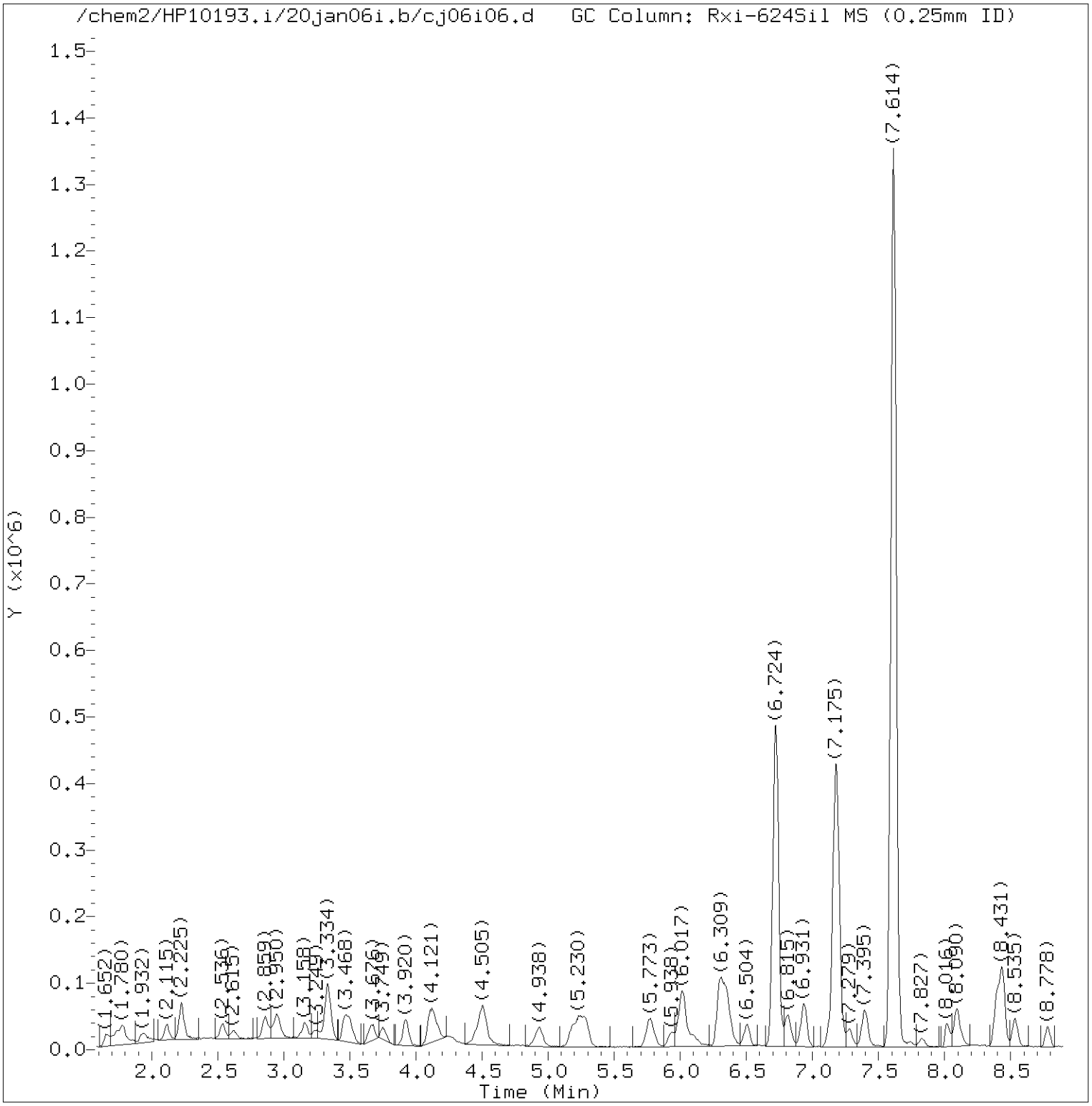

Data File: /chem2/HP10193.i/20jan06i.b/cj06i05.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:08 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:25
Date, time and analyst ID of latest file update: 06-Jan-2020 20:25 Automation

Sample Name: VSTD001 Lab Sample ID: VSTD001

Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1825
Retention Time (minutes): 12.704
Quant Ion : 134.00
Area : 51766
On-column Amount (ng) : 1.0414
Integration start scan : 1819 Integration stop scan: 1834
Y at integration start : 0 Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature used [illegible]




Total Ion Chromatogram (TIC)

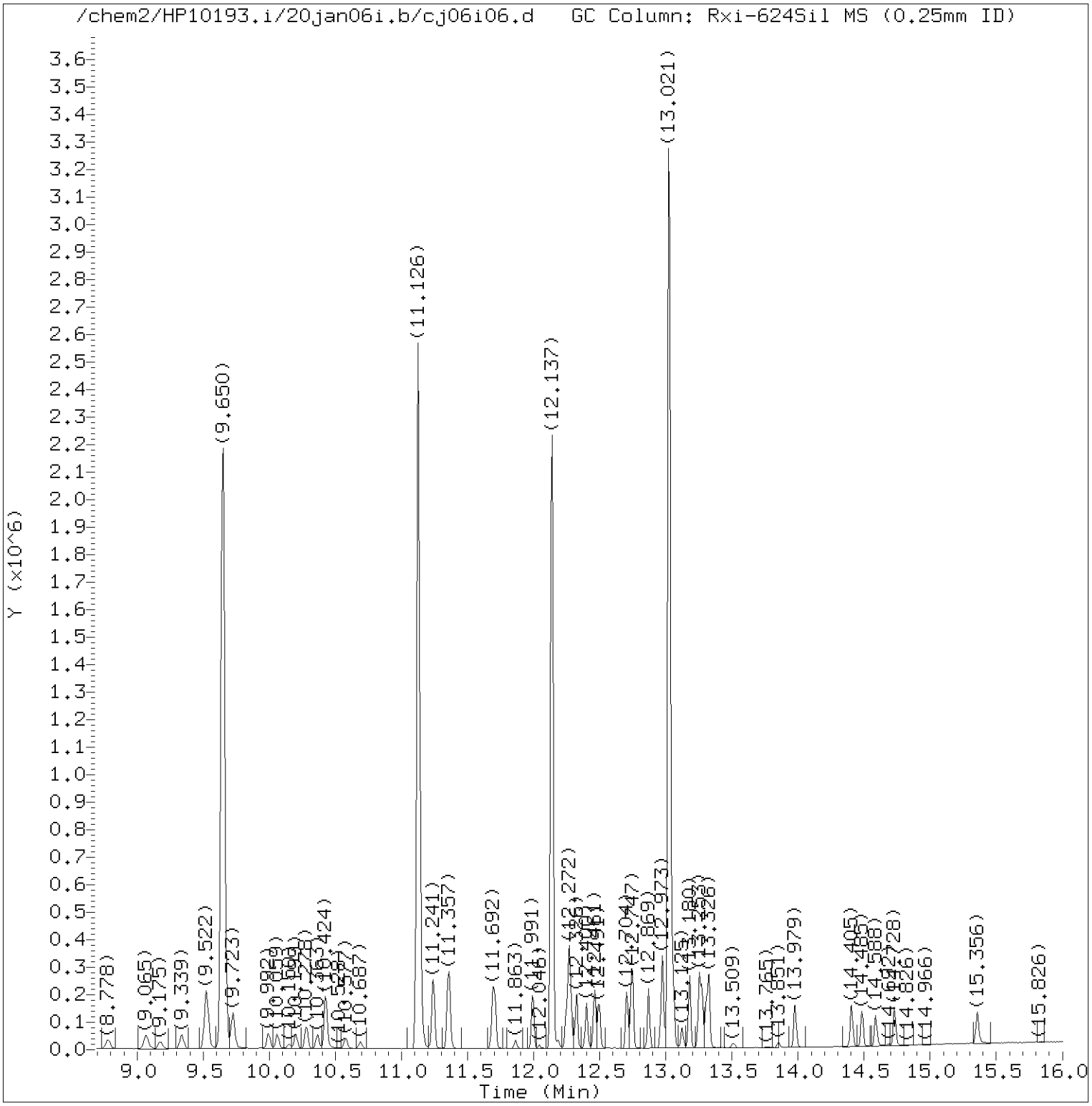
Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | 1.926 | 85 | 33881M | 0.524 |
| 2) Chloromethane | (2) | 2.115 | 50 | 34993 | 0.494 |
| 6) 1,3-Butadiene | (2) | 2.225 | 39 | 27146M | 0.456 |
| 5) Vinyl Chloride | (2) | 2.231 | 62 | 32795 | 0.493 |
| 7) Bromomethane | (2) | 2.536 | 94 | 22904 | 0.513 |
| 8) Chloroethane | (2) | 2.615 | 64 | 20237 | 0.513 |
| 9) Dichlorofluoromethane | (2) | 2.859 | 67 | 41622 | 0.484 |
| 10) Trichlorofluoromethane | (2) | 2.914 | 101 | 32721 | 0.498 |
| 12) Ethyl ether | (2) | 3.164 | 59 | 21868 | 0.507 |
| 13) Freon 123a | (2) | 3.237 | 67 | 26713M | 0.471 |
| 14) Acrolein | (1) | 3.334 | 56 | 164450 | 22.471 |
| 16) 1,1-Dichloroethene | (2) | 3.462 | 96 | 19834 | 0.452 |
| 17) Freon 113 | (2) | 3.499 | 101 | 18554 | 0.429 |
| 15) Acetone | (1) | 3.505 | 43 | 49589M | 5.025 |
| 18) Methyl Iodide | (2) | 3.651 | 142 | 38428 | 0.467 |
| 19) Bromoethane | (2) | 3.682 | 108 | 18463 | 0.490 |
| 20) Carbon Disulfide | (2) | 3.749 | 76 | 70435 | 0.448 |
| 23) Methyl Acetate | (2) | 3.914 | 43 | 14338 | 0.498 |
| 24) Allyl Chloride | (2) | 3.926 | 41 | 39243 | 0.486 |
| 25) Methylene Chloride | (2) | 4.102 | 84 | 23492 | 0.471 |
| 28)*t-Butyl Alcohol-d10 | (1) | 4.145 | 65 | 176942 | 50.000 |
| 30) t-Butyl Alcohol | (1) | 4.255 | 59 | 34504M | 9.524 |
| 31) Acrylonitrile | (1) | 4.456 | 53 | 27914 | 2.360 |
| 32) Methyl Tertiary Butyl Ether | (2) | 4.505 | 73 | 63964 | 0.487 |
| 33) trans-1,2-Dichloroethene | (2) | 4.511 | 96 | 23382 | 0.471 |
| 34) n-Hexane | (2) | 4.932 | 57 | 32796 | 0.436 |
| 35) 1,1-Dichloroethane | (2) | 5.182 | 63 | 41950 | 0.462 |
| 36) di-Isopropyl Ether | (2) | 5.236 | 45 | 81156 | 0.475 |
| 37) 2-Chloro-1,3-Butadiene | (2) | 5.285 | 53 | 35423 | 0.449 |
| 39) Ethyl t-butyl ether | (2) | 5.773 | 59 | 78600 | 0.482 |
| 40) 2-Butanone | (1) | 5.998 | 43 | 77469 | 4.636 |
| 41) cis-1,2-Dichloroethene | (2) | 6.023 | 96 | 26421 | 0.473 |
| 43) 2,2-Dichloropropane | (2) | 6.029 | 77 | 36664 | 0.484 |
| 44) Propionitrile | (1) | 6.102 | 54 | 35850 | 8.754 |
| 42) 1,2-Dichloroethene (Total) | (2) | | 96 | 49803 | 0.944 |
| 47) Methacrylonitrile | (1) | 6.303 | 67 | 70941M | 4.568 |
| 49) Bromochloromethane | (2) | 6.346 | 128 | 12764 | 0.512 |
| 50) Tetrahydrofuran | (1) | 6.358 | 71 | 23939 | 4.816 |

M = Compound was manually integrated.
* = Compound is an internal standard.



Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 51) Chloroform | (2) | 6.504 | 83 | 39850 | 0.472 |
| 53) 1,1,1-Trichloroethane | (2) | 6.718 | 97 | 33893 | 0.452 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 113 | 441373 | 10.051 |
| 52)$Dibromofluoromethane | (2) | 6.718 | 111 | 450134 | 10.036 |
| 54) Cyclohexane | (2) | 6.809 | 56 | 41682 | 0.455 |
| 54) Cyclohexane | (2) | 6.821 | 84 | 32887 | 0.435 |
| 54) Cyclohexane | (2) | 6.736 | 69 | 272 | 0.313 |
| 56) Carbon Tetrachloride | (2) | 6.931 | 117 | 28084 | 0.447 |
| 57) 1,1-Dichloropropene | (2) | 6.943 | 75 | 31781 | 0.452 |
| 58) Isobutyl Alcohol | (1) | 7.132 | 41 | 27457M | 22.728 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.175 | 102 | 95874 | 9.961 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.175 | 65 | 446514 | 10.052 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 104 | 61719 | 10.088 |
| 60) Benzene | (2) | 7.206 | 78 | 94415 | 0.454 |
| 61) 1,2-Dichloroethane | (2) | 7.285 | 62 | 28167 | 0.481 |
| 61) 1,2-Dichloroethane | (2) | 7.285 | 98 | 3053 | 0.519 |
| 62) t-Amyl methyl ether | (2) | 7.395 | 73 | 70220 | 0.474 |
| 65)*Fluorobenzene | (2) | 7.614 | 96 | 1872467 | 10.000 |
| 64) n-Heptane | (2) | 7.626 | 43 | 34239M | 0.440 |
| 67) n-Butanol | (1) | 8.022 | 56 | 51129 | 47.538 |
| 69) Trichloroethene | (2) | 8.090 | 95 | 24441 | 0.471 |
| 71) Methylcyclohexane | (2) | 8.388 | 83 | 45605 | 0.490 |
| 72) 1,2-Dichloropropane | (2) | 8.431 | 63 | 24922 | 0.467 |
| 73) Methyl Methacrylate | (1) | 8.522 | 69 | 15277 | 0.482 |
| 75) Dibromomethane | (2) | 8.541 | 93 | 11721 | 0.468 |
| 74) 1,4-Dioxane | (1) | 8.547 | 88 | 5080 | 27.473 |
| 74) 1,4-Dioxane | (1) | 8.541 | 58 | 3992 | 27.249 |
| 76) Bromodichloromethane | (2) | 8.784 | 83 | 28887 | 0.451 |
| 78) 2-Nitropropane | (1) | 9.065 | 41 | 44846 | 4.567 |
| 81) 1-Bromo-2-chloroethane | (2) | 9.175 | 63 | 28780 | 0.500 |
| 82) cis-1,3-Dichloropropene | (2) | 9.339 | 75 | 38094 | 0.462 |
| 83) 4-Methyl-2-Pentanone | (2) | 9.522 | 43 | 186735 | 4.715 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1842811 | 9.973 |
| 84)$Toluene-d8 | (3) | 9.650 | 100 | 1189334 | 9.908 |
| 85) Toluene | (3) | 9.723 | 92 | 60160 | 0.456 |
| 87) 1,3-Dichloropropene (total) | (3) | | 75 | 70596 | 0.917 |
| 86) trans-1,3-Dichloropropene | (3) | 9.992 | 75 | 32502 | 0.455 |
| 88) Ethyl Methacrylate | (3) | 10.059 | 69 | 30998 | 0.485 |

M = Compound was manually integrated.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.



Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 90) 1,1,2-Trichloroethane | (3) | 10.199 | 97 | 17621 | 0.467 |
| 91) Tetrachloroethene | (3) | 10.284 | 166 | 25812 | 0.455 |
| 92) 1,3-Dichloropropane | (3) | 10.363 | 76 | 31818 | 0.477 |
| 93) 2-Hexanone | (3) | 10.424 | 43 | 138450 | 4.814 |
| 95) Dibromochloromethane | (3) | 10.577 | 129 | 20785 | 0.455 |
| 97) 1,2-Dibromoethane | (3) | 10.687 | 107 | 17107 | 0.468 |
| 99)*Chlorobenzene-d5 | (3) | 11.126 | 117 | 1386591 | 10.000 |
| 98) 1-Chlorohexane | (3) | 11.138 | 91 | 36008 | 0.470 |
| 100) Chlorobenzene | (3) | 11.150 | 112 | 69259 | 0.466 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | 11.235 | 131 | 23307 | 0.455 |
| 102) Ethylbenzene | (3) | 11.241 | 91 | 114619 | 0.450 |
| 103) m+p-Xylene | (3) | 11.357 | 106 | 90419 | 0.905 |
| 106) o-Xylene | (3) | 11.686 | 106 | 45249 | 0.456 |
| 108) Styrene | (3) | 11.705 | 104 | 76153 | 0.454 |
| 107) Xylene (Total) | (3) | | 106 | 135668 | 1.360 |
| 109) Bromoform | (3) | 11.863 | 173 | 13057 | 0.464 |
| 110) Isopropylbenzene | (3) | 11.991 | 105 | 115043M | 0.450 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 690469 | 9.945 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 174 | 581615 | 9.984 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | 12.247 | 83 | 23966 | 0.477 |
| 116) Bromobenzene | (4) | 12.253 | 156 | 30018 | 0.470 |
| 117) trans-1,4-Dichloro-2-butene | (1) | 12.272 | 53 | 64510 | 4.407 |
| 118) 1,2,3-Trichloropropane | (4) | 12.290 | 110 | 6696 | 0.502 |
| 119) n-Propylbenzene | (4) | 12.326 | 91 | 134909 | 0.447 |
| 121) 2-Chlorotoluene | (4) | 12.400 | 126 | 28927 | 0.460 |
| 123) 1,3,5-Trimethylbenzene | (4) | 12.461 | 105 | 100615 | 0.452 |
| 124) 4-Chlorotoluene | (4) | 12.497 | 126 | 31142 | 0.475 |
| 127) tert-Butylbenzene | (4) | 12.704 | 134 | 21134M | 0.446 |
| 128) Pentachloroethane | (4) | 12.735 | 167 | 19178 | 0.469 |
| 129) 1,2,4-Trimethylbenzene | (4) | 12.747 | 105 | 105657 | 0.450 |
| 130) sec-Butylbenzene | (4) | 12.869 | 105 | 127480 | 0.447 |
| 133) 1,3-Dichlorobenzene | (4) | 12.967 | 146 | 58701 | 0.464 |
| 134) p-Isopropyltoluene | (4) | 12.979 | 119 | 113884 | 0.456 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.021 | 152 | 766452 | 10.000 |
| 136) 1,4-Dichlorobenzene | (4) | 13.040 | 146 | 60892 | 0.469 |
| 137) 1,2,3-Trimethylbenzene | (4) | 13.052 | 120 | 51318 | 0.488 |
| 138) Benzyl Chloride | (4) | 13.125 | 126 | 9793 | 0.449 |
| 140) n-Butylbenzene | (4) | 13.271 | 92 | 56523 | 0.451 |

M = Compound was manually integrated.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.



Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

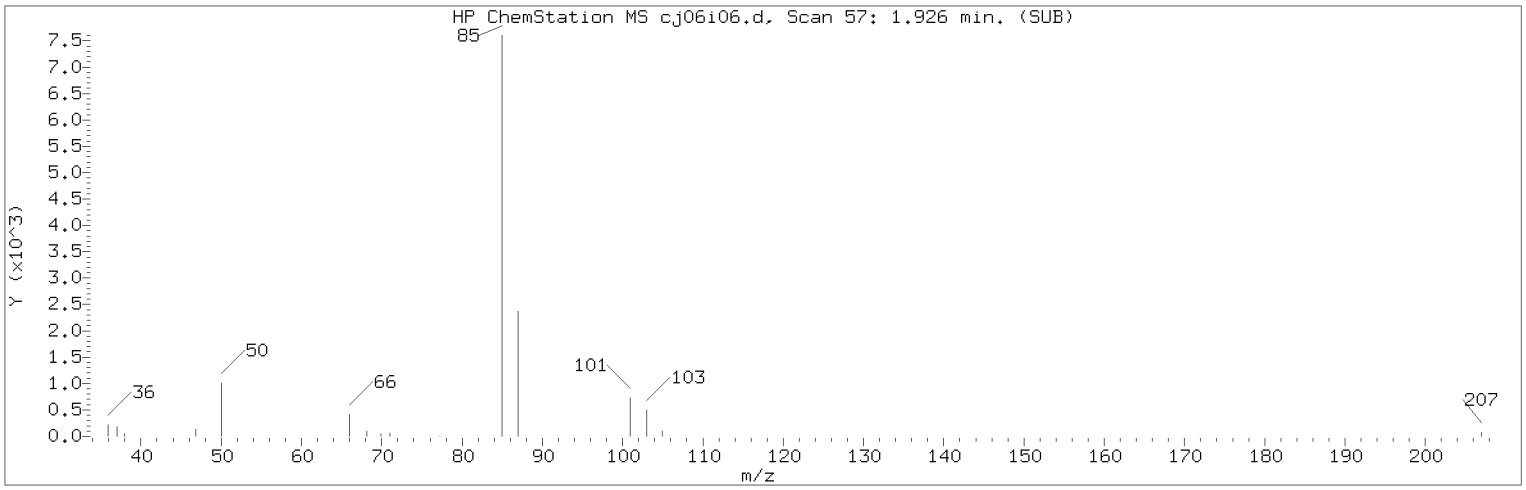
Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 141) 1,2-Dichlorobenzene | (4) | 13.308 | 146 | 56908 | 0.479 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | 13.857 | 155 | 3593 | 0.446 |
| 146) 1,3,5-Trichlorobenzene | (4) | 13.979 | 180 | 49161 | 0.469 |
| 147) 1,2,4-Trichlorobenzene | (4) | 14.405 | 180 | 45037 | 0.475 |
| 148) Hexachlorobutadiene | (4) | 14.485 | 225 | 20499 | 0.450 |
| 149) Naphthalene | (4) | 14.588 | 128 | 83814 | 0.478 |
| 150) 1,2,3-Trichlorobenzene | (4) | 14.728 | 180 | 39766 | 0.479 |

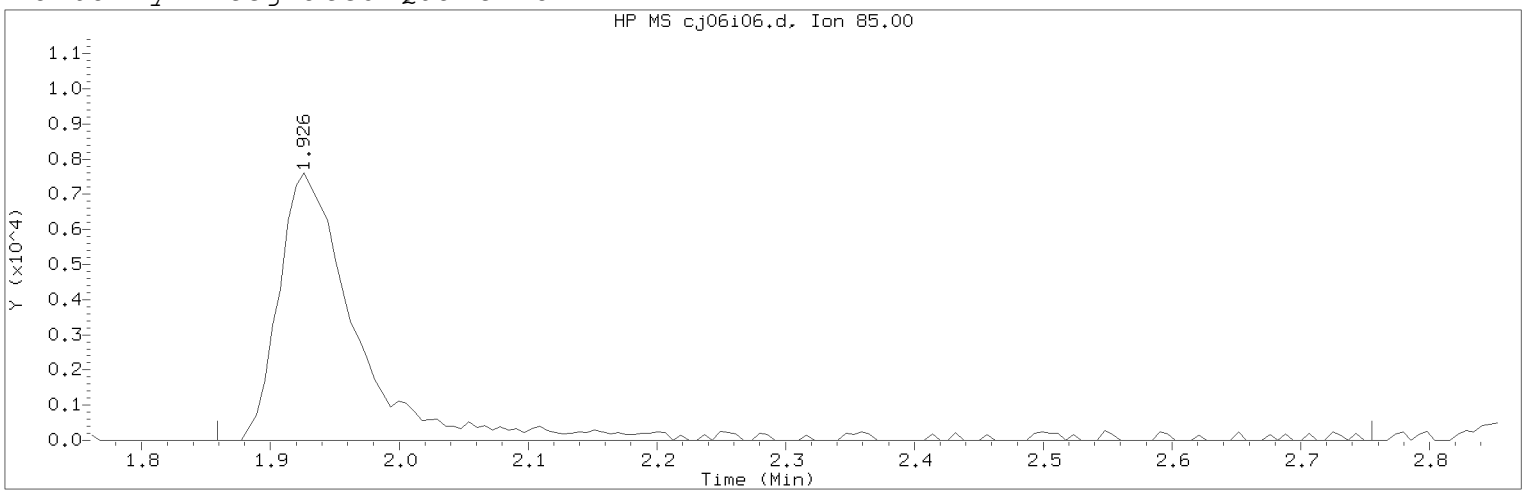


Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

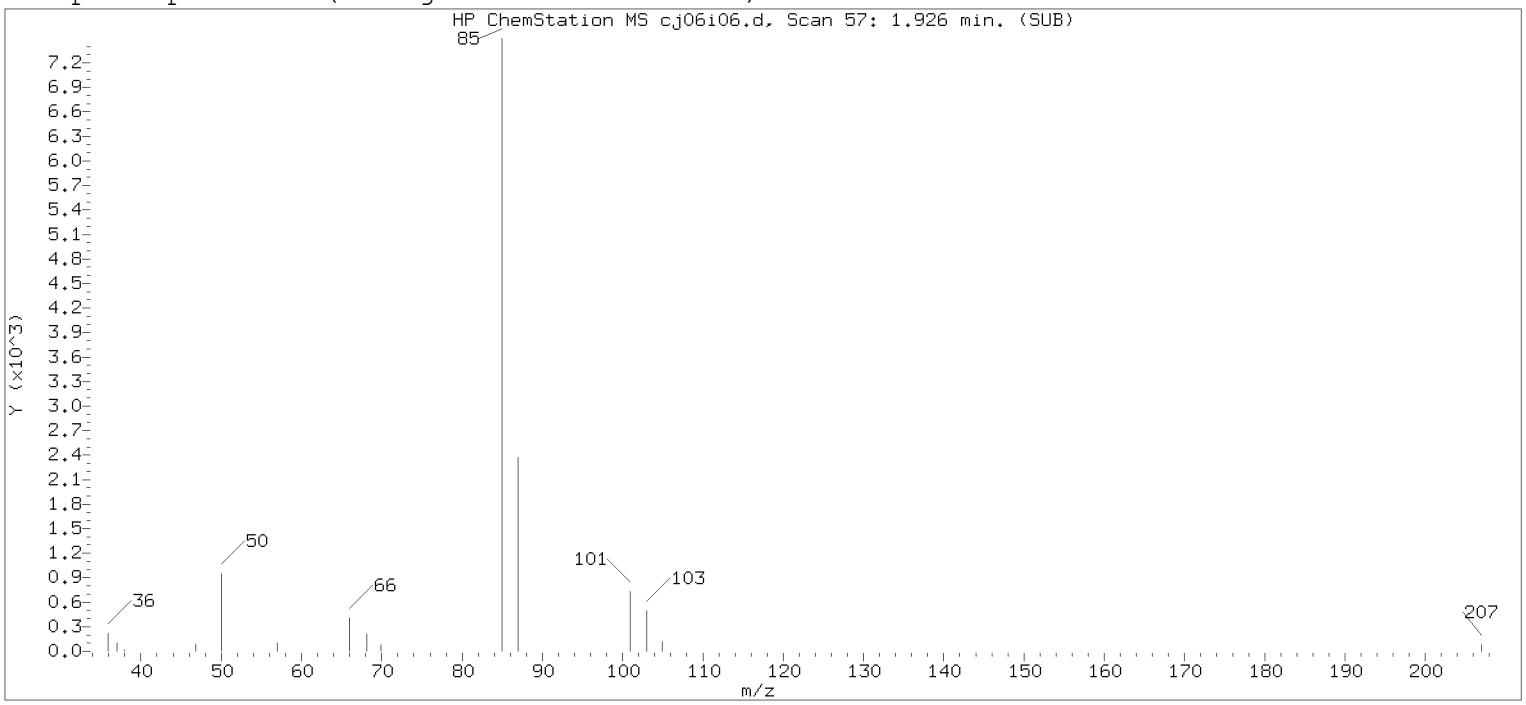
Compound Number : 1
Compound Name : Dichlorodifluoromethane
Scan Number : 57
Retention Time (minutes): 1.926
Quant Ion : 85.00
Area (flag) : 33881M
On-Column Amount (ng) : 0.5239
Integration start scan : 45 Integration stop scan: 192
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

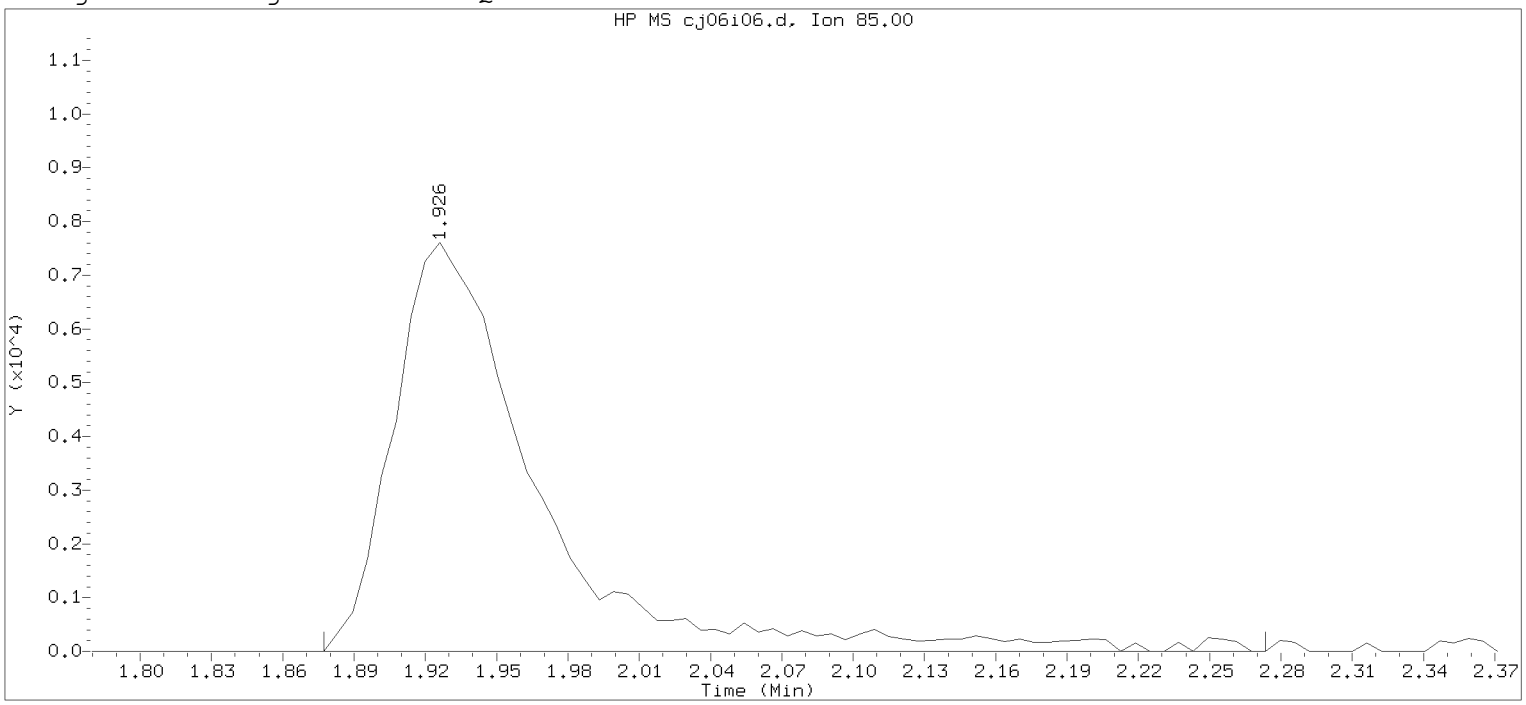
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30  Analyst ID: JKH09052

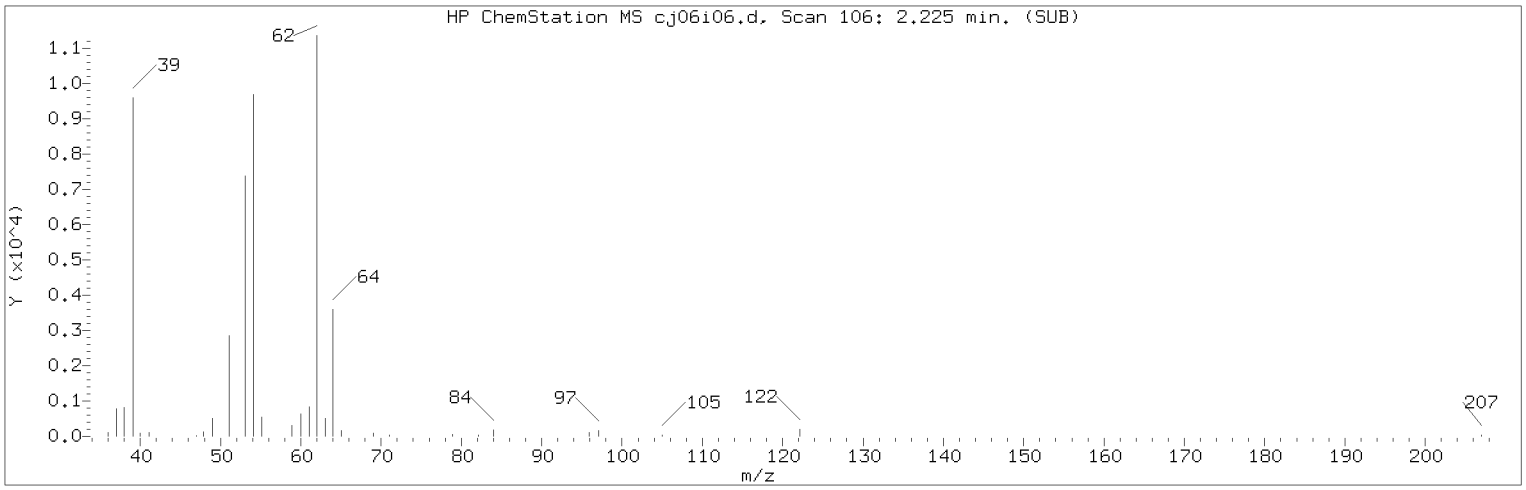
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 20:48 Automation

Sample Name: VSTD0.5  Lab Sample ID: VSTD0.5

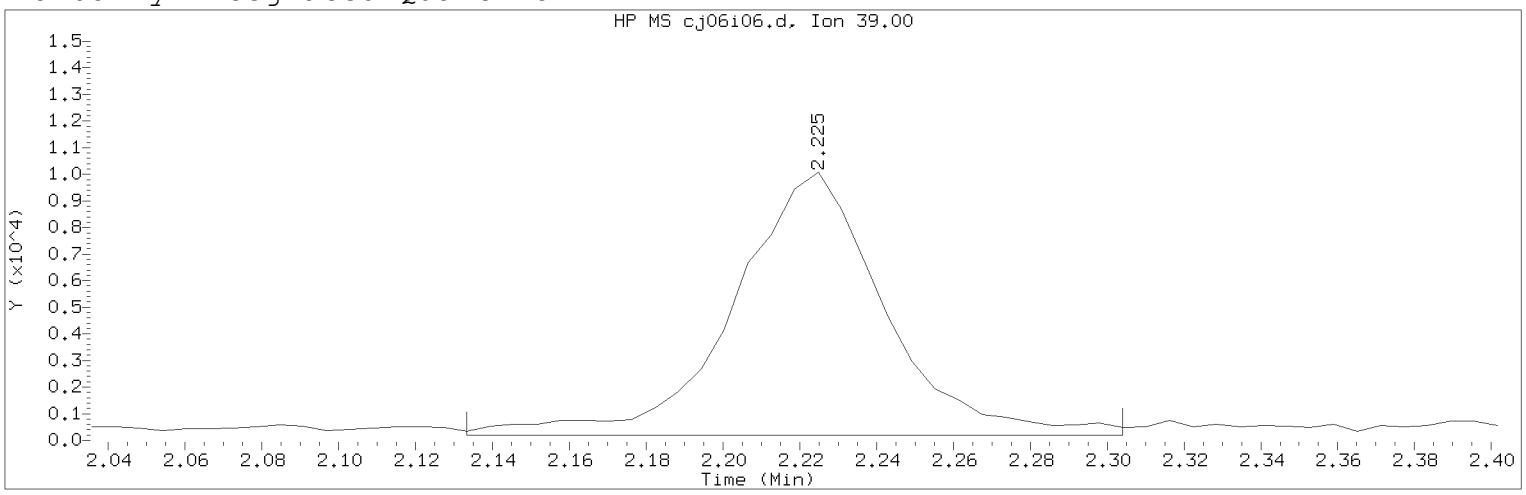
Compound Number : 1
Compound Name : Dichlorodifluoromethane
Scan Number : 57
Retention Time (minutes): 1.926
Quant Ion : 85.00
Area : 31963
On-column Amount (ng) : 0.4967
Integration start scan : 48  Integration stop scan: 113
Y at integration start : 0  Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec2934

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

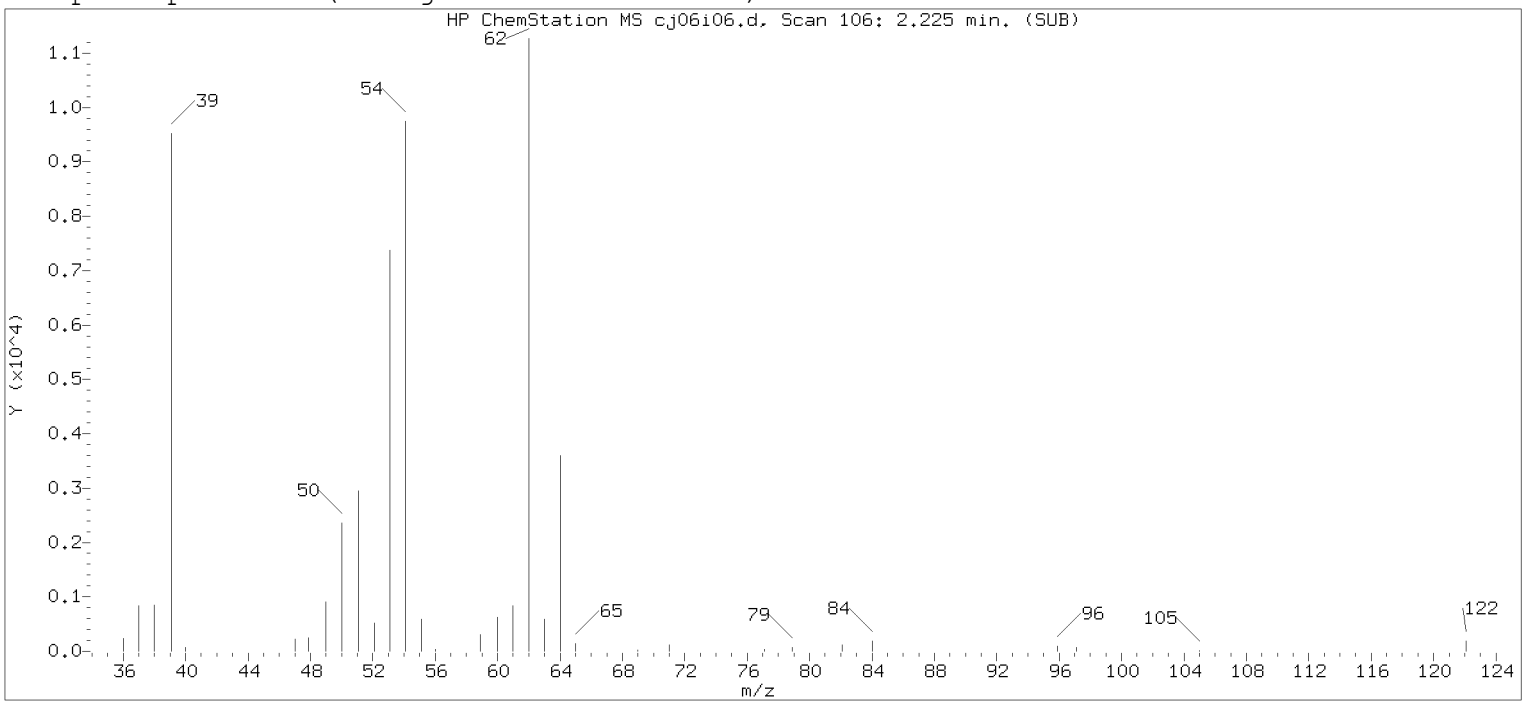
Compound Number : 6
Compound Name : 1,3-Butadiene
Scan Number : 106
Retention Time (minutes): 2.225
Quant Ion : 39.00
Area (flag) : 27146M
On-Column Amount (ng) : 0.4556
Integration start scan : 90 Integration stop scan: 118
Y at integration start : 200 Y at integration end: 200

Reason for manual integration: improper integration

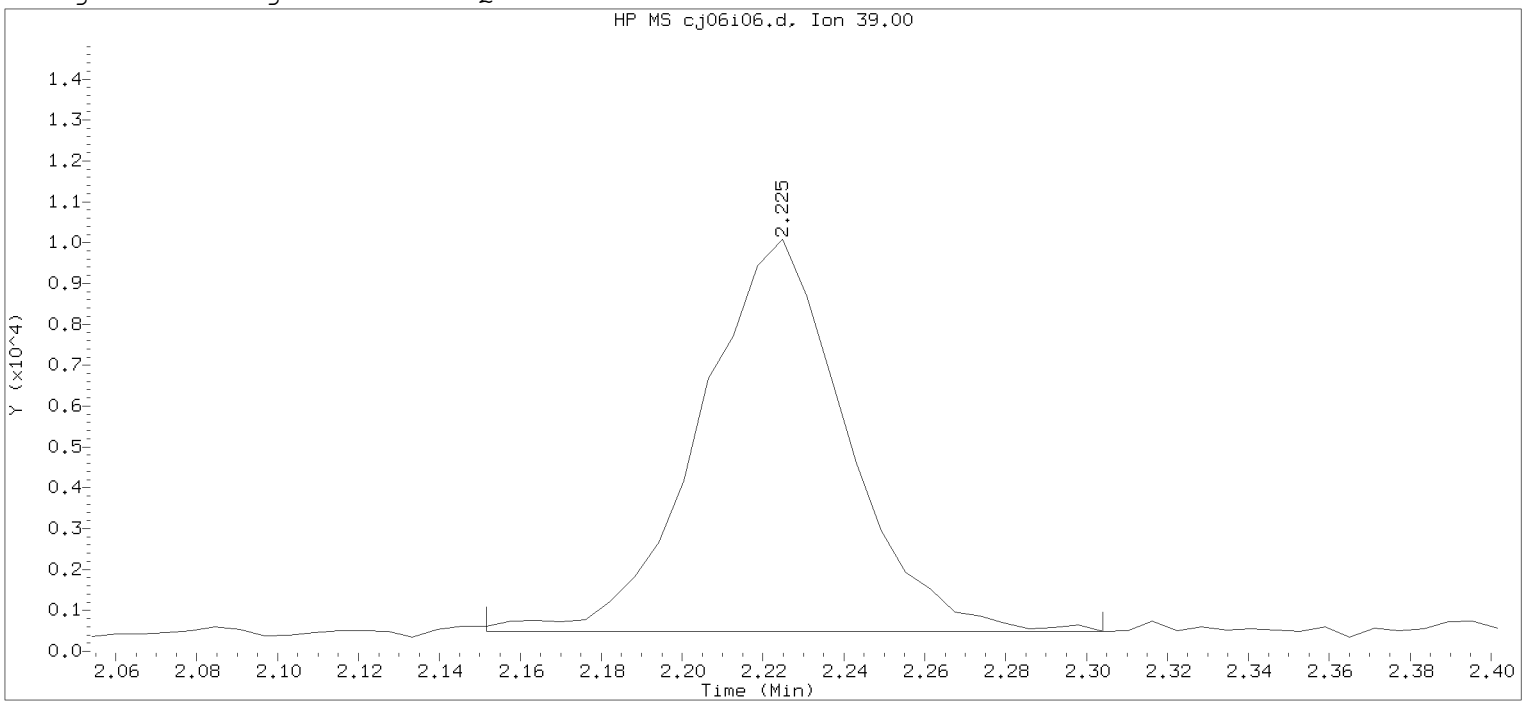
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

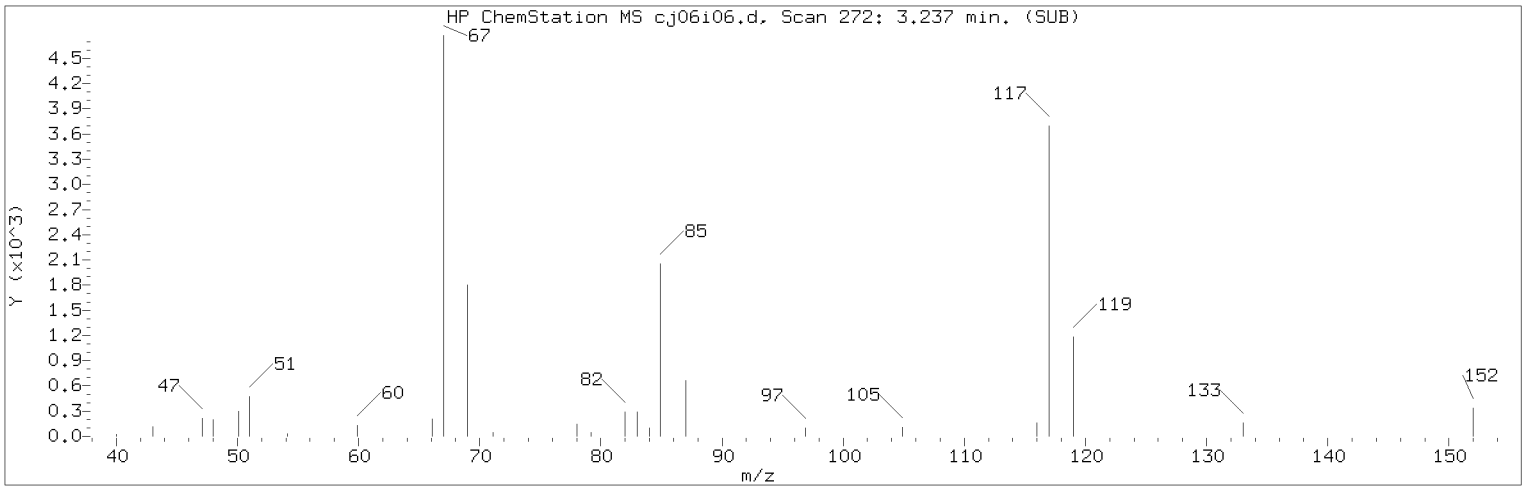
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 20:48 Automation

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

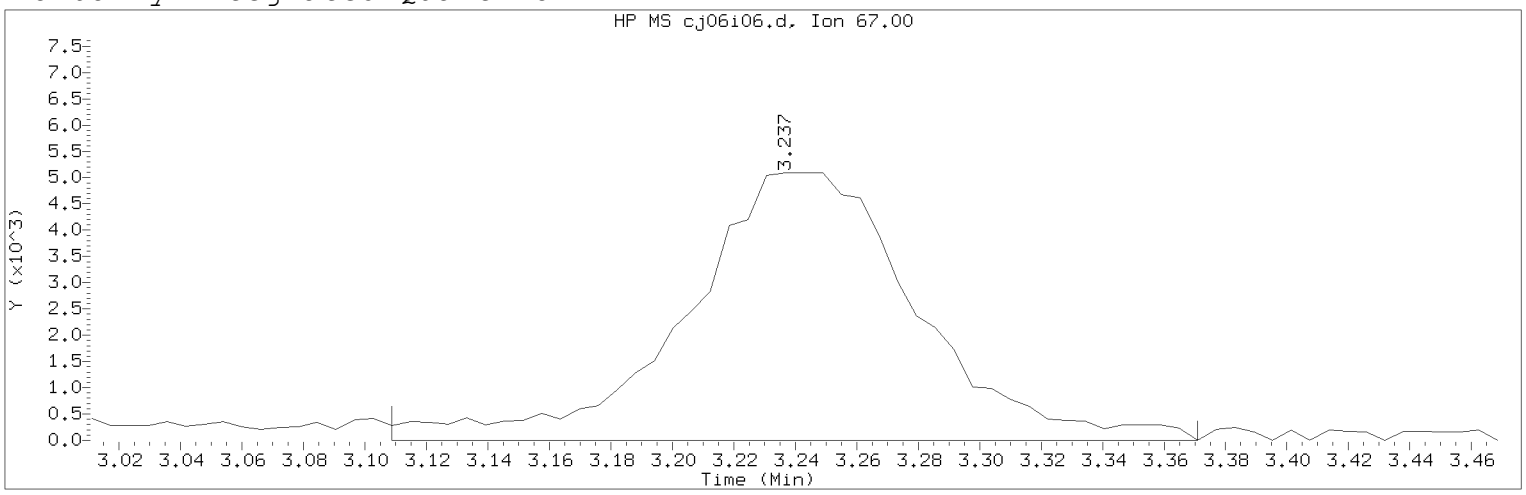
Compound Number : 6
Compound Name : 1,3-Butadiene
Scan Number : 106
Retention Time (minutes): 2.225
Quant Ion : 39.00
Area : 24062
On-column Amount (ng) : 0.4394
Integration start scan : 93 Integration stop scan: 118
Y at integration start : 488 Y at integration end: 488

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

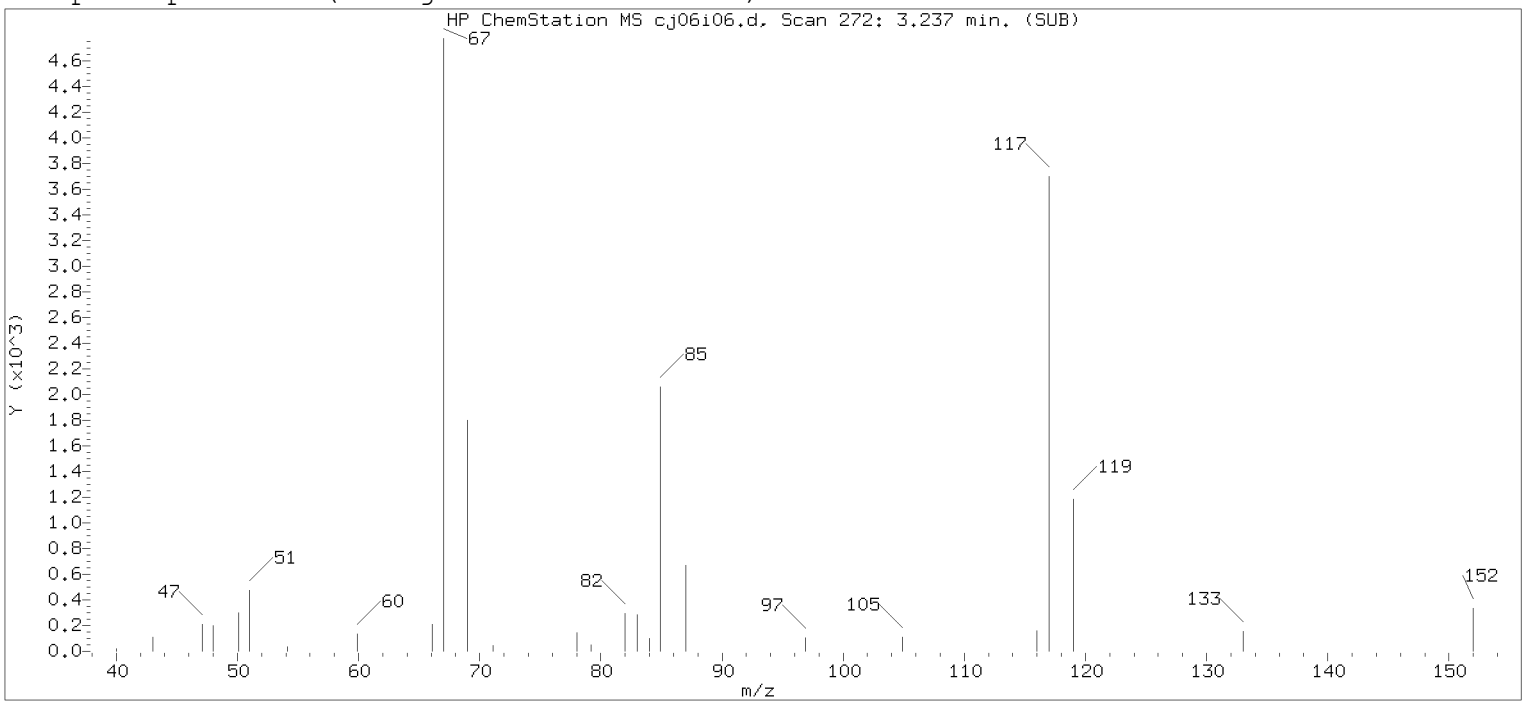
Compound Number : 13
Compound Name : Freon 123a
Scan Number : 272
Retention Time (minutes): 3.237
Quant Ion : 67.00
Area (flag) : 26713M
On-Column Amount (ng) : 0.4712
Integration start scan : 250 Integration stop scan: 293
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

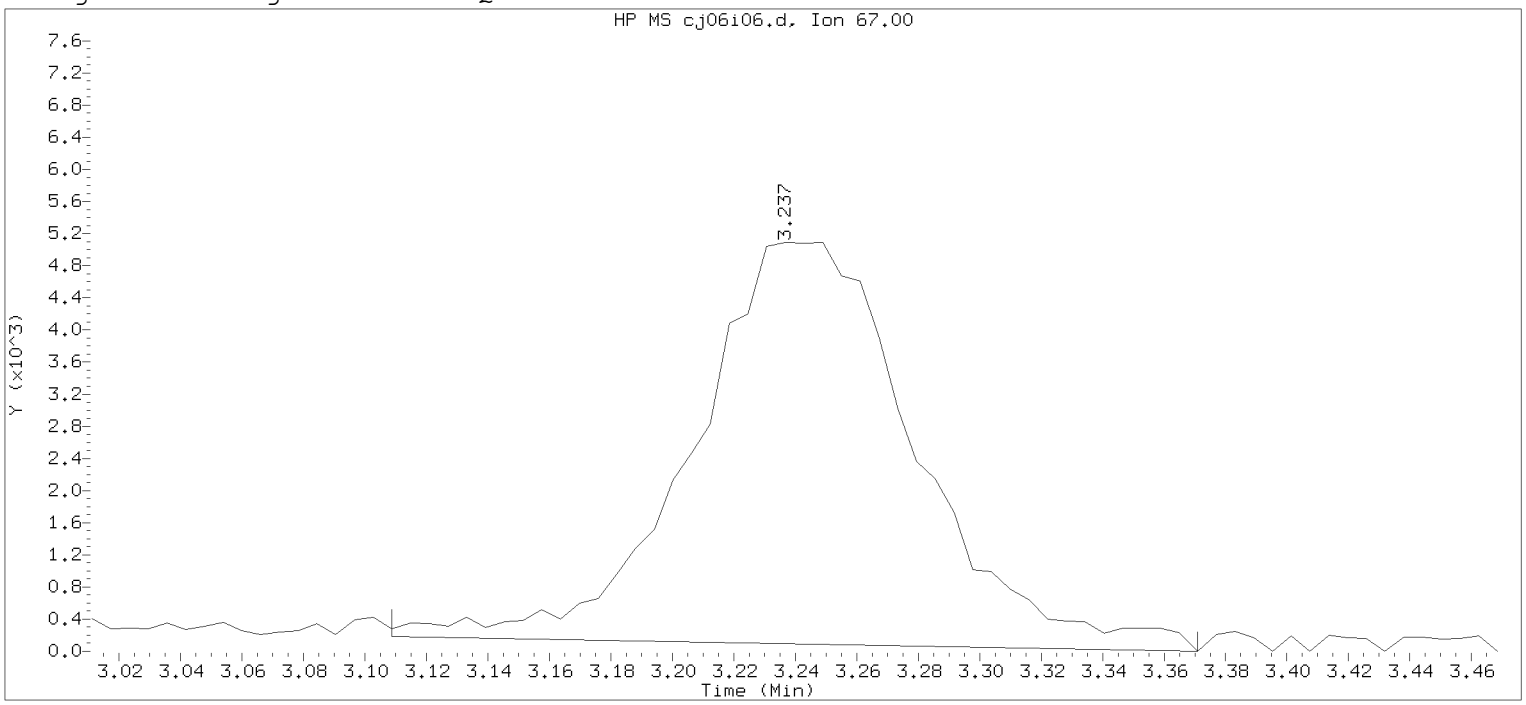
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30  Analyst ID: JKH09052

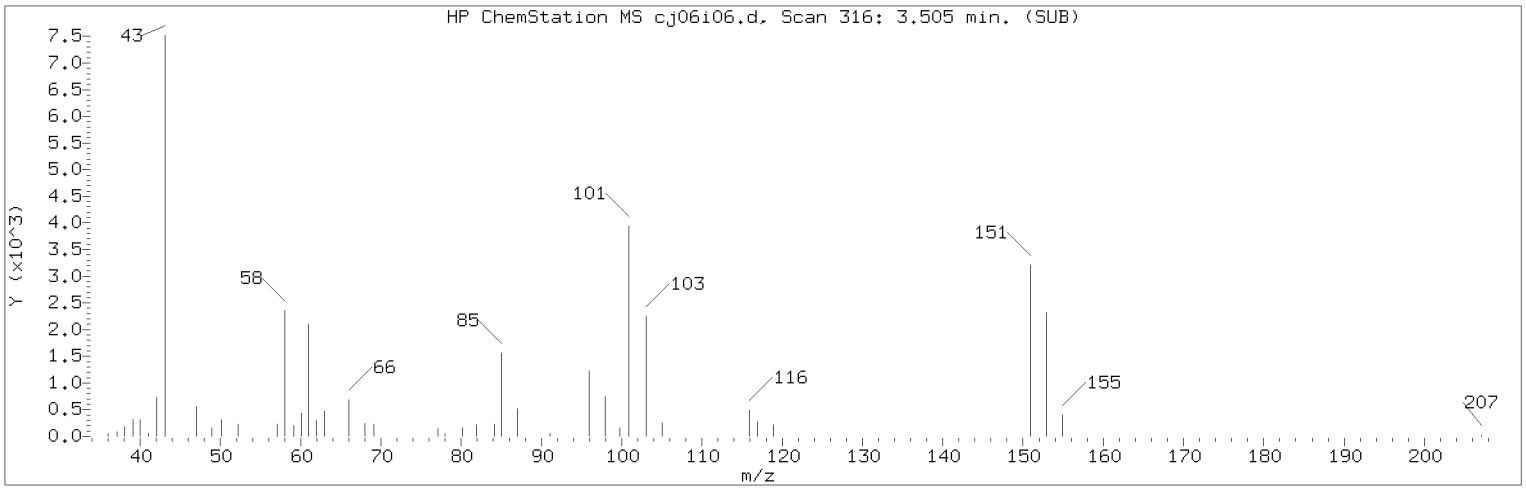
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 20:48 Automation

Sample Name: VSTD0.5  Lab Sample ID: VSTD0.5

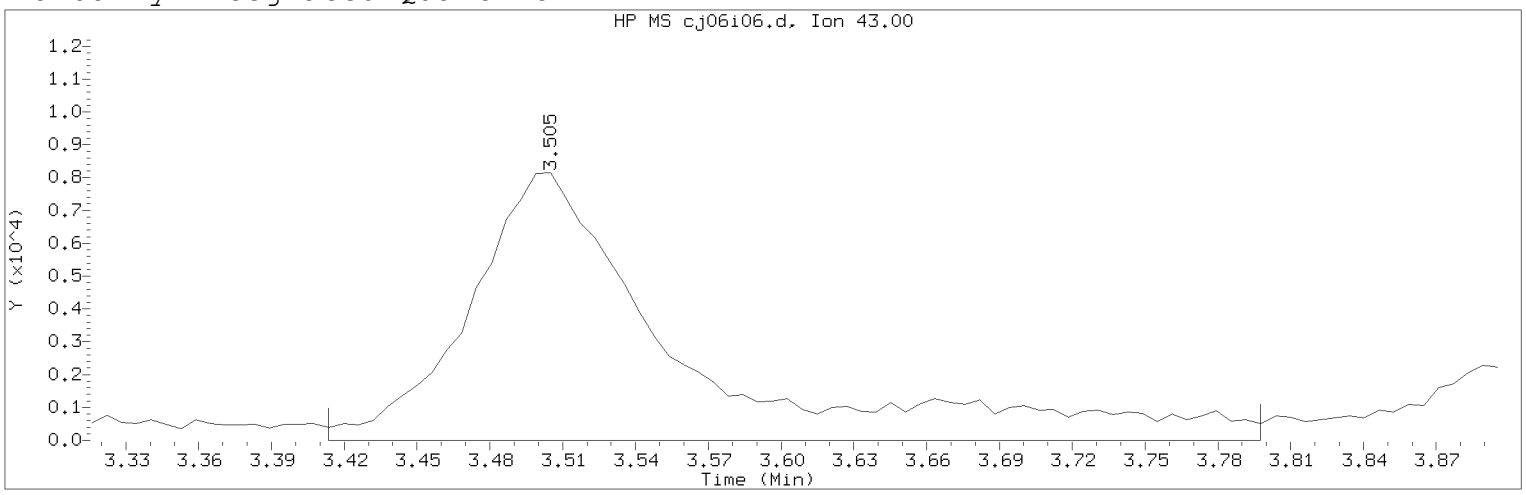
Compound Number : 13
Compound Name : Freon 123a
Scan Number : 272
Retention Time (minutes): 3.237
Quant Ion : 67.00
Area : 25216
On-column Amount (ng) : 0.4603
Integration start scan : 250  Integration stop scan: 293
Y at integration start : 184  Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec2937

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

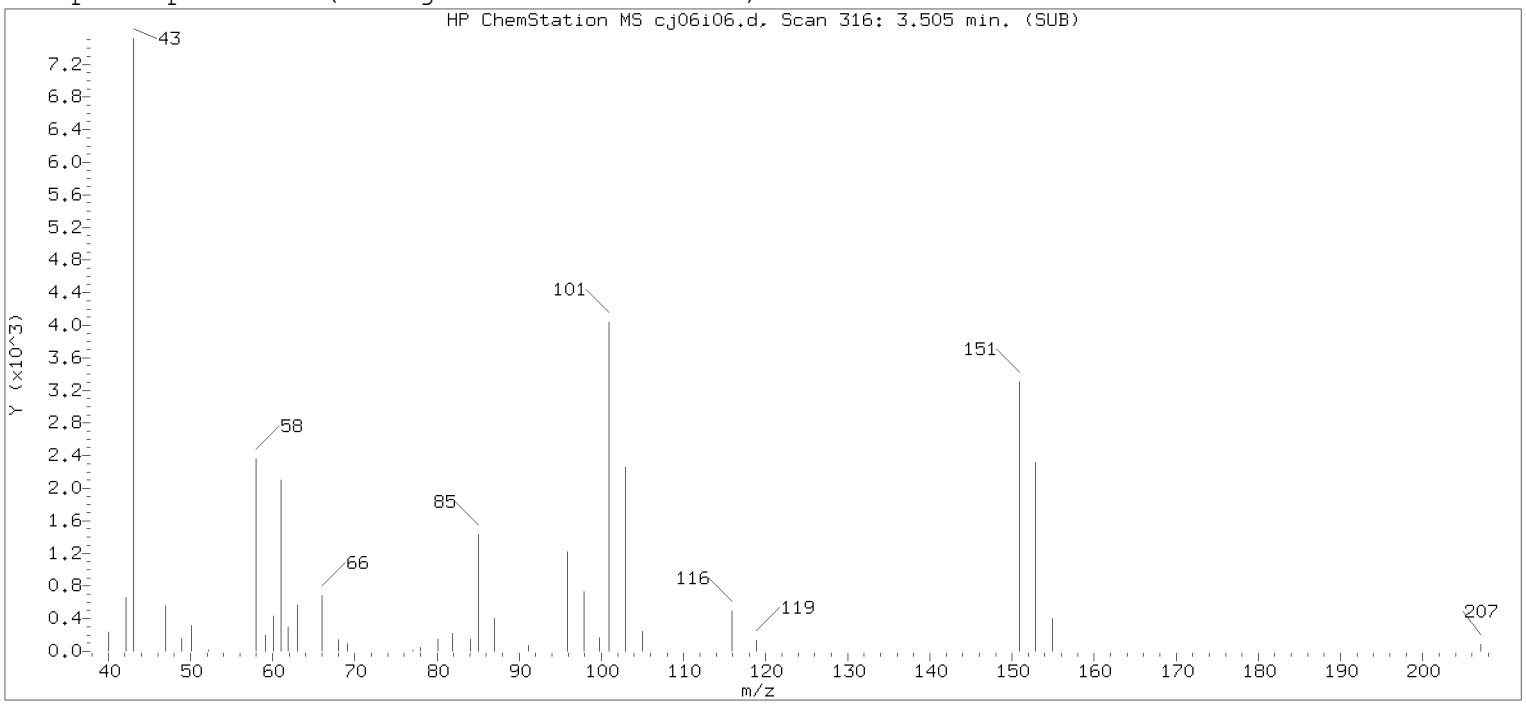
Compound Number : 15
Compound Name : Acetone
Scan Number : 316
Retention Time (minutes): 3.505
Quant Ion : 43.00
Area (flag) : 49589M
On-Column Amount (ng) : 5.0245
Integration start scan : 300 Integration stop scan: 363
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

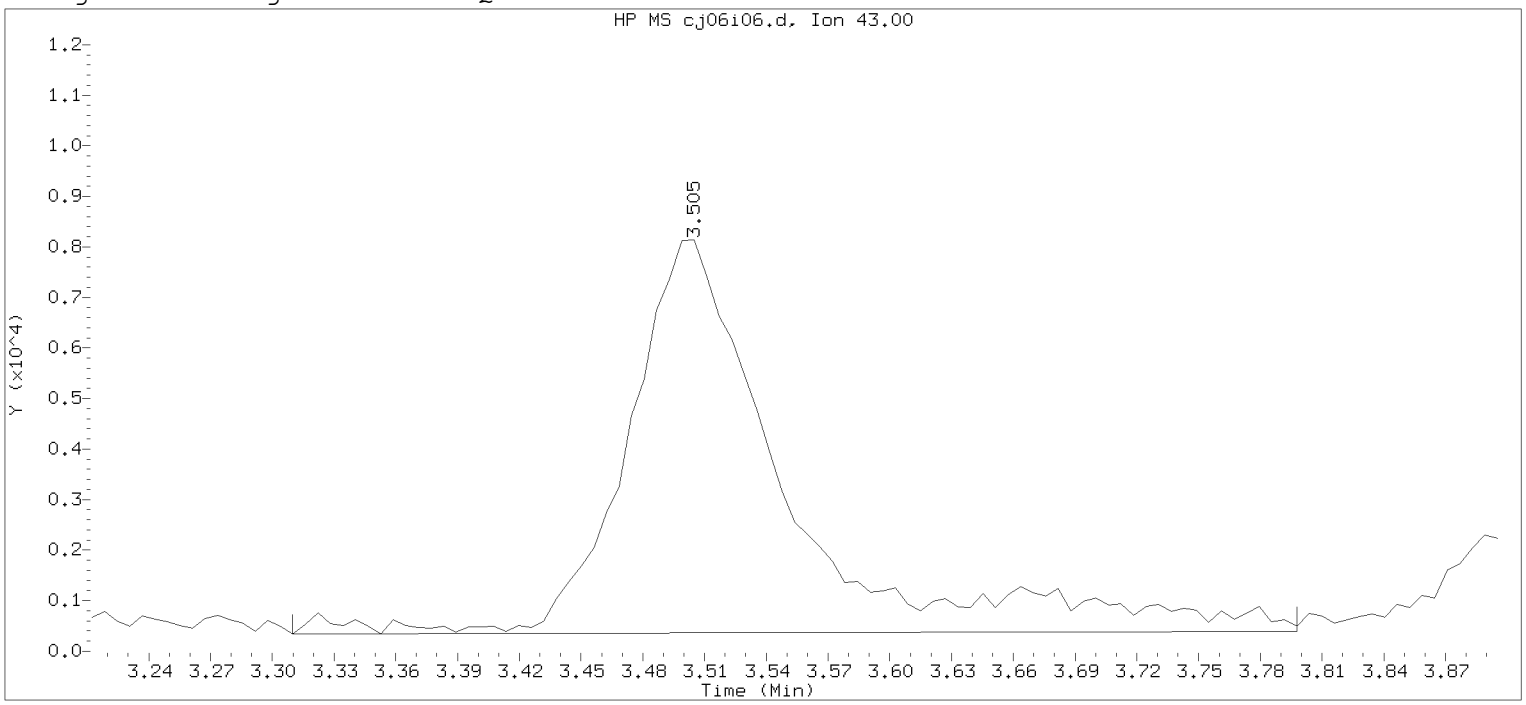
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30  Analyst ID: JKH09052

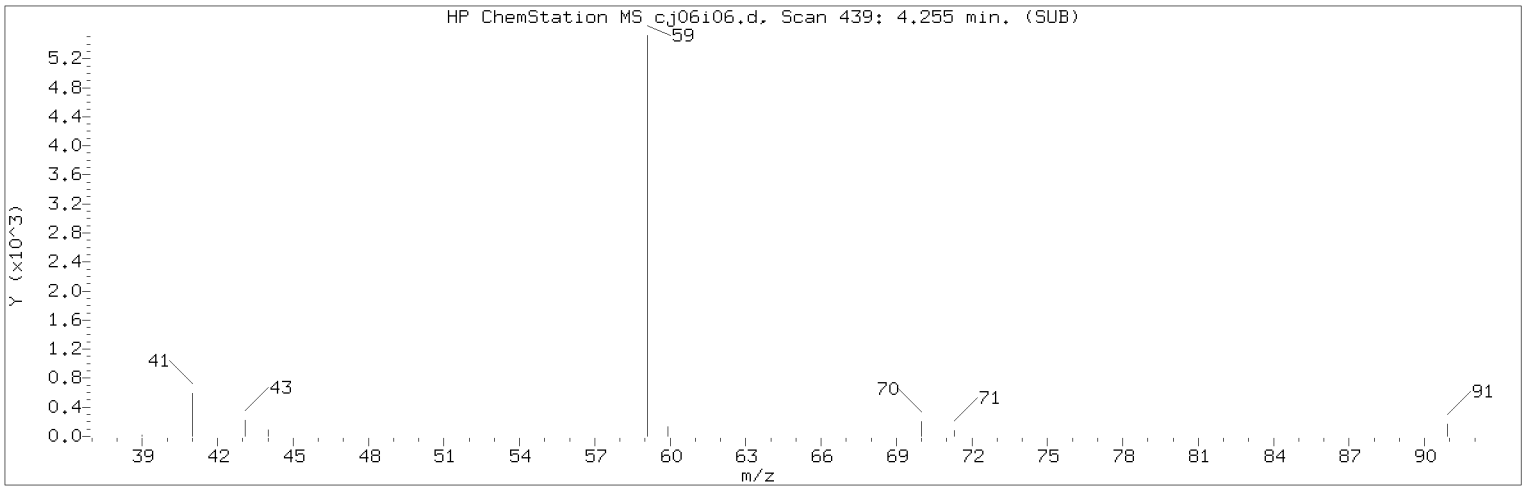
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 20:48 Automation

Sample Name: VSTD0.5  Lab Sample ID: VSTD0.5

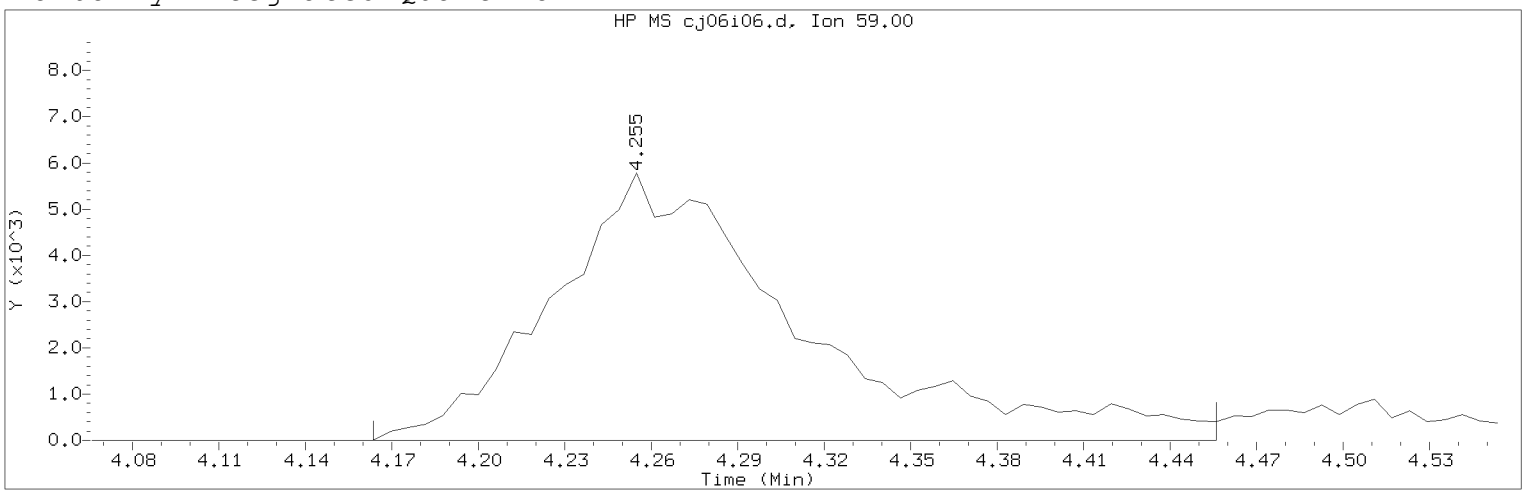
Compound Number : 15
Compound Name : Acetone
Scan Number : 316
Retention Time (minutes): 3.505
Quant Ion : 43.00
Area : 41783
On-column Amount (ng) : 4.8160
Integration start scan : 283  Integration stop scan: 363
Y at integration start : 343  Y at integration end: 394

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec2934

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

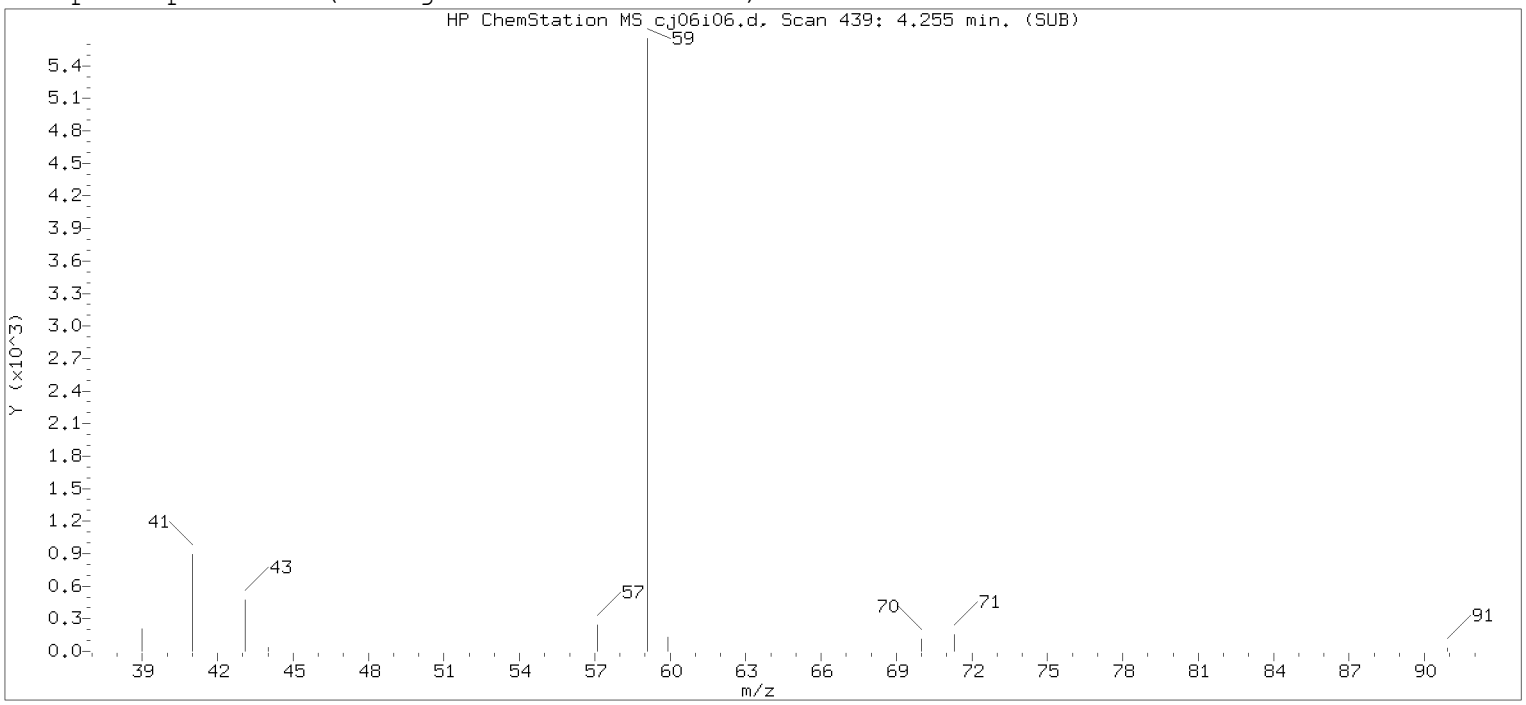
Compound Number : 30
Compound Name : t-Butyl Alcohol
Scan Number : 439
Retention Time (minutes): 4.255
Quant Ion : 59.00
Area (flag) : 34504M
On-Column Amount (ng) : 9.5245
Integration start scan : 423 Integration stop scan: 471
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

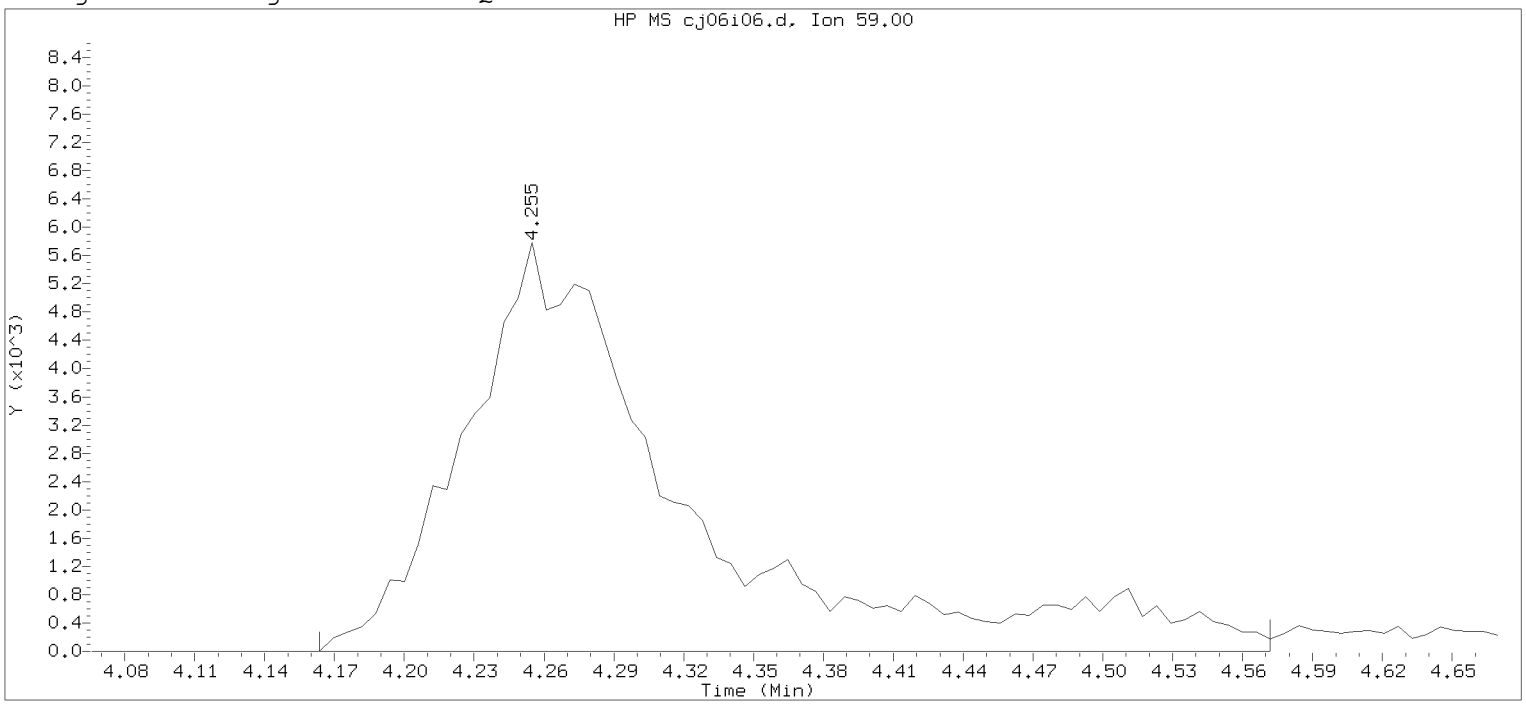
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

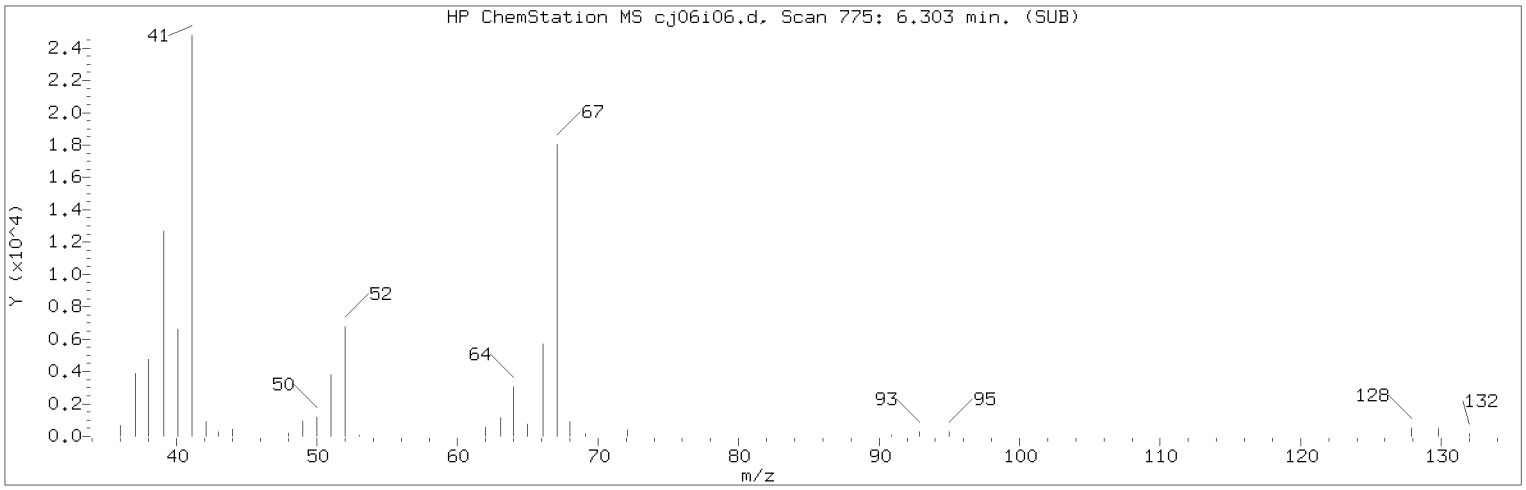
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 20:48 Automation

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

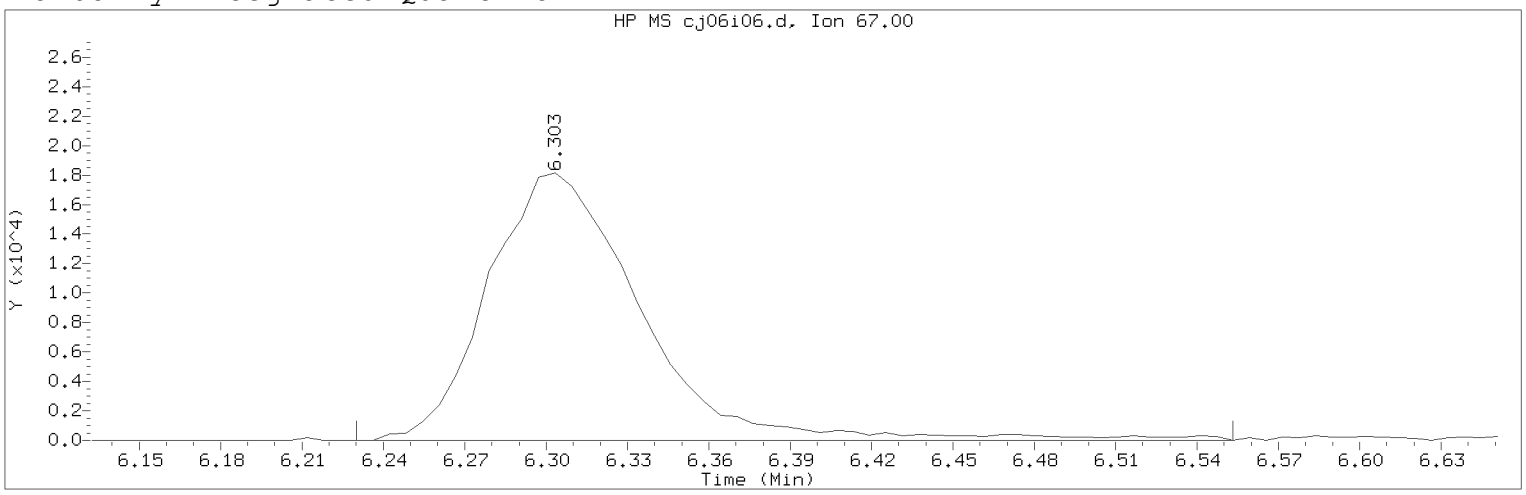
| | | | |
|---|---|---|---|
| Compound Number | : 30 | | |
| Compound Name | : t-Butyl Alcohol | | |
| Scan Number | : 439 | | |
| Retention Time (minutes) | : 4.255 | | |
| Quant Ion | : 59.00 | | |
| Area | : 38125 | | |
| On-column Amount (ng) | : 10.2605 | | |
| Integration start scan | : 423 | Integration stop scan: | 490 |
| Y at integration start | : 0 | Y at integration end: | 0 |

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

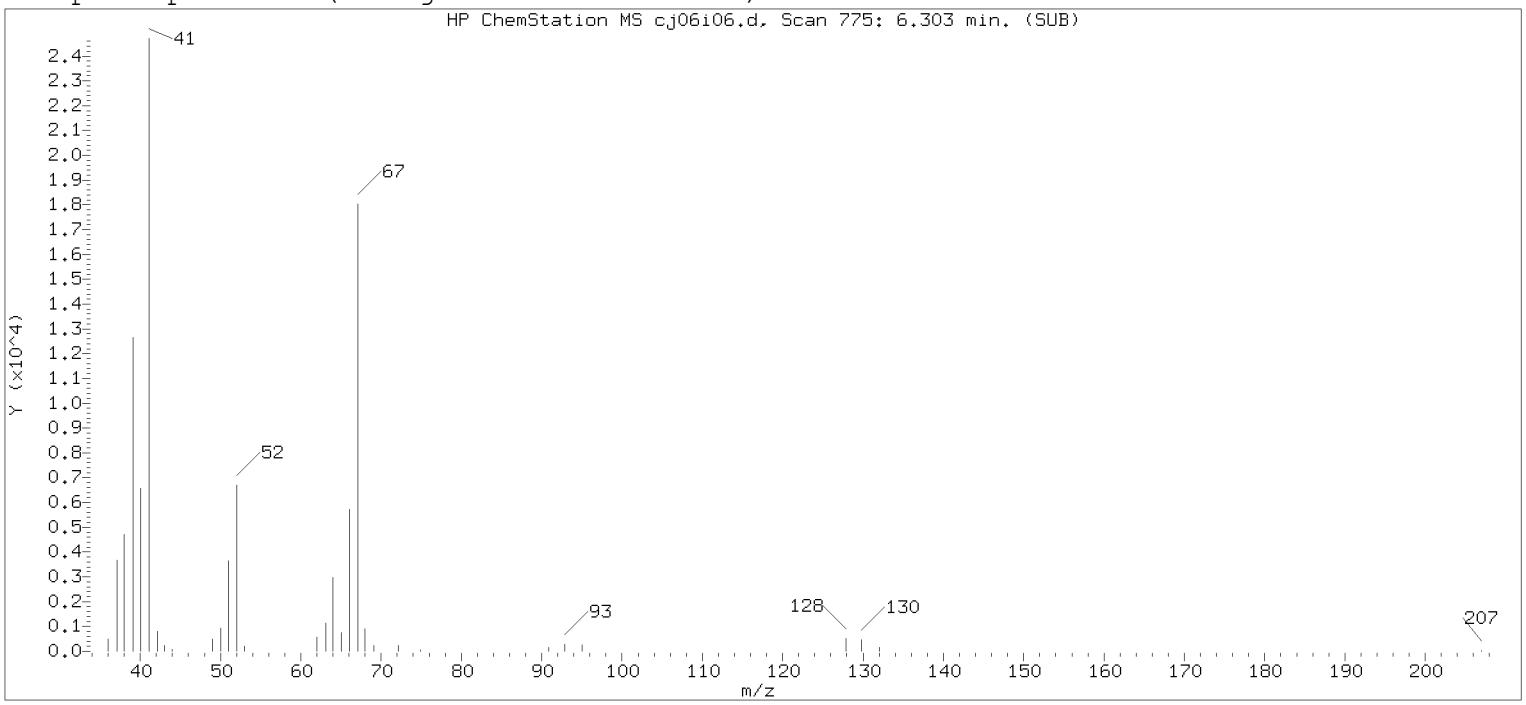
Compound Number : 47
Compound Name : Methacrylonitrile
Scan Number : 775
Retention Time (minutes): 6.303
Quant Ion : 67.00
Area (flag) : 70941M
On-Column Amount (ng) : 4.5682
Integration start scan : 762 Integration stop scan: 815
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

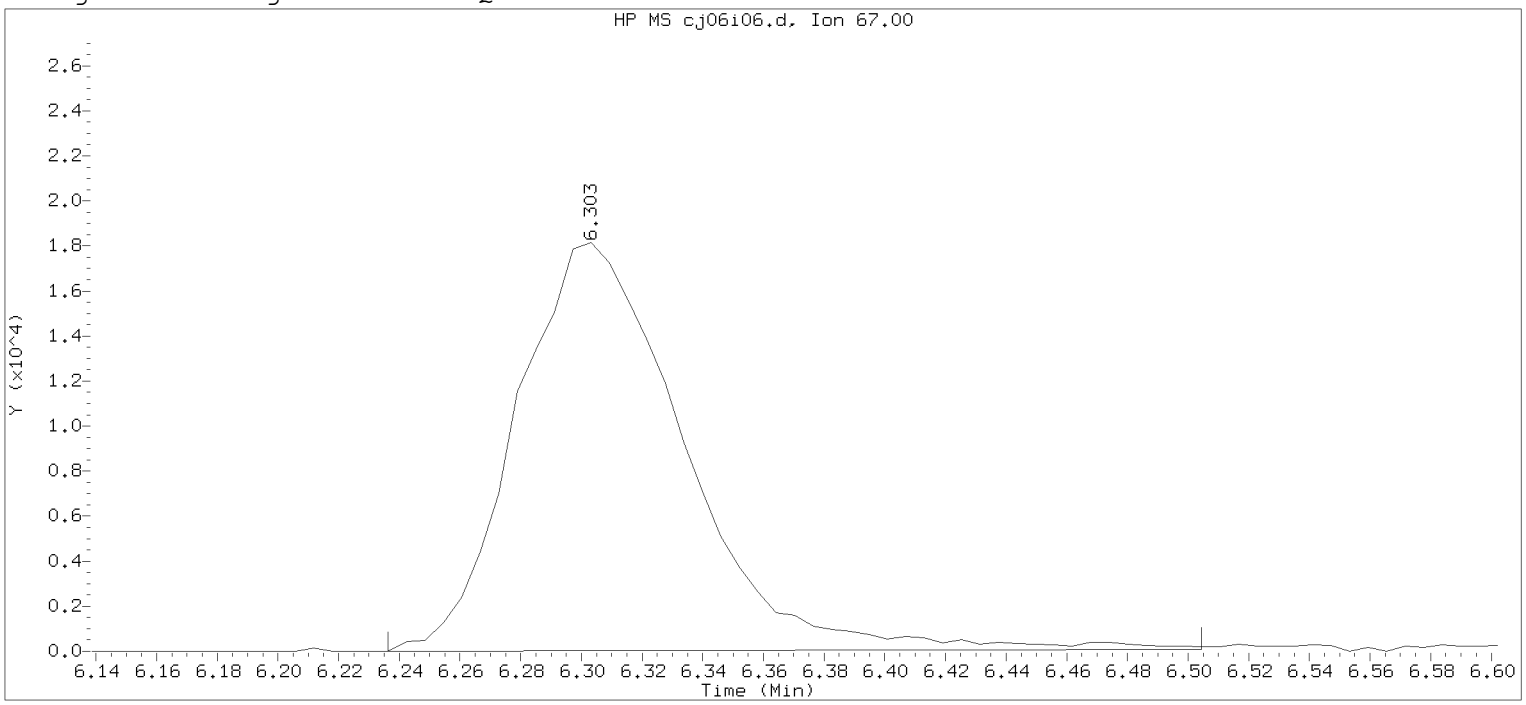
Analyst responsible for change: Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

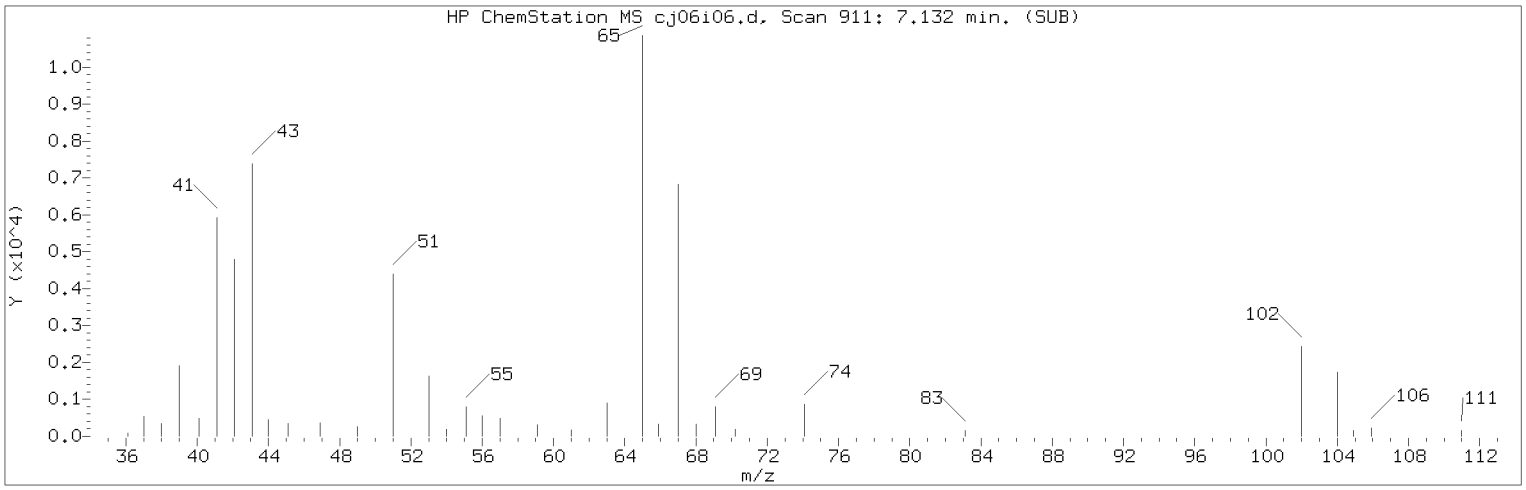
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 20:48 Automation

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

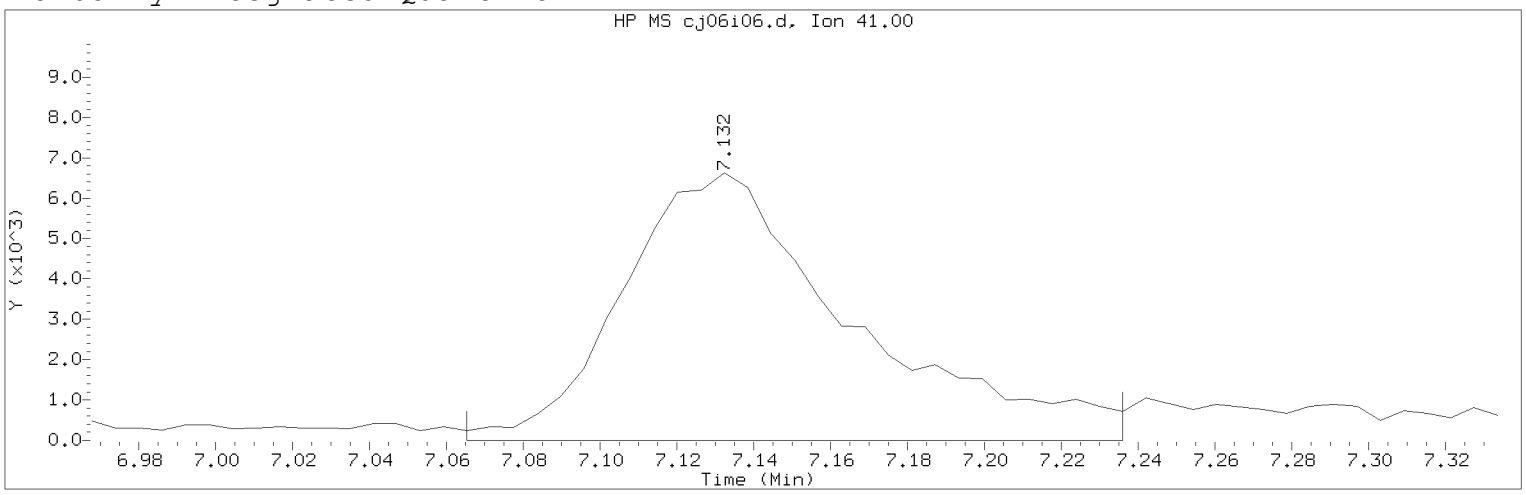
Compound Number : 47
Compound Name : Methacrylonitrile
Scan Number : 775
Retention Time (minutes): 6.303
Quant Ion : 67.00
Area : 69481
On-column Amount (ng) : 4.5043
Integration start scan : 763 Integration stop scan: 807
Y at integration start : 0 Y at integration end: 97

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

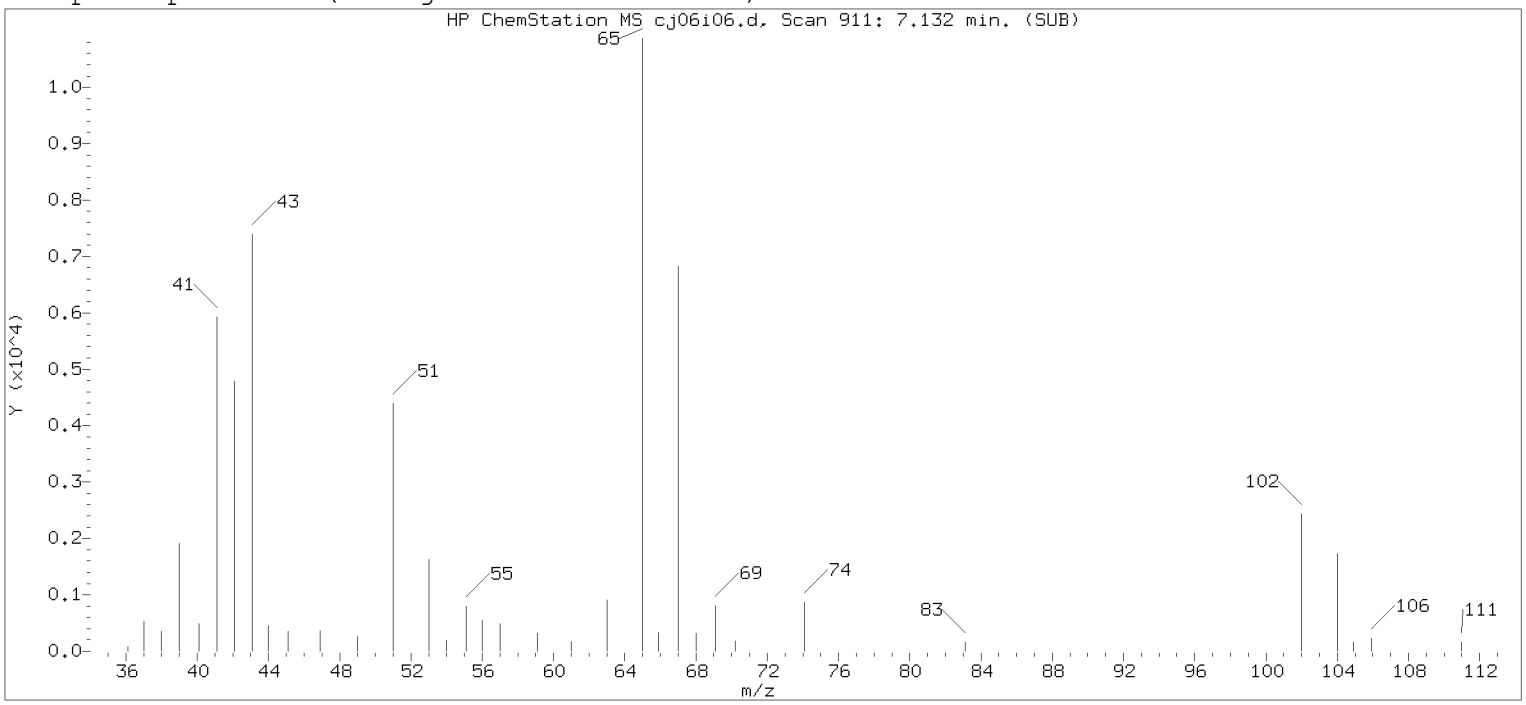
Compound Number : 58
Compound Name : Isobutyl Alcohol
Scan Number : 911
Retention Time (minutes): 7.132
Quant Ion : 41.00
Area (flag) : 27457M
On-Column Amount (ng) : 22.7280
Integration start scan : 899 Integration stop scan: 927
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

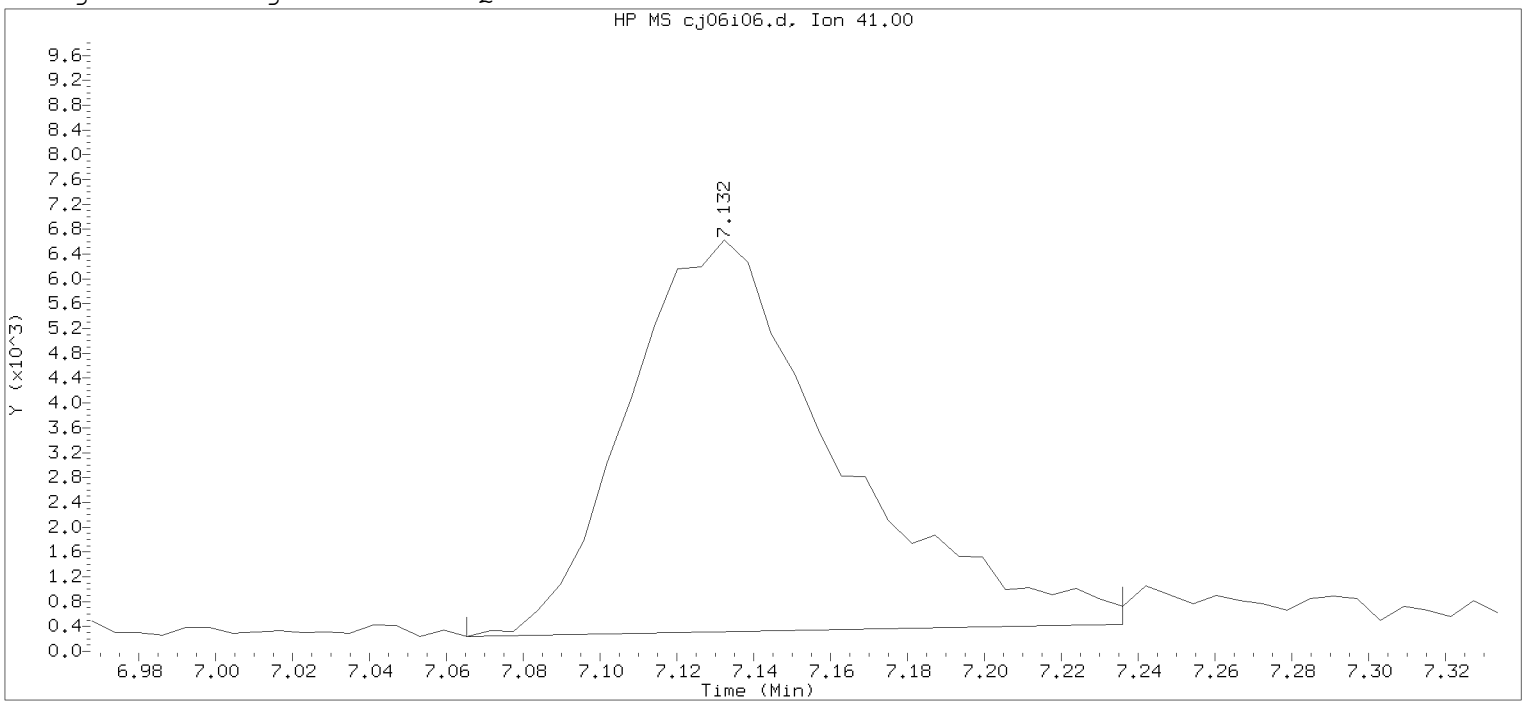
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

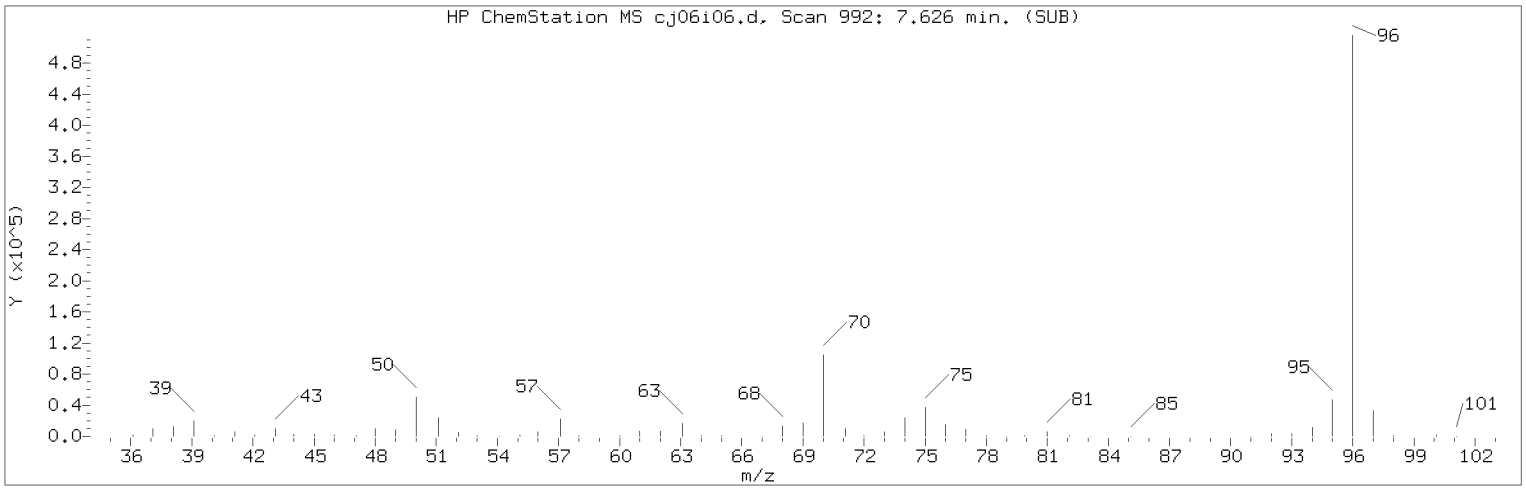
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 20:48 Automation

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

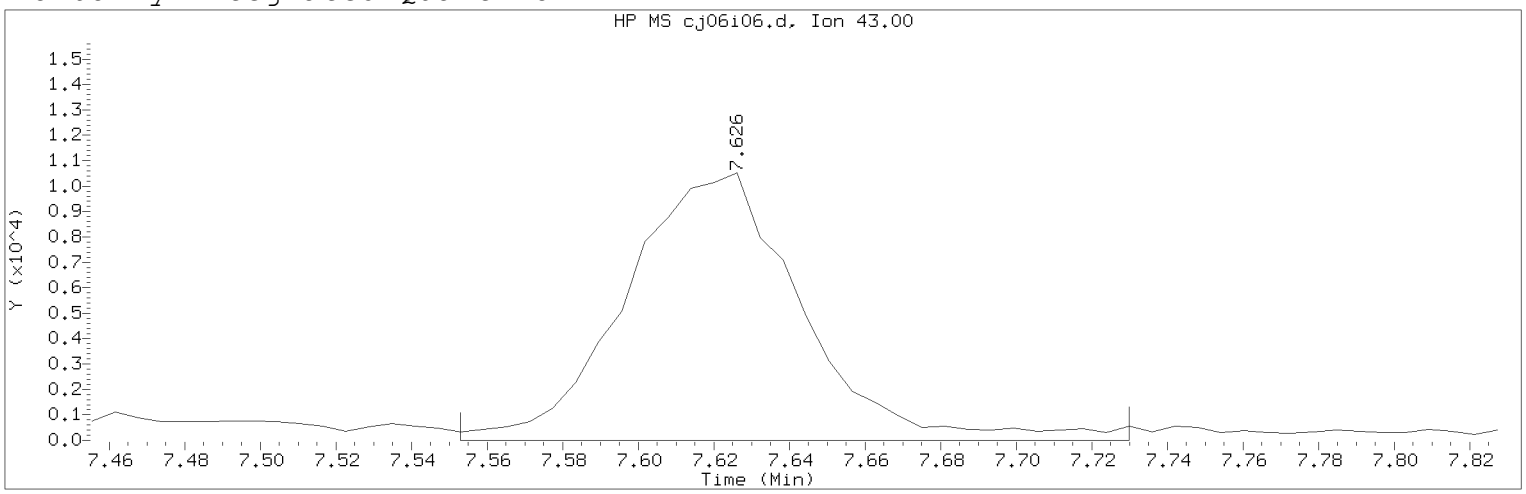
Compound Number : 58
Compound Name : Isobutyl Alcohol
Scan Number : 911
Retention Time (minutes): 7.132
Quant Ion : 41.00
Area : 23829
On-column Amount (ng) : 20.4500
Integration start scan : 899 Integration stop scan: 927
Y at integration start : 240 Y at integration end: 434

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

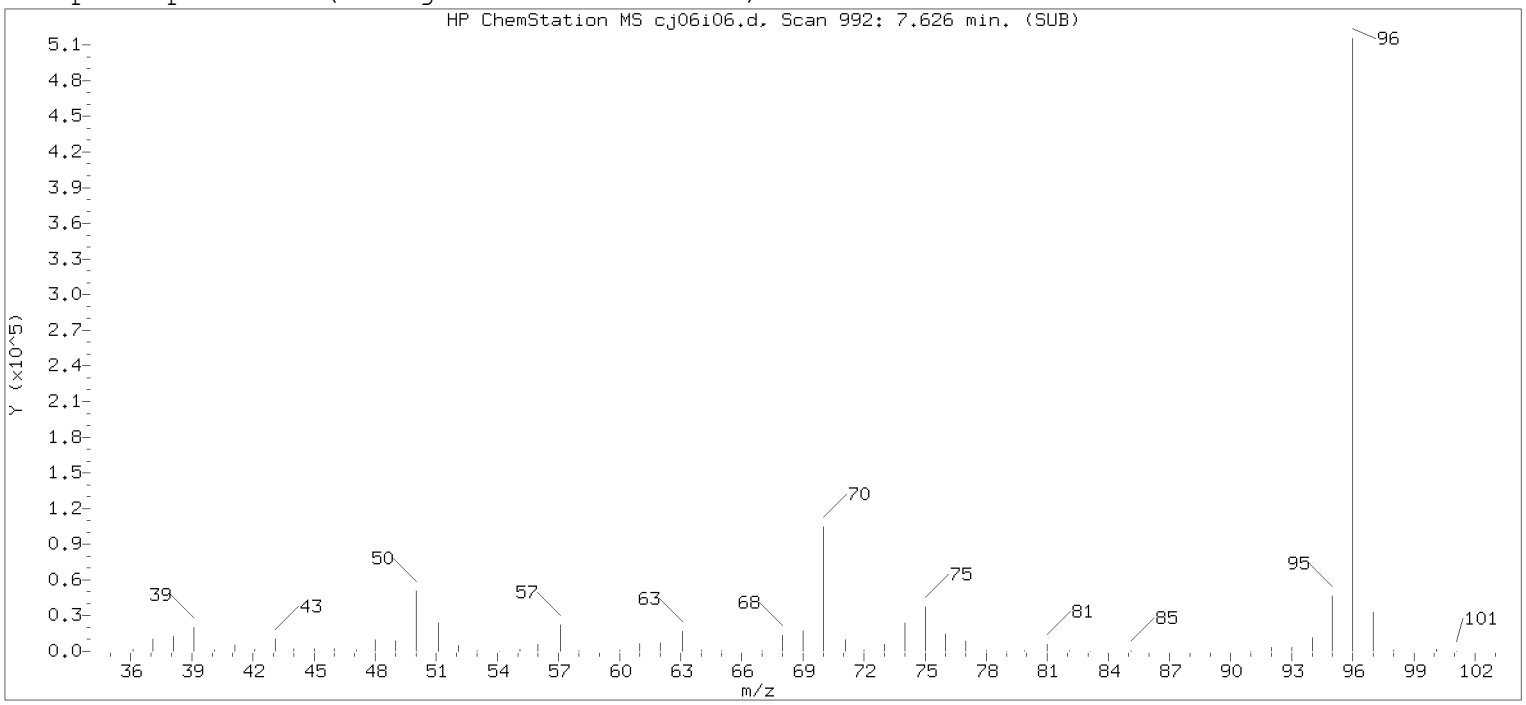
Compound Number : 64
Compound Name : n-Heptane
Scan Number : 992
Retention Time (minutes): 7.626
Quant Ion : 43.00
Area (flag) : 34239M
On-Column Amount (ng) : 0.4398
Integration start scan : 979 Integration stop scan: 1008
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

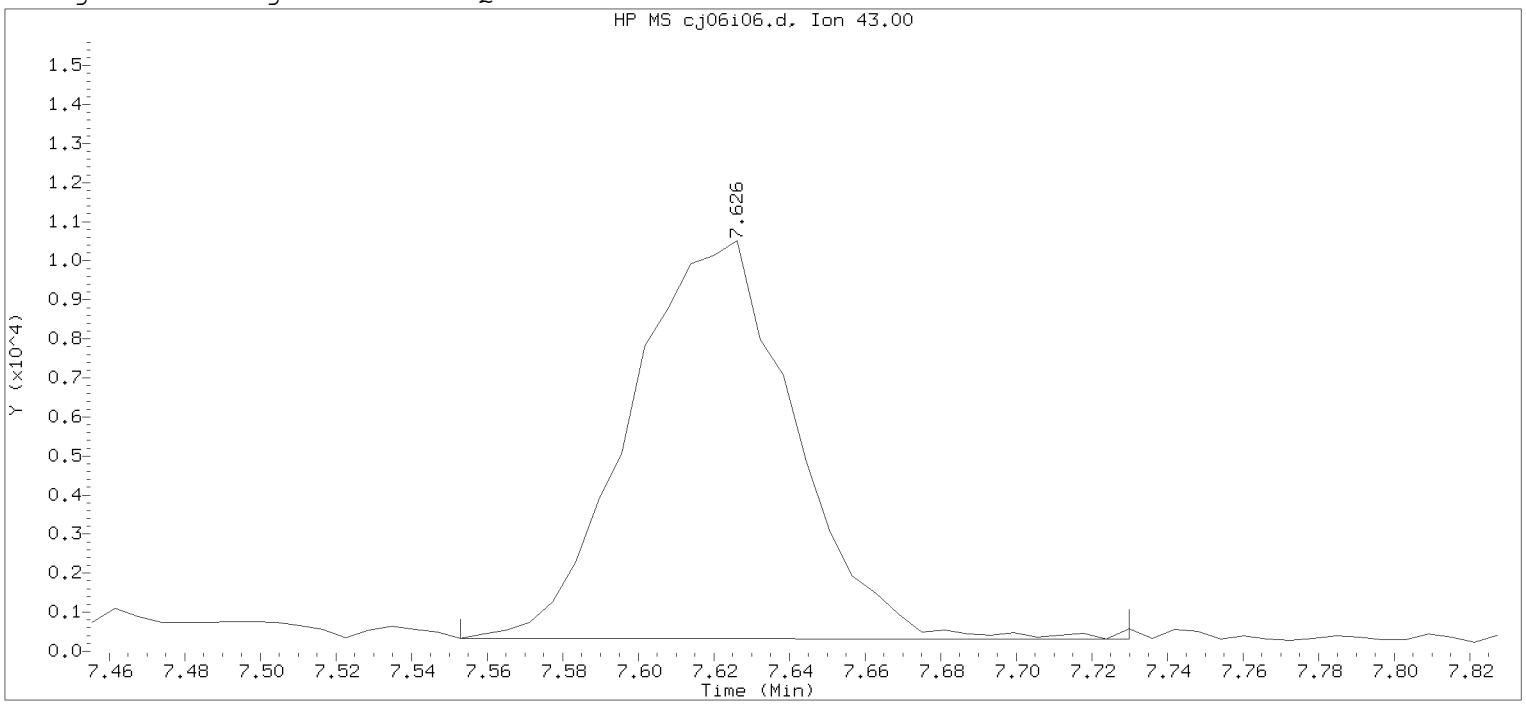
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30  Analyst ID: JKH09052

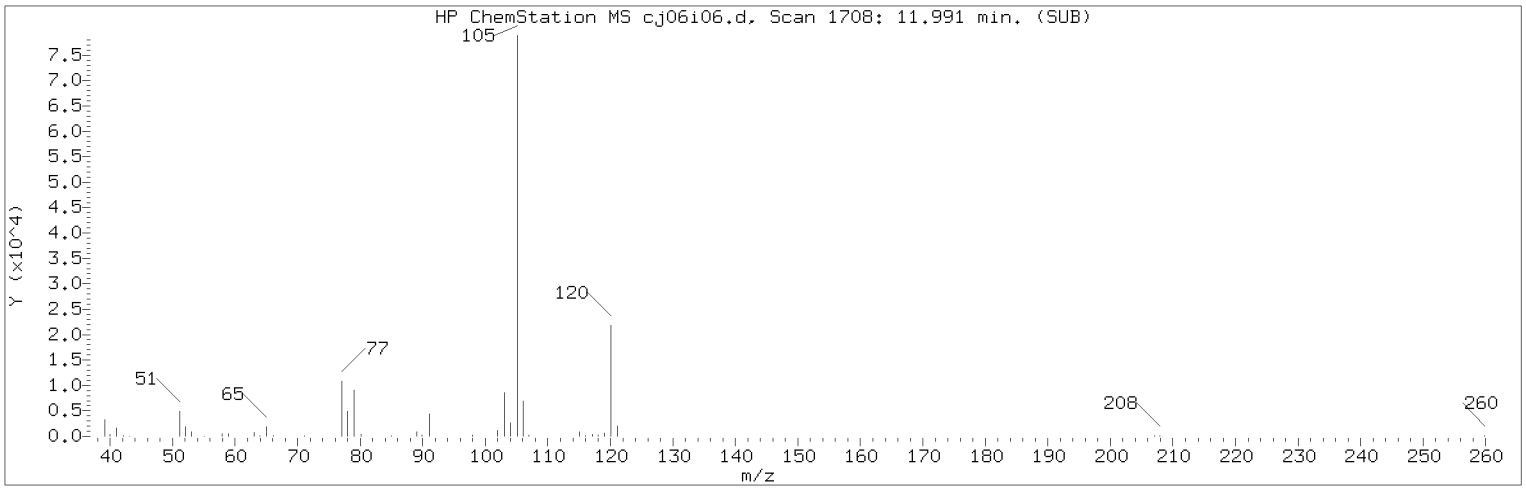
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 20:48 Automation

Sample Name: VSTD0.5  Lab Sample ID: VSTD0.5

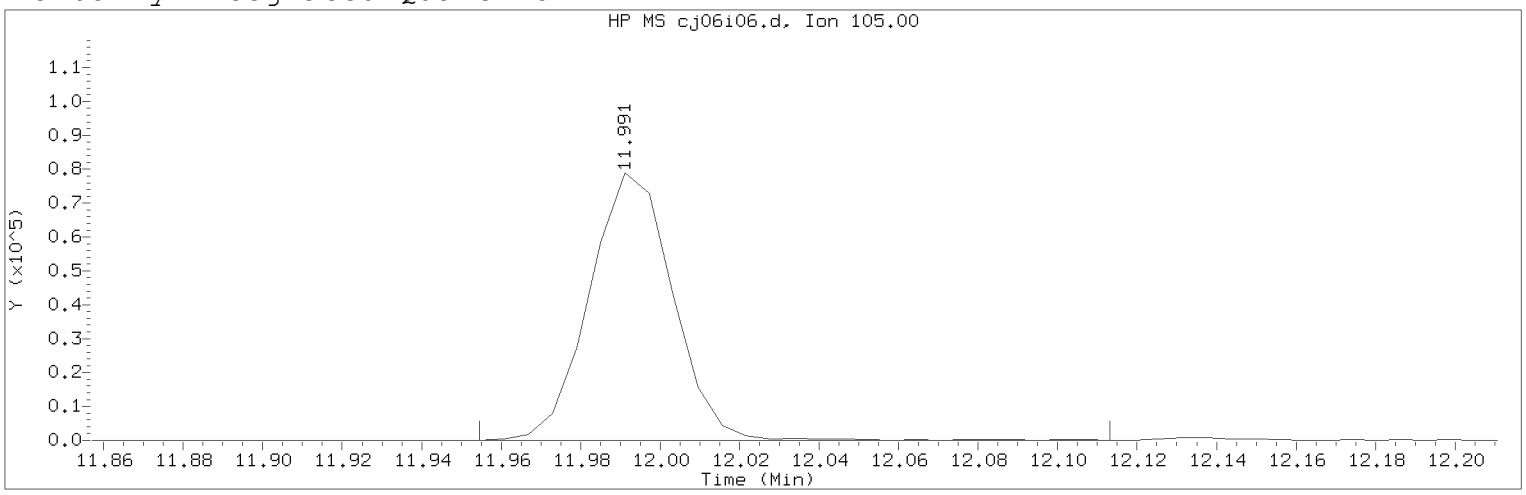
Compound Number : 64
Compound Name : n-Heptane
Scan Number : 992
Retention Time (minutes): 7.626
Quant Ion : 43.00
Area : 30669
On-column Amount (ng) : 0.4120
Integration start scan : 979  Integration stop scan: 1008
Y at integration start : 335  Y at integration end: 307

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec2934

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

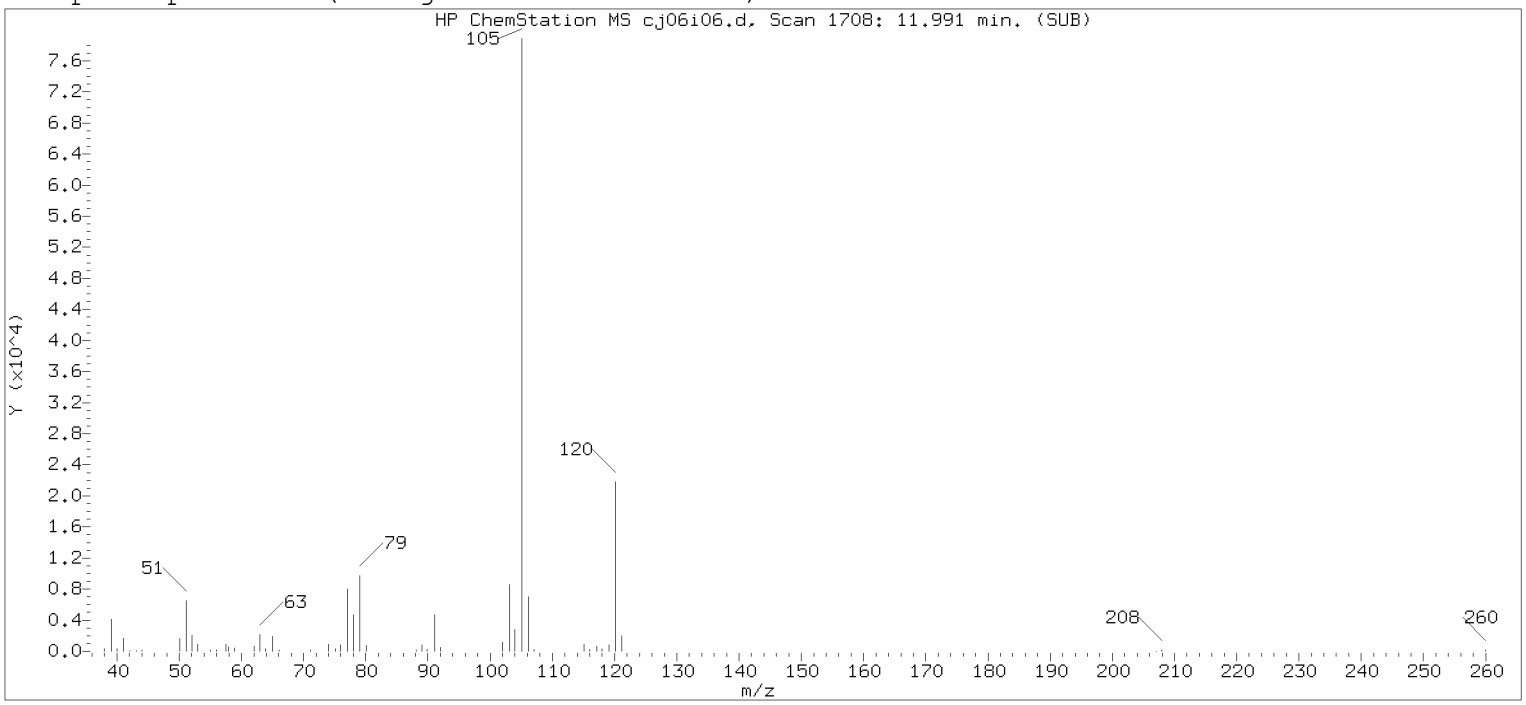
Compound Number : 110
Compound Name : Isopropylbenzene
Scan Number : 1708
Retention Time (minutes): 11.991
Quant Ion : 105.00
Area (flag) : 115043M
On-Column Amount (ng) : 0.4500
Integration start scan : 1701 Integration stop scan: 1727
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

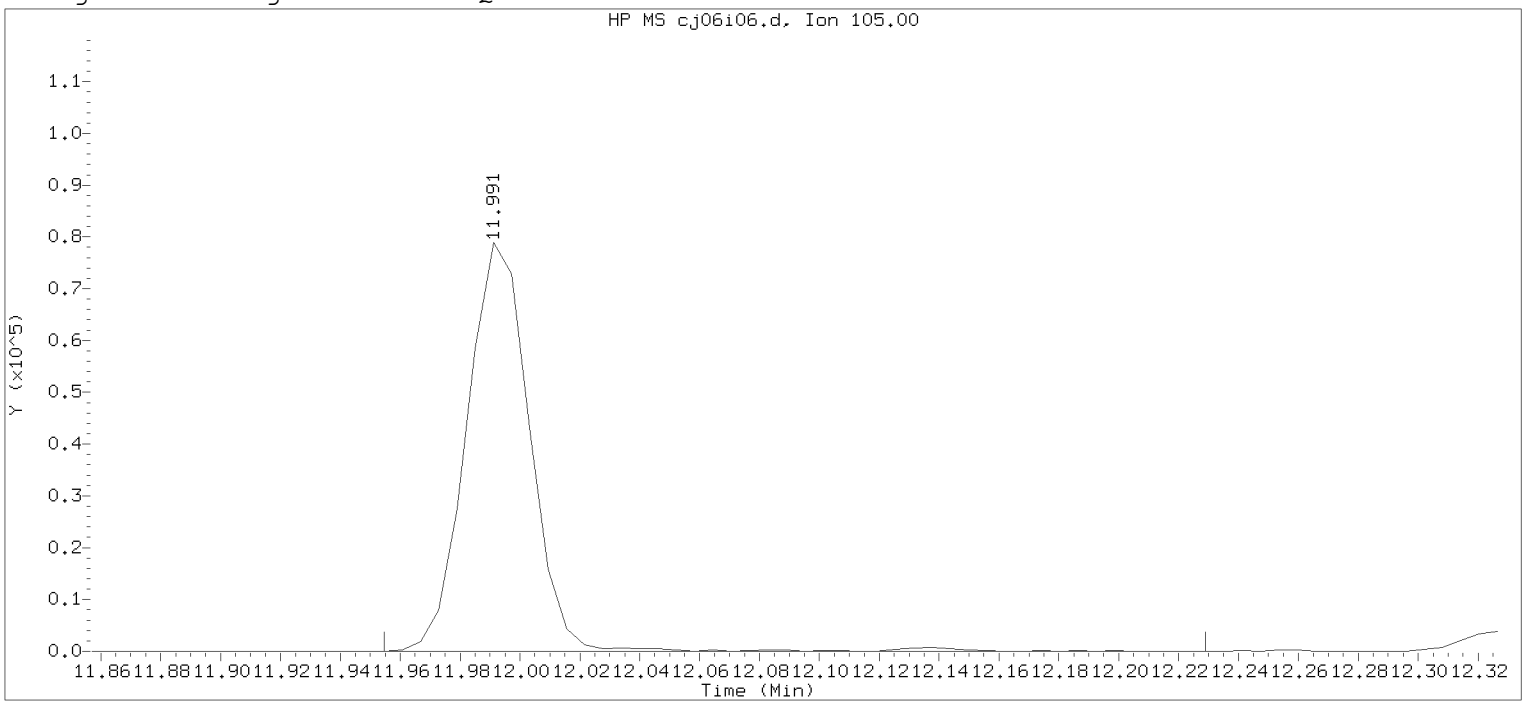
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

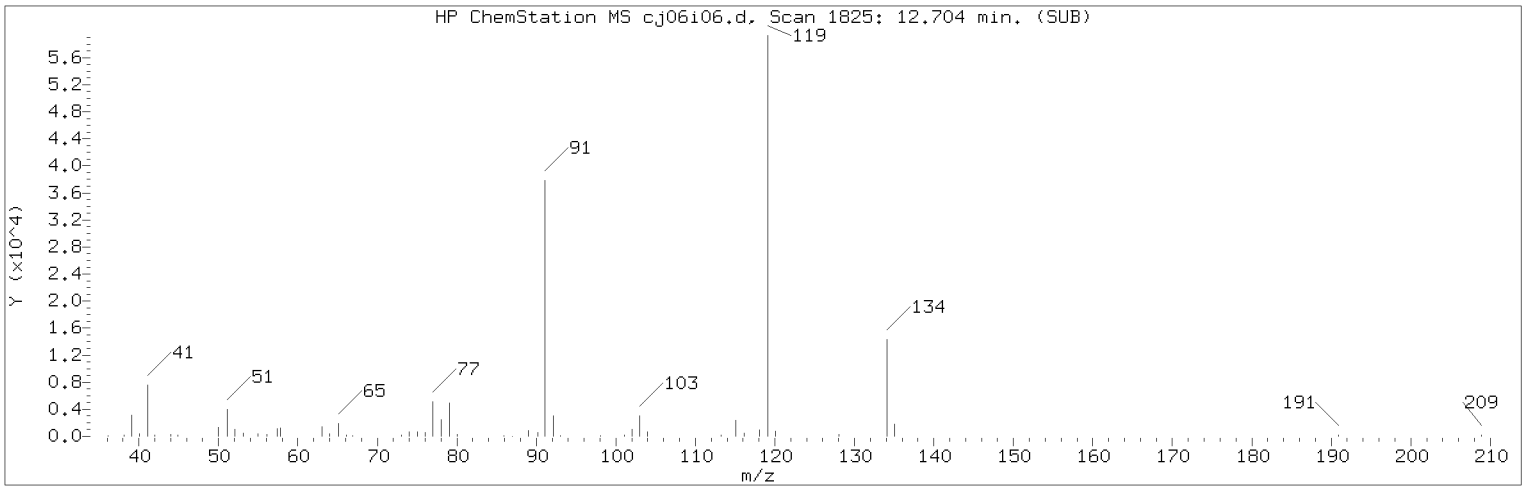
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 20:48 Automation

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

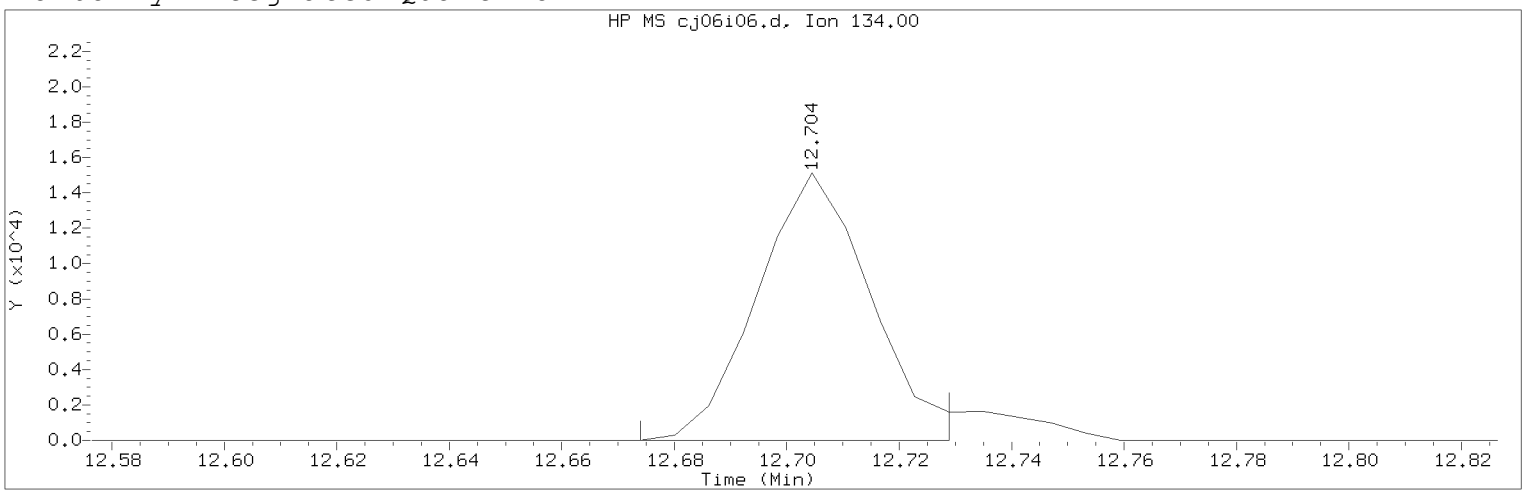
| | | | |
|---|---|---|---|
| Compound Number | : 110 | | |
| Compound Name | : Isopropylbenzene | | |
| Scan Number | : 1708 | | |
| Retention Time (minutes) | : 11.991 | | |
| Quant Ion | : 105.00 | | |
| Area | : 116164 | | |
| On-column Amount (ng) | : 0.4535 | | |
| Integration start scan | : 1701 | Integration stop scan: | 1746 |
| Y at integration start | : 0 | Y at integration end: | 0 |

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

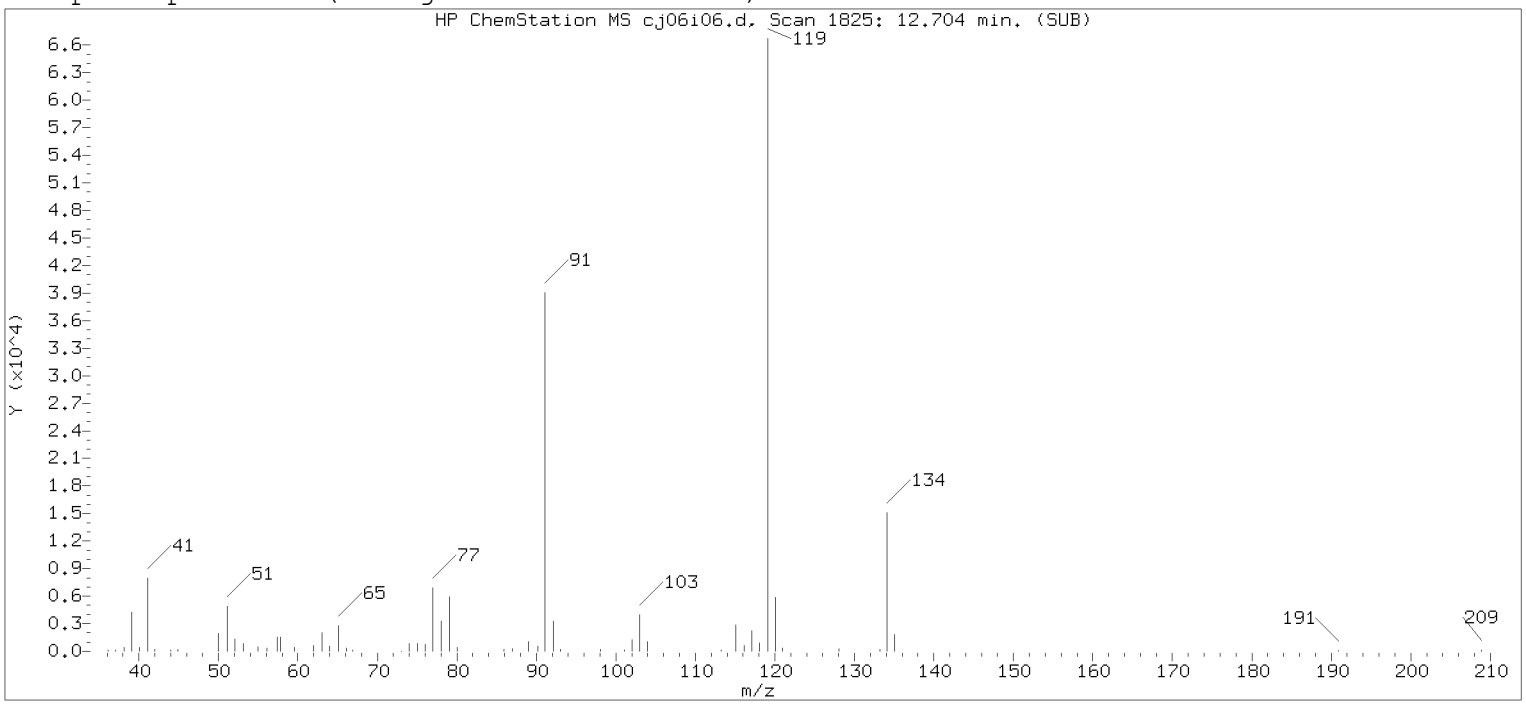
Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1825
Retention Time (minutes): 12.704
Quant Ion : 134.00
Area (flag) : 21134M
On-Column Amount (ng) : 0.4455
Integration start scan : 1819 Integration stop scan: 1828
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

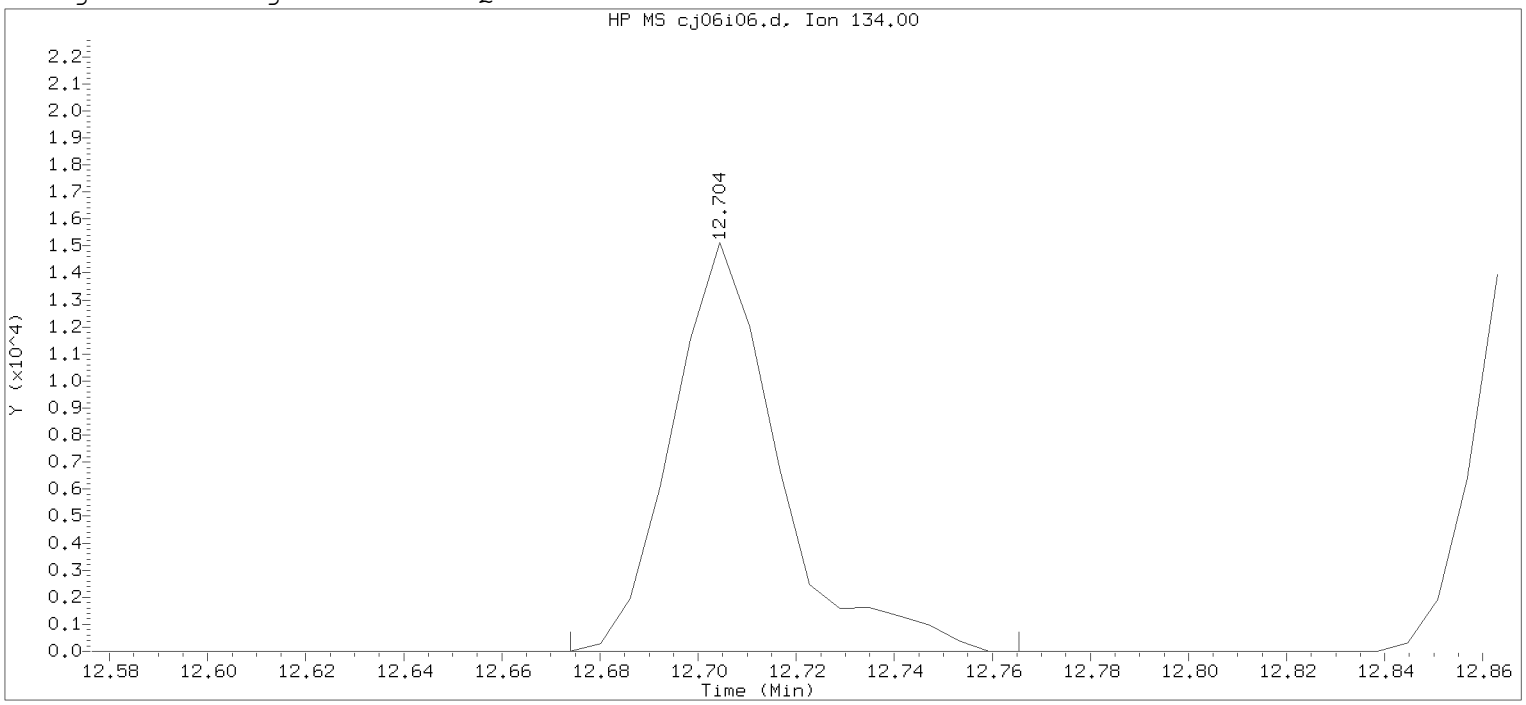
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion



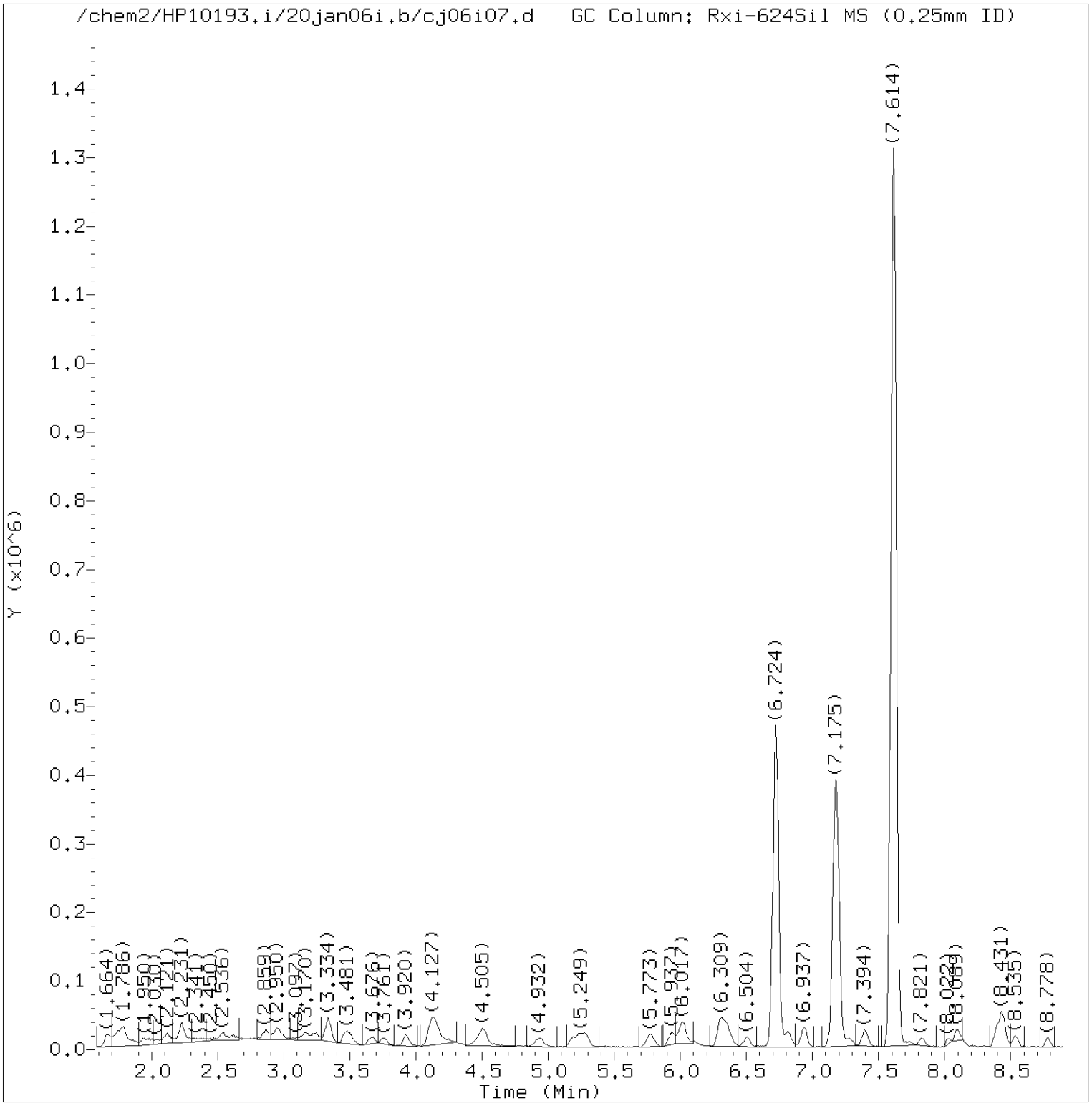

Data File: /chem2/HP10193.i/20jan06i.b/cj06i06.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:30 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 20:48
Date, time and analyst ID of latest file update: 06-Jan-2020 20:48 Automation

Sample Name: VSTD0.5 Lab Sample ID: VSTD0.5

Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1825
Retention Time (minutes): 12.704
Quant Ion : 134.00
Area : 22697
On-column Amount (ng) : 0.4611
Integration start scan : 1819 Integration stop scan: 1834
Y at integration start : 0 Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature used [illegible]




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

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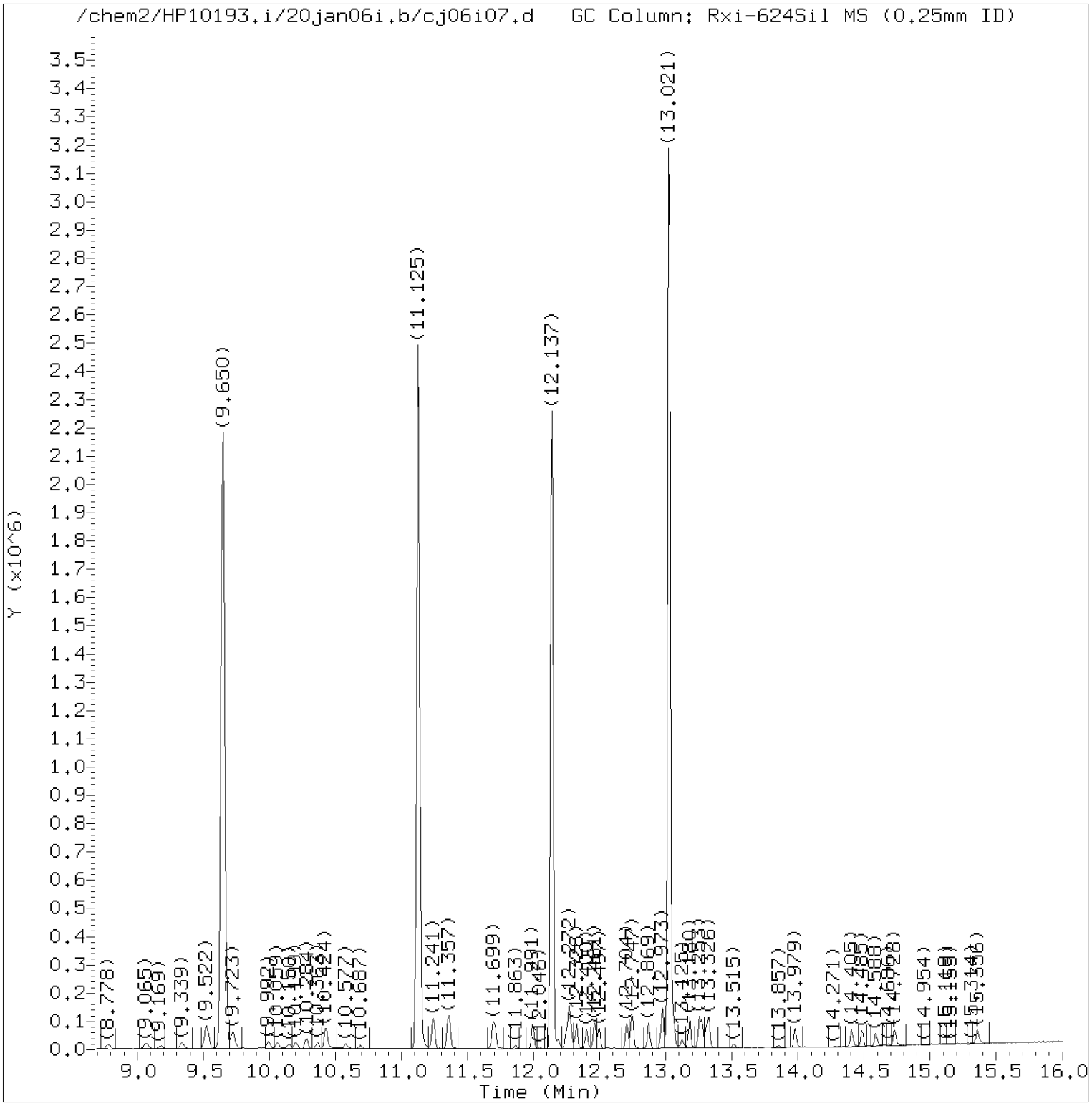
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | 1.932 | 85 | 12346M | 0.192 |
| 2) Chloromethane | (2) | 2.115 | 50 | 14951 | 0.213 |
| 5) Vinyl Chloride | (2) | 2.231 | 62 | 12297 | 0.187 |
| 6) 1,3-Butadiene | (2) | 2.231 | 39 | 13886M | 0.235 |
| 7) Bromomethane | (2) | 2.548 | 94 | 9680 | 0.219 |
| 8) Chloroethane | (2) | 2.627 | 64 | 9102 | 0.233 |
| 9) Dichlorofluoromethane | (2) | 2.859 | 67 | 20796 | 0.244 |
| 10) Trichlorofluoromethane | (2) | 2.926 | 101 | 11493 | 0.177 |
| 12) Ethyl ether | (2) | 3.158 | 59 | 8562 | 0.200 |
| 13) Freon 123a | (2) | 3.249 | 67 | 12901M | 0.230 |
| 14) Acrolein | (1) | 3.334 | 56 | 68342 | 9.962 |
| 16) 1,1-Dichloroethene | (2) | 3.462 | 96 | 8914 | 0.205 |
| 17) Freon 113 | (2) | 3.487 | 101 | 7994 | 0.187 |
| 15) Acetone | (1) | 3.499 | 43 | 22232M | 2.490 |
| 18) Methyl Iodide | (2) | 3.651 | 142 | 16227 | 0.199 |
| 19) Bromoethane | (2) | 3.682 | 108 | 7500 | 0.201 |
| 20) Carbon Disulfide | (2) | 3.749 | 76 | 33369 | 0.214 |
| 24) Allyl Chloride | (2) | 3.920 | 41 | 16957 | 0.212 |
| 23) Methyl Acetate | (2) | 3.920 | 43 | 6845 | 0.240 |
| 25) Methylene Chloride | (2) | 4.102 | 84 | 10400 | 0.211 |
| 28)*t-Butyl Alcohol-d10 | (1) | 4.139 | 65 | 165873 | 50.000 |
| 30) t-Butyl Alcohol | (1) | 4.249 | 59 | 14430M | 4.249 |
| 31) Acrylonitrile | (1) | 4.456 | 53 | 11190 | 1.009 |
| 32) Methyl Tertiary Butyl Ether | (2) | 4.505 | 73 | 26678 | 0.205 |
| 33) trans-1,2-Dichloroethene | (2) | 4.511 | 96 | 10307 | 0.210 |
| 34) n-Hexane | (2) | 4.938 | 57 | 16276 | 0.219 |
| 35) 1,1-Dichloroethane | (2) | 5.188 | 63 | 18301 | 0.203 |
| 36) di-Isopropyl Ether | (2) | 5.236 | 45 | 34795 | 0.206 |
| 37) 2-Chloro-1,3-Butadiene | (2) | 5.285 | 53 | 15345 | 0.196 |
| 39) Ethyl t-butyl ether | (2) | 5.773 | 59 | 32004 | 0.198 |
| 40) 2-Butanone | (1) | 5.998 | 43 | 33105 | 2.113 |
| 41) cis-1,2-Dichloroethene | (2) | 6.023 | 96 | 11820 | 0.214 |
| 43) 2,2-Dichloropropane | (2) | 6.035 | 77 | 15919 | 0.212 |
| 42) 1,2-Dichloroethene (Total) | (2) | | 96 | 22127 | 0.424 |
| 44) Propionitrile | (1) | 6.114 | 54 | 14025 | 3.653 |
| 47) Methacrylonitrile | (1) | 6.315 | 67 | 29736 | 2.043 |
| 49) Bromochloromethane | (2) | 6.358 | 128 | 4741 | 0.192 |
| 50) Tetrahydrofuran | (1) | 6.358 | 71 | 9965 | 2.138 |

M = Compound was manually integrated.
* = Compound is an internal standard.



Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 51) Chloroform | (2) | 6.504 | 83 | 16710 | 0.200 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 113 | 437635 | 10.069 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 111 | 446981 | 10.069 |
| 53) 1,1,1-Trichloroethane | (2) | 6.730 | 97 | 15236 | 0.205 |
| 54) Cyclohexane | (2) | 6.815 | 56 | 18907 | 0.208 |
| 54) Cyclohexane | (2) | 6.815 | 84 | 14316 | 0.191 |
| 54) Cyclohexane | (2) | 6.389 | 69 | 910 | 1.058 |
| 56) Carbon Tetrachloride | (2) | 6.931 | 117 | 11867 | 0.191 |
| 57) 1,1-Dichloropropene | (2) | 6.937 | 75 | 13968 | 0.201 |
| 58) Isobutyl Alcohol | (1) | 7.138 | 41 | 12372M | 10.925 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.175 | 102 | 93739 | 9.840 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.175 | 65 | 436935 | 9.938 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.175 | 104 | 60214 | 9.944 |
| 60) Benzene | (2) | 7.212 | 78 | 42139 | 0.205 |
| 61) 1,2-Dichloroethane | (2) | 7.273 | 62 | 12793 | 0.221 |
| 61) 1,2-Dichloroethane | (2) | 7.279 | 98 | 1340 | 0.230 |
| 62) t-Amyl methyl ether | (2) | 7.394 | 73 | 29560 | 0.202 |
| 65)*Fluorobenzene | (2) | 7.614 | 96 | 1853296 | 10.000 |
| 64) n-Heptane | (2) | 7.626 | 43 | 16090M | 0.209 |
| 67) n-Butanol | (1) | 8.029 | 56 | 18843 | 18.689 |
| 69) Trichloroethene | (2) | 8.089 | 95 | 10499 | 0.204 |
| 71) Methylcyclohexane | (2) | 8.394 | 83 | 15800 | 0.171 |
| 72) 1,2-Dichloropropane | (2) | 8.437 | 63 | 10078 | 0.191 |
| 73) Methyl Methacrylate | (1) | 8.522 | 69 | 6043 | 0.203 |
| 75) Dibromomethane | (2) | 8.547 | 93 | 4876 | 0.197 |
| 74) 1,4-Dioxane | (1) | 8.589 | 88 | 884M | 5.100 |
| 74) 1,4-Dioxane | (1) | 8.559 | 58 | 1218M | 8.869 |
| 76) Bromodichloromethane | (2) | 8.784 | 83 | 13231 | 0.209 |
| 78) 2-Nitropropane | (1) | 9.065 | 41 | 19355 | 2.103 |
| 81) 1-Bromo-2-chloroethane | (2) | 9.175 | 63 | 11156 | 0.196 |
| 82) cis-1,3-Dichloropropene | (2) | 9.333 | 75 | 15901 | 0.195 |
| 83) 4-Methyl-2-Pentanone | (2) | 9.528 | 43 | 75166 | 1.917 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1829315 | 9.983 |
| 84)$Toluene-d8 | (3) | 9.650 | 100 | 1181366 | 9.925 |
| 85) Toluene | (3) | 9.723 | 92 | 27045 | 0.207 |
| 87) 1,3-Dichloropropene (total) | (3) | | 75 | 29680 | 0.389 |
| 86) trans-1,3-Dichloropropene | (3) | 9.992 | 75 | 13779 | 0.195 |
| 88) Ethyl Methacrylate | (3) | 10.059 | 69 | 12976 | 0.205 |

M = Compound was manually integrated.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.



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on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 90) 1,1,2-Trichloroethane | (3) | 10.199 | 97 | 7477 | 0.200 |
| 91) Tetrachloroethene | (3) | 10.284 | 166 | 11280 | 0.200 |
| 92) 1,3-Dichloropropane | (3) | 10.363 | 76 | 13113 | 0.198 |
| 93) 2-Hexanone | (3) | 10.431 | 43 | 57299 | 2.009 |
| 95) Dibromochloromethane | (3) | 10.577 | 129 | 8733 | 0.193 |
| 97) 1,2-Dibromoethane | (3) | 10.693 | 107 | 7016 | 0.194 |
| 98) 1-Chlorohexane | (3) | 11.028 | 91 | 17158A | 0.226 |
| 99)*Chlorobenzene-d5 | (3) | 11.125 | 117 | 1375007 | 10.000 |
| 100) Chlorobenzene | (3) | 11.156 | 112 | 29759 | 0.202 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | 11.241 | 131 | 9653 | 0.190 |
| 102) Ethylbenzene | (3) | 11.241 | 91 | 50858 | 0.201 |
| 103) m+p-Xylene | (3) | 11.357 | 106 | 39379 | 0.397 |
| 106) o-Xylene | (3) | 11.686 | 106 | 20120 | 0.204 |
| 108) Styrene | (3) | 11.705 | 104 | 32692 | 0.197 |
| 107) Xylene (Total) | (3) | | 106 | 59499 | 0.602 |
| 109) Bromoform | (3) | 11.869 | 173 | 5142 | 0.184 |
| 110) Isopropylbenzene | (3) | 11.991 | 105 | 50538 | 0.199 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 691280 | 10.041 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 174 | 583967 | 10.109 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | 12.241 | 83 | 9810 | 0.198 |
| 116) Bromobenzene | (4) | 12.253 | 156 | 12394 | 0.197 |
| 117) trans-1,4-Dichloro-2-butene | (1) | 12.272 | 53 | 25681 | 1.871 |
| 118) 1,2,3-Trichloropropane | (4) | 12.290 | 110 | 2596 | 0.197 |
| 119) n-Propylbenzene | (4) | 12.326 | 91 | 59167 | 0.199 |
| 121) 2-Chlorotoluene | (4) | 12.400 | 126 | 12555 | 0.202 |
| 123) 1,3,5-Trimethylbenzene | (4) | 12.461 | 105 | 42955 | 0.196 |
| 124) 4-Chlorotoluene | (4) | 12.497 | 126 | 12924 | 0.200 |
| 127) tert-Butylbenzene | (4) | 12.704 | 134 | 9302M | 0.199 |
| 128) Pentachloroethane | (4) | 12.741 | 167 | 8207 | 0.204 |
| 129) 1,2,4-Trimethylbenzene | (4) | 12.747 | 105 | 46156 | 0.199 |
| 130) sec-Butylbenzene | (4) | 12.869 | 105 | 55169 | 0.196 |
| 133) 1,3-Dichlorobenzene | (4) | 12.967 | 146 | 24861 | 0.199 |
| 134) p-Isopropyltoluene | (4) | 12.979 | 119 | 47583 | 0.193 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.021 | 152 | 756429 | 10.000 |
| 136) 1,4-Dichlorobenzene | (4) | 13.040 | 146 | 26849 | 0.210 |
| 137) 1,2,3-Trimethylbenzene | (4) | 13.052 | 120 | 22640 | 0.218 |
| 138) Benzyl Chloride | (4) | 13.125 | 126 | 3967 | 0.184 |
| 140) n-Butylbenzene | (4) | 13.271 | 92 | 23901 | 0.193 |

M = Compound was manually integrated.
A = User selected an alternate hit.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.

Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

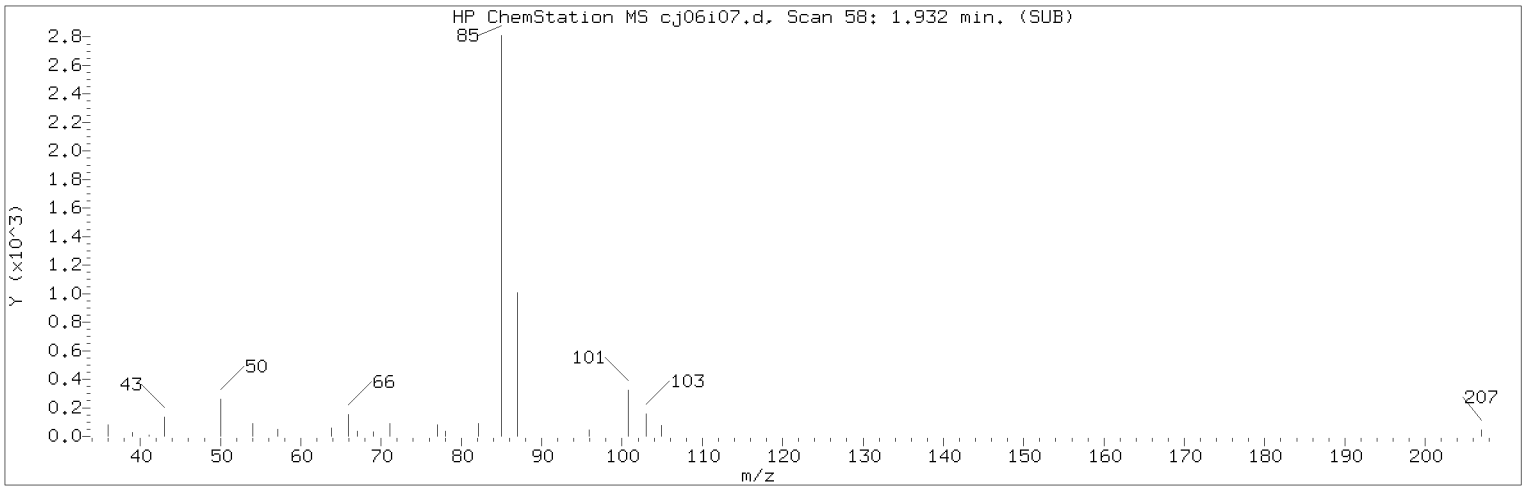
Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

| | Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|---|
| 141) | 1,2-Dichlorobenzene | (4) | 13.308 | 146 | 23450 | 0.200 |
| 145) | 1,2-Dibromo-3-chloropropane | (1) | 13.857 | 155 | 1448 | 0.192 |
| 146) | 1,3,5-Trichlorobenzene | (4) | 13.979 | 180 | 21149 | 0.204 |
| 147) | 1,2,4-Trichlorobenzene | (4) | 14.405 | 180 | 19267 | 0.206 |
| 148) | Hexachlorobutadiene | (4) | 14.485 | 225 | 9432 | 0.210 |
| 149) | Naphthalene | (4) | 14.588 | 128 | 35857 | 0.207 |
| 150) | 1,2,3-Trichlorobenzene | (4) | 14.728 | 180 | 17370 | 0.212 |

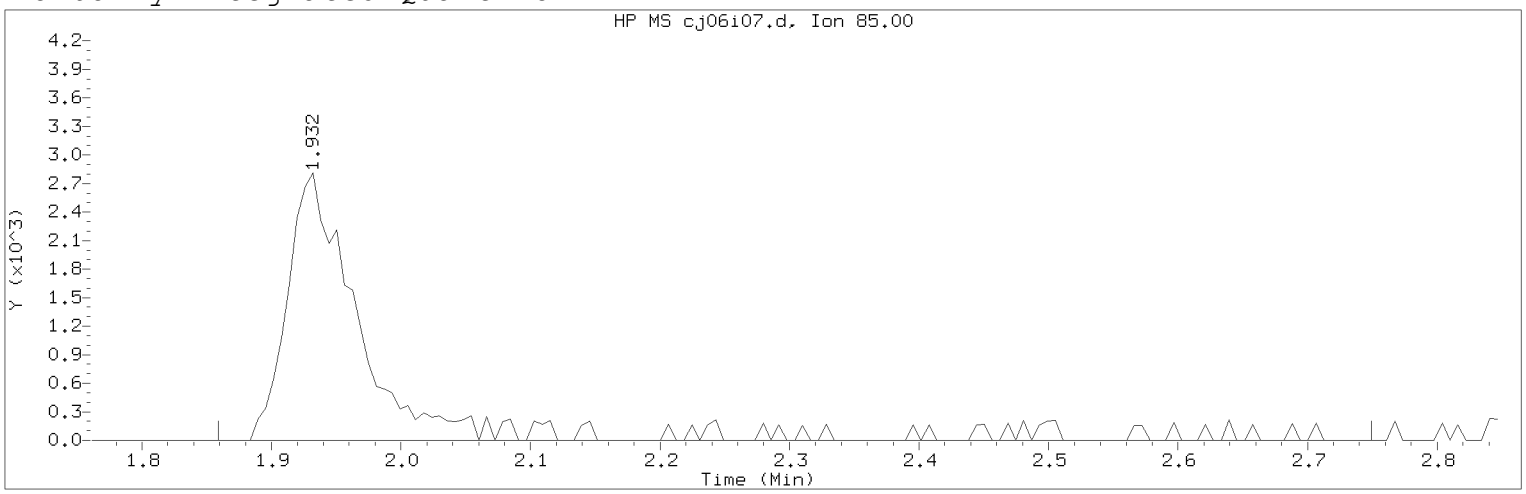


Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

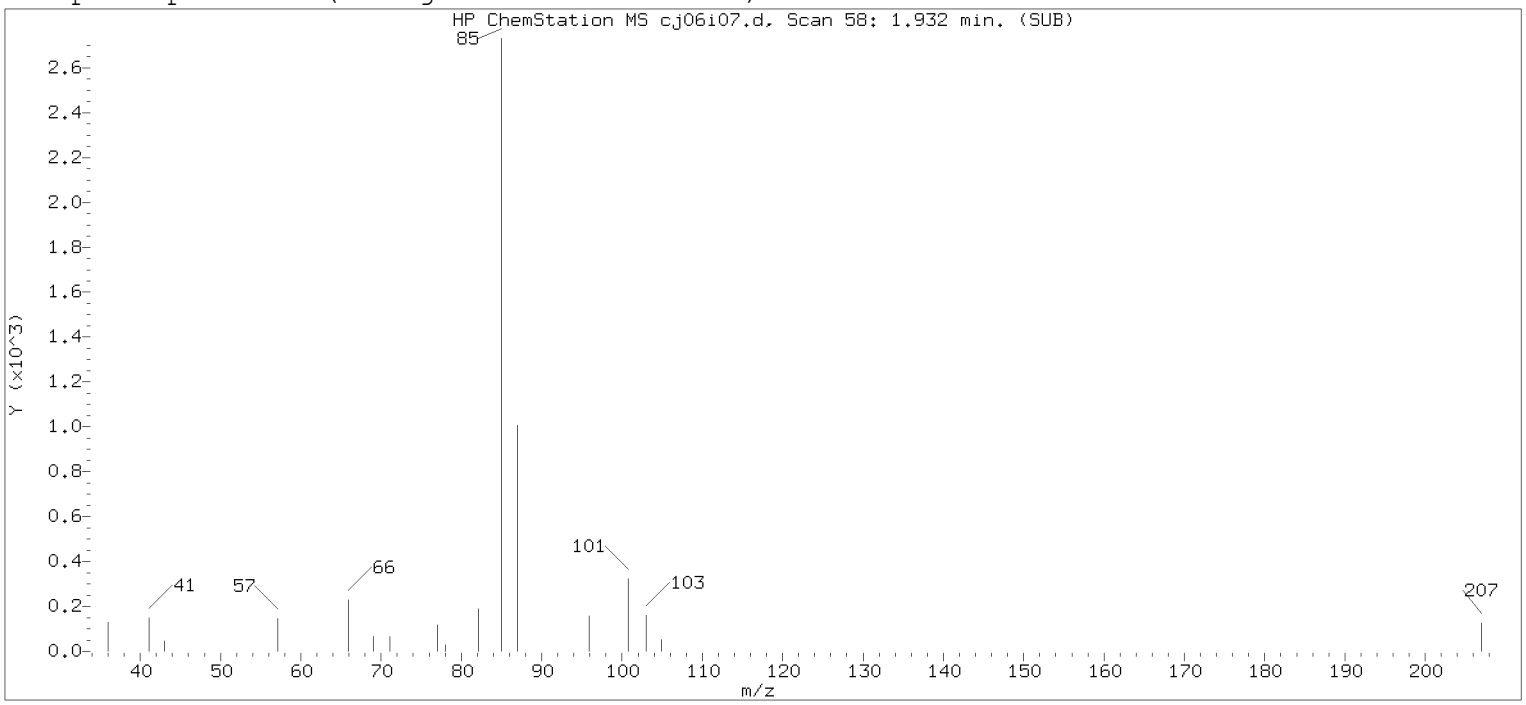
Compound Number : 1
Compound Name : Dichlorodifluoromethane
Scan Number : 58
Retention Time (minutes): 1.932
Quant Ion : 85.00
Area (flag) : 12346M
On-Column Amount (ng) : 0.1918
Integration start scan : 45 Integration stop scan: 191
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

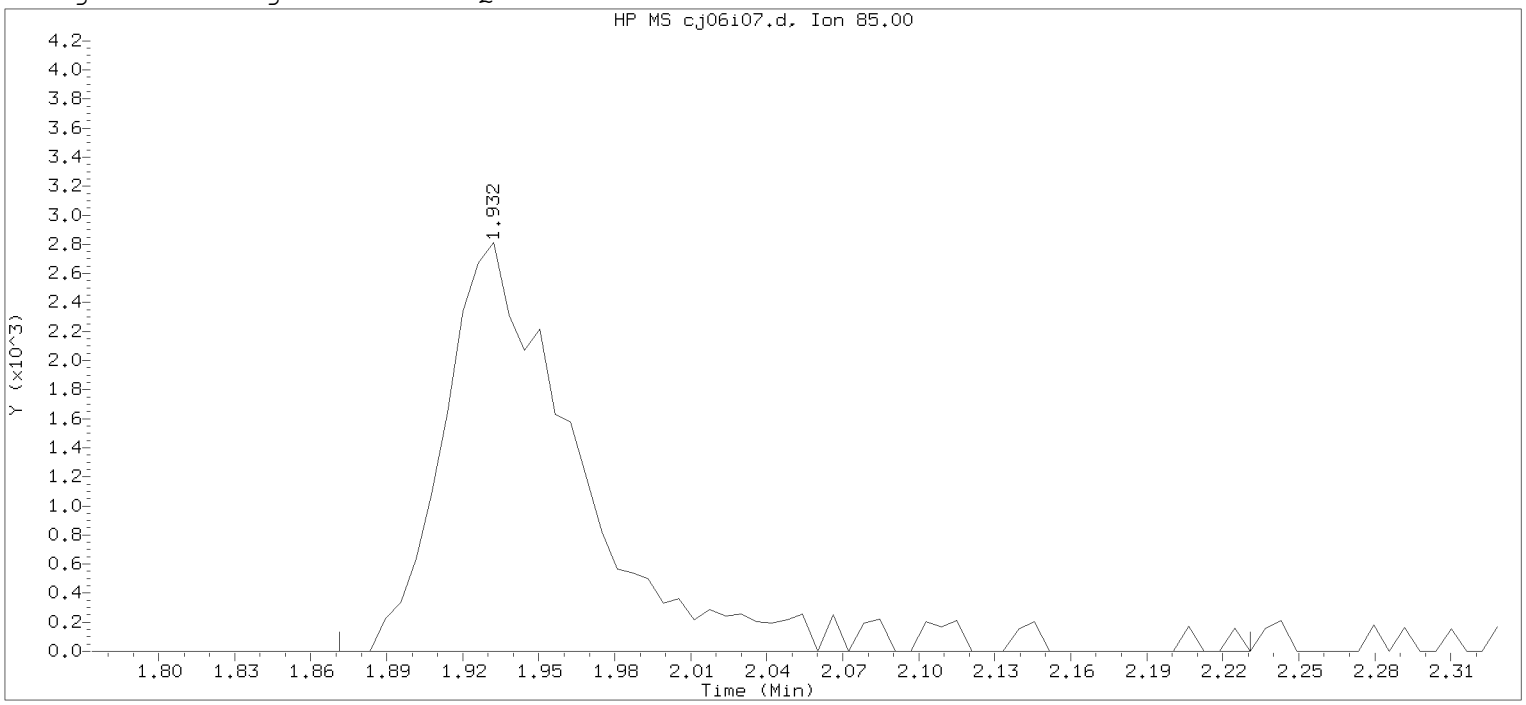
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52  Analyst ID: JKH09052

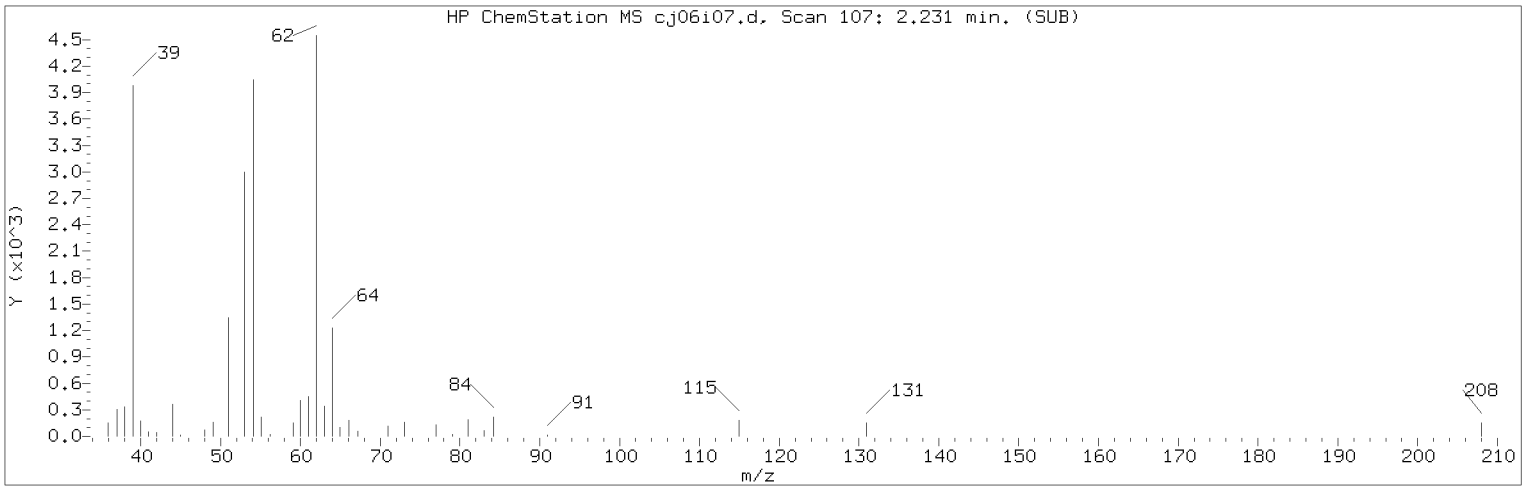
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:10 Automation

Sample Name: VSTD0.2  Lab Sample ID: VSTD0.2

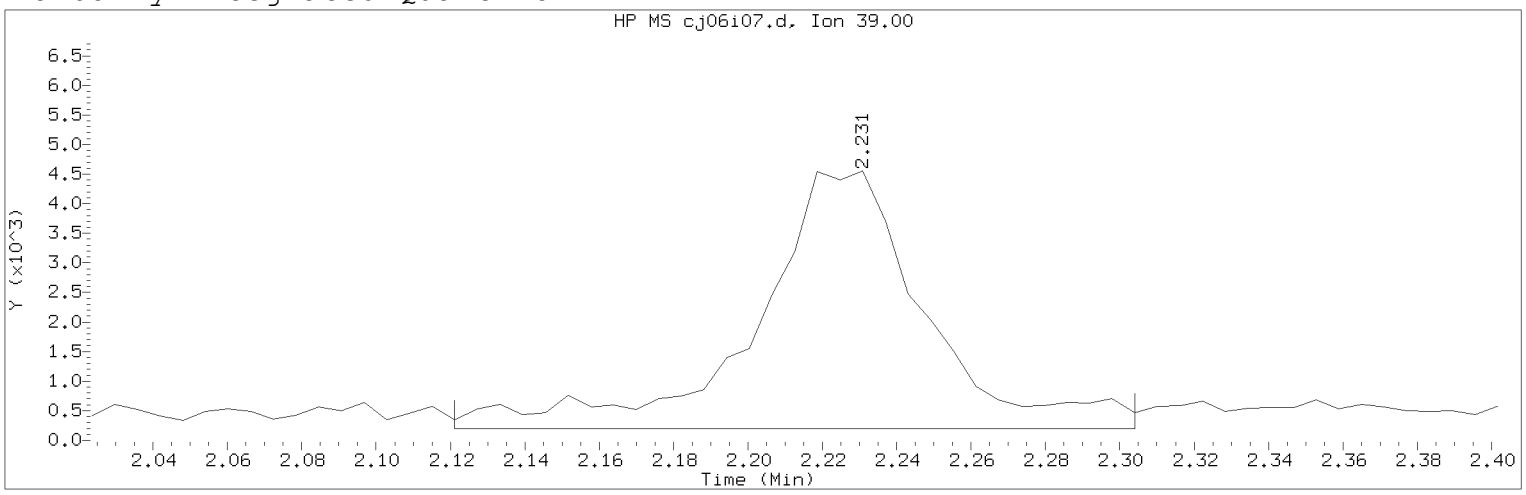
Compound Number : 1
Compound Name : Dichlorodifluoromethane
Scan Number : 58
Retention Time (minutes): 1.932
Quant Ion : 85.00
Area : 10856
On-column Amount (ng) : 0.1741
Integration start scan : 47  Integration stop scan: 106
Y at integration start : 0  Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec2934

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

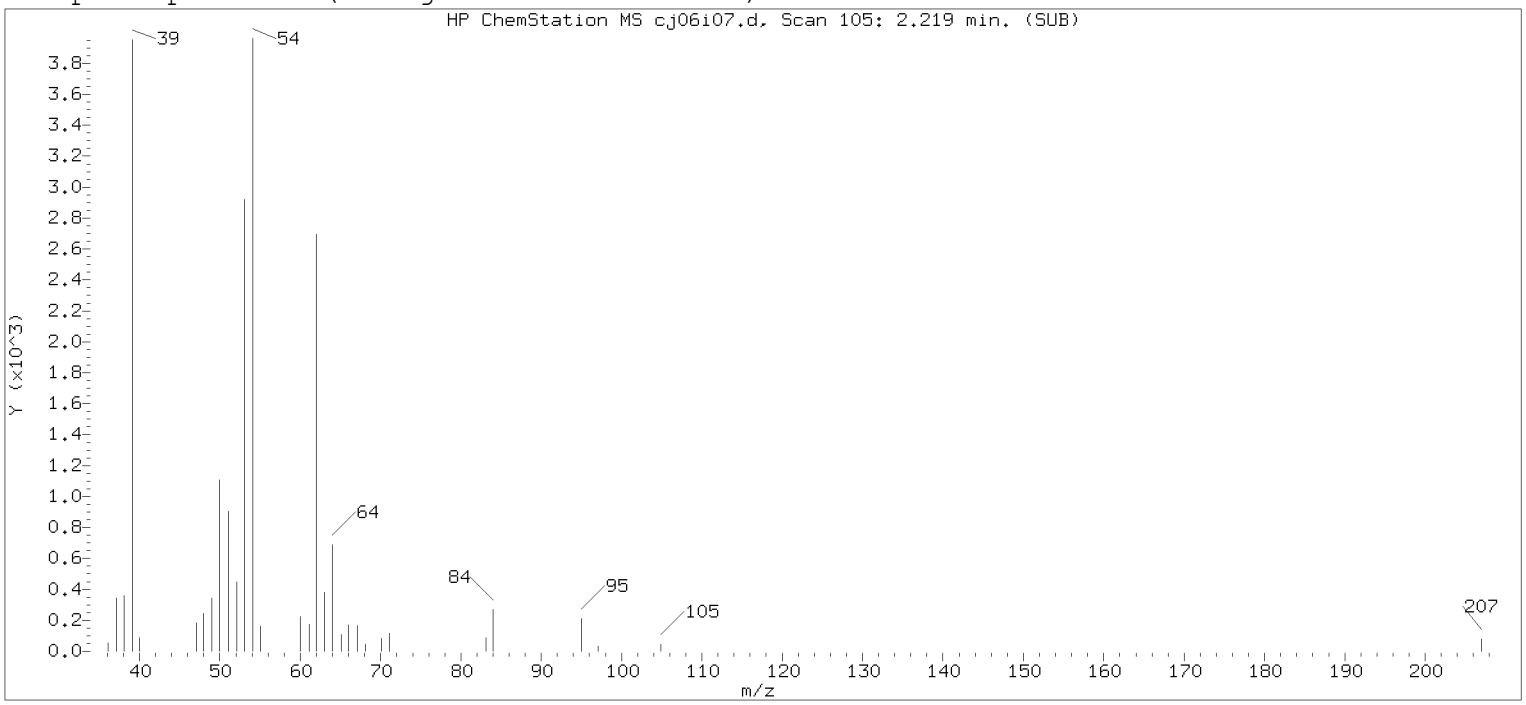
Compound Number : 6
Compound Name : 1,3-Butadiene
Scan Number : 107
Retention Time (minutes): 2.231
Quant Ion : 39.00
Area (flag) : 13886M
On-Column Amount (ng) : 0.2355
Integration start scan : 88 Integration stop scan: 118
Y at integration start : 200 Y at integration end: 200

Reason for manual integration: improper integration

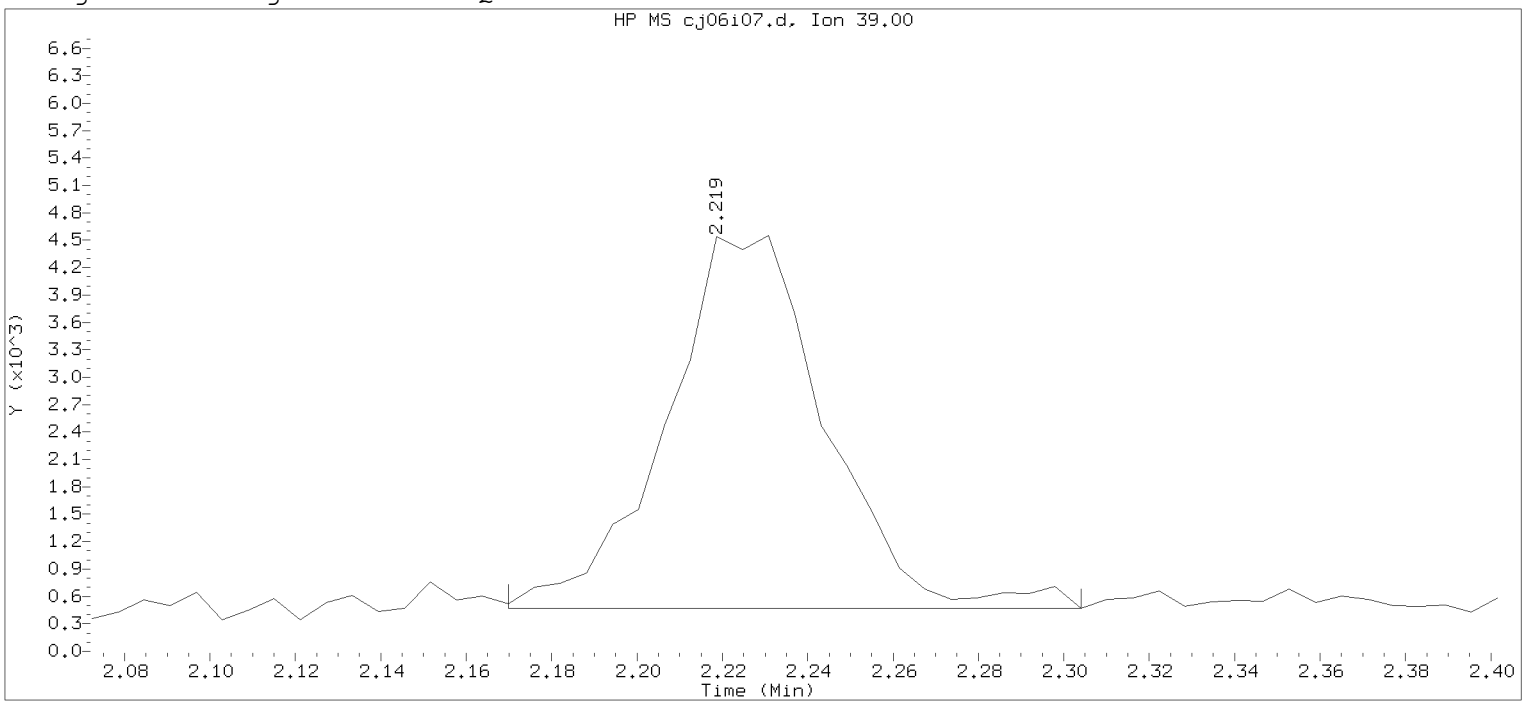
Analyst responsible for change: Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52  Analyst ID: JKH09052

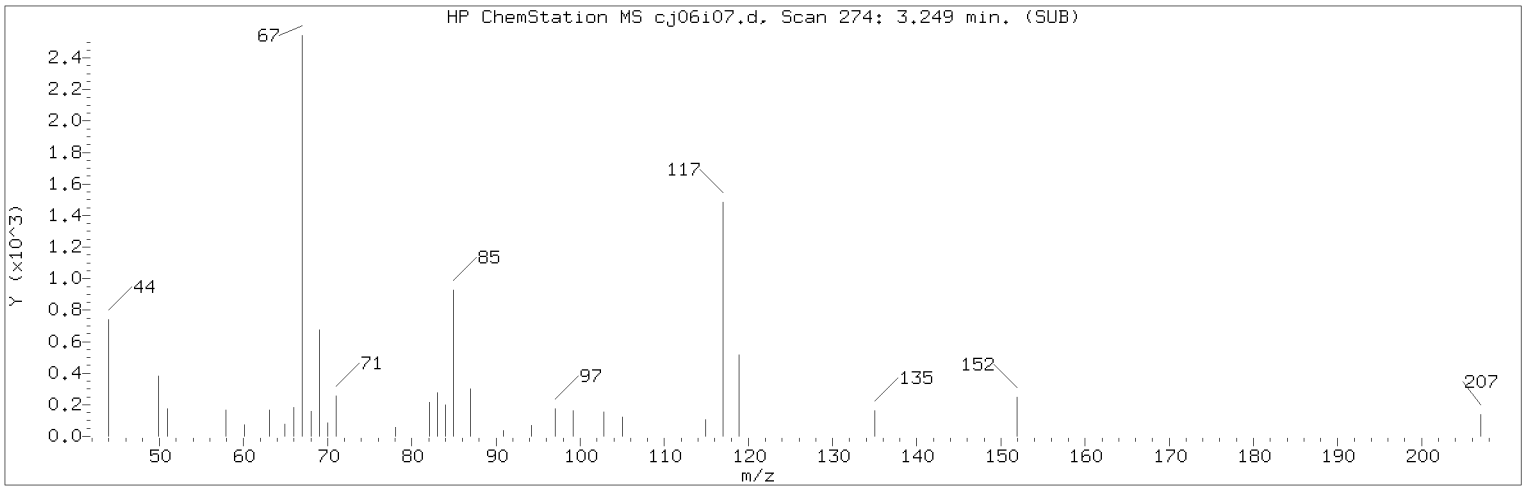
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:10 Automation

Sample Name: VSTD0.2  Lab Sample ID: VSTD0.2

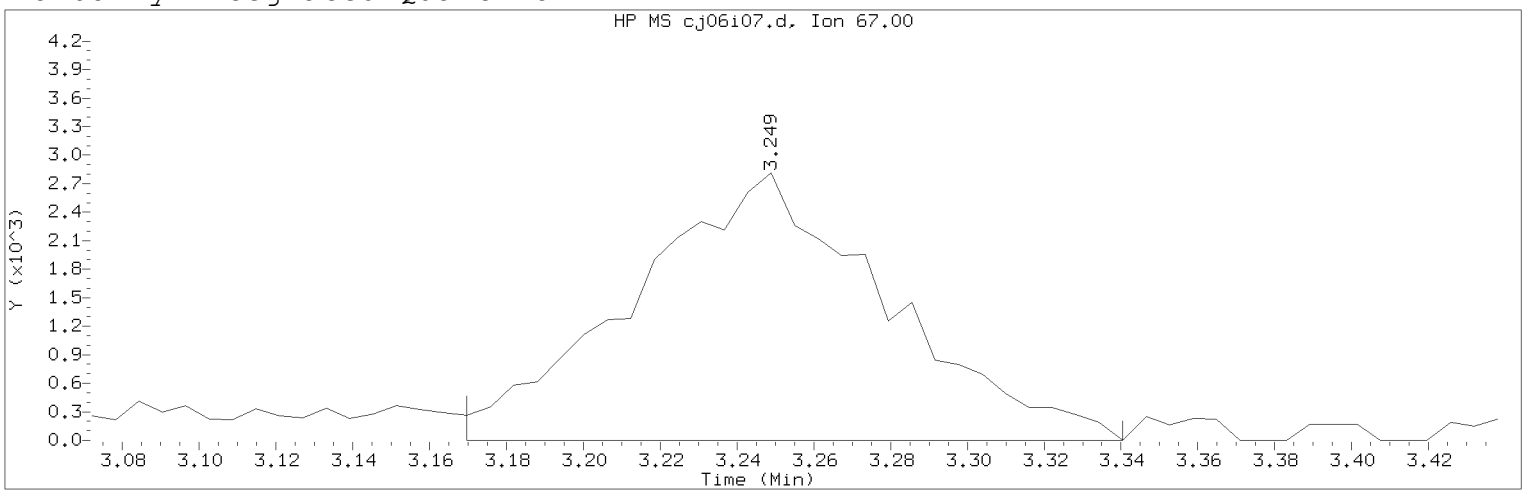
Compound Number : 6
Compound Name : 1,3-Butadiene
Scan Number : 105
Retention Time (minutes): 2.219
Quant Ion : 39.00
Area : 10618
On-column Amount (ng) : 0.1965
Integration start scan : 96  Integration stop scan: 118
Y at integration start : 469  Y at integration end: 469

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec2934

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

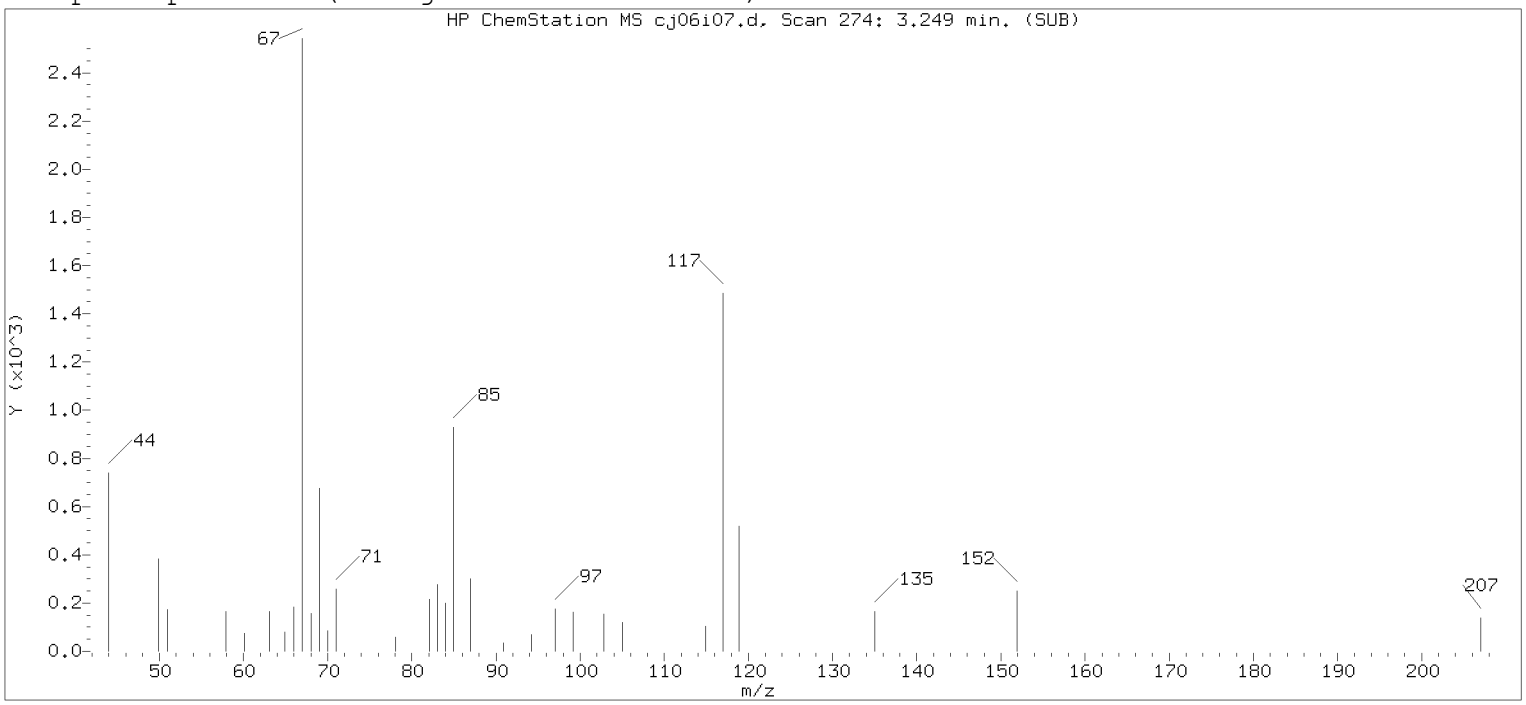
Compound Number : 13
Compound Name : Freon 123a
Scan Number : 274
Retention Time (minutes): 3.249
Quant Ion : 67.00
Area (flag) : 12901M
On-Column Amount (ng) : 0.2299
Integration start scan : 260 Integration stop scan: 288
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

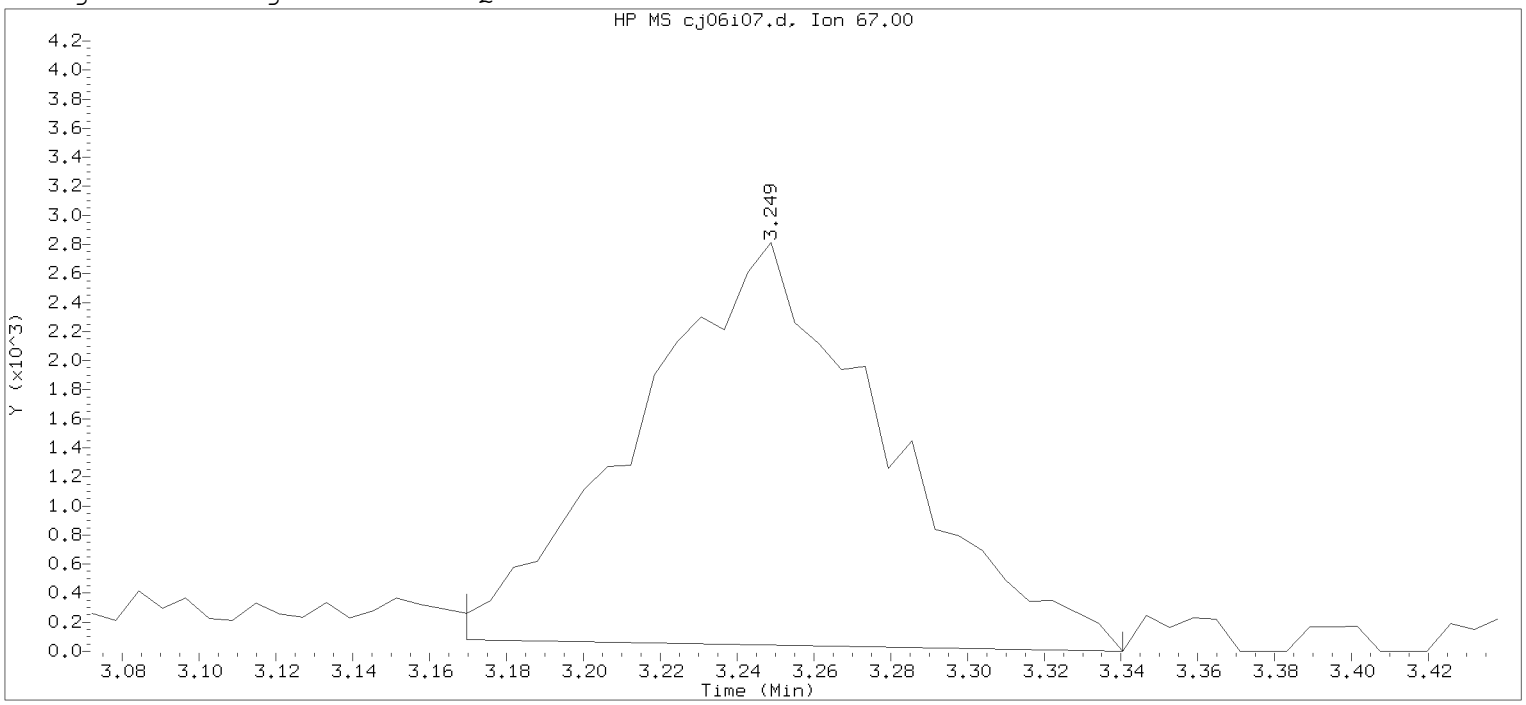
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52  Analyst ID: JKH09052

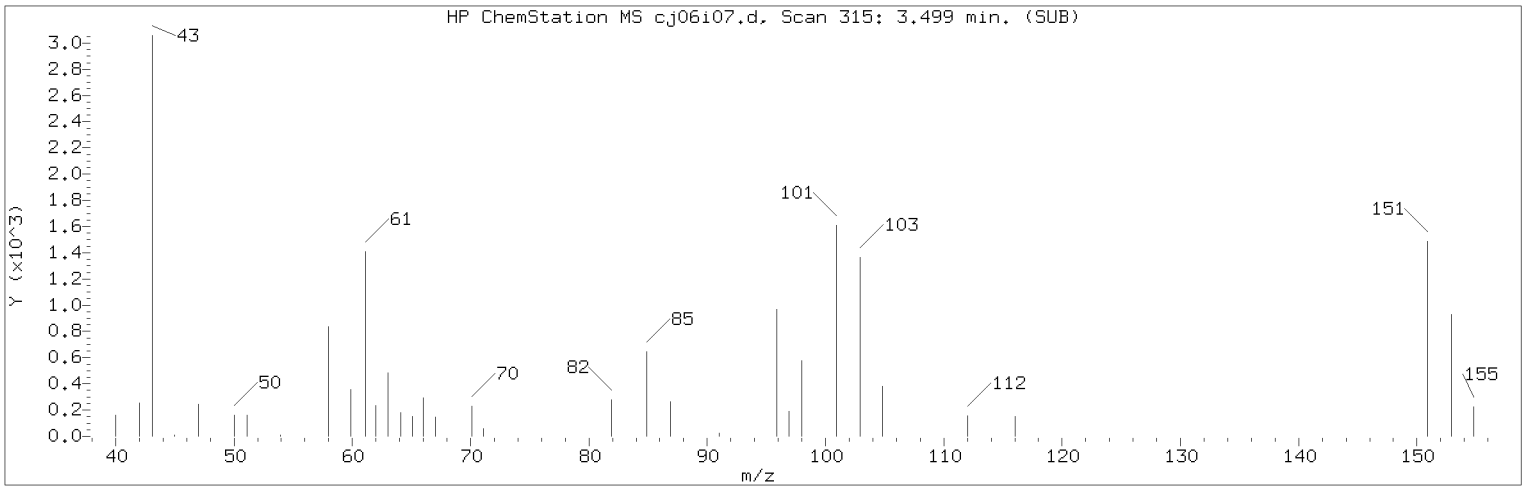
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:10 Automation

Sample Name: VSTD0.2  Lab Sample ID: VSTD0.2

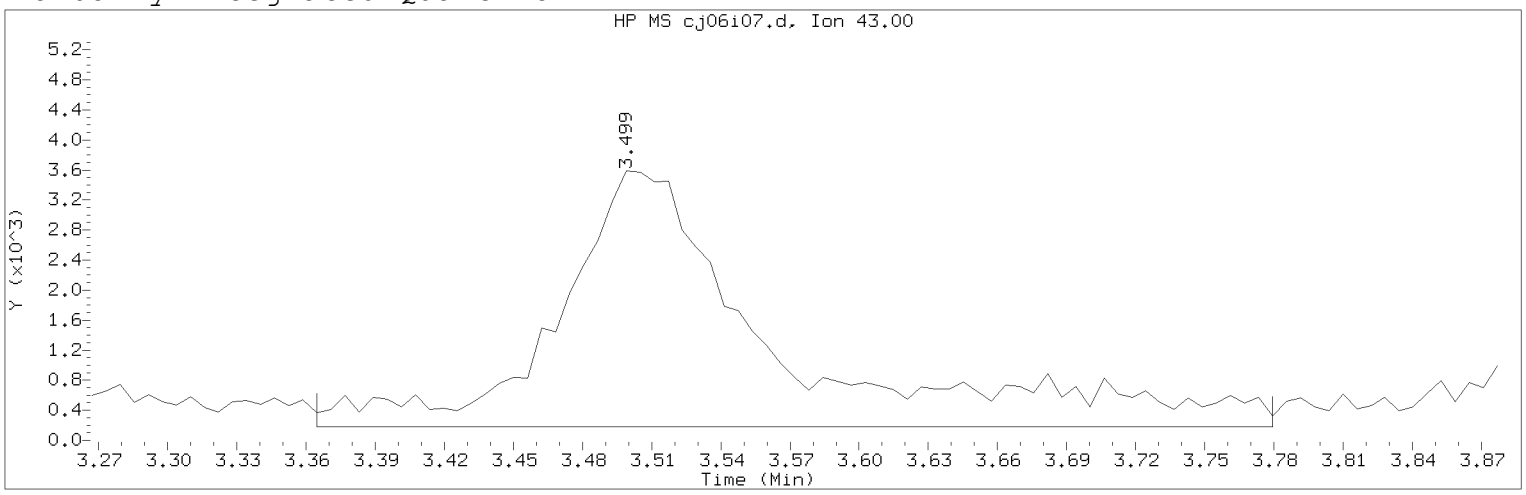
Compound Number : 13
Compound Name : Freon 123a
Scan Number : 274
Retention Time (minutes): 3.249
Quant Ion : 67.00
Area : 12439
On-column Amount (ng) : 0.2247
Integration start scan : 260  Integration stop scan: 288
Y at integration start : 81  Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec2343

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

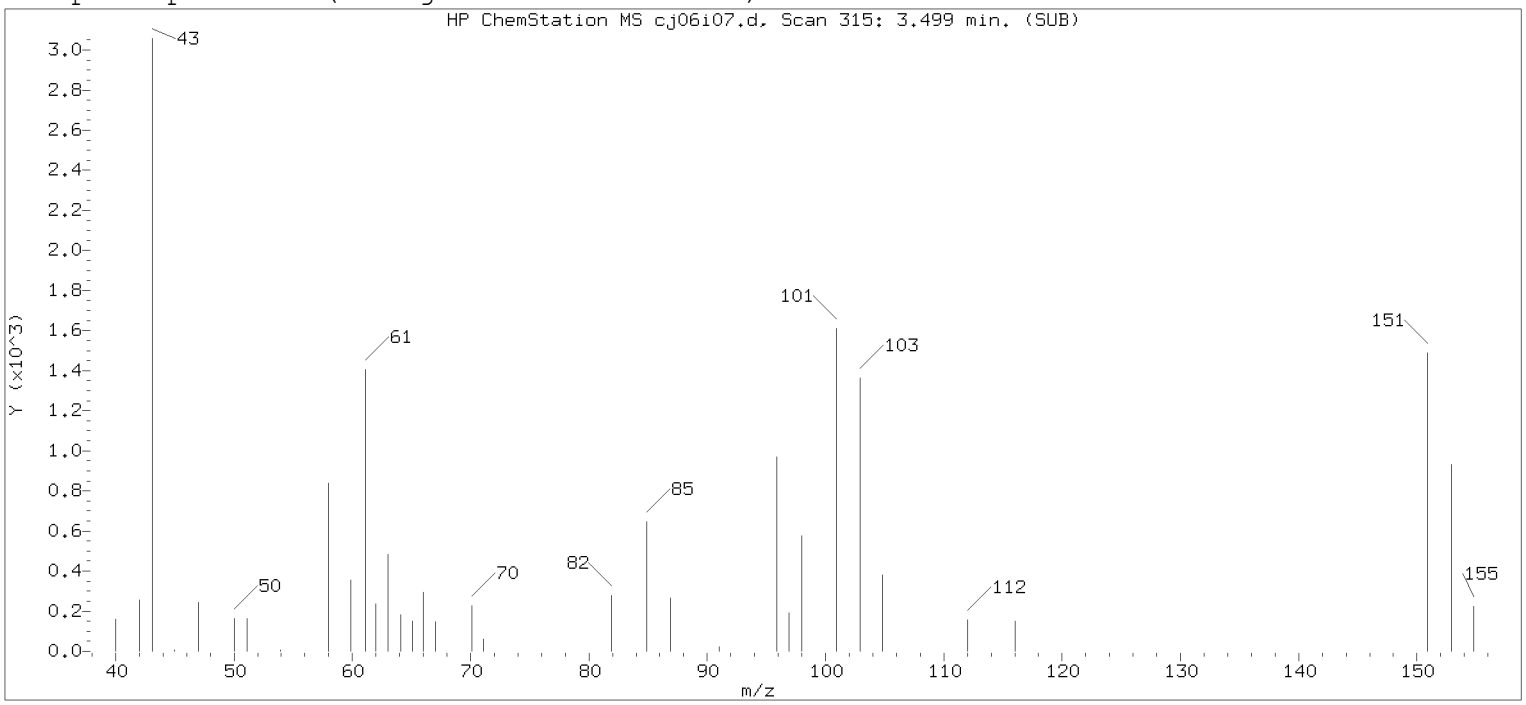
Compound Number : 15
Compound Name : Acetone
Scan Number : 315
Retention Time (minutes): 3.499
Quant Ion : 43.00
Area (flag) : 22232M
On-Column Amount (ng) : 2.4903
Integration start scan : 292 Integration stop scan: 360
Y at integration start : 180 Y at integration end: 180

Reason for manual integration: improper integration

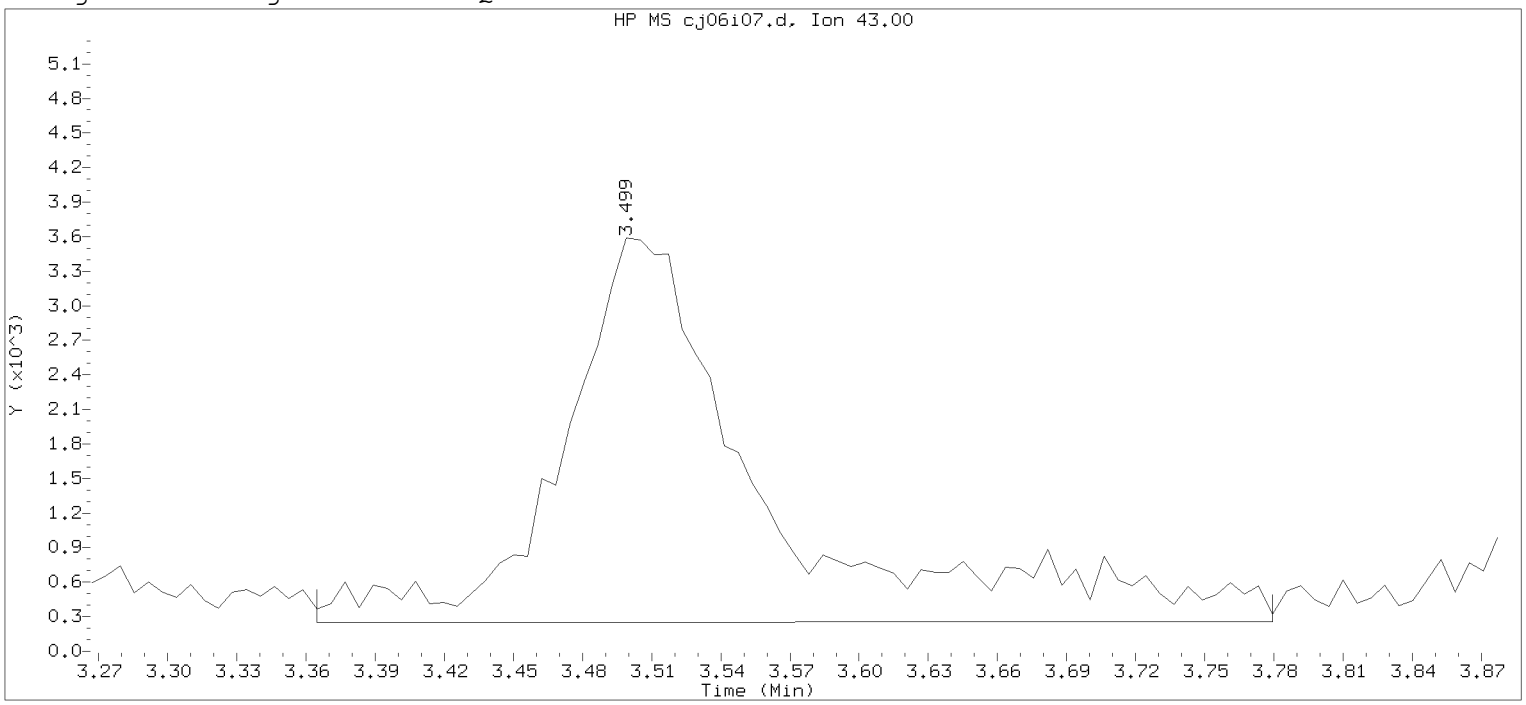
Analyst responsible for change: Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52  Analyst ID: JKH09052

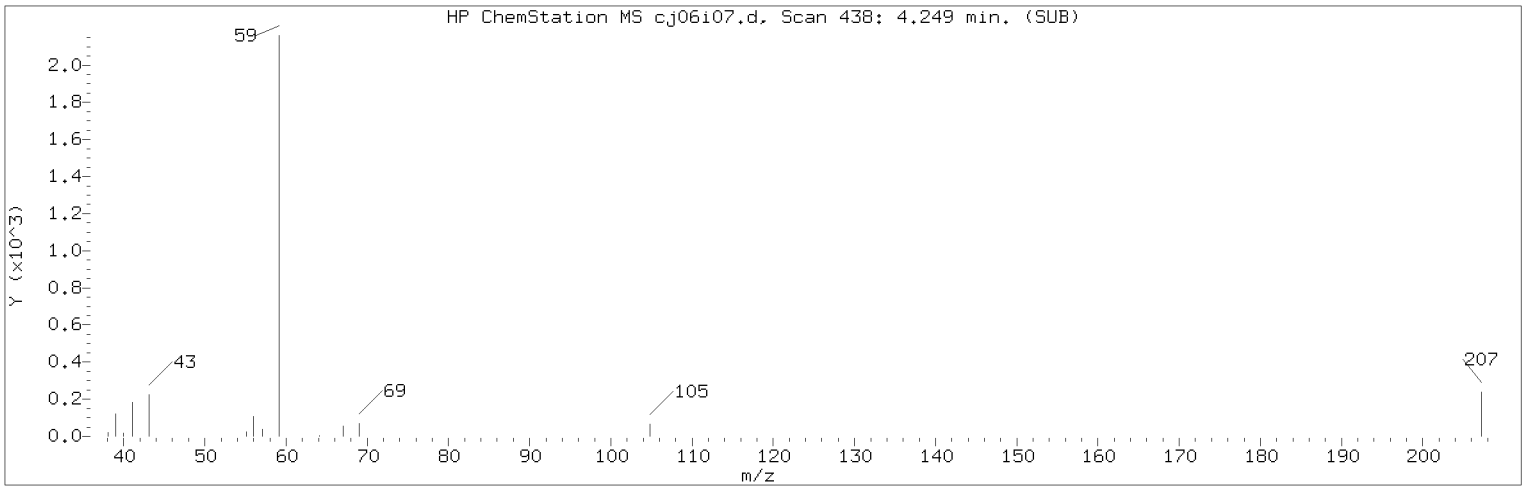
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:10 Automation

Sample Name: VSTD0.2  Lab Sample ID: VSTD0.2

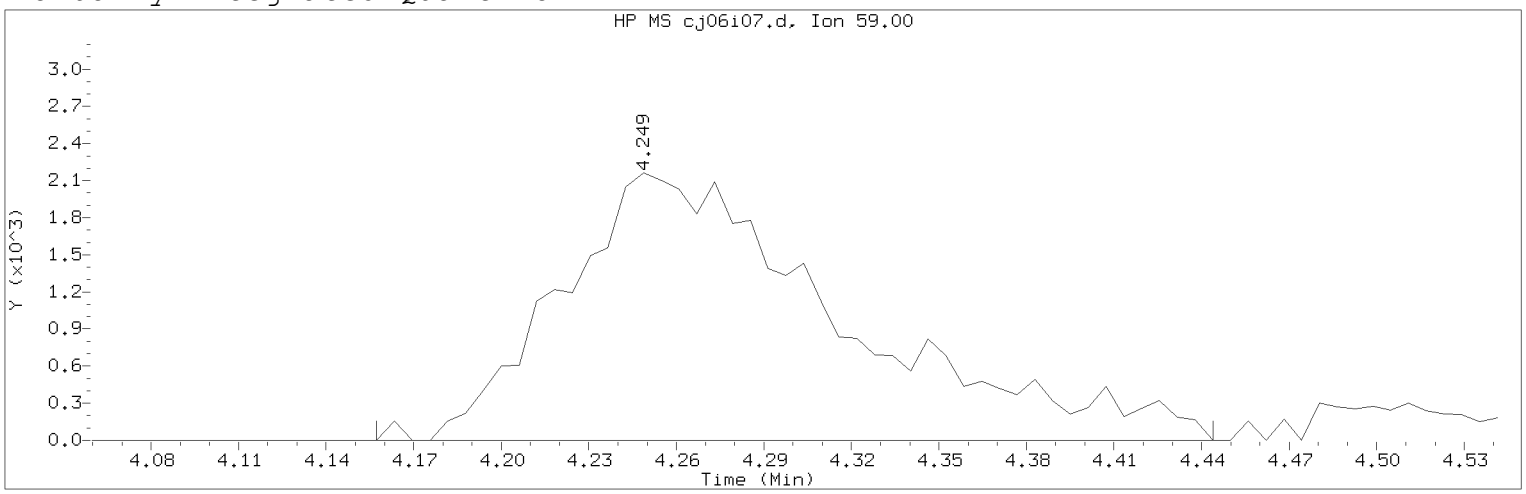
Compound Number : 15
Compound Name : Acetone
Scan Number : 315
Retention Time (minutes): 3.499
Quant Ion : 43.00
Area : 20393
On-column Amount (ng) : 2.4198
Integration start scan : 292  Integration stop scan: 360
Y at integration start : 249  Y at integration end: 254

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec2934

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

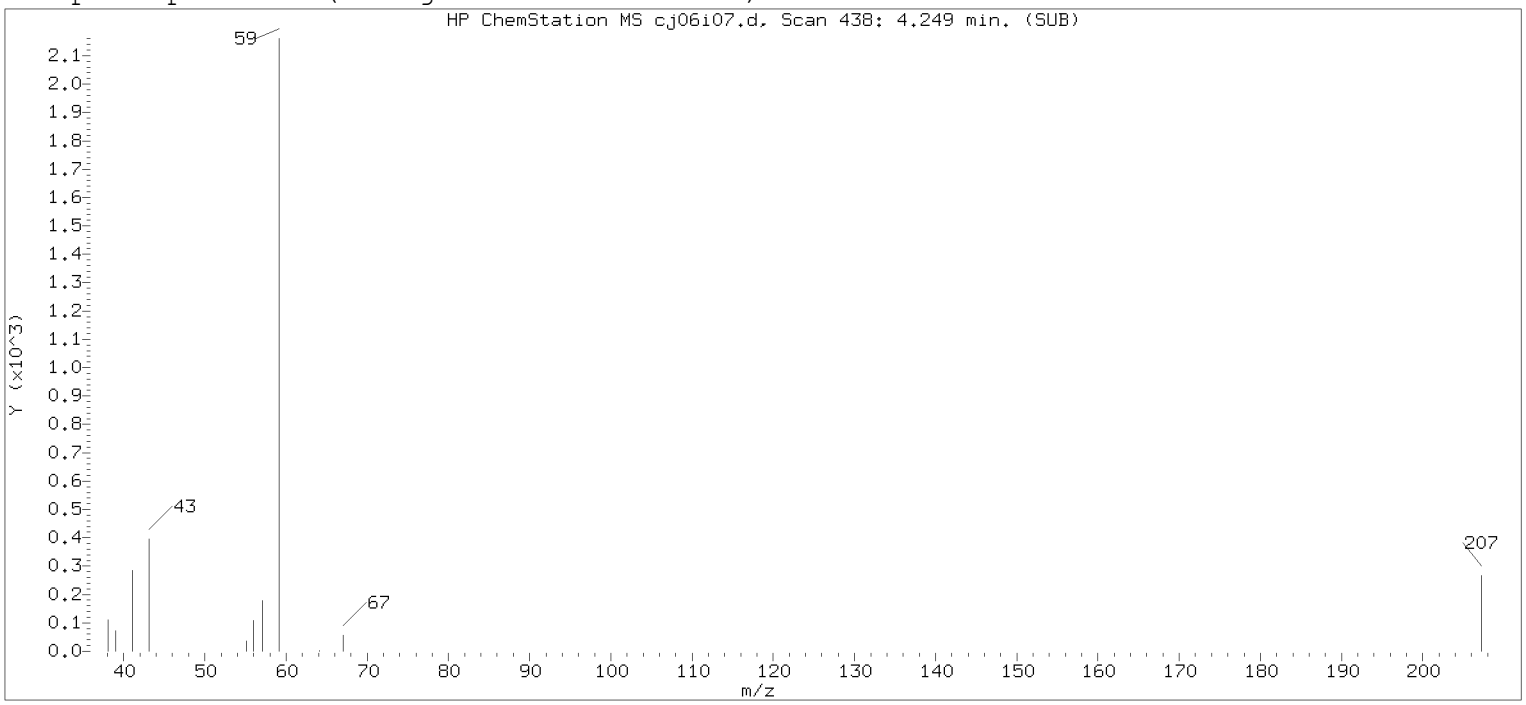
Compound Number : 30
Compound Name : t-Butyl Alcohol
Scan Number : 438
Retention Time (minutes): 4.249
Quant Ion : 59.00
Area (flag) : 14430M
On-Column Amount (ng) : 4.2491
Integration start scan : 422 Integration stop scan: 469
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

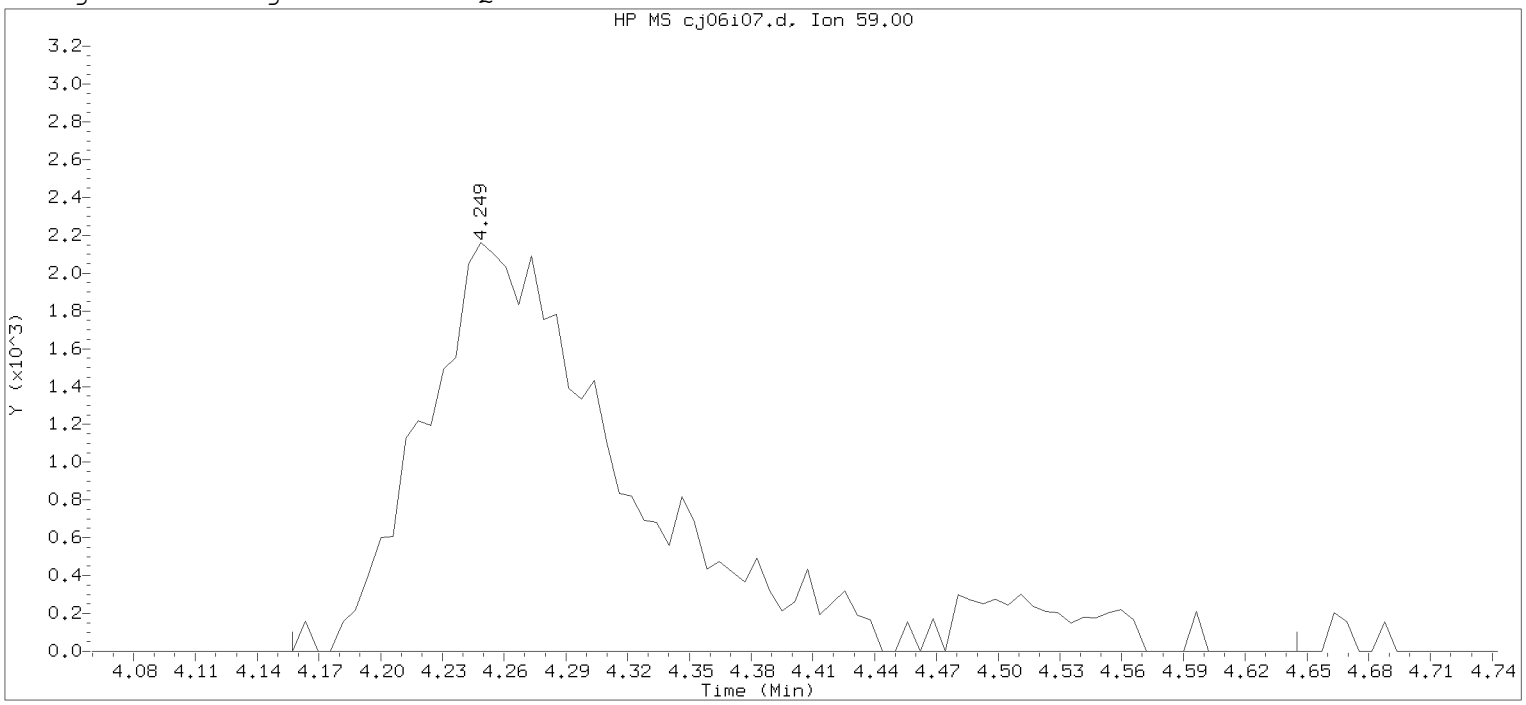
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52  Analyst ID: JKH09052

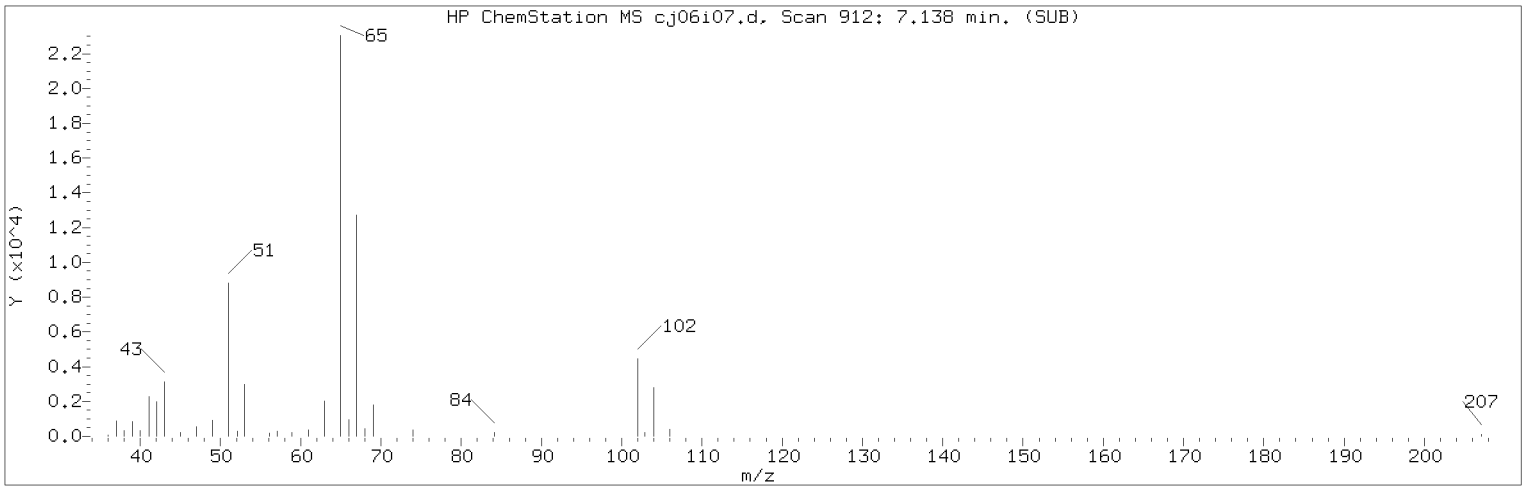
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:10 Automation

Sample Name: VSTD0.2  Lab Sample ID: VSTD0.2

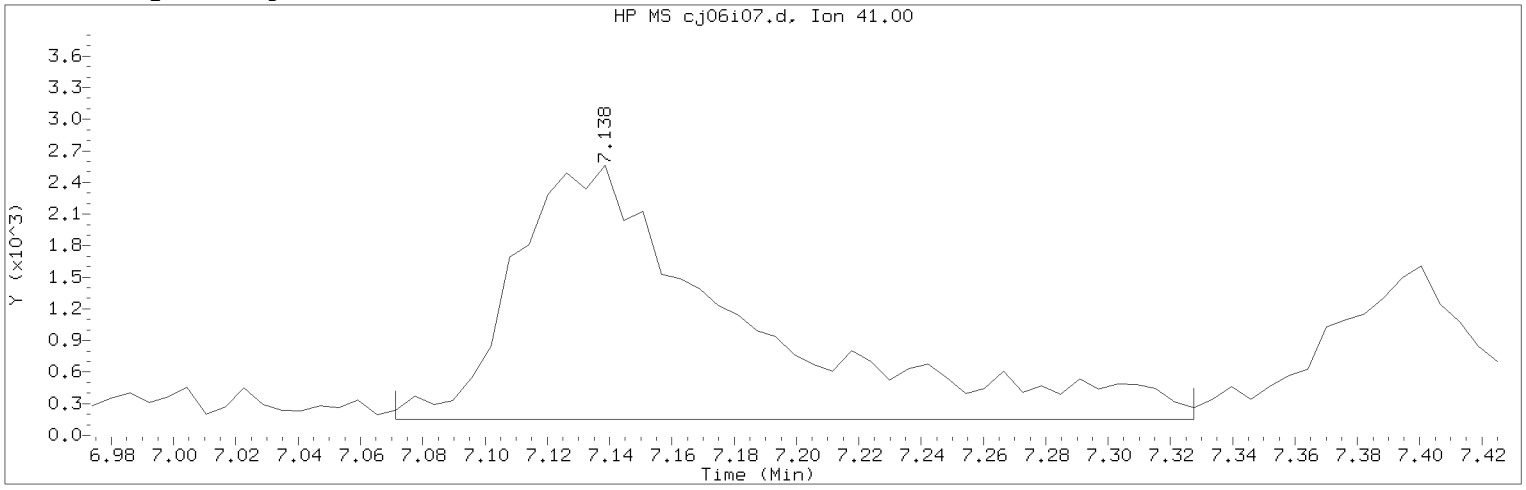
Compound Number : 30
Compound Name : t-Butyl Alcohol
Scan Number : 438
Retention Time (minutes): 4.249
Quant Ion : 59.00
Area : 15871
On-column Amount (ng) : 4.4677
Integration start scan : 422  Integration stop scan: 502
Y at integration start : 0  Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec2934

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

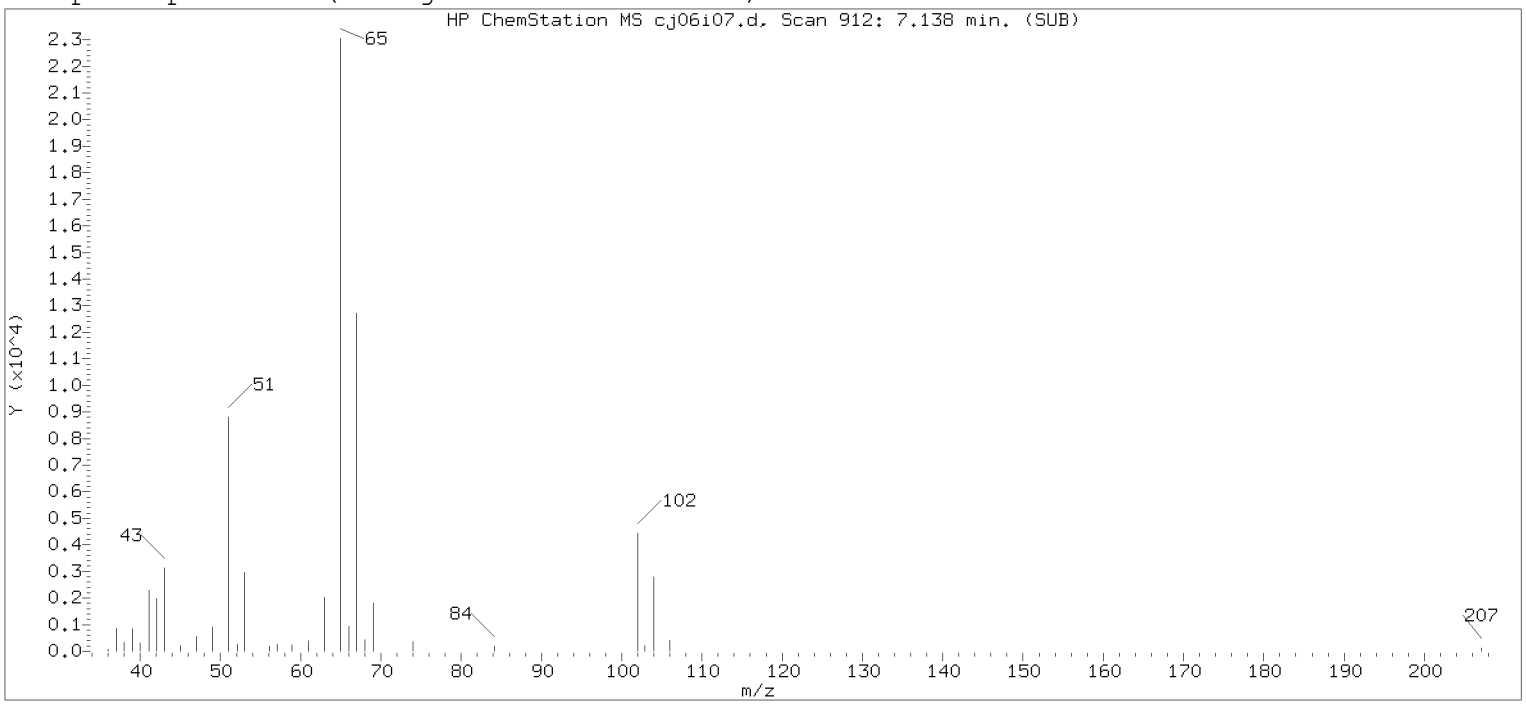
Compound Number : 58
Compound Name : Isobutyl Alcohol
Scan Number : 912
Retention Time (minutes): 7.138
Quant Ion : 41.00
Area (flag) : 12372M
On-Column Amount (ng) : 10.9245
Integration start scan : 900 Integration stop scan: 942
Y at integration start : 150 Y at integration end: 150

Reason for manual integration: improper integration

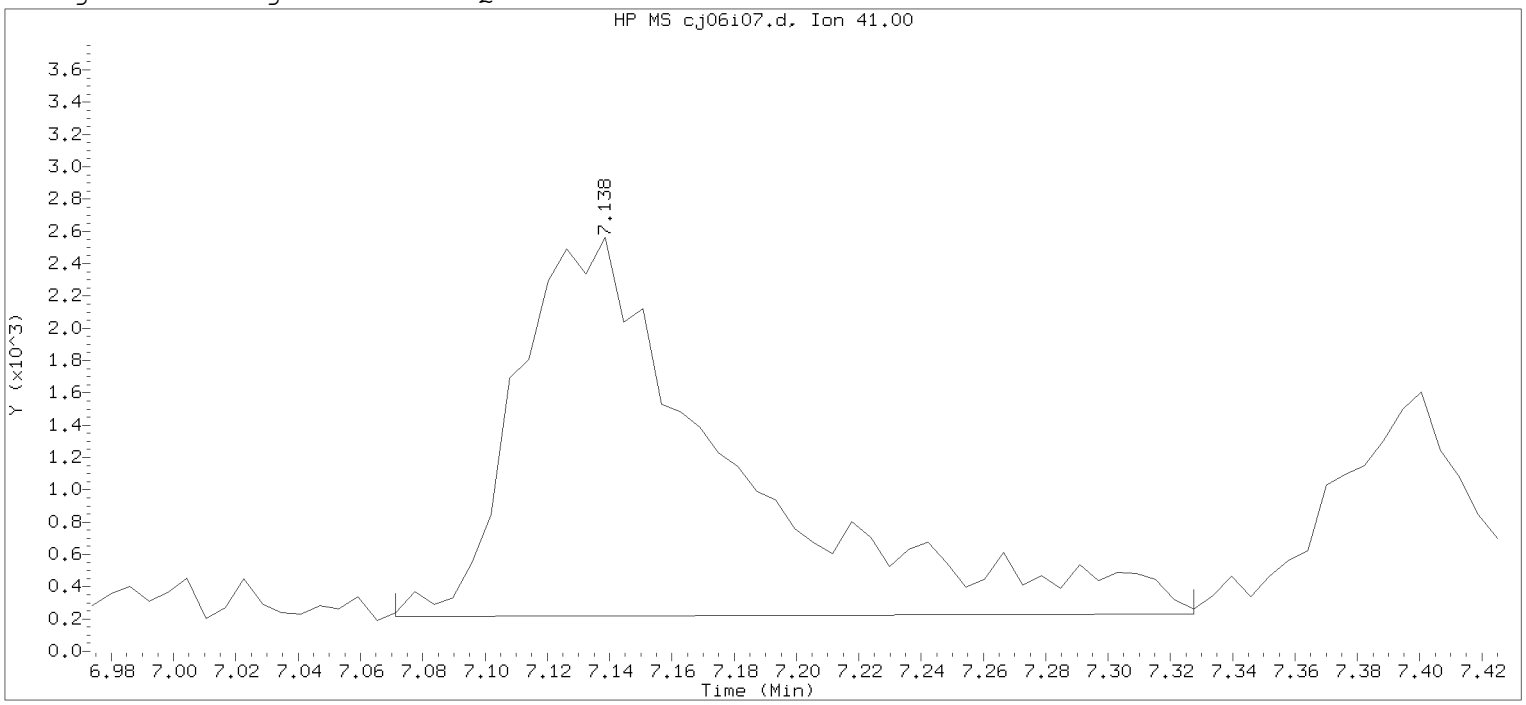
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52  Analyst ID: JKH09052

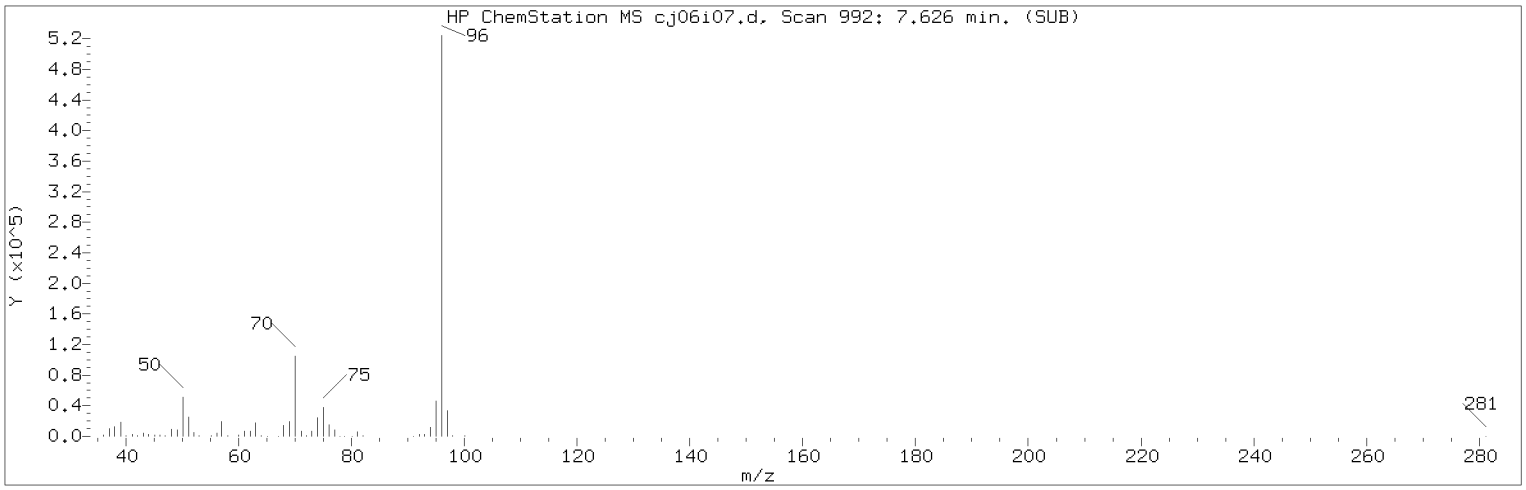
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:10 Automation

Sample Name: VSTD0.2  Lab Sample ID: VSTD0.2

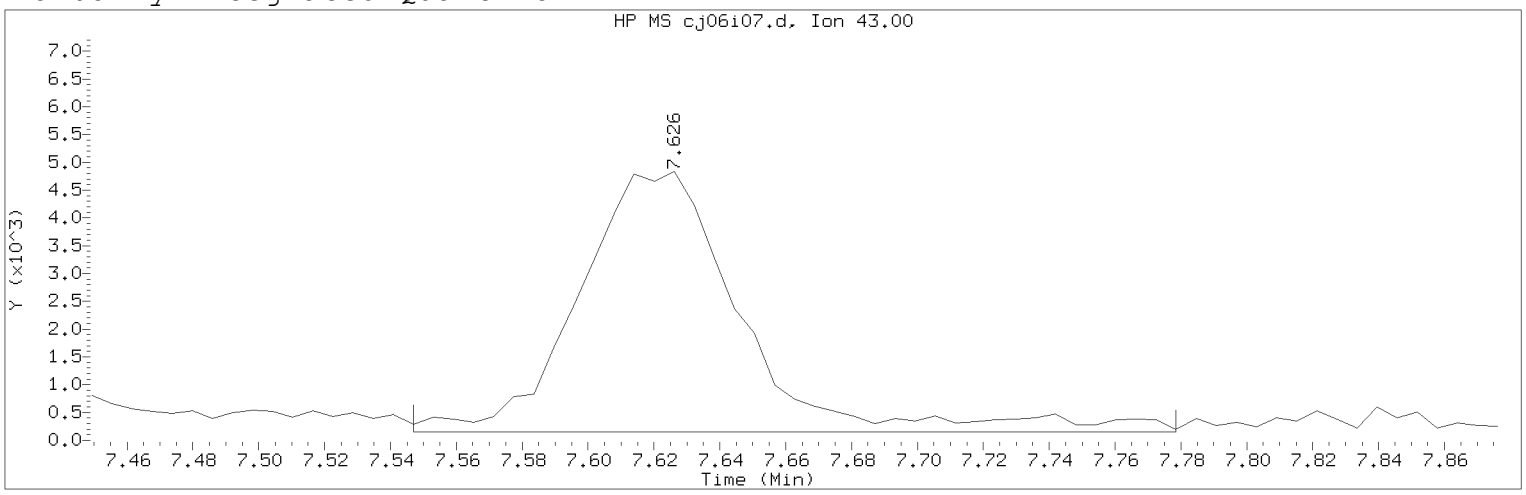
Compound Number : 58
Compound Name : Isobutyl Alcohol
Scan Number : 912
Retention Time (minutes): 7.138
Quant Ion : 41.00
Area : 11230
On-column Amount (ng) : 10.2393
Integration start scan : 900  Integration stop scan: 942
Y at integration start : 215  Y at integration end: 229

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec2934

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

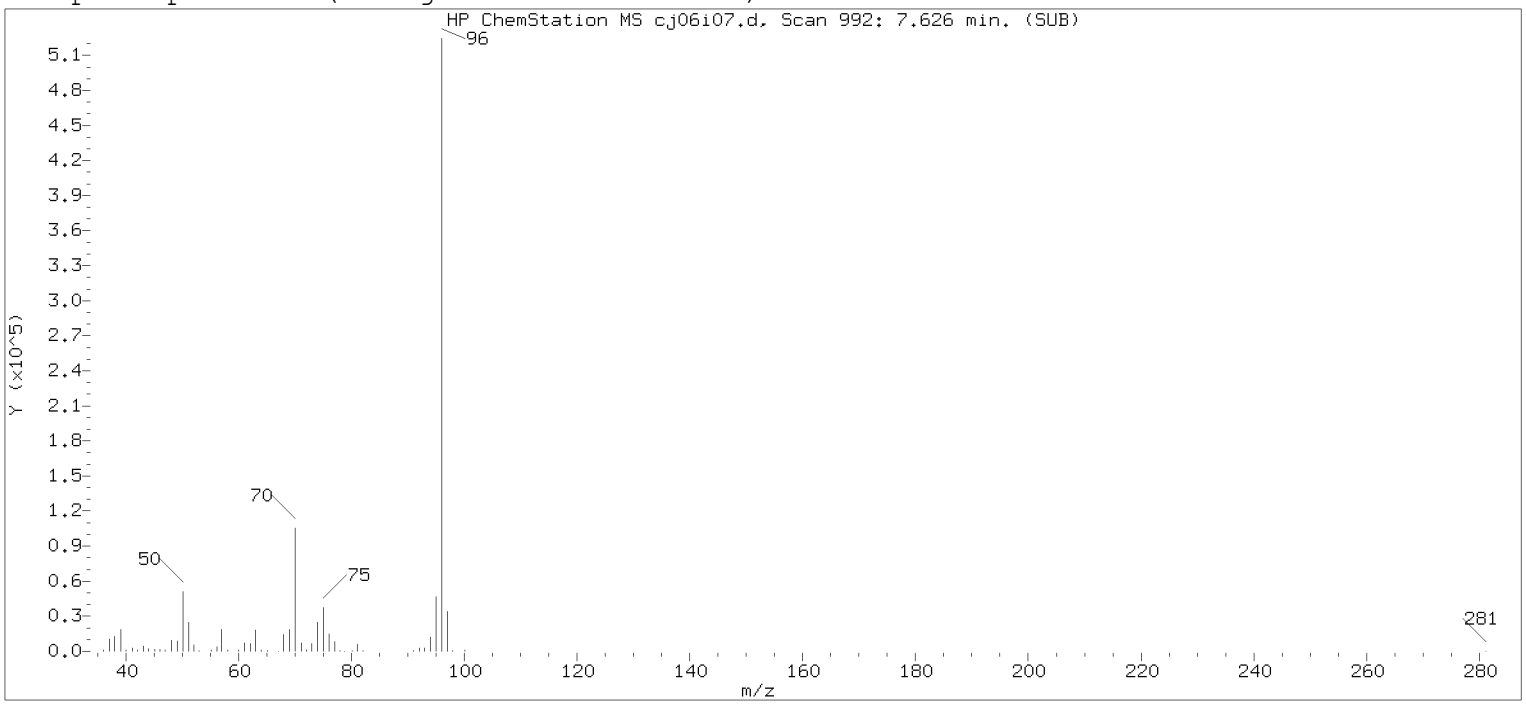
Compound Number : 64
Compound Name : n-Heptane
Scan Number : 992
Retention Time (minutes): 7.626
Quant Ion : 43.00
Area (flag) : 16090M
On-Column Amount (ng) : 0.2088
Integration start scan : 978 Integration stop scan: 1016
Y at integration start : 150 Y at integration end: 150

Reason for manual integration: improper integration

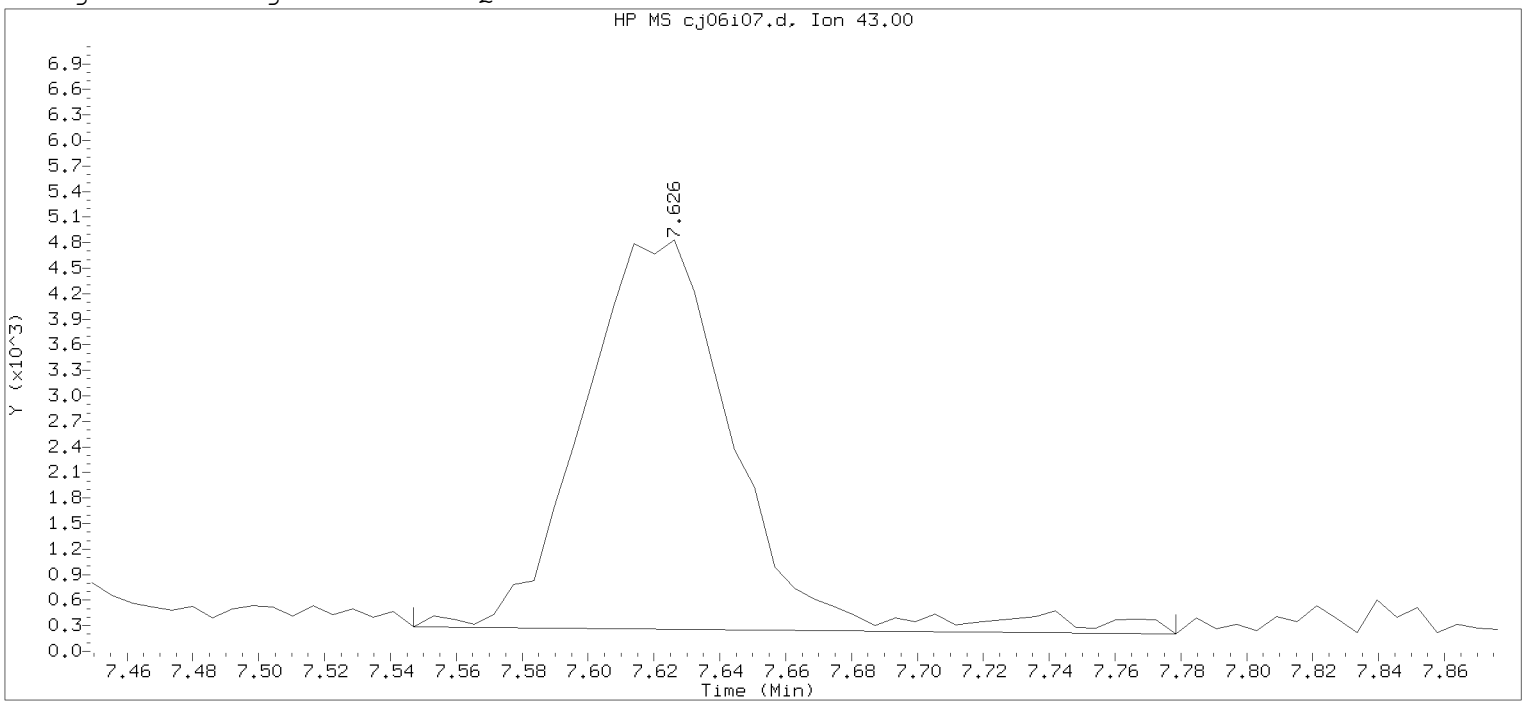
Analyst responsible for change: Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

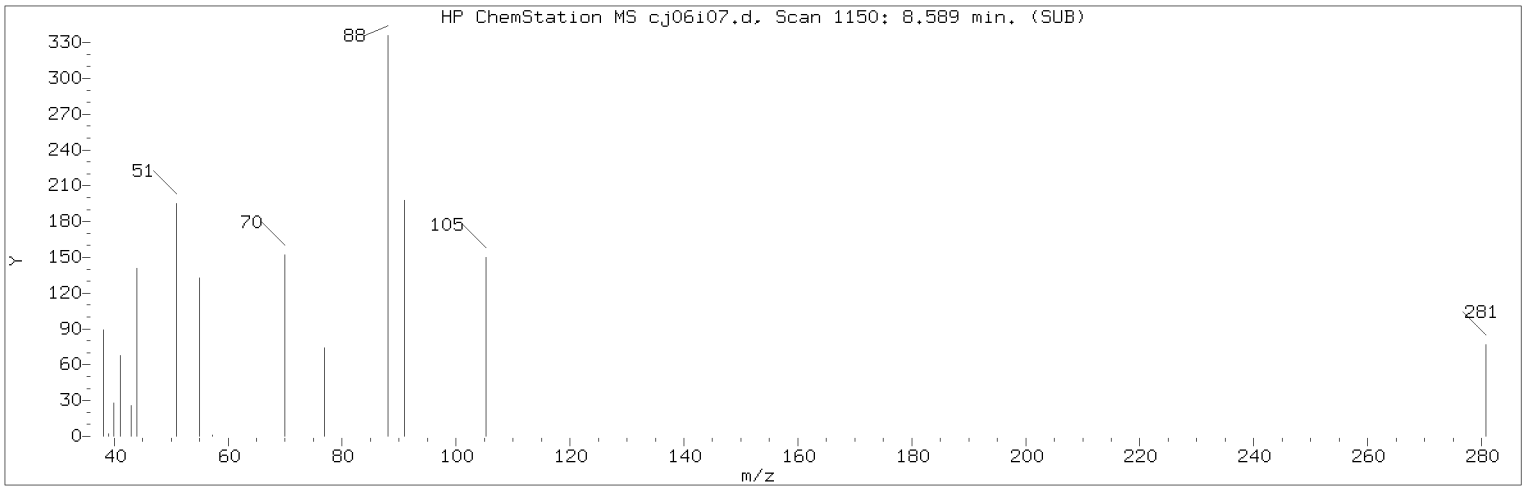
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:10 Automation

Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

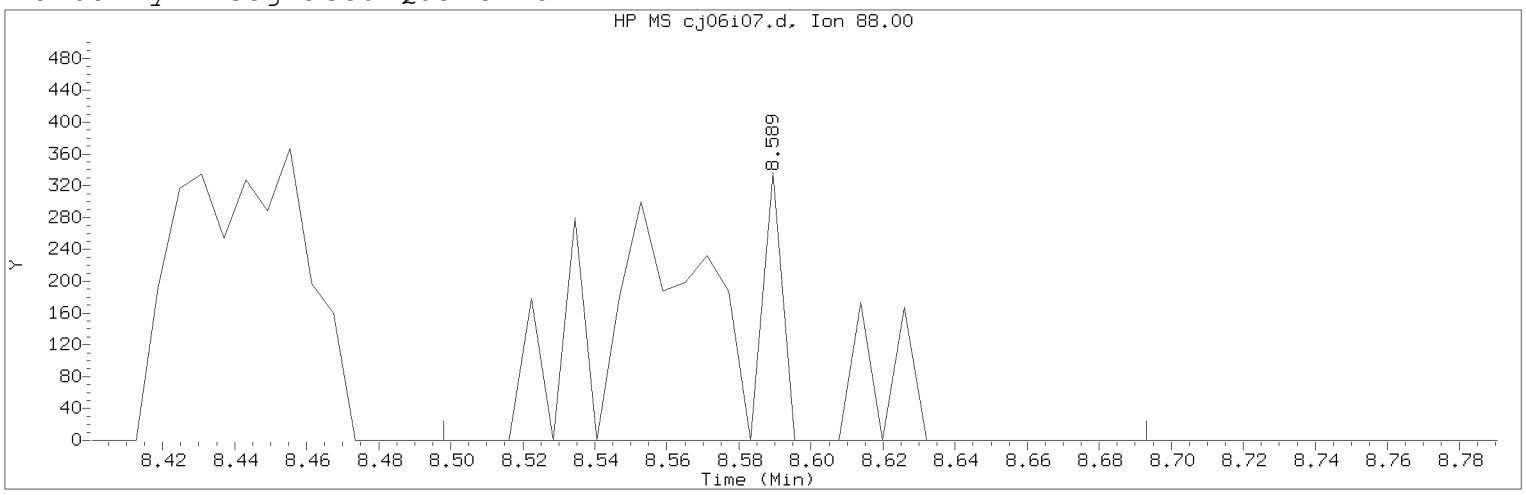
Compound Number : 64
Compound Name : n-Heptane
Scan Number : 992
Retention Time (minutes): 7.626
Quant Ion : 43.00
Area : 14778
On-column Amount (ng) : 0.2005
Integration start scan : 978 Integration stop scan: 1016
Y at integration start : 284 Y at integration end: 200

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

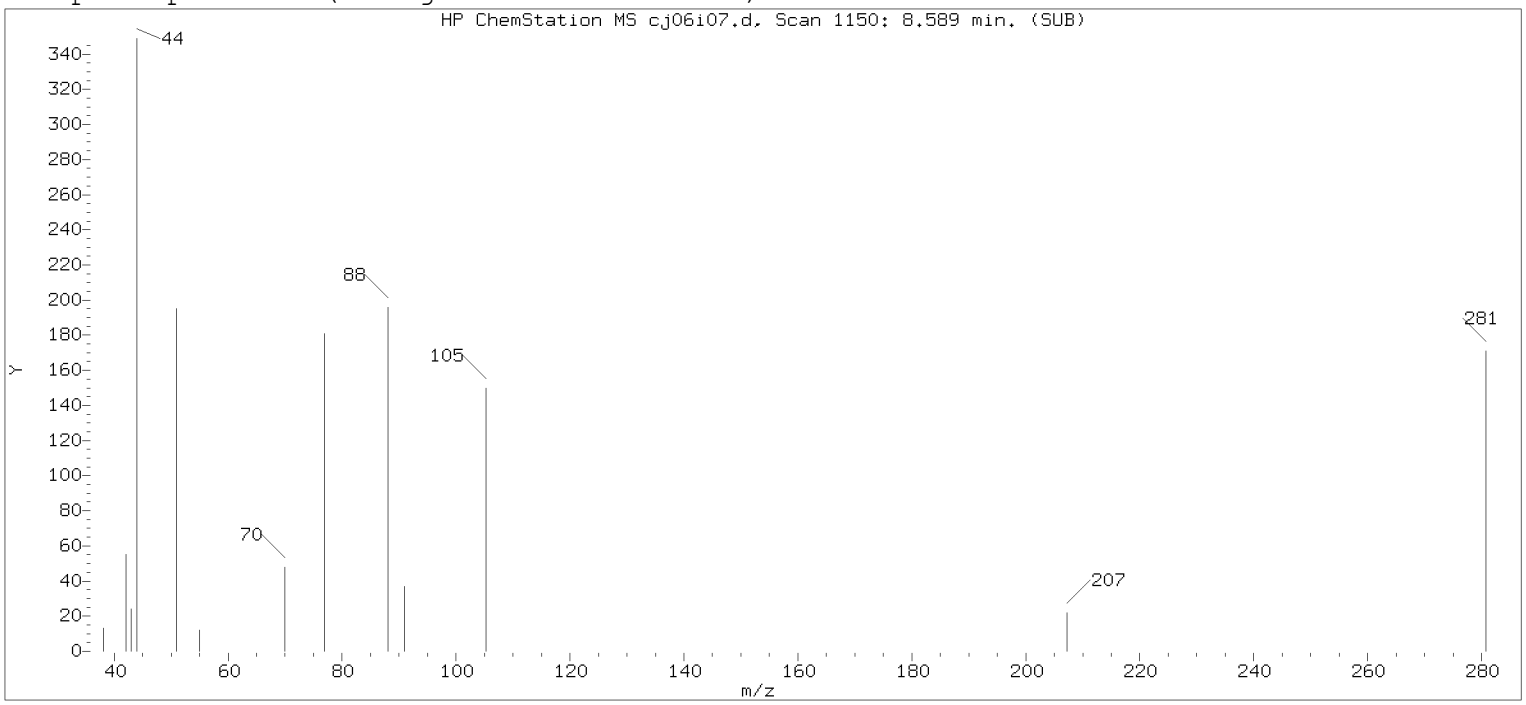
Compound Number : 74
Compound Name : 1,4-Dioxane
Scan Number : 1150
Retention Time (minutes): 8.589
Quant Ion : 88.00
Area (flag) : 884M
On-Column Amount (ng) : 5.0998
Integration start scan : 1134 Integration stop scan: 1166
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

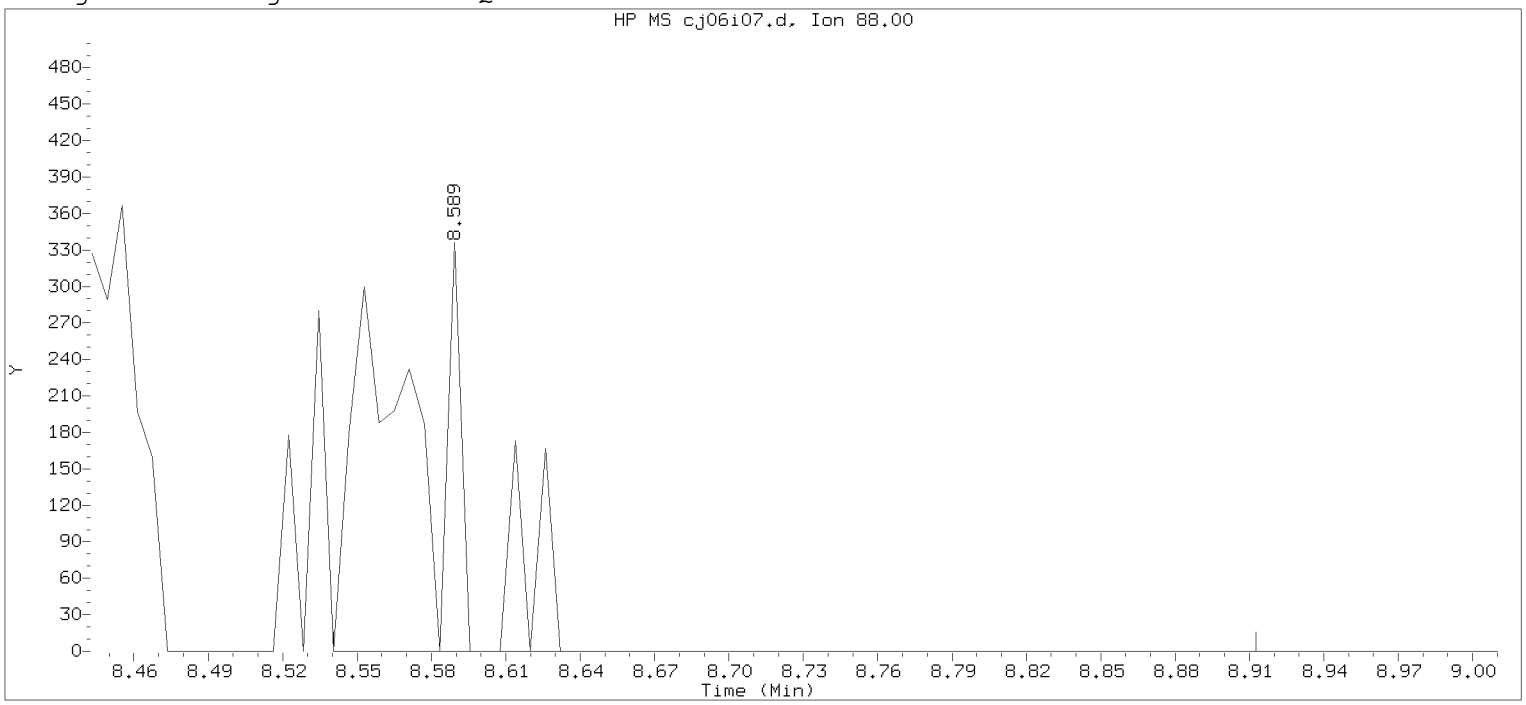
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52  Analyst ID: JKH09052

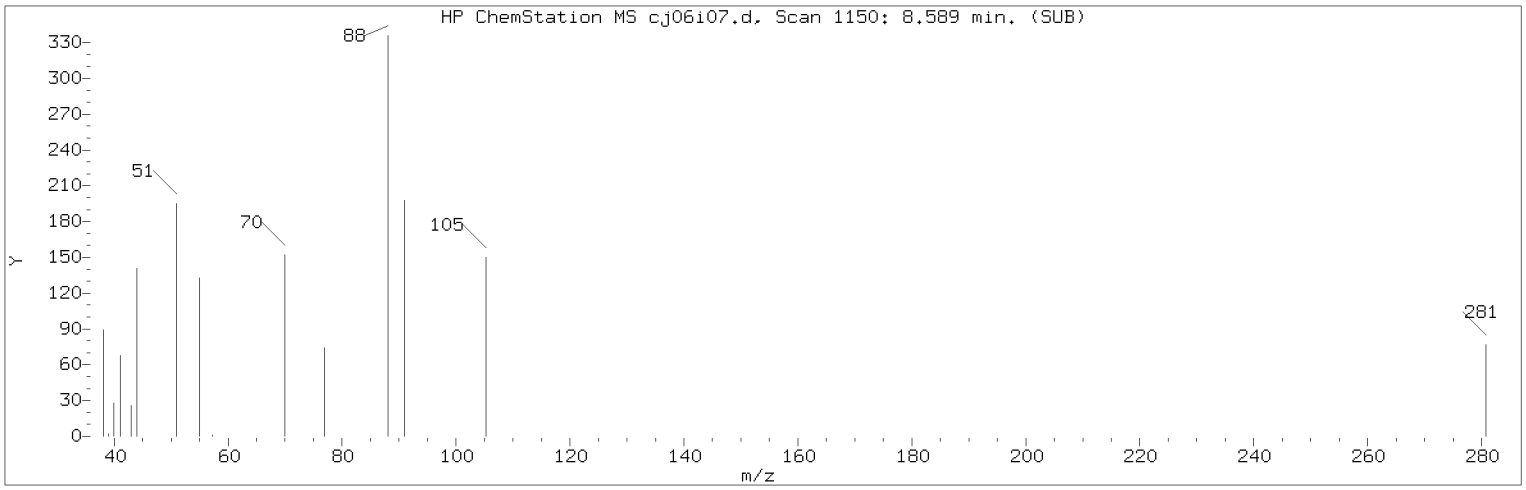
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:10 Automation

Sample Name: VSTD0.2  Lab Sample ID: VSTD0.2

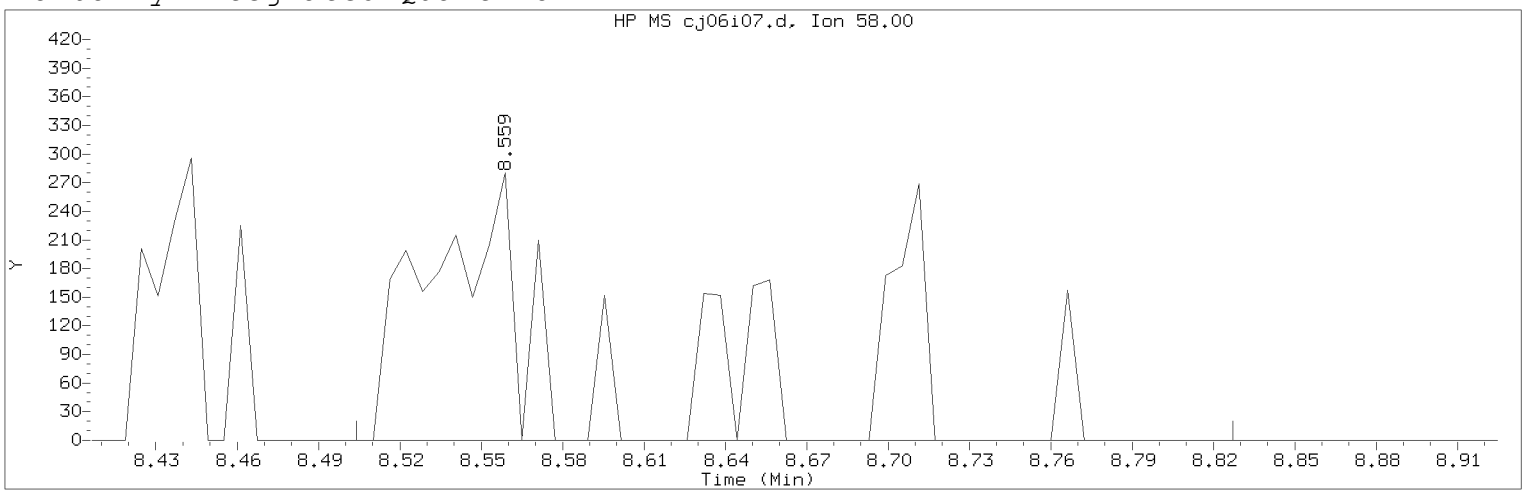
Compound Number : 74
Compound Name : 1,4-Dioxane
Scan Number : 1150
Retention Time (minutes): 8.589
Quant Ion : 88.00
Area : 716
On-column Amount (ng) : 4.5565
Integration start scan : 1141  Integration stop scan: 1202
Y at integration start : 0  Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec2934

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

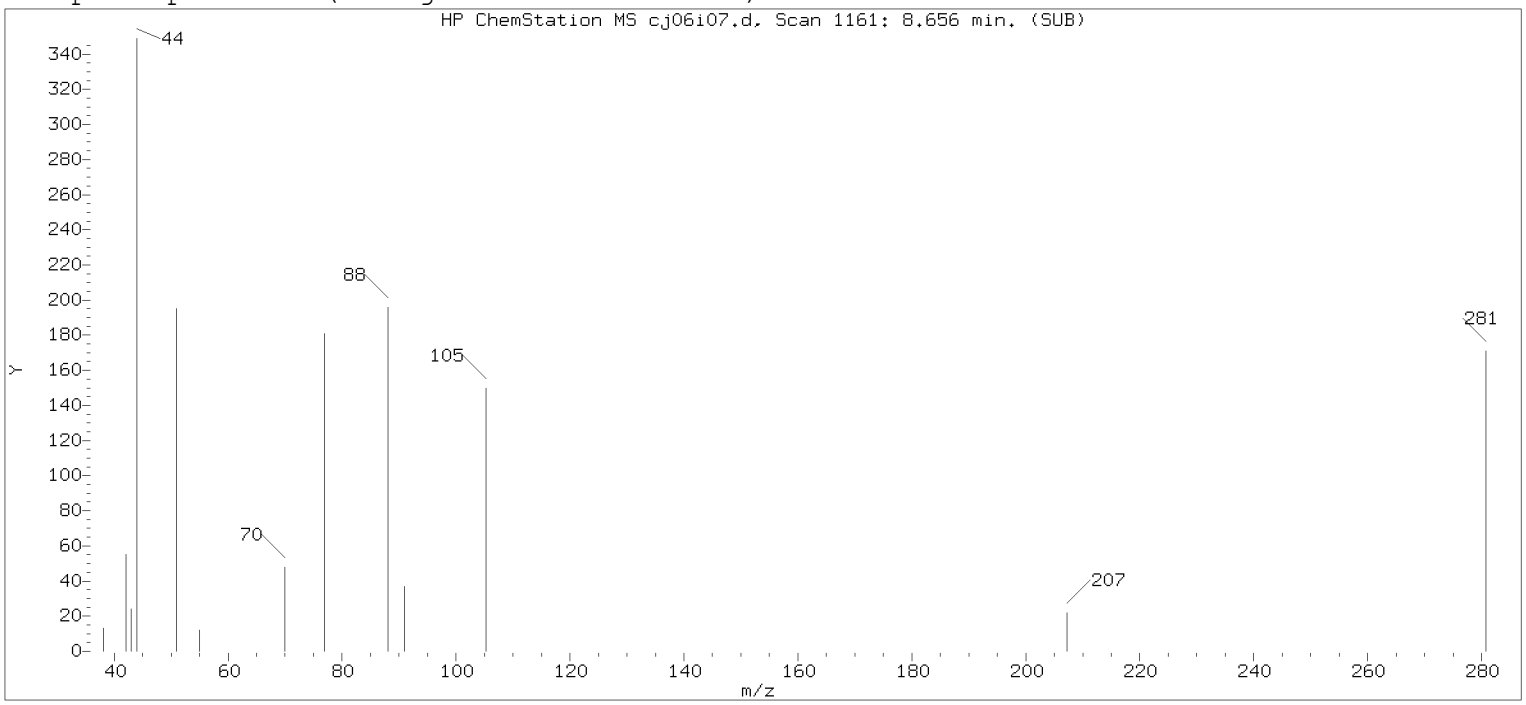
Compound Number : 74
Compound Name : 1,4-Dioxane
Scan Number : 1145
Retention Time (minutes): 8.559
Quant Ion : 58.00
Area (flag) : 1218M
On-Column Amount (ng) : 8.8687
Integration start scan : 1135 Integration stop scan: 1188
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

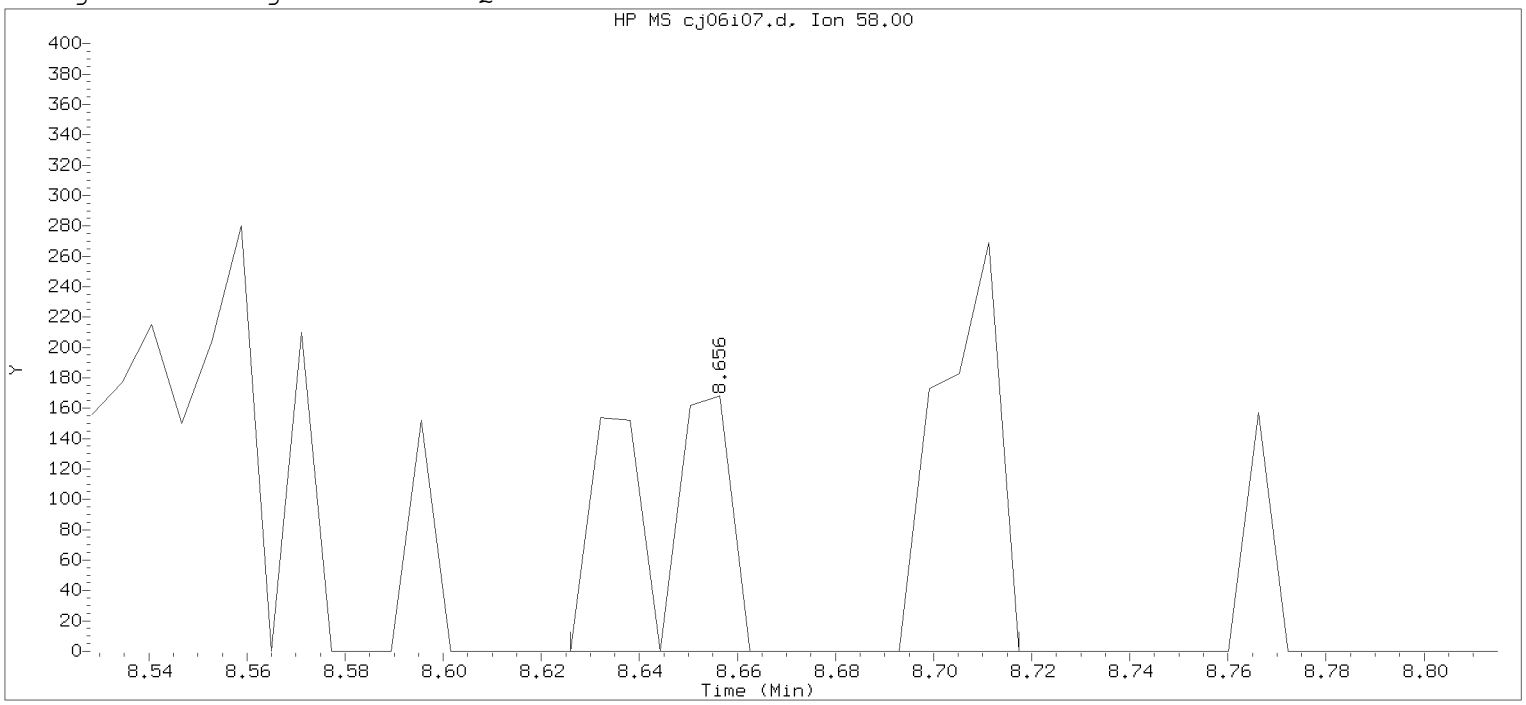
Analyst responsible for change: Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

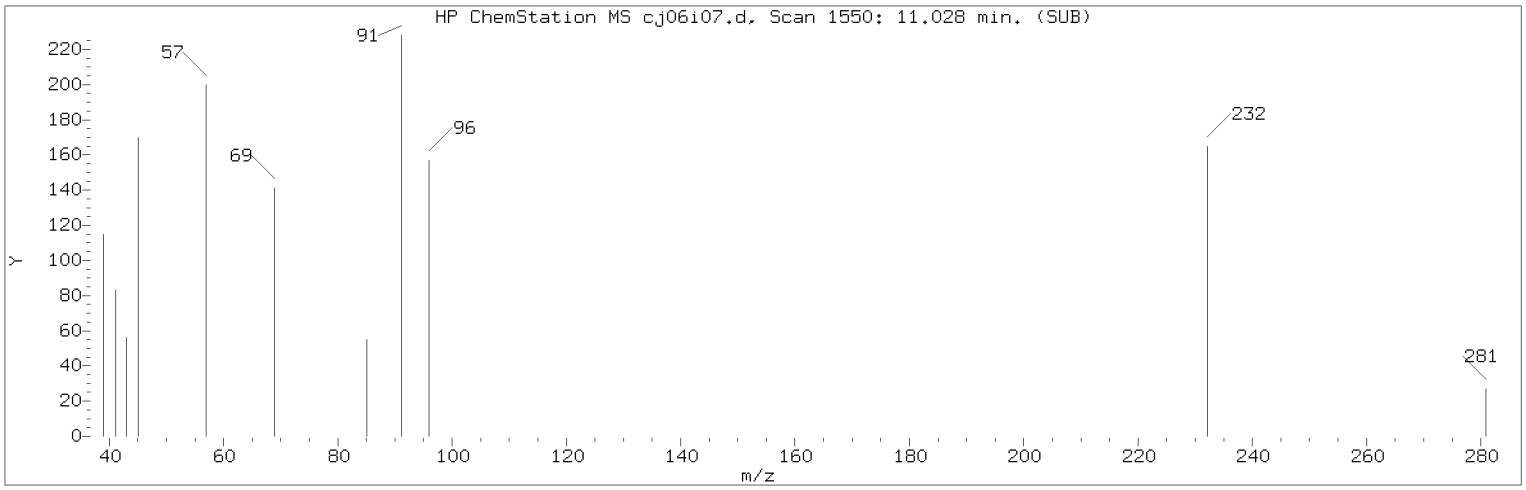
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:10 Automation

Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

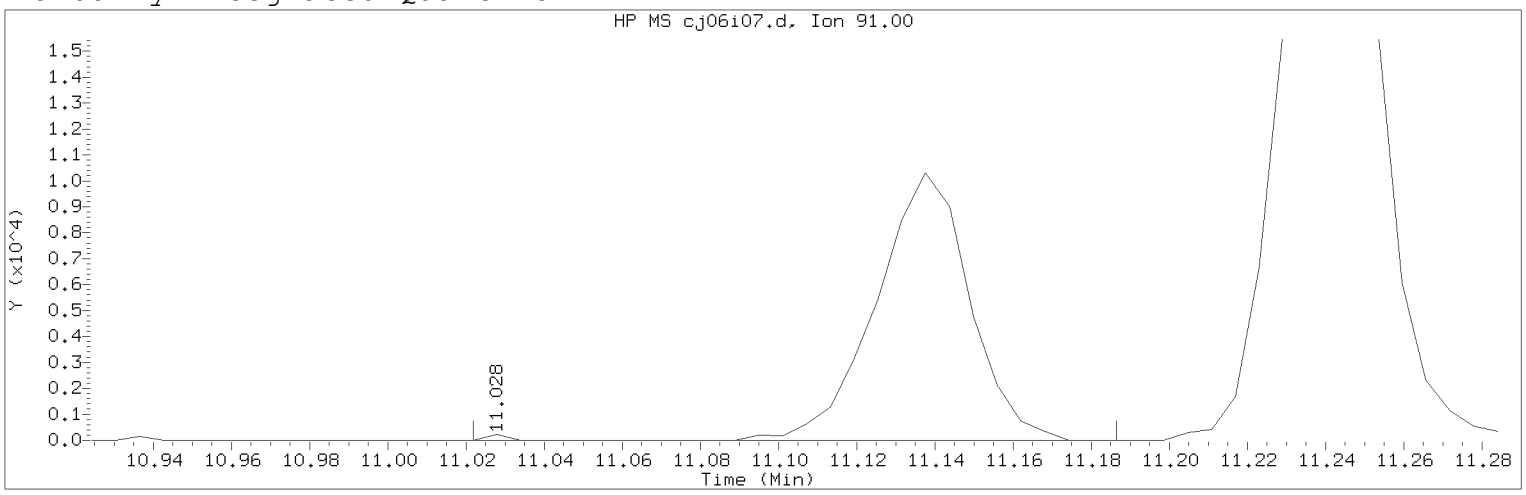
| | | | |
|---|---|---|---|
| Compound Number | : 74 | | |
| Compound Name | : 1,4-Dioxane | | |
| Scan Number | : 1161 | | |
| Retention Time (minutes) | : 8.656 | | |
| Quant Ion | : 58.00 | | |
| Area | : 461 | | |
| On-column Amount (ng) | : 4.0954 | | |
| Integration start scan | : 1155 | Integration stop scan: | 1170 |
| Y at integration start | : 0 | Y at integration end: | 0 |

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature used: 4.0954

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

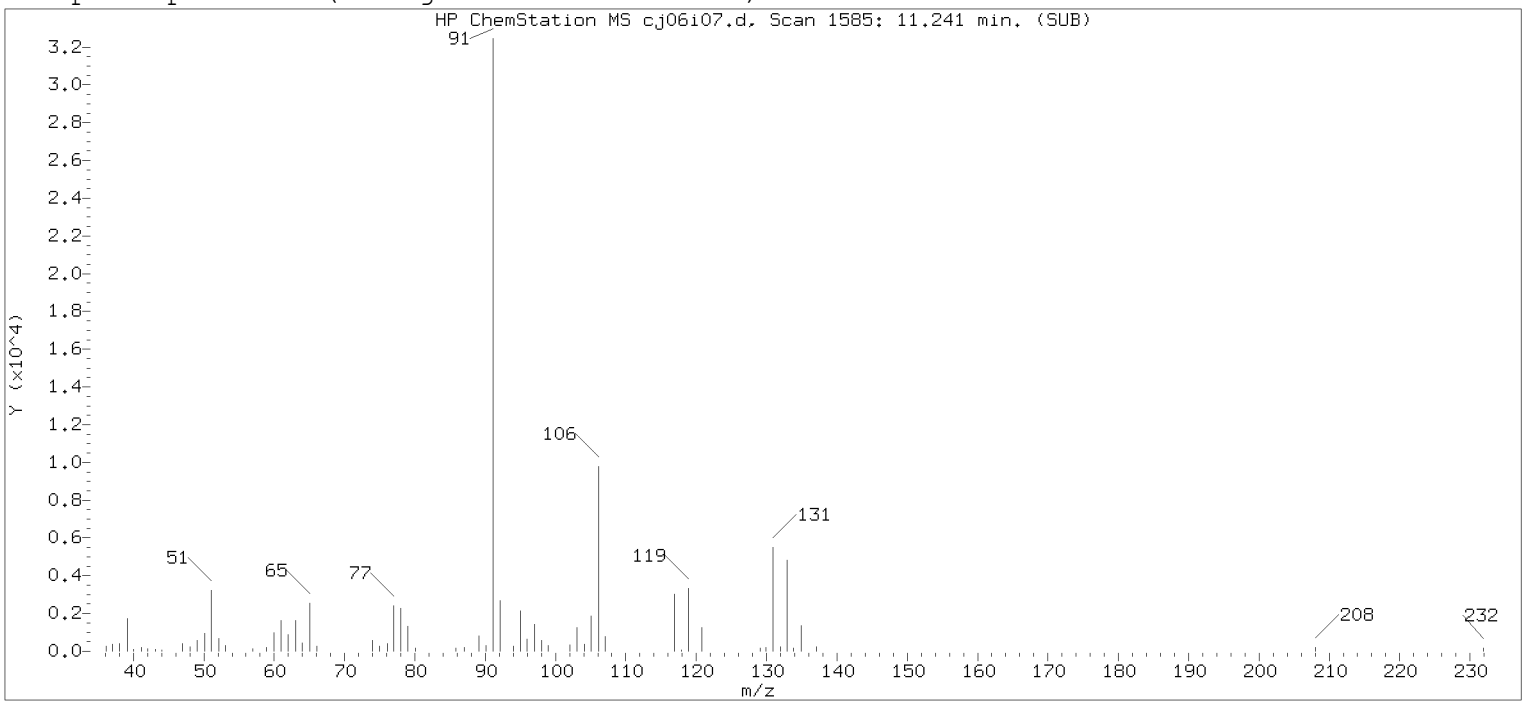
Compound Number : 98
Compound Name : 1-Chlorohexane
Scan Number : 1550
Retention Time (minutes): 11.028
Quant Ion : 91.00
Area (flag) : 17158A
On-Column Amount (ng) : 0.2258
Integration start scan : 1548 Integration stop scan: 1575
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

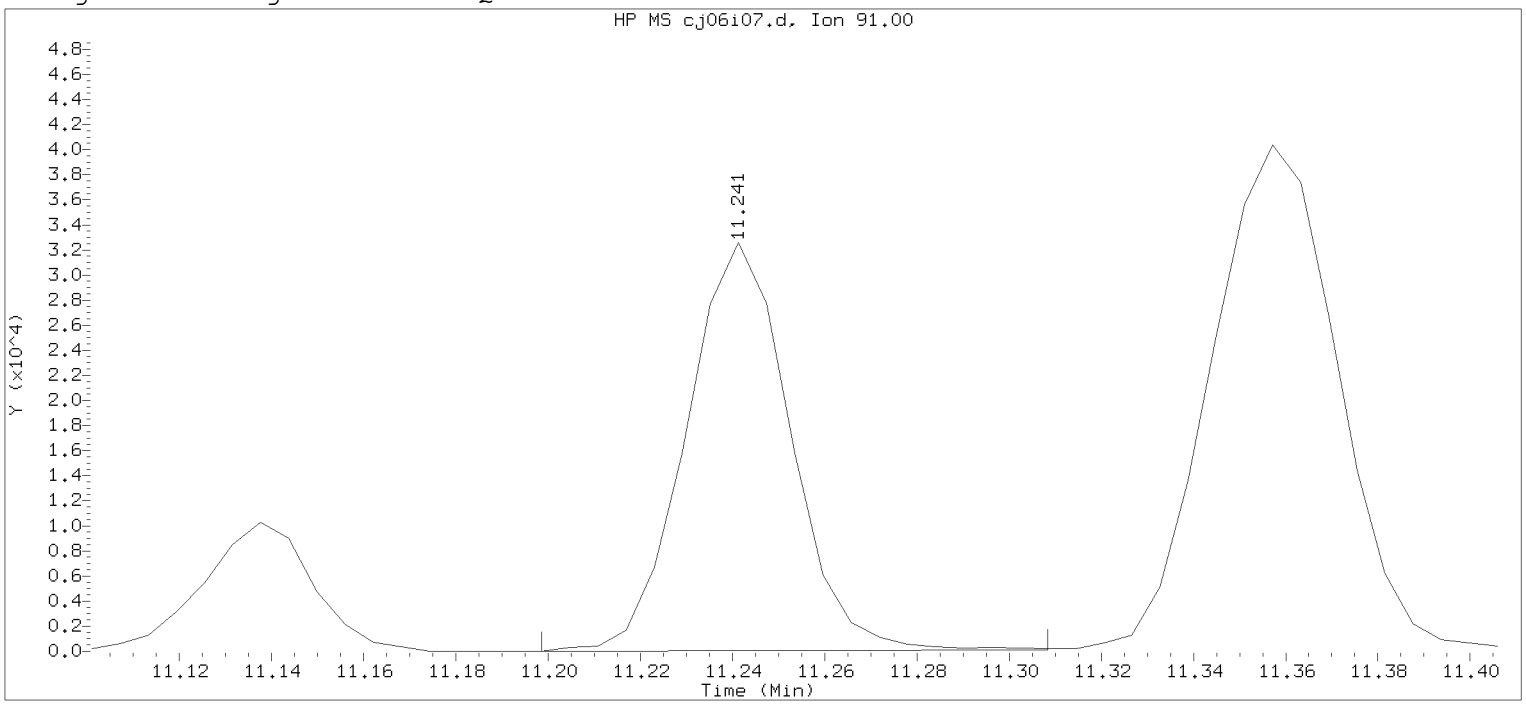
Analyst responsible for change: Digitally signed by Miranda E. Campbell
on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52  Analyst ID: JKH09052

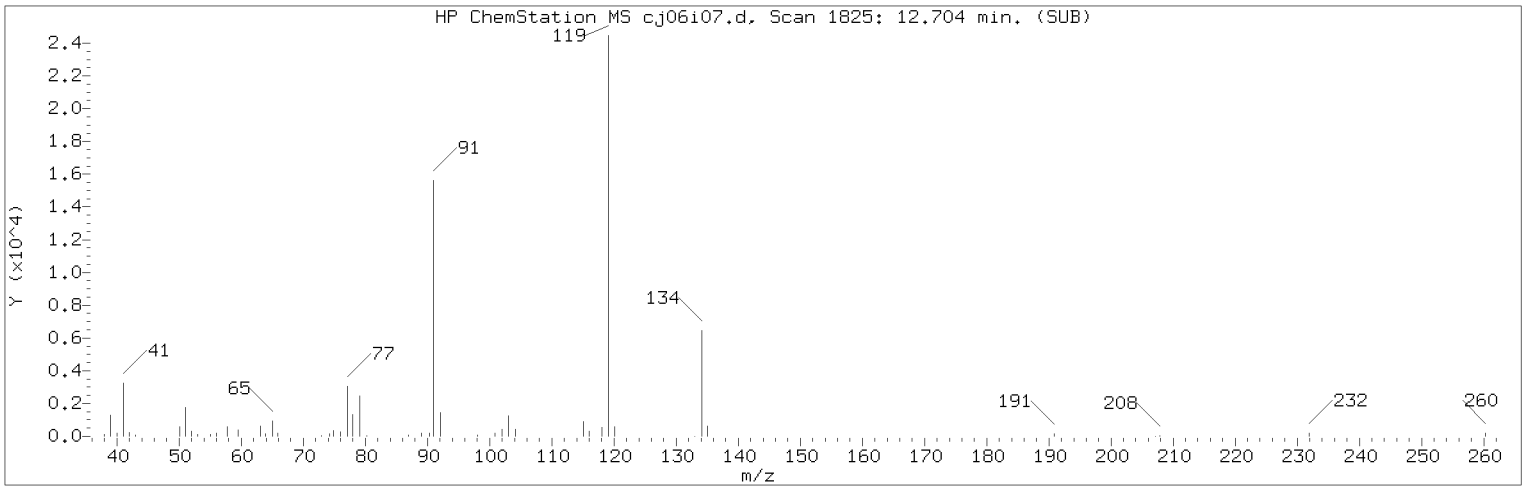
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:10 Automation

Sample Name: VSTD0.2  Lab Sample ID: VSTD0.2

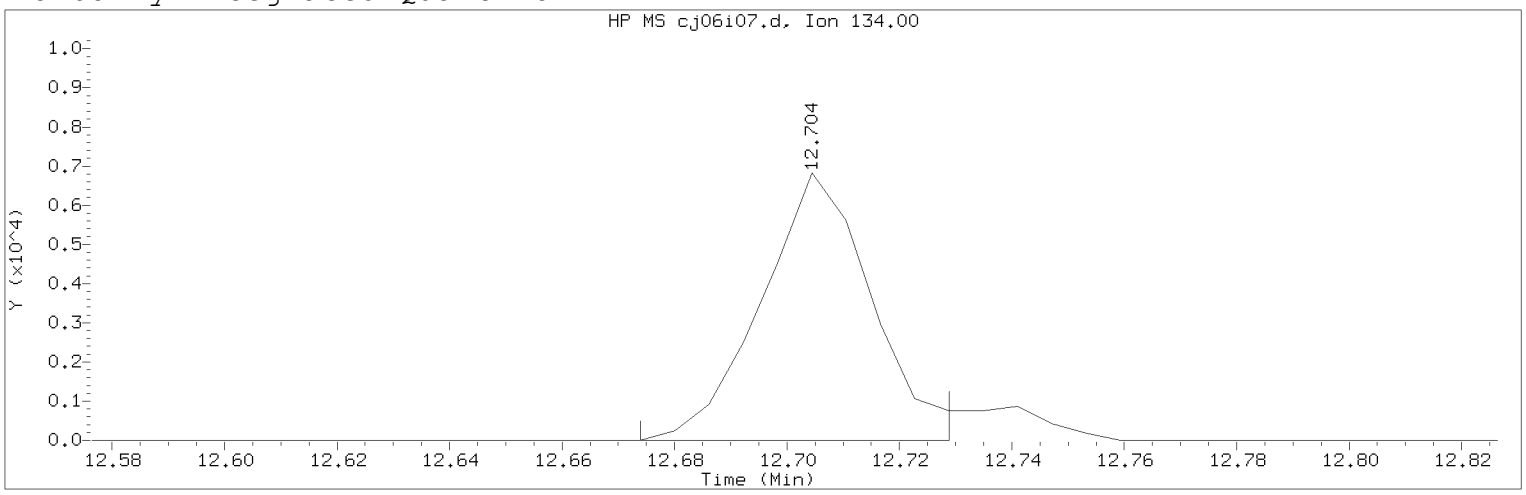
Compound Number : 98
Compound Name : 1-Chlorohexane
Scan Number : 1585
Retention Time (minutes): 11.241
Quant Ion : 91.00
Area : 50858
On-column Amount (ng) : 0.5082
Integration start scan : 1577  Integration stop scan: 1595
Y at integration start : 0  Y at integration end: 106

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29354

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:35 mec29284

Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

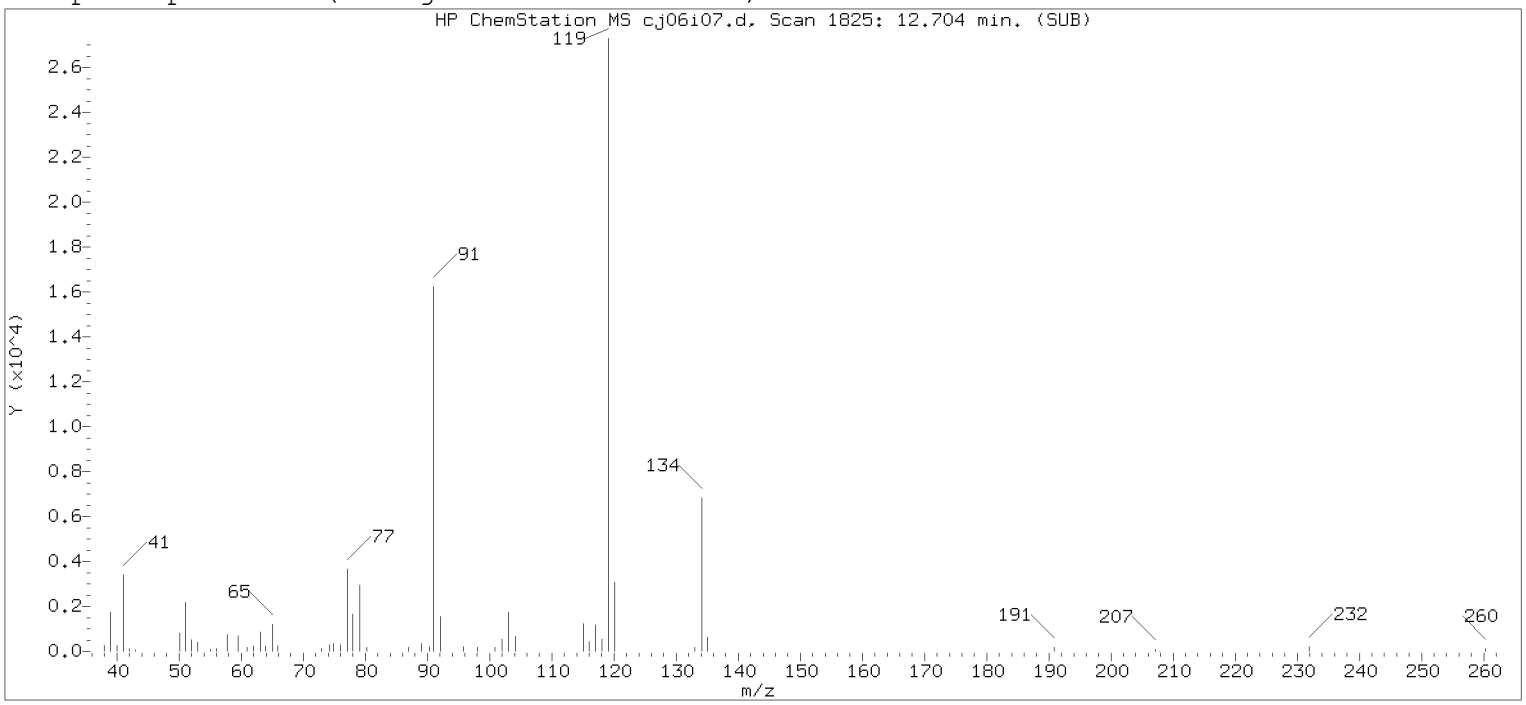
Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1825
Retention Time (minutes): 12.704
Quant Ion : 134.00
Area (flag) : 9302M
On-Column Amount (ng) : 0.1987
Integration start scan : 1819 Integration stop scan: 1828
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

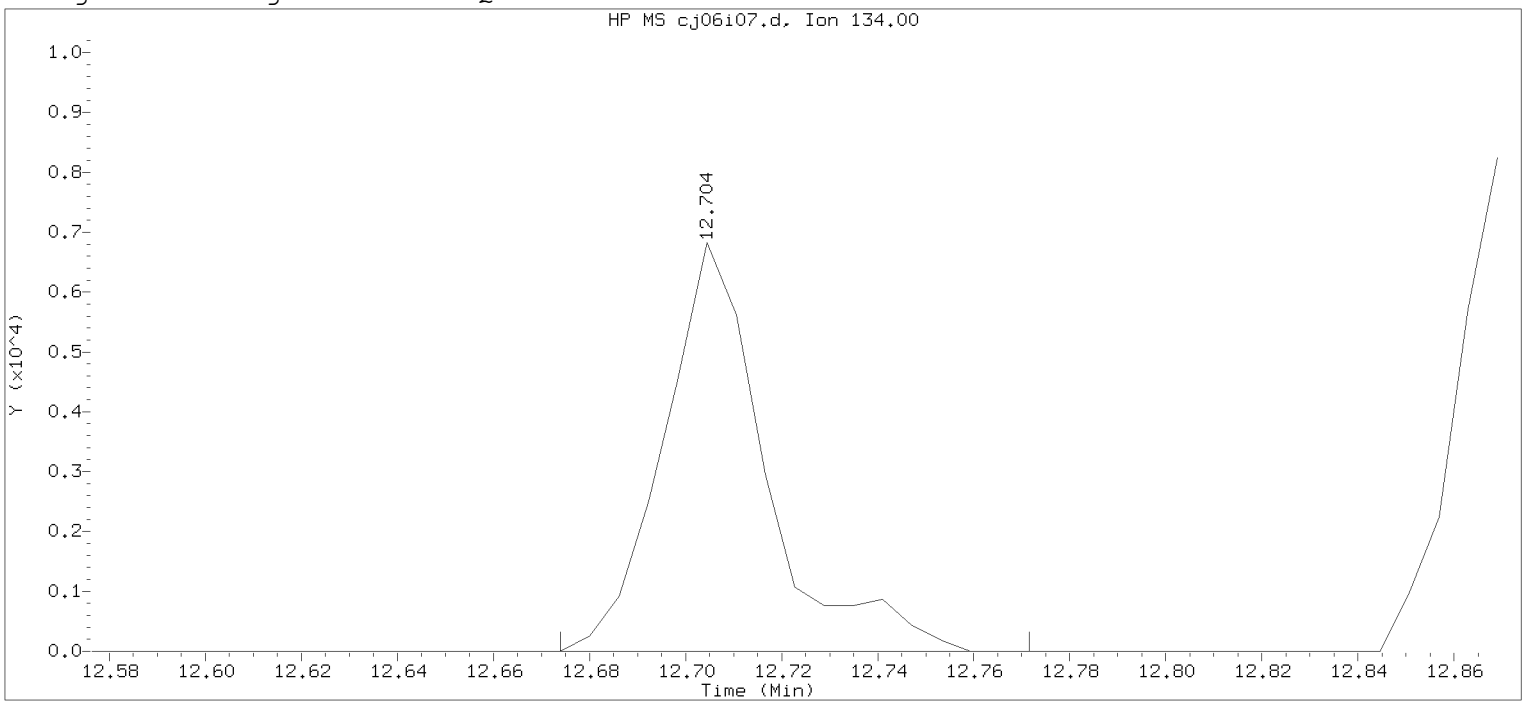
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:40.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion



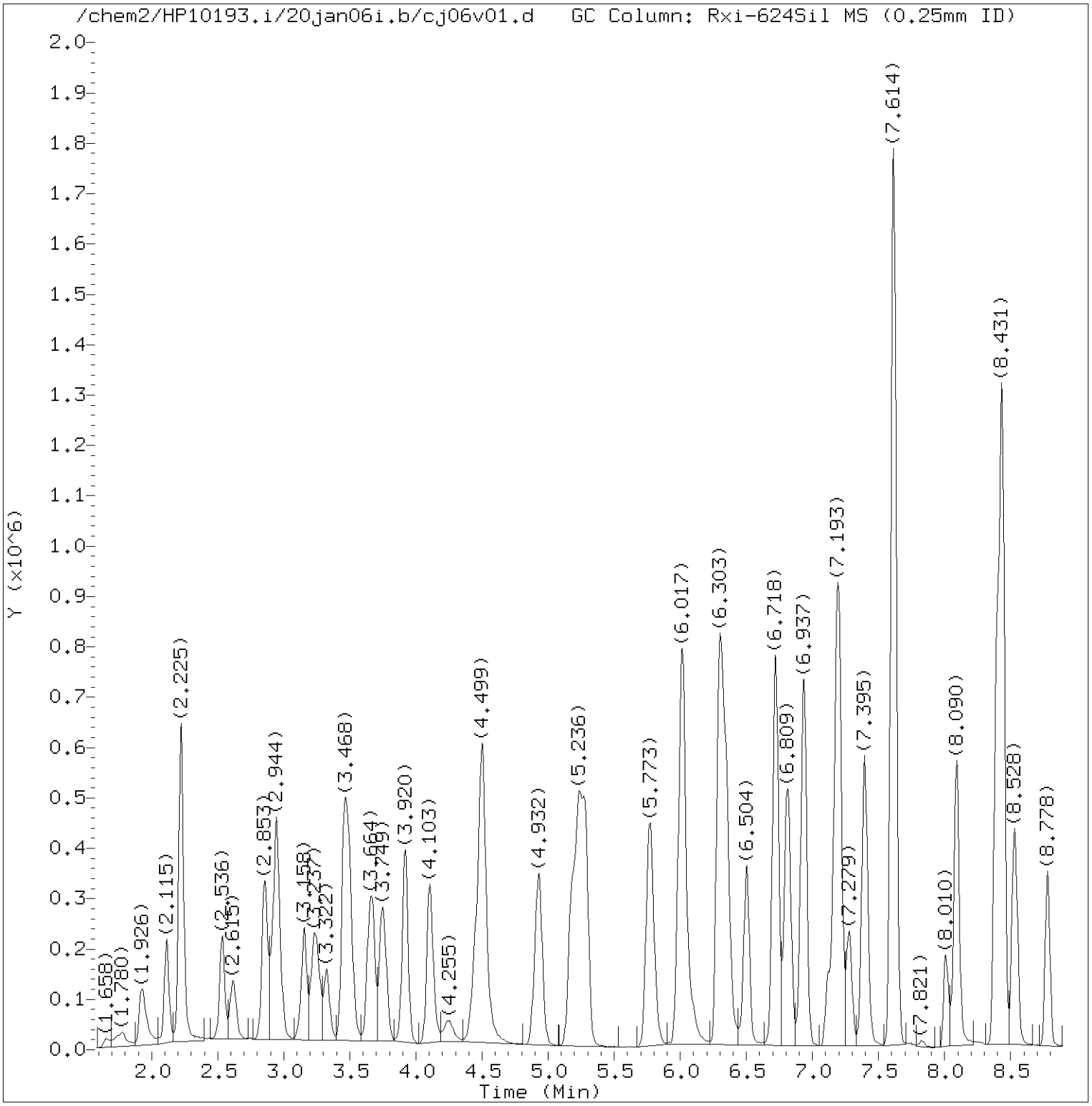

Data File: /chem2/HP10193.i/20jan06i.b/cj06i07.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 20:52 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:10 Automation

Sample Name: VSTD0.2 Lab Sample ID: VSTD0.2

Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1825
Retention Time (minutes): 12.704
Quant Ion : 134.00
Area : 10123
On-column Amount (ng) : 0.2072
Integration start scan : 1819 Integration stop scan: 1835
Y at integration start : 0 Y at integration end: 0

Digitally signed by Miranda E. Campbell on 01/06/2020 at 21:42.
Target 3.5 esignature used [illegible]




Total Ion Chromatogram (TIC)

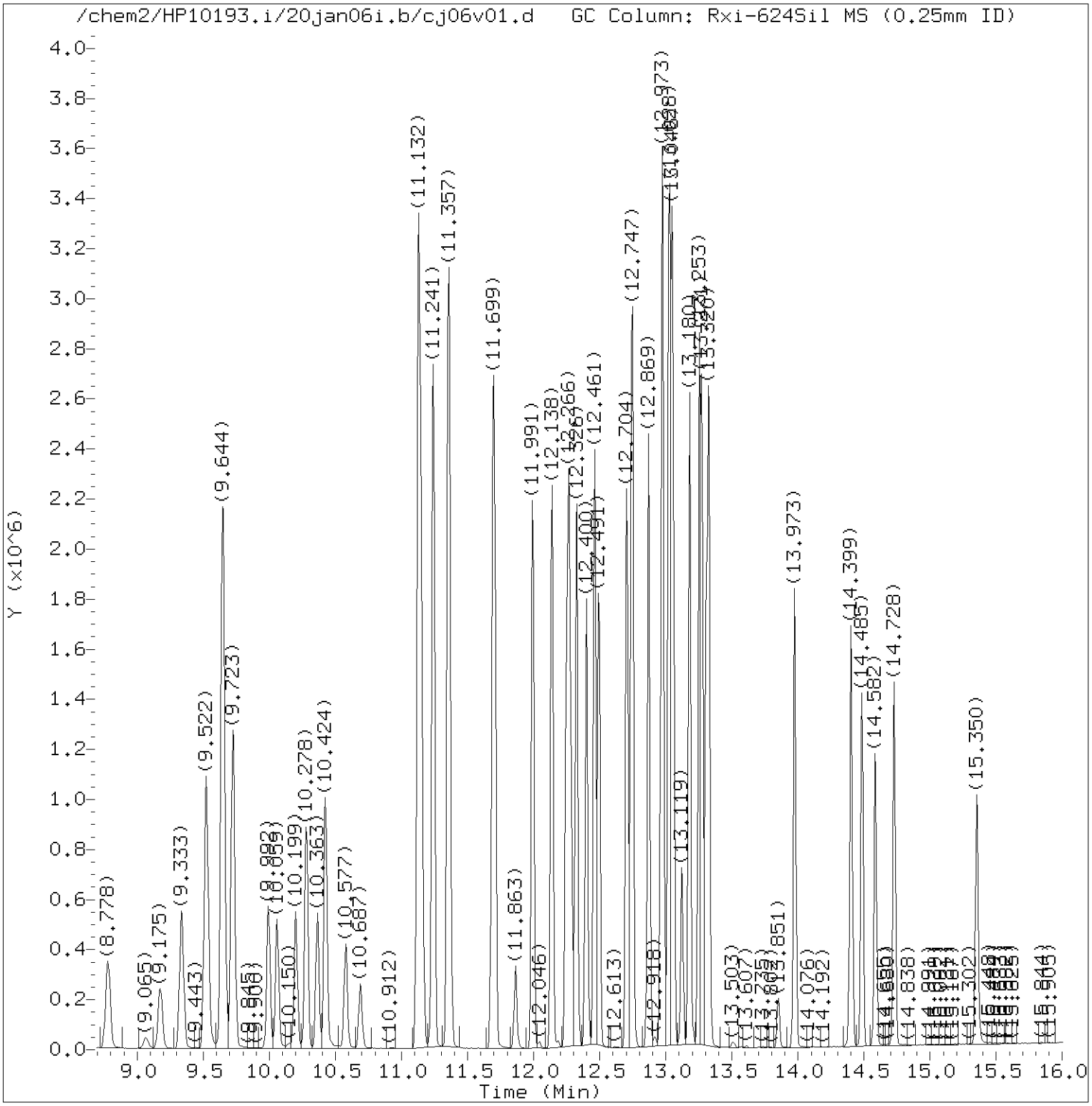
Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 07-Jan-2020 08:42 jkh09052

Sample Name: LCSLG Lab Sample ID: LCSLG

Digitally signed by Jennifer K. Howe
on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 07-Jan-2020 08:42 jkh09052

Sample Name: LCSLG Lab Sample ID: LCSLG

Digitally signed by Jennifer K. Howe
on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 07-Jan-2020 08:42 jkh09052

Sample Name: LCSLG Lab Sample ID: LCSLG

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | 1.926 | 85 | 266855M | 4.139 |
| 2) Chloromethane | (2) | 2.115 | 50 | 322191 | 4.584 |
| 6) 1,3-Butadiene | (2) | 2.219 | 39 | 311062M | 5.266 |
| 5) Vinyl Chloride | (2) | 2.231 | 62 | 319354 | 4.843 |
| 7) Bromomethane | (2) | 2.536 | 94 | 207725 | 4.693 |
| 8) Chloroethane | (2) | 2.621 | 64 | 185742 | 4.748 |
| 9) Dichlorofluoromethane | (2) | 2.853 | 67 | 412042 | 4.831 |
| 10) Trichlorofluoromethane | (2) | 2.914 | 101 | 356908 | 5.474 |
| 12) Ethyl ether | (2) | 3.158 | 59 | 209507 | 4.897 |
| 13) Freon 123a | (2) | 3.243 | 67 | 280511 | 4.991 |
| 14) Acrolein | (1) | 3.328 | 56 | 247460 | 39.539 |
| 16) 1,1-Dichloroethene | (2) | 3.456 | 96 | 221661 | 5.097 |
| 17) Freon 113 | (2) | 3.487 | 101 | 226710 | 5.293 |
| 15) Acetone | (1) | 3.493 | 43 | 296556M | 36.412 |
| 18) Methyl Iodide | (2) | 3.645 | 142 | 405960 | 4.977 |
| 19) Bromoethane | (2) | 3.676 | 108 | 194991 | 5.216 |
| 20) Carbon Disulfide | (2) | 3.749 | 76 | 766552 | 4.913 |
| 23) Methyl Acetate | (2) | 3.901 | 43 | 121667 | 4.261 |
| 24) Allyl Chloride | (2) | 3.920 | 41 | 389282 | 4.861 |
| 25) Methylene Chloride | (2) | 4.103 | 84 | 251632 | 5.094 |
| 28)*t-Butyl Alcohol-d10 | (1) | 4.121 | 65 | 151325M | 50.000 |
| 30) t-Butyl Alcohol | (1) | 4.255 | 59 | 162764M | 52.535 |
| 31) Acrylonitrile | (1) | 4.450 | 53 | 278812 | 27.557 |
| 32) Methyl Tertiary Butyl Ether | (2) | 4.493 | 73 | 655452 | 5.036 |
| 33) trans-1,2-Dichloroethene | (2) | 4.505 | 96 | 246826 | 5.018 |
| 34) n-Hexane | (2) | 4.932 | 57 | 362225 | 4.861 |
| 35) 1,1-Dichloroethane | (2) | 5.175 | 63 | 460836 | 5.115 |
| 36) di-Isopropyl Ether | (2) | 5.236 | 45 | 851600 | 5.031 |
| 37) 2-Chloro-1,3-Butadiene | (2) | 5.279 | 53 | 398226 | 5.087 |
| 39) Ethyl t-butyl ether | (2) | 5.773 | 59 | 811582 | 5.019 |
| 40) 2-Butanone | (1) | 5.986 | 43 | 559499 | 39.148 |
| 41) cis-1,2-Dichloroethene | (2) | 6.011 | 96 | 293167 | 5.296 |
| 43) 2,2-Dichloropropane | (2) | 6.029 | 77 | 374756 | 4.991 |
| 44) Propionitrile | (1) | 6.084 | 54 | 144751 | 41.327 |
| 42) 1,2-Dichloroethene (Total) | (2) | | 96 | 539993 | 10.314 |
| 47) Methacrylonitrile | (1) | 6.303 | 67 | 547060 | 41.191 |
| 49) Bromochloromethane | (2) | 6.346 | 128 | 122098 | 4.939 |
| 50) Tetrahydrofuran | (1) | 6.352 | 71 | 114162 | 26.852 |

M = Compound was manually integrated.
* = Compound is an internal standard.



Digitally signed by Jennifer K. Howe
on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 07-Jan-2020 08:42 jkh09052

Sample Name: LCSLG Lab Sample ID: LCSLG

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 51) Chloroform | (2) | 6.504 | 83 | 427877 | 5.112 |
| 52)$Dibromofluoromethane | (2) | 6.718 | 113 | 433991 | 9.969 |
| 53) 1,1,1-Trichloroethane | (2) | 6.724 | 97 | 374792 | 5.041 |
| 54) Cyclohexane | (2) | 6.815 | 56 | 441758 | 4.862 |
| 56) Carbon Tetrachloride | (2) | 6.931 | 117 | 325779 | 5.230 |
| 57) 1,1-Dichloropropene | (2) | 6.937 | 75 | 351752 | 5.043 |
| 58) Isobutyl Alcohol | (1) | 7.120 | 41 | 131592 | 127.367 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.175 | 102 | 94012 | 9.853 |
| 60) Benzene | (2) | 7.199 | 78 | 1037441 | 5.037 |
| 61) 1,2-Dichloroethane | (2) | 7.279 | 62 | 289918 | 4.991 |
| 62) t-Amyl methyl ether | (2) | 7.395 | 73 | 738969 | 5.031 |
| 65)*Fluorobenzene | (2) | 7.614 | 96 | 1856309 | 10.000 |
| 64) n-Heptane | (2) | 7.620 | 43 | 362344M | 4.695 |
| 67) n-Butanol | (1) | 8.004 | 56 | 244739 | 266.069 |
| 69) Trichloroethene | (2) | 8.090 | 95 | 263807 | 5.126 |
| 71) Methylcyclohexane | (2) | 8.394 | 83 | 453012 | 4.909 |
| 72) 1,2-Dichloropropane | (2) | 8.431 | 63 | 275609 | 5.204 |
| 73) Methyl Methacrylate | (1) | 8.522 | 69 | 151165 | 5.572 |
| 74) 1,4-Dioxane | (1) | 8.535 | 88 | 23261M | 135.988 |
| 75) Dibromomethane | (2) | 8.541 | 93 | 128589 | 5.183 |
| 76) Bromodichloromethane | (2) | 8.778 | 83 | 322072 | 5.076 |
| 78) 2-Nitropropane | (1) | 9.065 | 41 | 43290 | 5.155 |
| 81) 1-Bromo-2-chloroethane | (2) | 9.175 | 63 | 285894 | 5.005 |
| 82) cis-1,3-Dichloropropene | (2) | 9.333 | 75 | 416143 | 5.088 |
| 83) 4-Methyl-2-Pentanone | (2) | 9.522 | 43 | 982179M | 25.014 |
| 84)$Toluene-d8 | (3) | 9.644 | 98 | 1835032 | 10.013 |
| 85) Toluene | (3) | 9.723 | 92 | 662761 | 5.061 |
| 87) 1,3-Dichloropropene (total) | (3) | | 75 | 769393 | 10.077 |
| 86) trans-1,3-Dichloropropene | (3) | 9.992 | 75 | 353250 | 4.989 |
| 88) Ethyl Methacrylate | (3) | 10.059 | 69 | 300006 | 4.734 |
| 90) 1,1,2-Trichloroethane | (3) | 10.199 | 97 | 191531 | 5.116 |
| 91) Tetrachloroethene | (3) | 10.278 | 166 | 296106 | 5.261 |
| 92) 1,3-Dichloropropane | (3) | 10.363 | 76 | 334516 | 5.057 |
| 93) 2-Hexanone | (3) | 10.424 | 43 | 706012 | 24.749 |
| 95) Dibromochloromethane | (3) | 10.577 | 129 | 239185 | 5.277 |
| 97) 1,2-Dibromoethane | (3) | 10.687 | 107 | 184607 | 5.091 |
| 99)*Chlorobenzene-d5 | (3) | 11.126 | 117 | 1375267 | 10.000 |
| 98) 1-Chlorohexane | (3) | 11.138 | 91 | 367073 | 4.829 |

M = Compound was manually integrated.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.



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on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 07-Jan-2020 08:42 jkh09052

Sample Name: LCSLG Lab Sample ID: LCSLG

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 100) Chlorobenzene | (3) | 11.150 | 112 | 752441 | 5.104 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | 11.235 | 131 | 263300 | 5.186 |
| 102) Ethylbenzene | (3) | 11.241 | 91 | 1291005 | 5.110 |
| 103) m+p-Xylene | (3) | 11.357 | 106 | 1018706 | 10.277 |
| 106) o-Xylene | (3) | 11.692 | 106 | 500969M | 5.087 |
| 108) Styrene | (3) | 11.705 | 104 | 853652 | 5.132 |
| 107) Xylene (Total) | (3) | | 106 | 1519675 | 15.364 |
| 109) Bromoform | (3) | 11.863 | 173 | 144767 | 5.186 |
| 110) Isopropylbenzene | (3) | 11.991 | 105 | 1318853 | 5.202 |
| 113)$4-Bromofluorobenzene | (3) | 12.138 | 95 | 686451 | 9.969 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | 12.247 | 83 | 249871 | 5.021 |
| 116) Bromobenzene | (4) | 12.253 | 156 | 323504 | 5.114 |
| 117) trans-1,4-Dichloro-2-butene | (1) | 12.272 | 53 | 346998 | 27.717 |
| 118) 1,2,3-Trichloropropane | (4) | 12.290 | 110 | 66179M | 5.006 |
| 119) n-Propylbenzene | (4) | 12.326 | 91 | 1551532 | 5.189 |
| 121) 2-Chlorotoluene | (4) | 12.400 | 126 | 316446 | 5.076 |
| 123) 1,3,5-Trimethylbenzene | (4) | 12.461 | 105 | 1131726 | 5.131 |
| 124) 4-Chlorotoluene | (4) | 12.491 | 126 | 327113 | 5.032 |
| 127) tert-Butylbenzene | (4) | 12.704 | 134 | 241135M | 5.130 |
| 128) Pentachloroethane | (4) | 12.735 | 167 | 202455 | 5.001 |
| 129) 1,2,4-Trimethylbenzene | (4) | 12.747 | 105 | 1160380 | 4.991 |
| 130) sec-Butylbenzene | (4) | 12.869 | 105 | 1465514 | 5.180 |
| 133) 1,3-Dichlorobenzene | (4) | 12.967 | 146 | 636238 | 5.076 |
| 134) p-Isopropyltoluene | (4) | 12.979 | 119 | 1264525 | 5.108 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.021 | 152 | 759516 | 10.000 |
| 136) 1,4-Dichlorobenzene | (4) | 13.040 | 146 | 654634 | 5.089 |
| 137) 1,2,3-Trimethylbenzene | (4) | 13.052 | 120 | 512847 | 4.923 |
| 138) Benzyl Chloride | (4) | 13.119 | 126 | 99894 | 4.626 |
| 140) n-Butylbenzene | (4) | 13.271 | 92 | 629581 | 5.064 |
| 141) 1,2-Dichlorobenzene | (4) | 13.302 | 146 | 601735 | 5.112 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | 13.851 | 155 | 40238 | 5.840 |
| 146) 1,3,5-Trichlorobenzene | (4) | 13.973 | 180 | 524989 | 5.054 |
| 147) 1,2,4-Trichlorobenzene | (4) | 14.399 | 180 | 474861 | 5.052 |
| 148) Hexachlorobutadiene | (4) | 14.485 | 225 | 240901 | 5.338 |
| 149) Naphthalene | (4) | 14.582 | 128 | 836281 | 4.813 |
| 150) 1,2,3-Trichlorobenzene | (4) | 14.728 | 180 | 407479 | 4.948 |

M = Compound was manually integrated.
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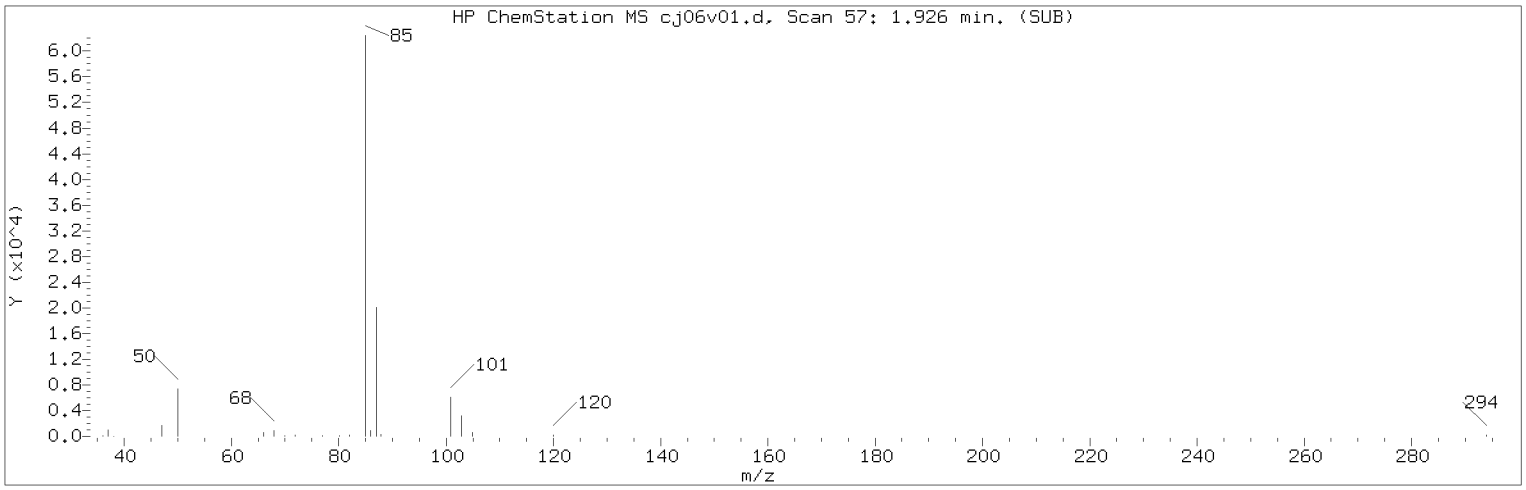
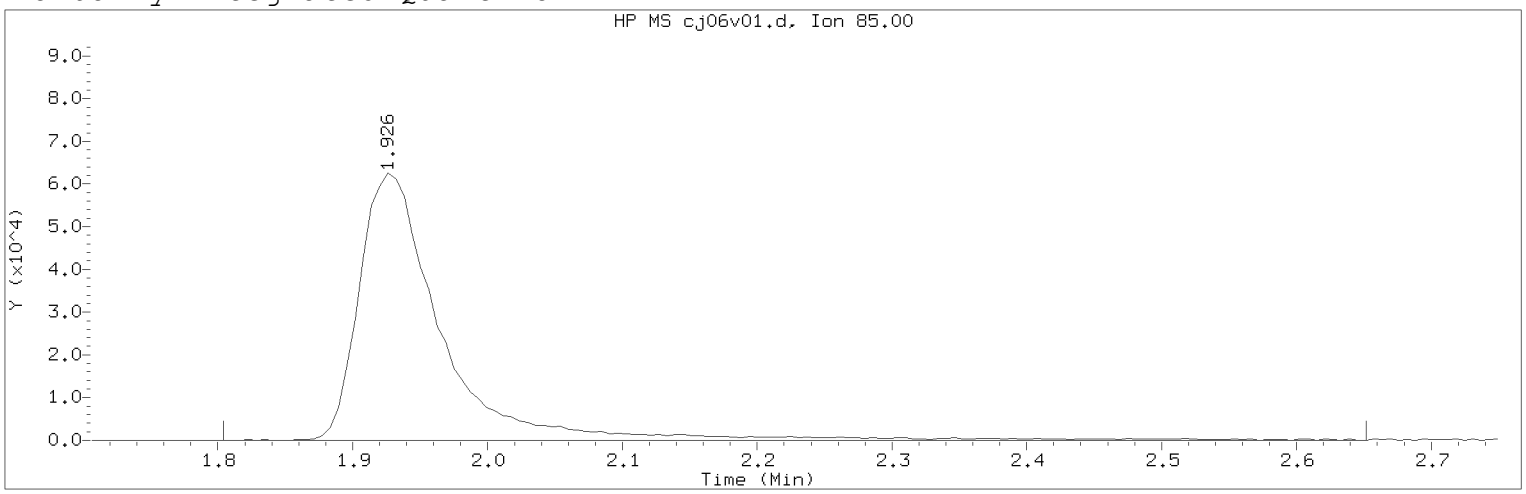
on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 07-Jan-2020 08:42 jkh09052

Sample Name: LCSLG Lab Sample ID: LCSLG

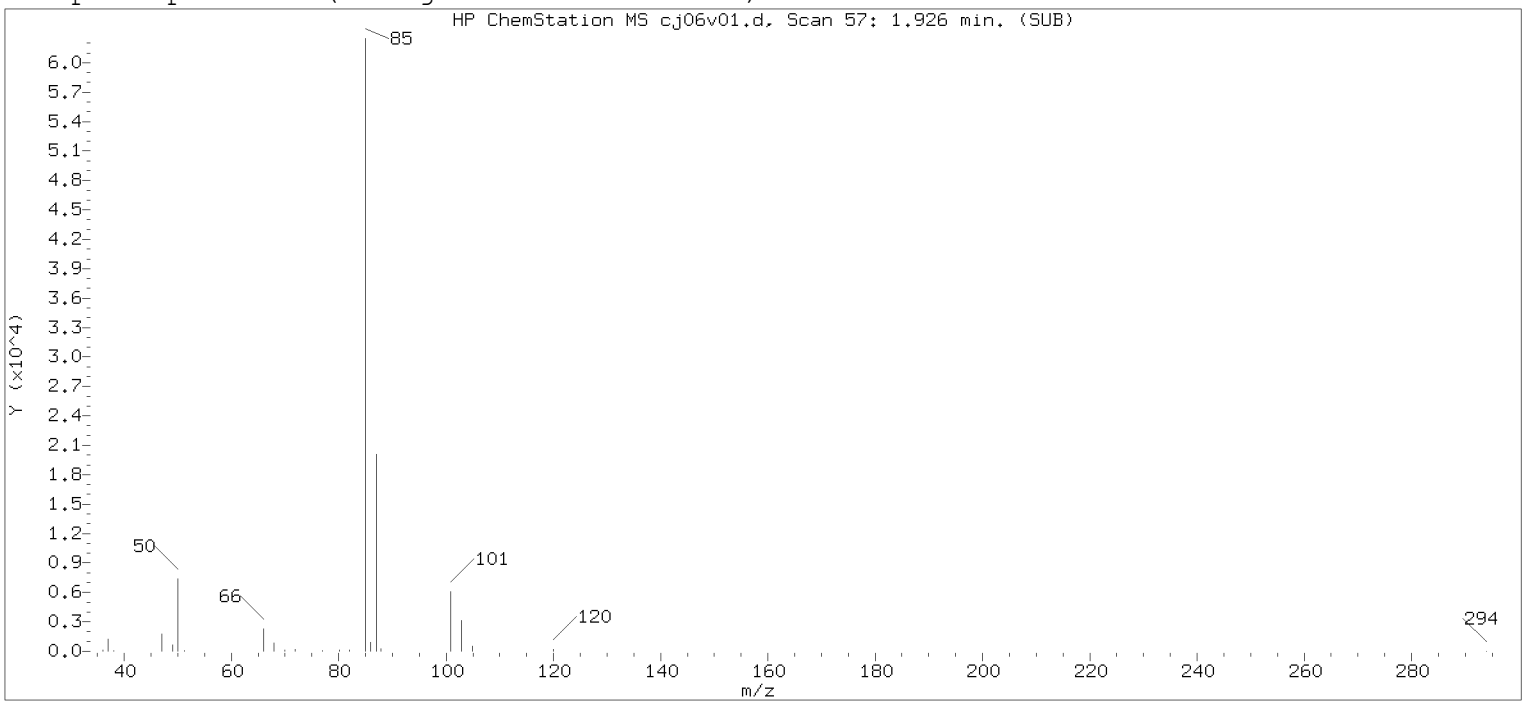
Compound Number : 1
Compound Name : Dichlorodifluoromethane
Scan Number : 57
Retention Time (minutes): 1.926
Quant Ion : 85.00
Area (flag) : 266855M
On-Column Amount (ng) : 4.1389
Integration start scan : 36 Integration stop scan: 175
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

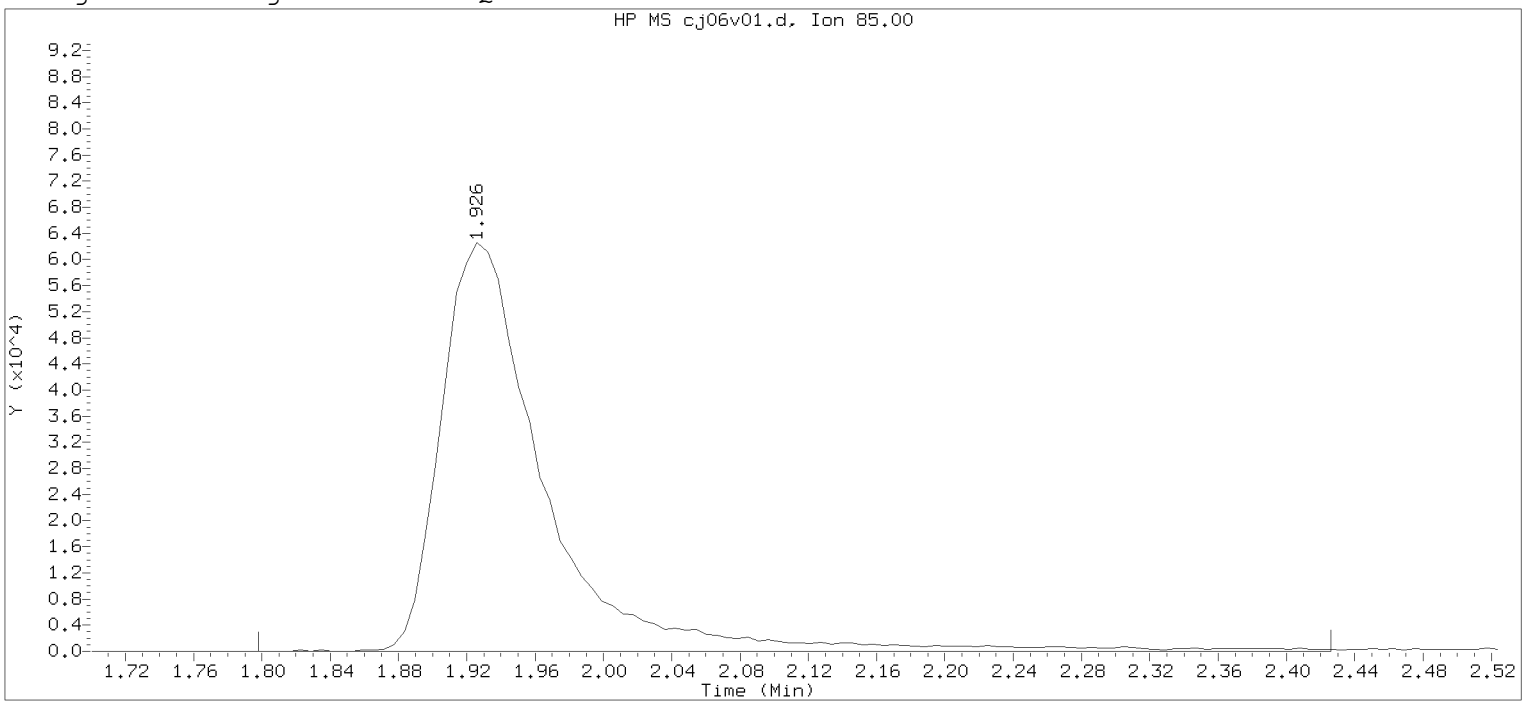
Analyst responsible for change: Digitally signed by Jennifer K. Howe
on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:44.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14  Analyst ID: JKH09052

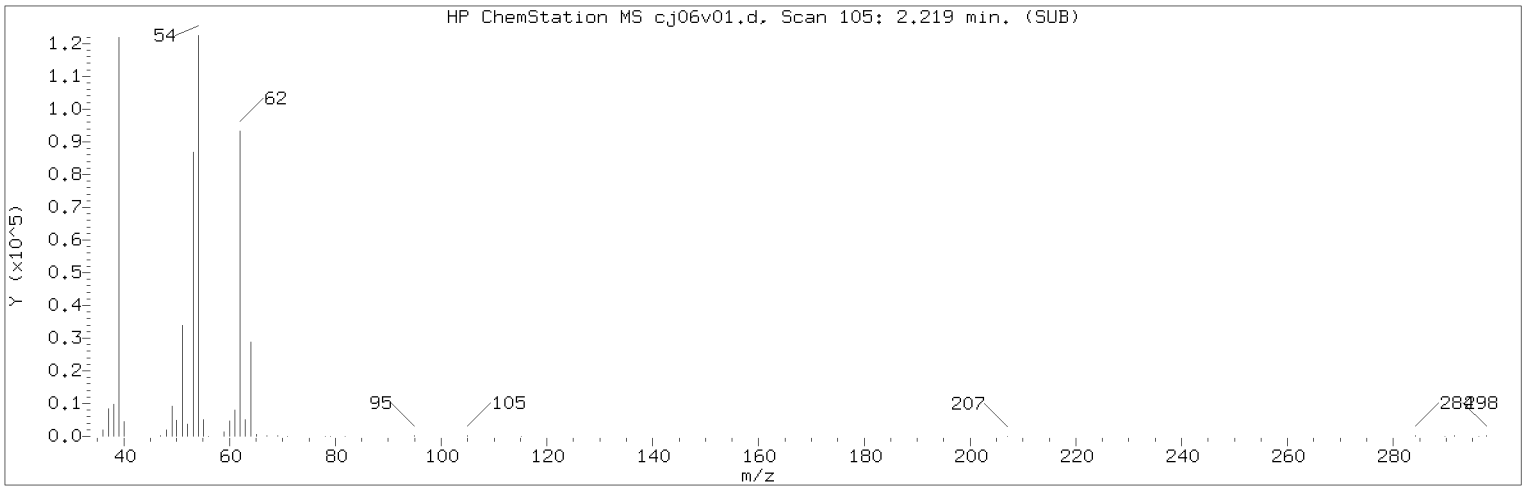
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:32 Automation

Sample Name: LCSLG  Lab Sample ID: LCSLG

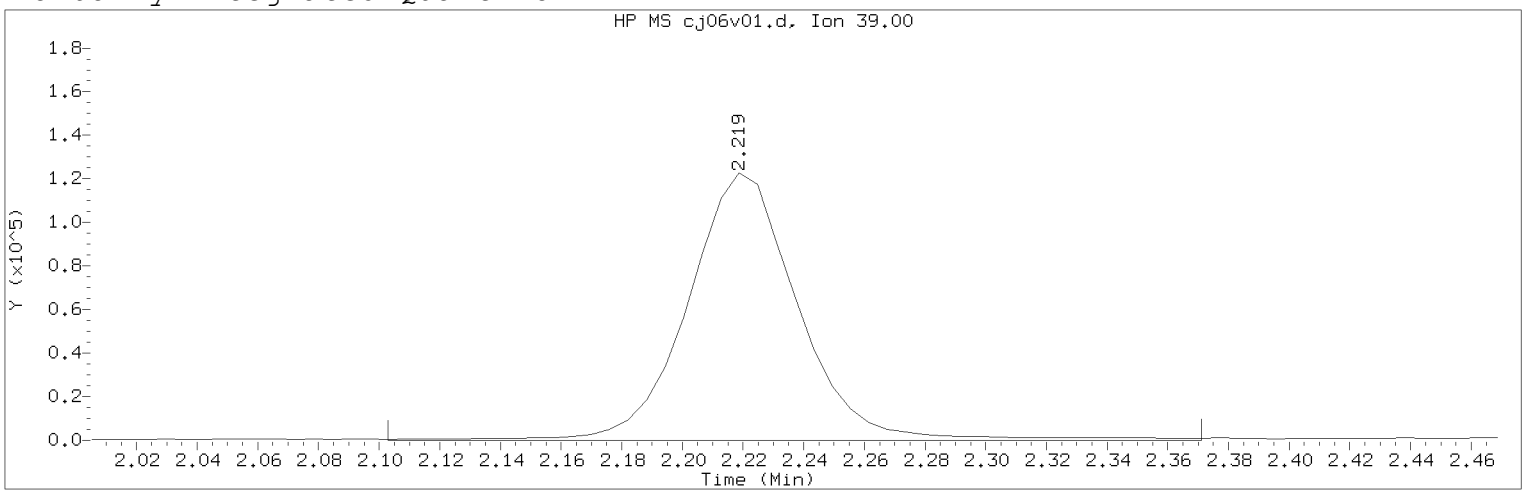
Compound Number : 1
Compound Name : Dichlorodifluoromethane
Scan Number : 57
Retention Time (minutes): 1.926
Quant Ion : 85.00
Area : 263735
On-column Amount (ng) : 4.1687
Integration start scan : 35  Integration stop scan: 138
Y at integration start : 0  Y at integration end: 0

Digitally signed by Jennifer K. Howe on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 07-Jan-2020 08:42 jkh09052

Sample Name: LCSLG Lab Sample ID: LCSLG

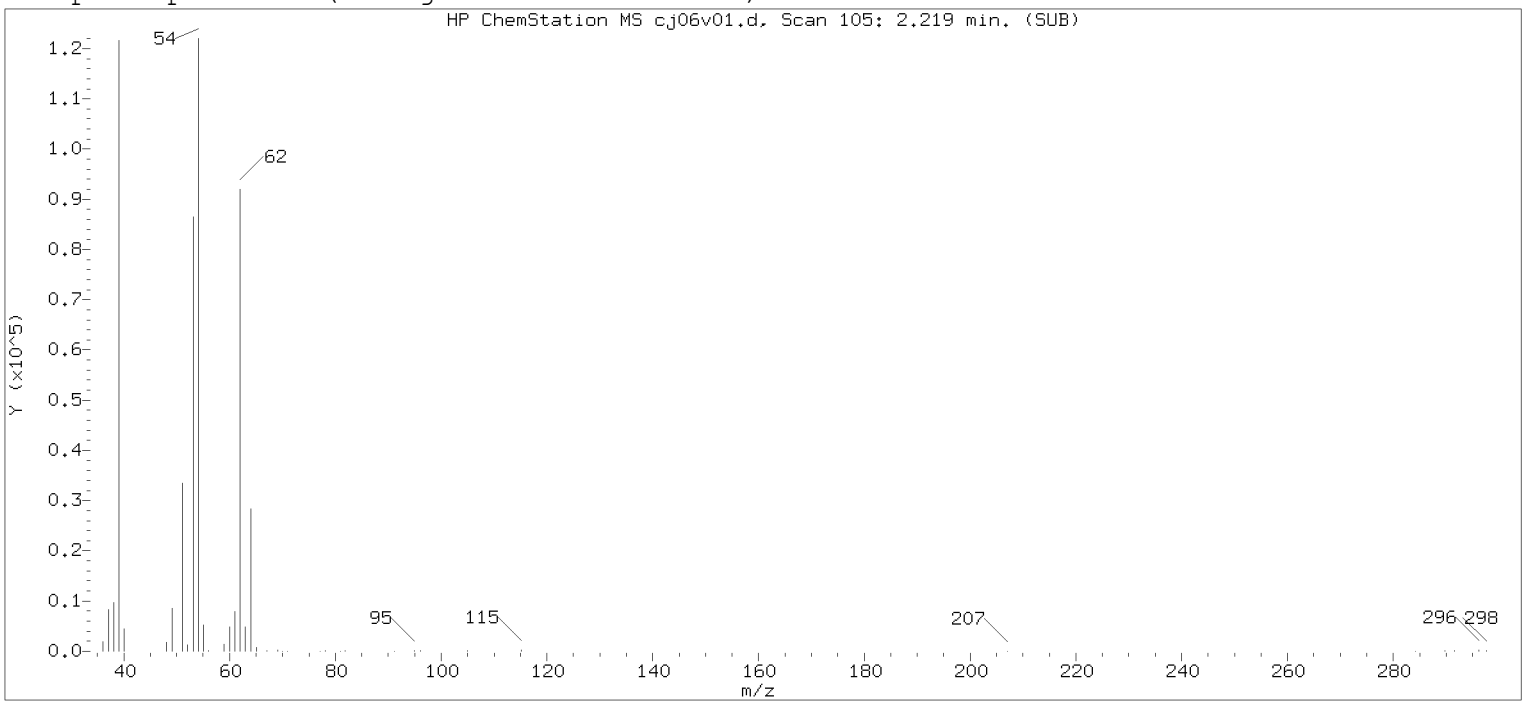
Compound Number : 6
Compound Name : 1,3-Butadiene
Scan Number : 105
Retention Time (minutes): 2.219
Quant Ion : 39.00
Area (flag) : 311062M
On-Column Amount (ng) : 5.2661
Integration start scan : 85 Integration stop scan: 129
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

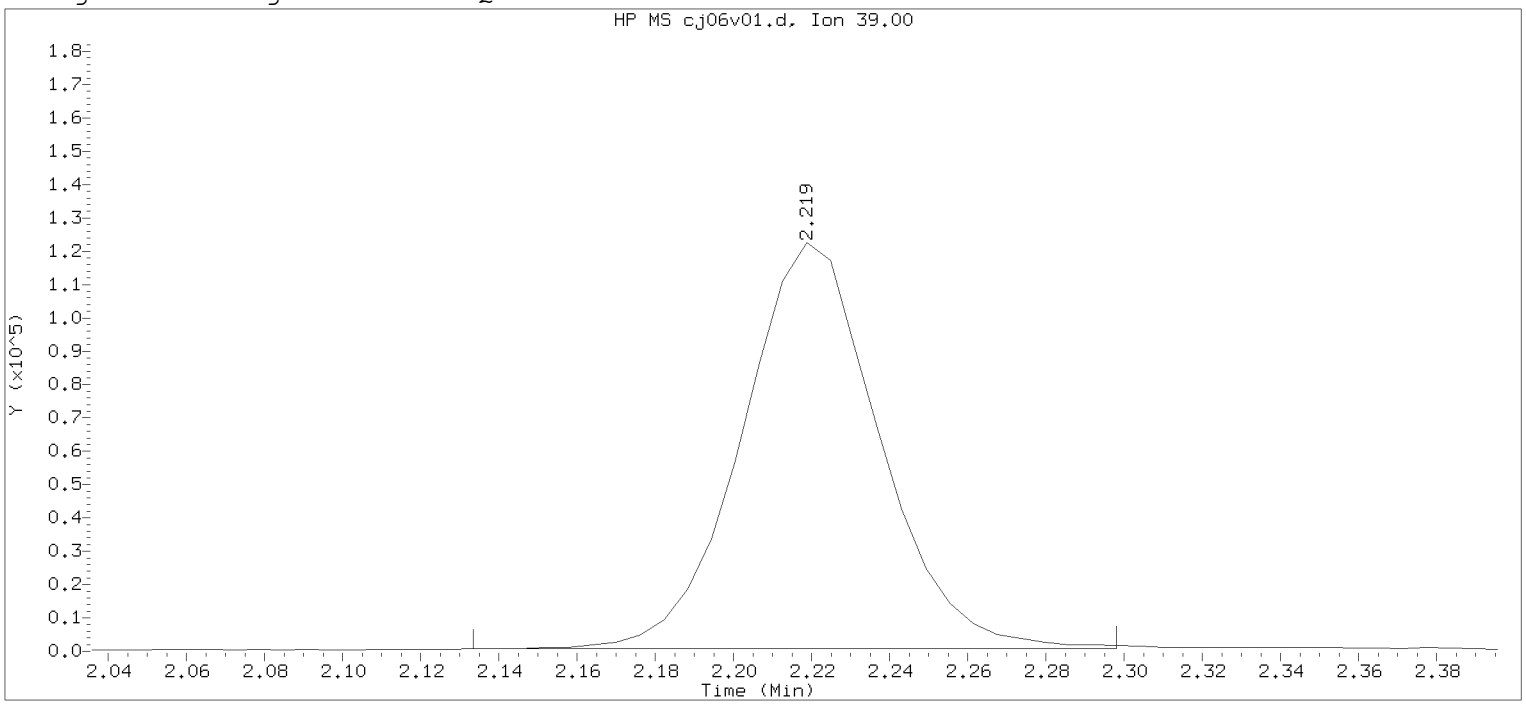
Analyst responsible for change: Digitally signed by Jennifer K. Howe
on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:44.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14  Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:32 Automation

Sample Name: LCSLG  Lab Sample ID: LCSLG

Compound Number : 6
Compound Name : 1,3-Butadiene
Scan Number : 105
Retention Time (minutes): 2.219
Quant Ion : 39.00
Area : 297214
On-column Amount (ng) : 5.2390
Integration start scan : 90  Integration stop scan: 117
Y at integration start : 761  Y at integration end: 761

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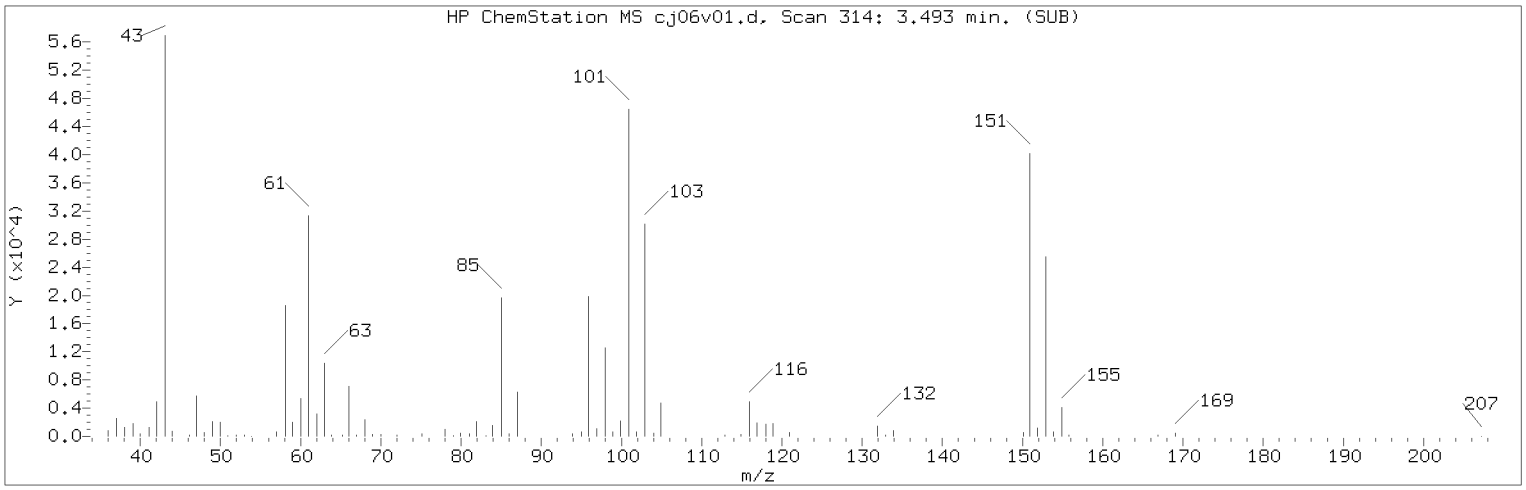
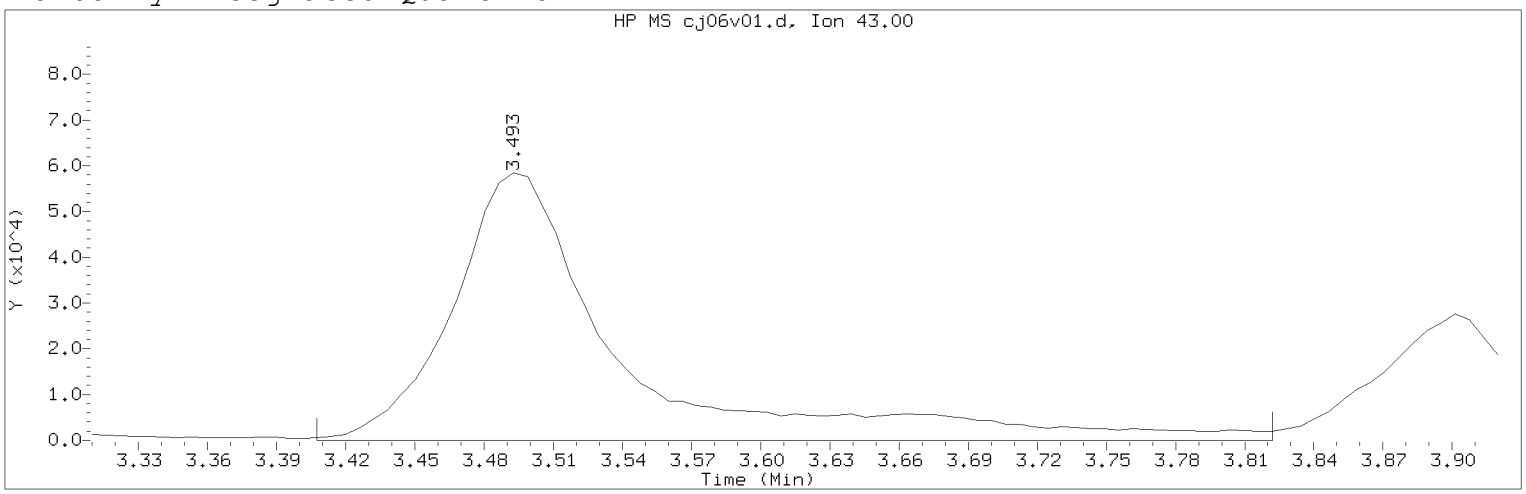
Target 3.5 esignature user ID: jkh09052

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 07-Jan-2020 08:42 jkh09052

Sample Name: LCSLG Lab Sample ID: LCSLG

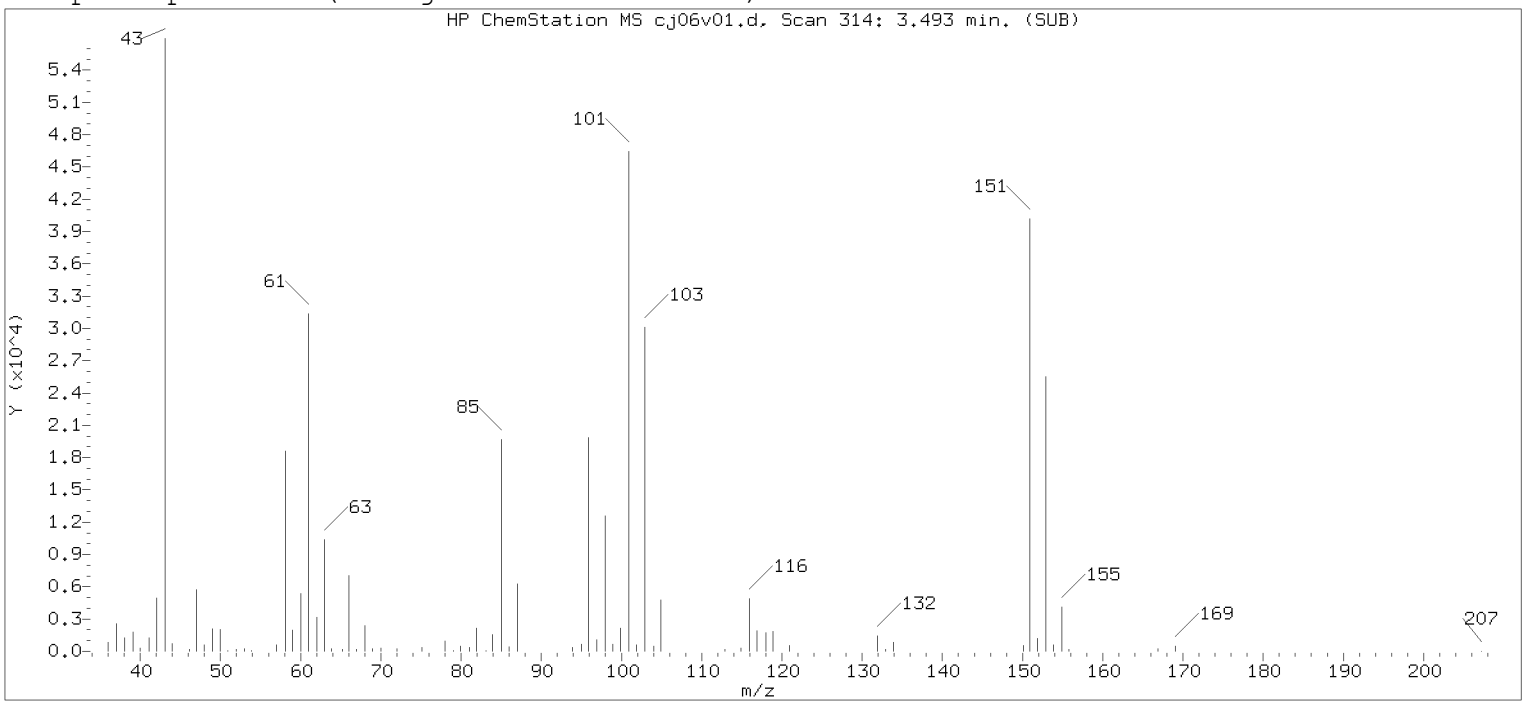
Compound Number : 15
Compound Name : Acetone
Scan Number : 314
Retention Time (minutes): 3.493
Quant Ion : 43.00
Area (flag) : 296556M
On-Column Amount (ng) : 36.4120
Integration start scan : 299 Integration stop scan: 367
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

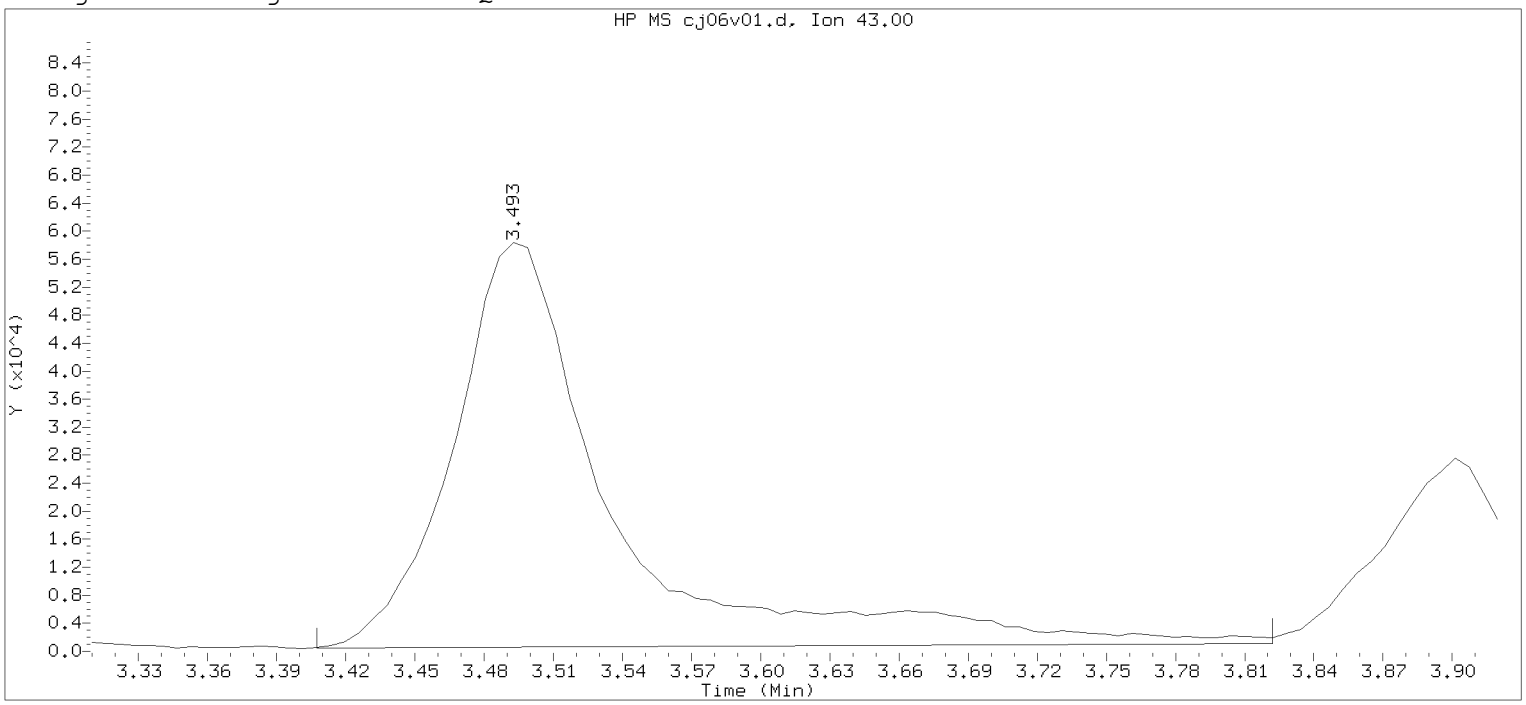
Analyst responsible for change: Digitally signed by Jennifer K. Howe
on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:44.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14  Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:32 Automation

Sample Name: LCSLG  Lab Sample ID: LCSLG

Compound Number : 15
Compound Name : Acetone
Scan Number : 314
Retention Time (minutes): 3.493
Quant Ion : 43.00
Area : 277139
On-column Amount (ng) : 34.9154
Integration start scan : 299  Integration stop scan: 367
Y at integration start : 416  Y at integration end: 1109

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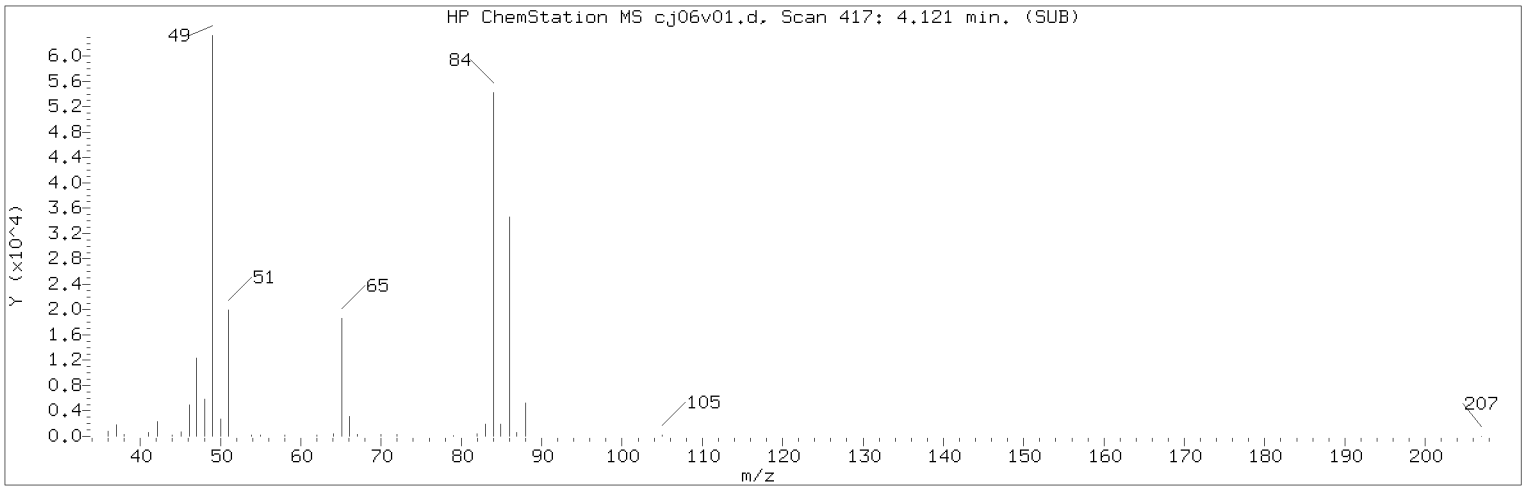
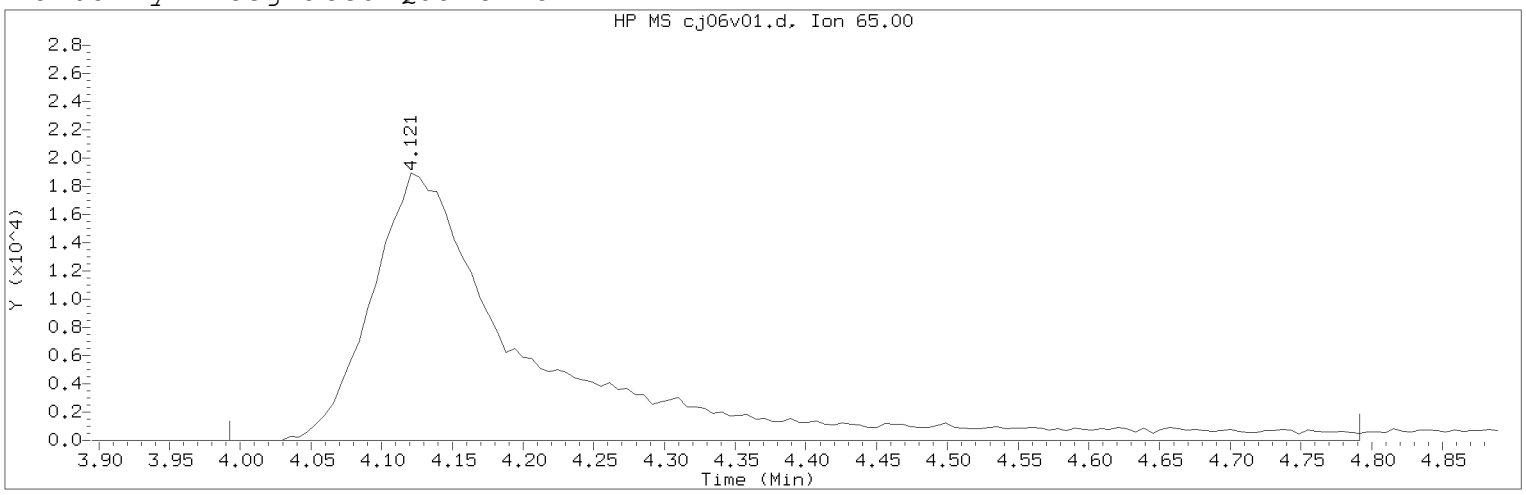
Target 3.5 esignature user ID: jkh09052

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 07-Jan-2020 08:42 jkh09052

Sample Name: LCSLG Lab Sample ID: LCSLG

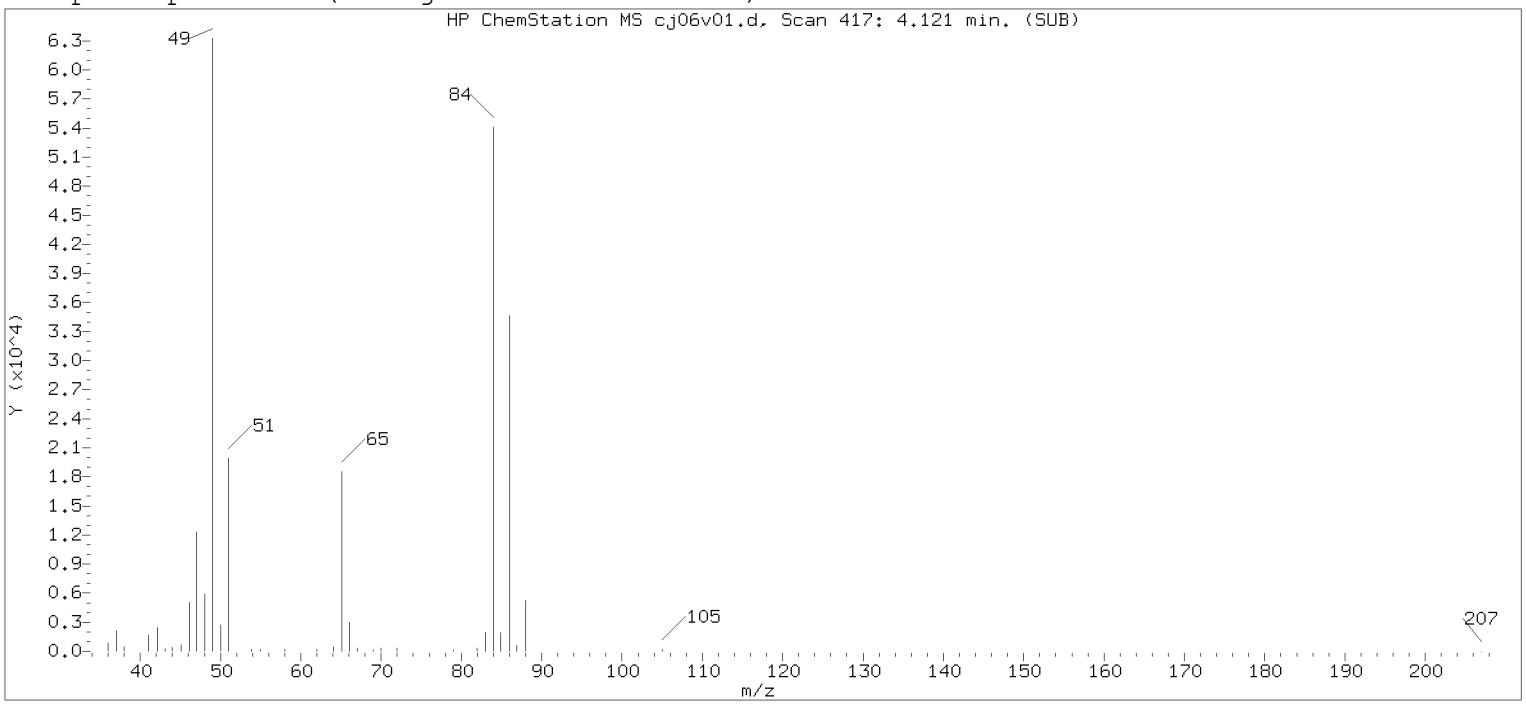
Compound Number : 28
Compound Name : t-Butyl Alcohol-d10
Scan Number : 417
Retention Time (minutes): 4.121
Quant Ion : 65.00
Area (flag) : 151325M
On-Column Amount (ng) : 50.0000
Integration start scan : 395 Integration stop scan: 526
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

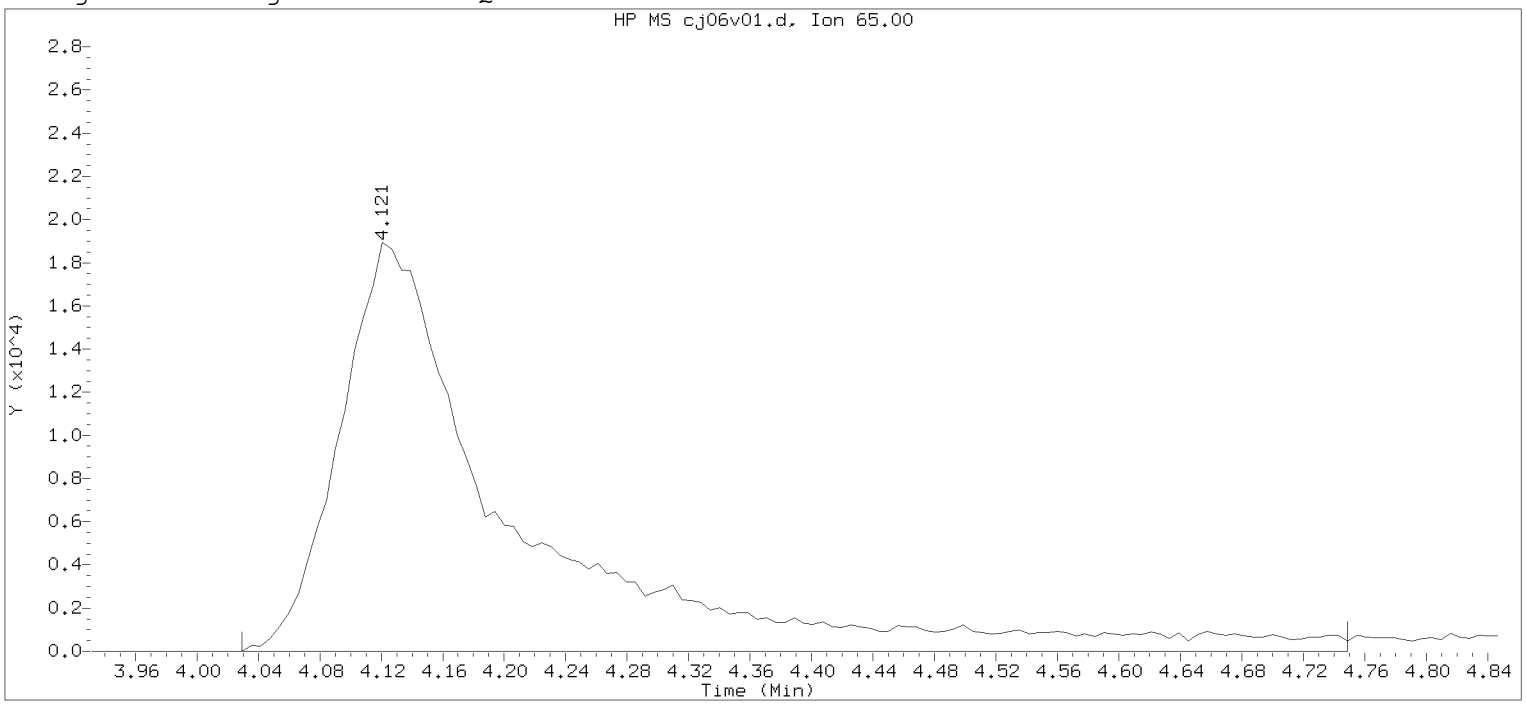
Analyst responsible for change: Digitally signed by Jennifer K. Howe
on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:44.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

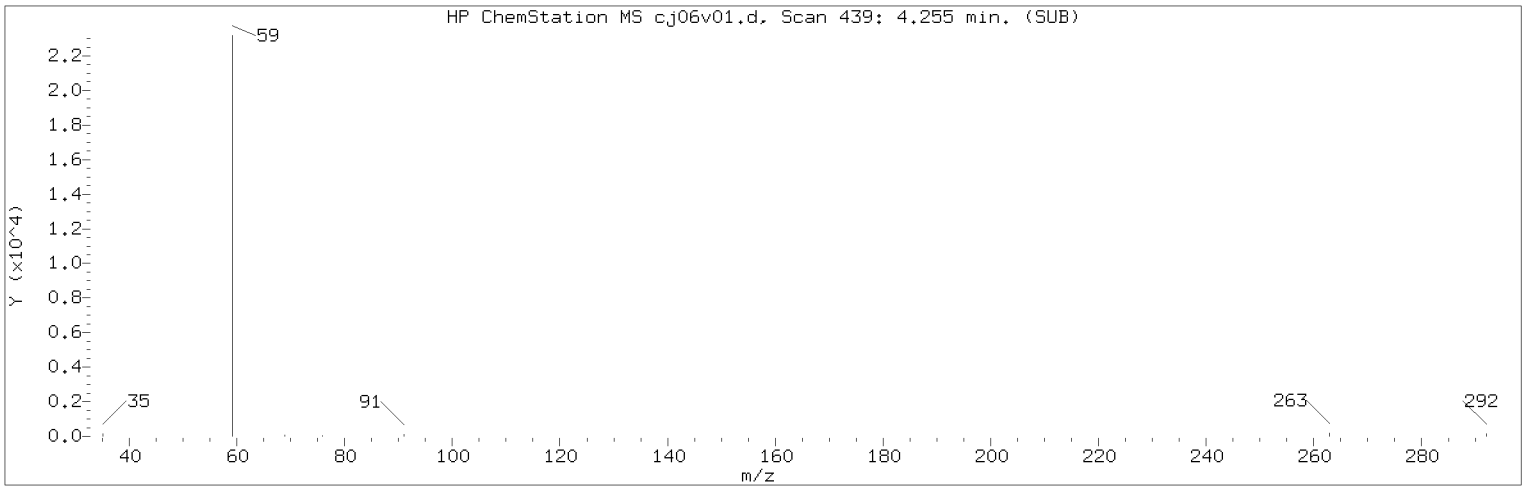
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:32 Automation

Sample Name: LCSLG Lab Sample ID: LCSLG

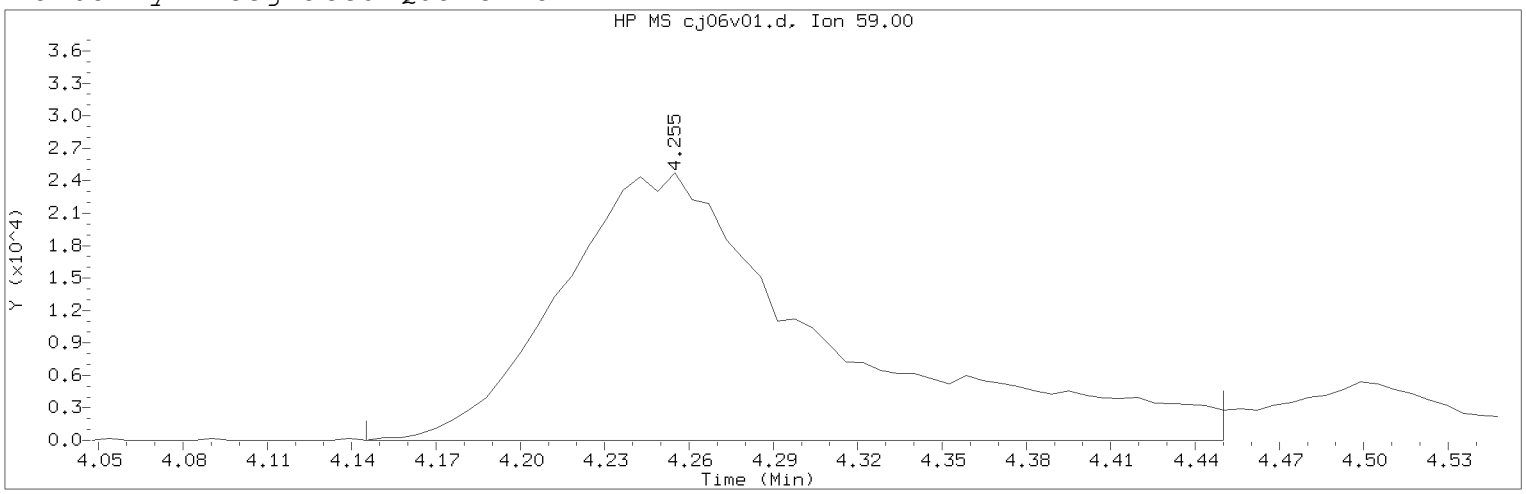
Compound Number : 28
Compound Name : t-Butyl Alcohol-d10
Scan Number : 417
Retention Time (minutes): 4.121
Quant Ion : 65.00
Area : 149681
On-column Amount (ng) : 50.0000
Integration start scan : 401 Integration stop scan: 519
Y at integration start : 0 Y at integration end: 0

Digitally signed by Jennifer K. Howe on 01/07/2020 at 08:42.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 07-Jan-2020 08:42 jkh09052

Sample Name: LCSLG Lab Sample ID: LCSLG

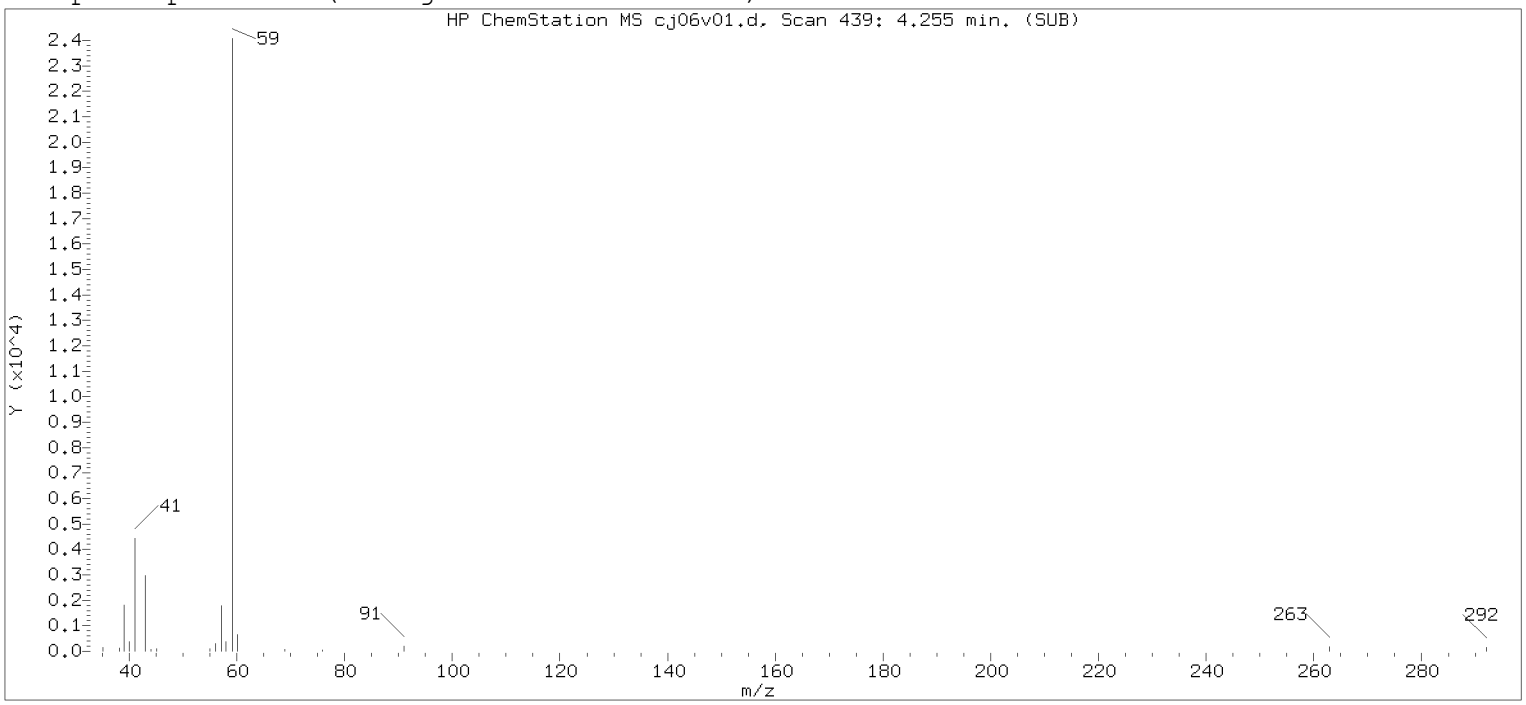
Compound Number : 30
Compound Name : t-Butyl Alcohol
Scan Number : 439
Retention Time (minutes): 4.255
Quant Ion : 59.00
Area (flag) : 162764M
On-Column Amount (ng) : 52.5351
Integration start scan : 420 Integration stop scan: 470
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

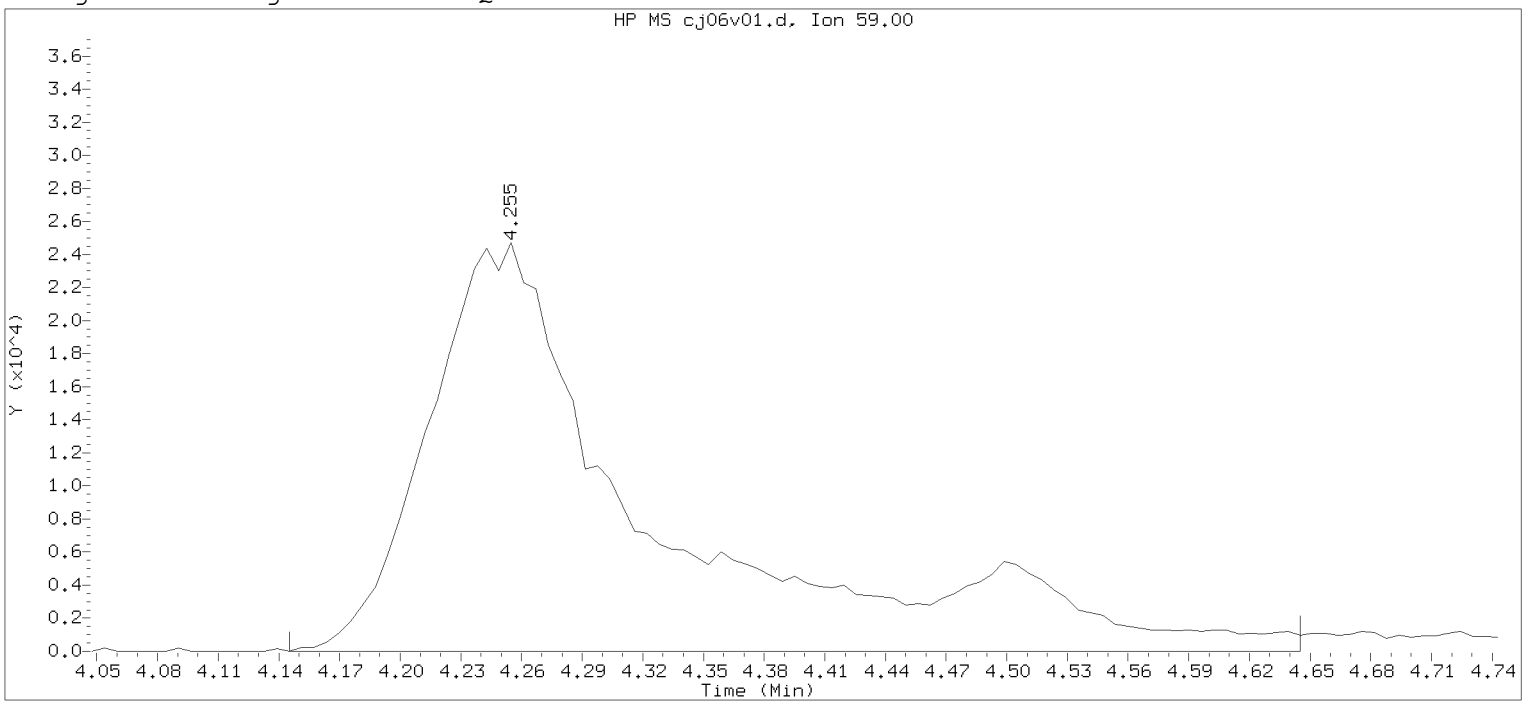
Analyst responsible for change: Digitally signed by Jennifer K. Howe
on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:44.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14  Analyst ID: JKH09052

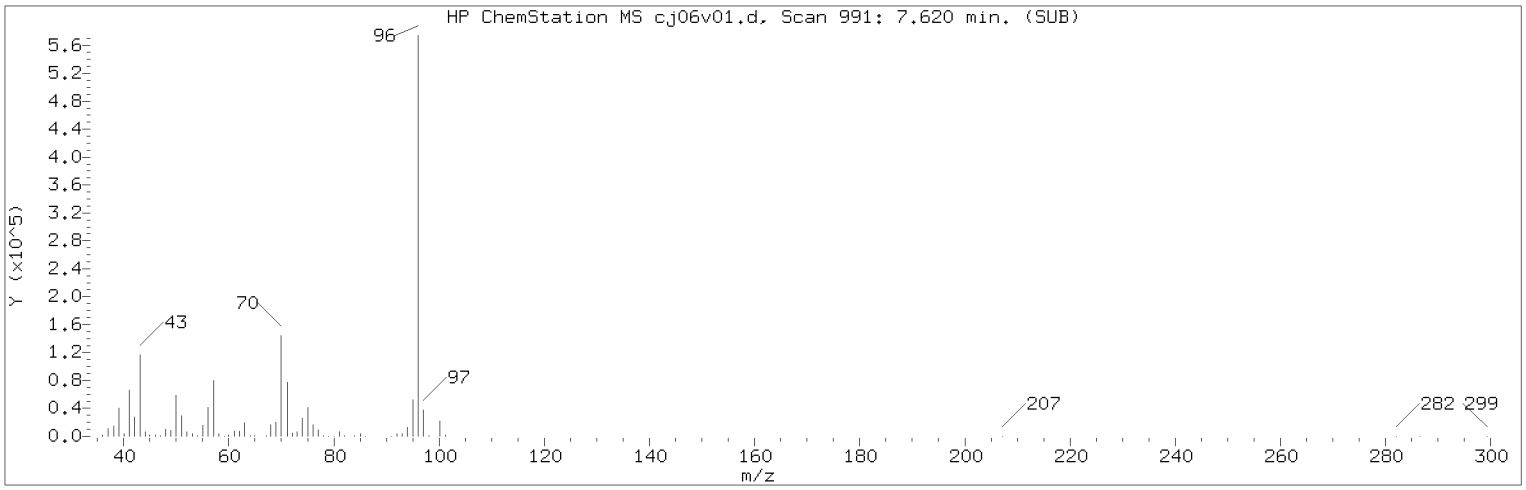
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:32 Automation

Sample Name: LCSLG  Lab Sample ID: LCSLG

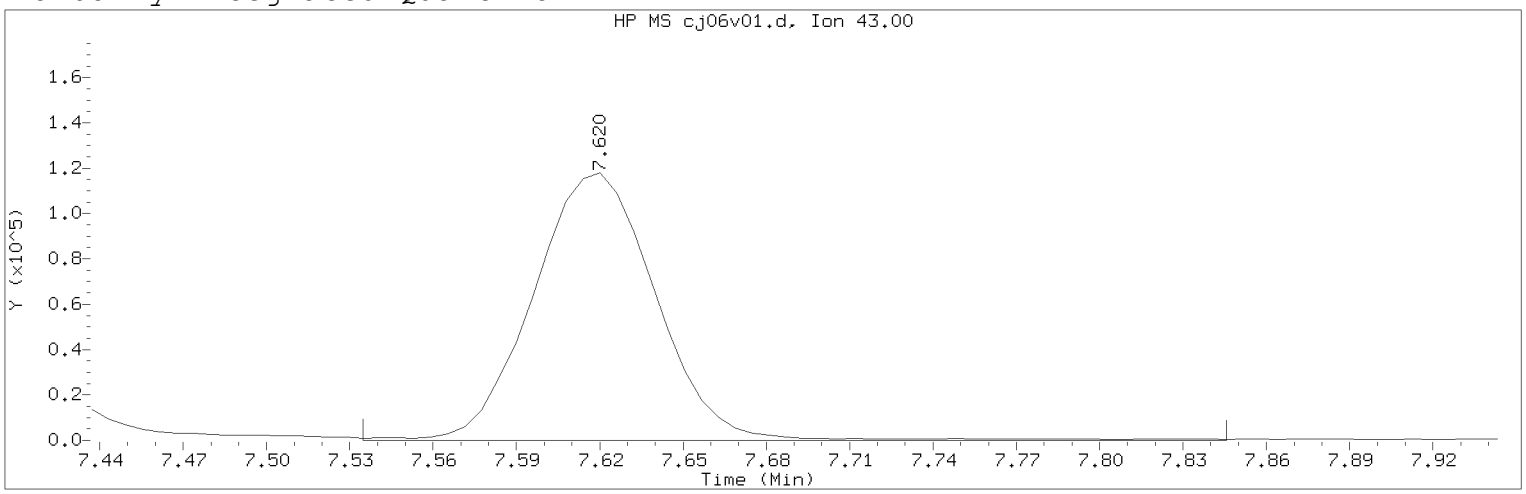
Compound Number : 30
Compound Name : t-Butyl Alcohol
Scan Number : 439
Retention Time (minutes): 4.255
Quant Ion : 59.00
Area : 191403
On-column Amount (ng) : 61.5249
Integration start scan : 420  Integration stop scan: 502
Y at integration start : 0  Y at integration end: 0

Digitally signed by Jennifer K. Howe on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 07-Jan-2020 08:42 jkh09052

Sample Name: LCSLG Lab Sample ID: LCSLG

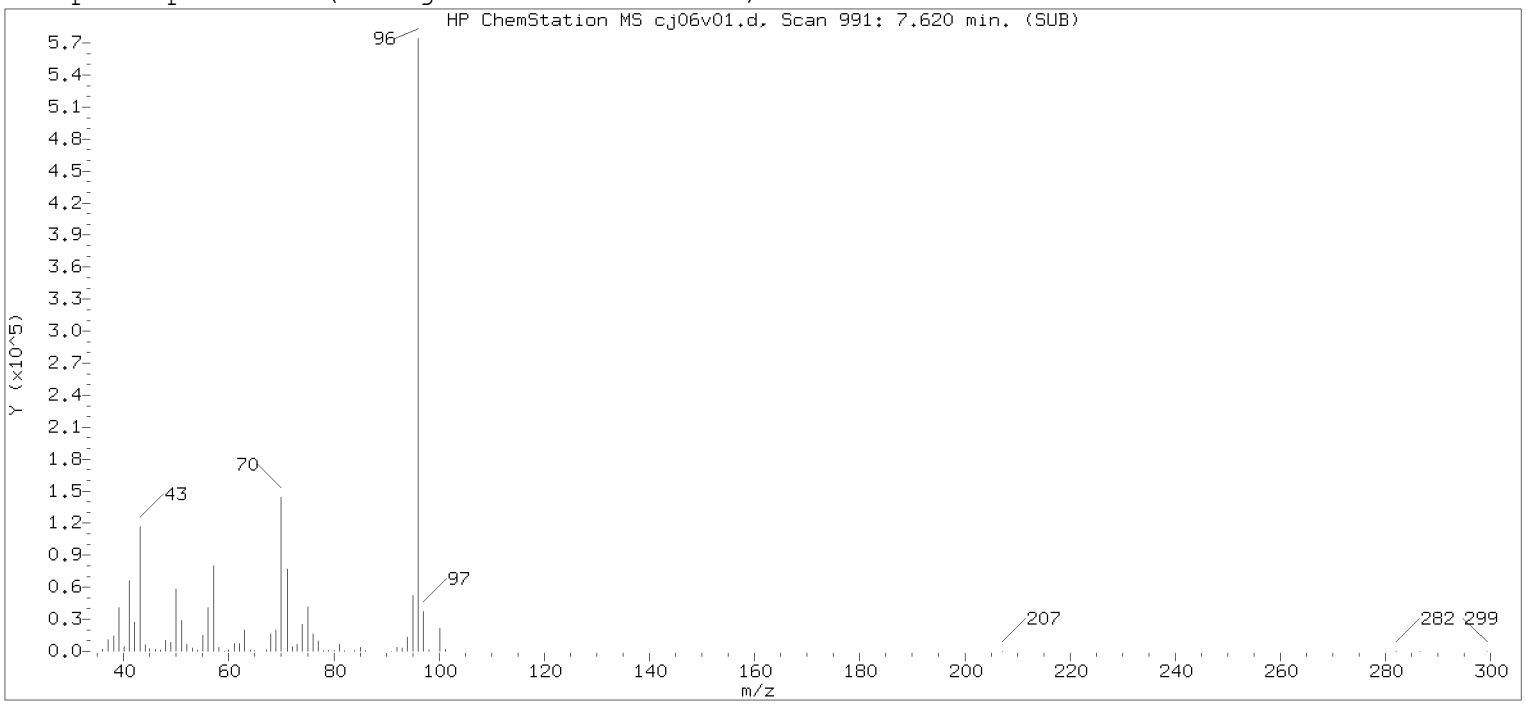
Compound Number : 64
Compound Name : n-Heptane
Scan Number : 991
Retention Time (minutes): 7.620
Quant Ion : 43.00
Area (flag) : 362344M
On-Column Amount (ng) : 4.6949
Integration start scan : 976 Integration stop scan: 1027
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

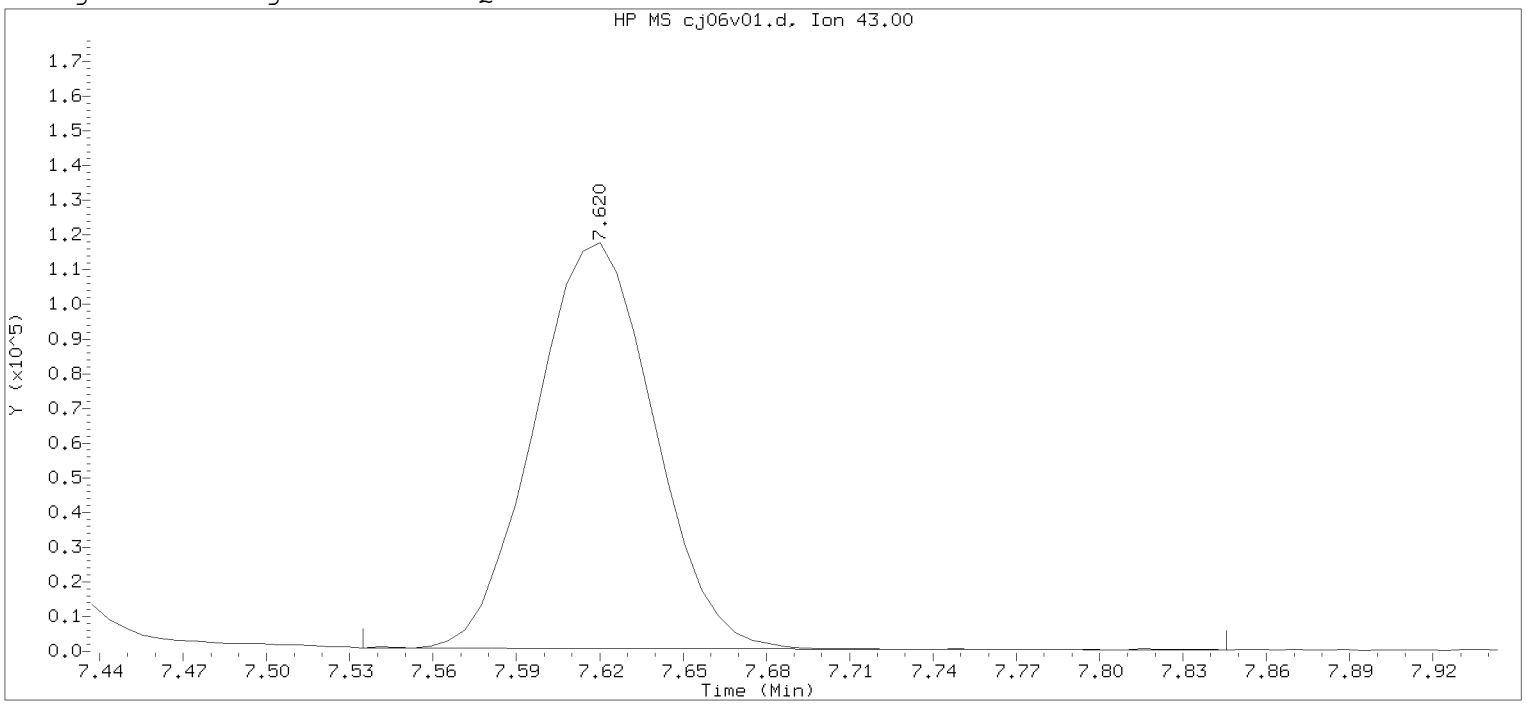
Analyst responsible for change: Digitally signed by Jennifer K. Howe
on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:44.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14  Analyst ID: JKH09052

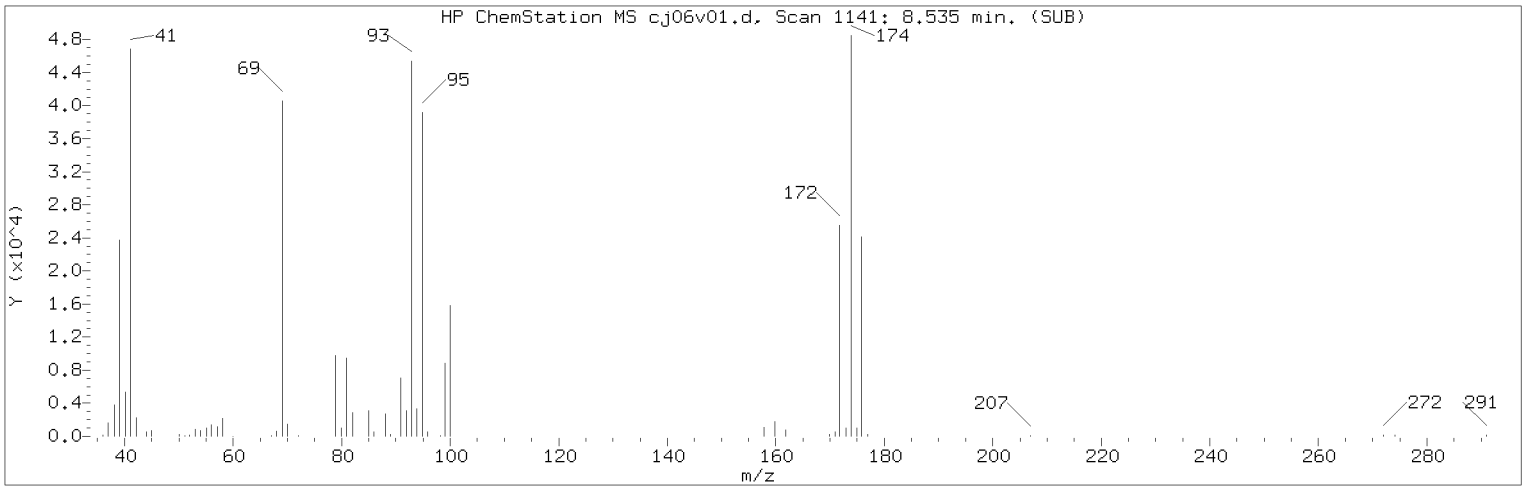
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:32 Automation

Sample Name: LCSLG  Lab Sample ID: LCSLG

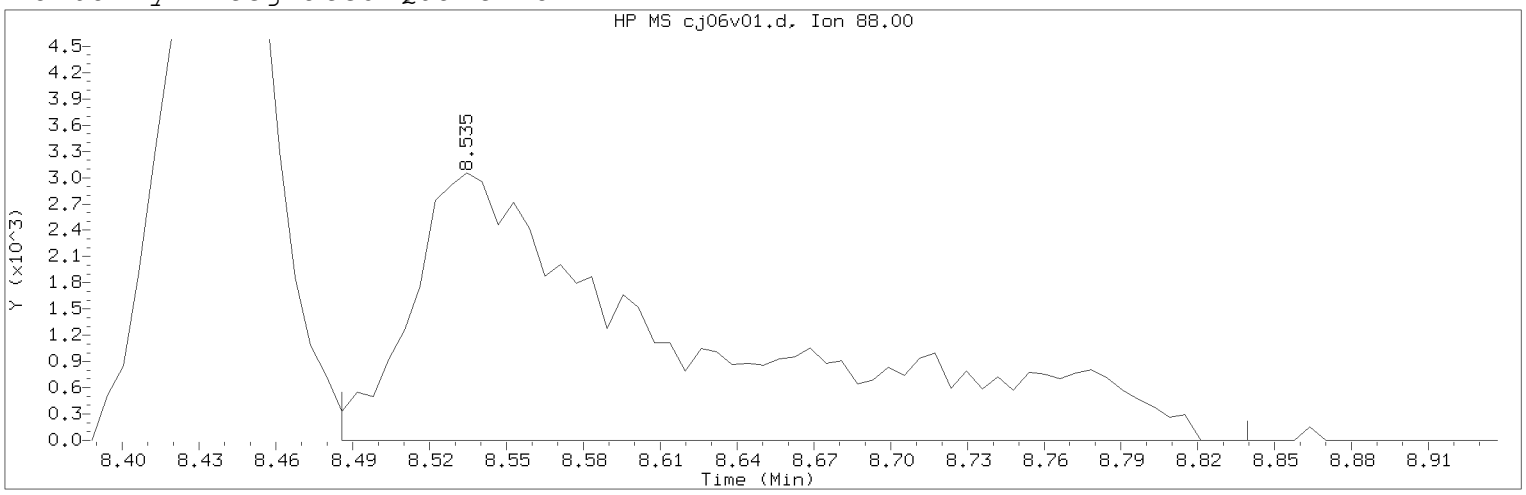
Compound Number : 64
Compound Name : n-Heptane
Scan Number : 991
Retention Time (minutes): 7.620
Quant Ion : 43.00
Area : 351446
On-column Amount (ng) : 4.6097
Integration start scan : 976  Integration stop scan: 1027
Y at integration start : 868  Y at integration end: 278

Digitally signed by Jennifer K. Howe on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 07-Jan-2020 08:42 jkh09052

Sample Name: LCSLG Lab Sample ID: LCSLG

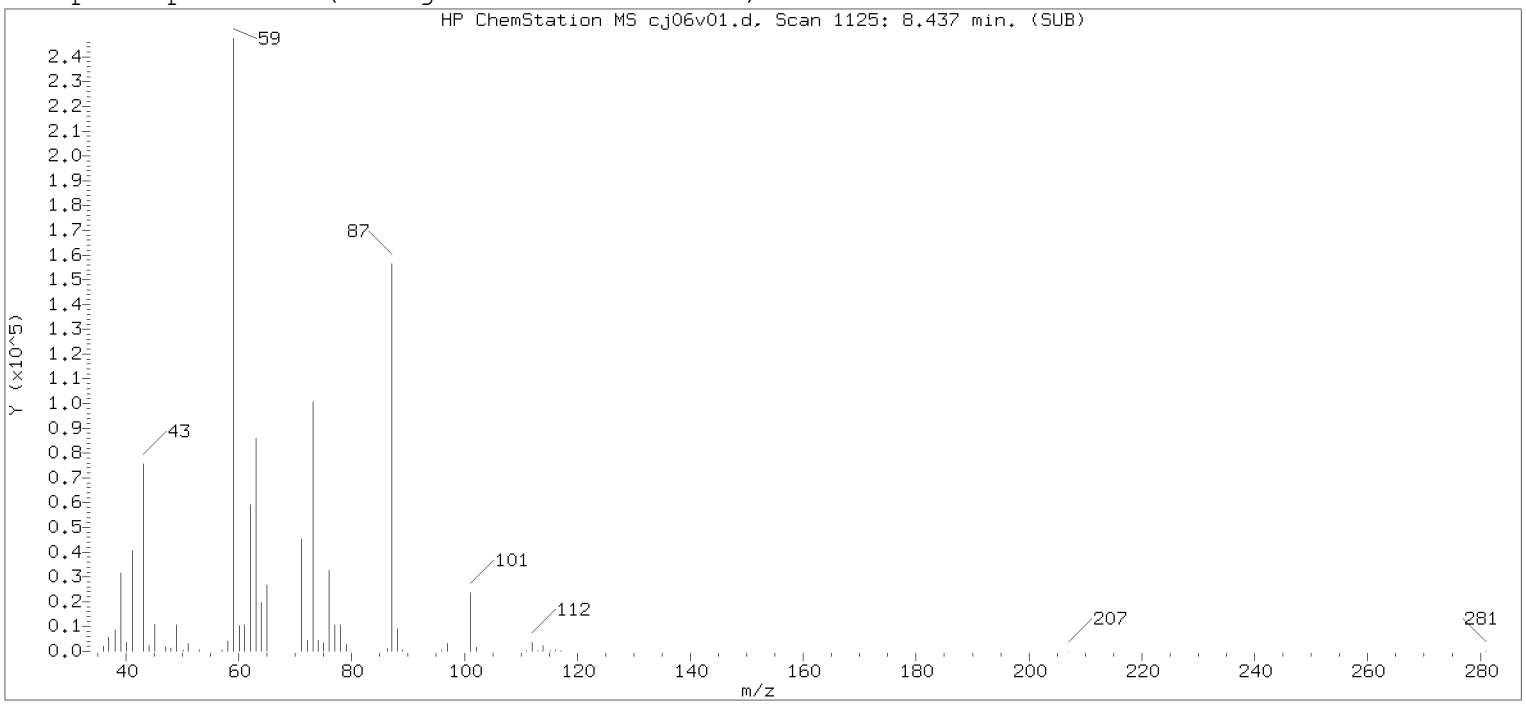
Compound Number : 74
Compound Name : 1,4-Dioxane
Scan Number : 1141
Retention Time (minutes): 8.535
Quant Ion : 88.00
Area (flag) : 23261M
On-Column Amount (ng) : 135.9883
Integration start scan : 1132 Integration stop scan: 1190
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

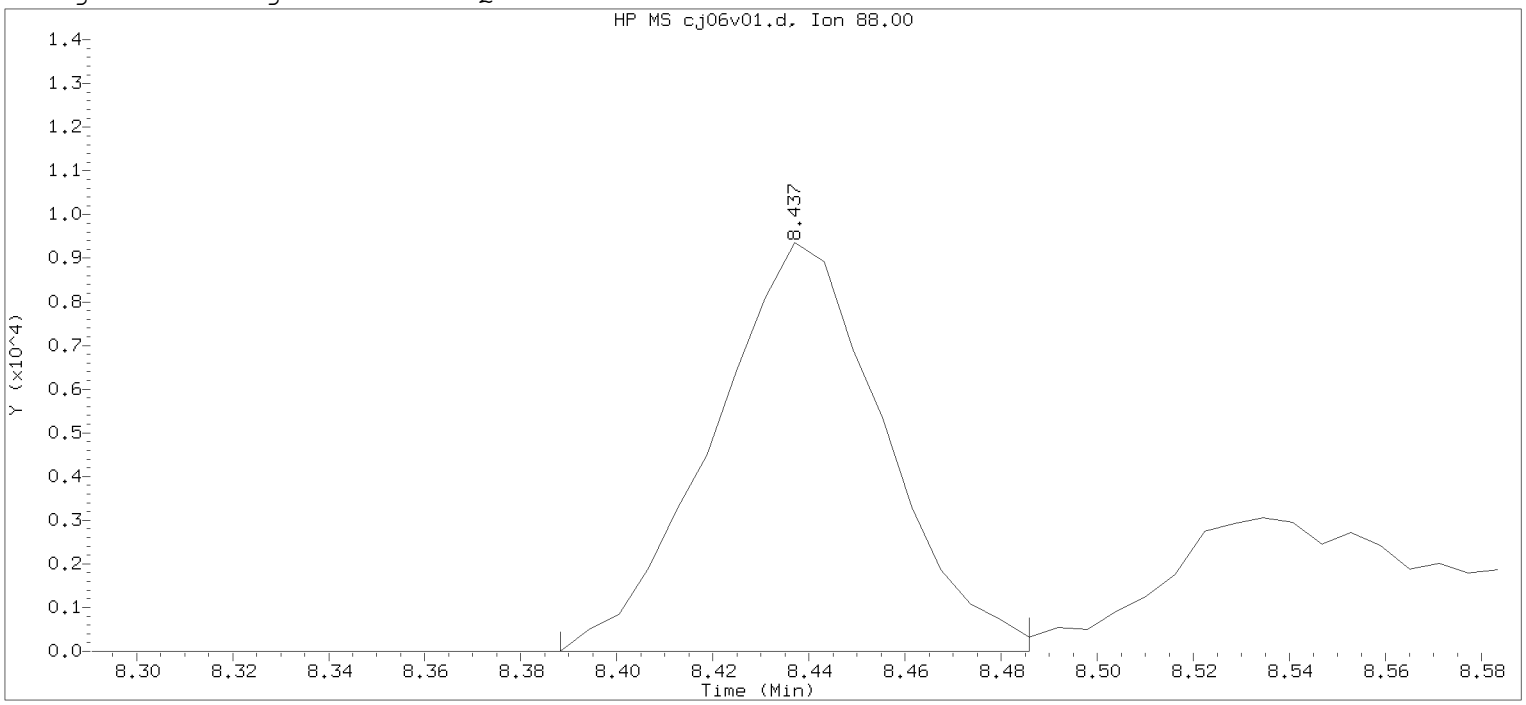
Analyst responsible for change: Digitally signed by Jennifer K. Howe
on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:44.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14  Analyst ID: JKH09052

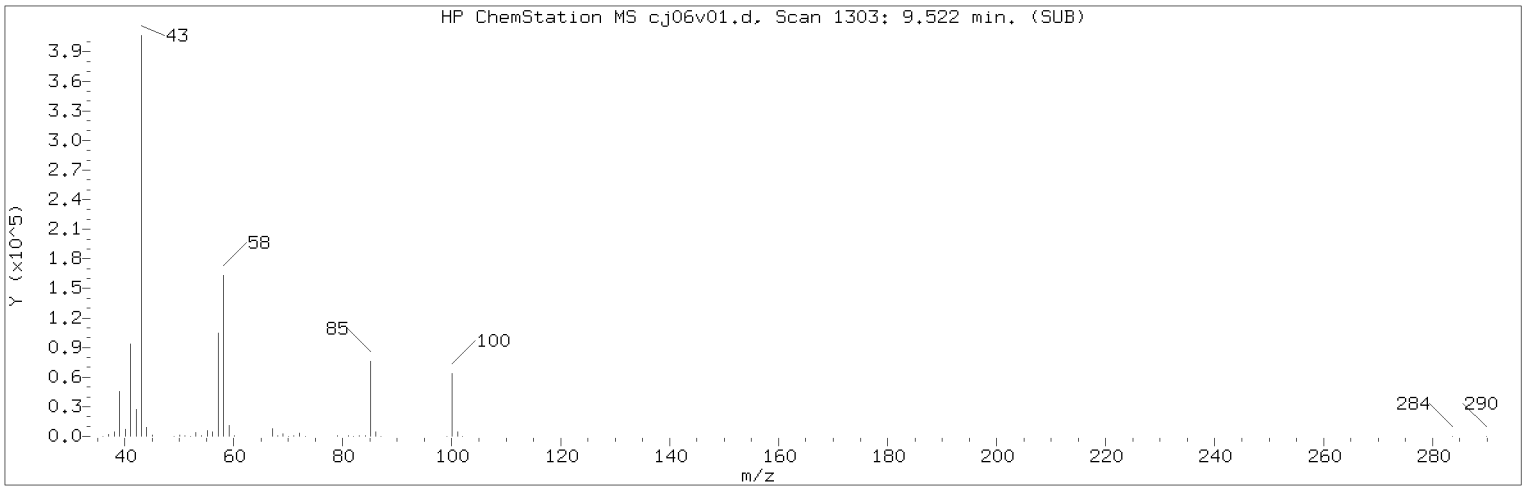
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:32 Automation

Sample Name: LCSLG  Lab Sample ID: LCSLG

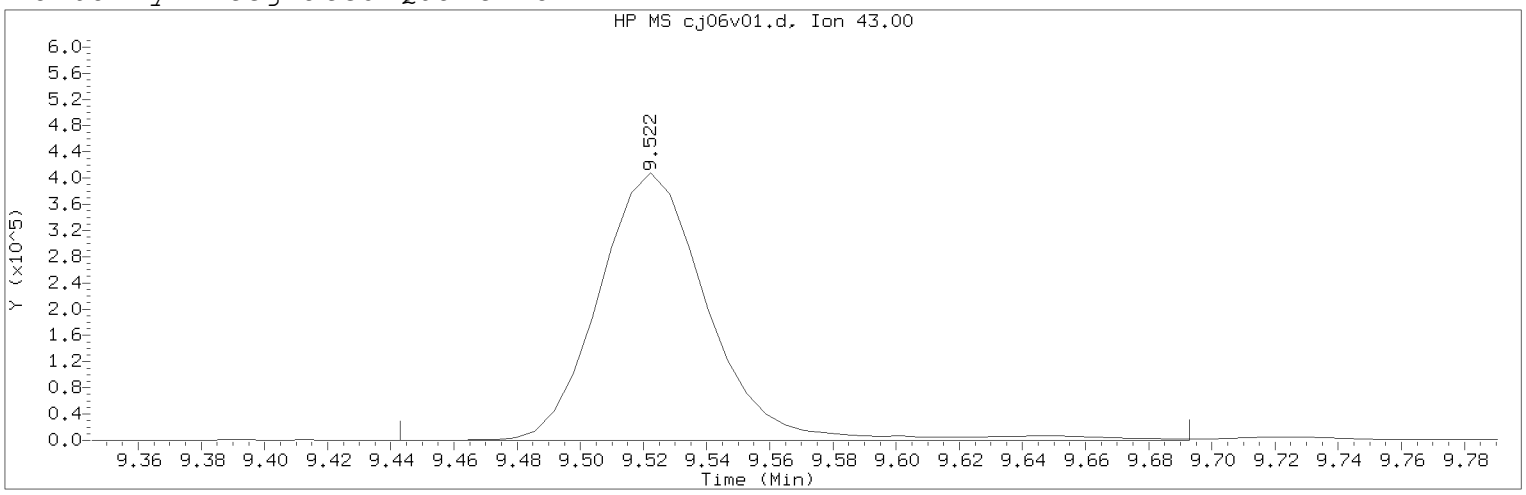
Compound Number : 74
Compound Name : 1,4-Dioxane
Scan Number : 1125
Retention Time (minutes): 8.437
Quant Ion : 88.00
Area : 23126
On-column Amount (ng) : 149.9265
Integration start scan : 1116  Integration stop scan: 1132
Y at integration start : 0  Y at integration end: 0

Digitally signed by Jennifer K. Howe on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 07-Jan-2020 08:42 jkh09052

Sample Name: LCSLG Lab Sample ID: LCSLG

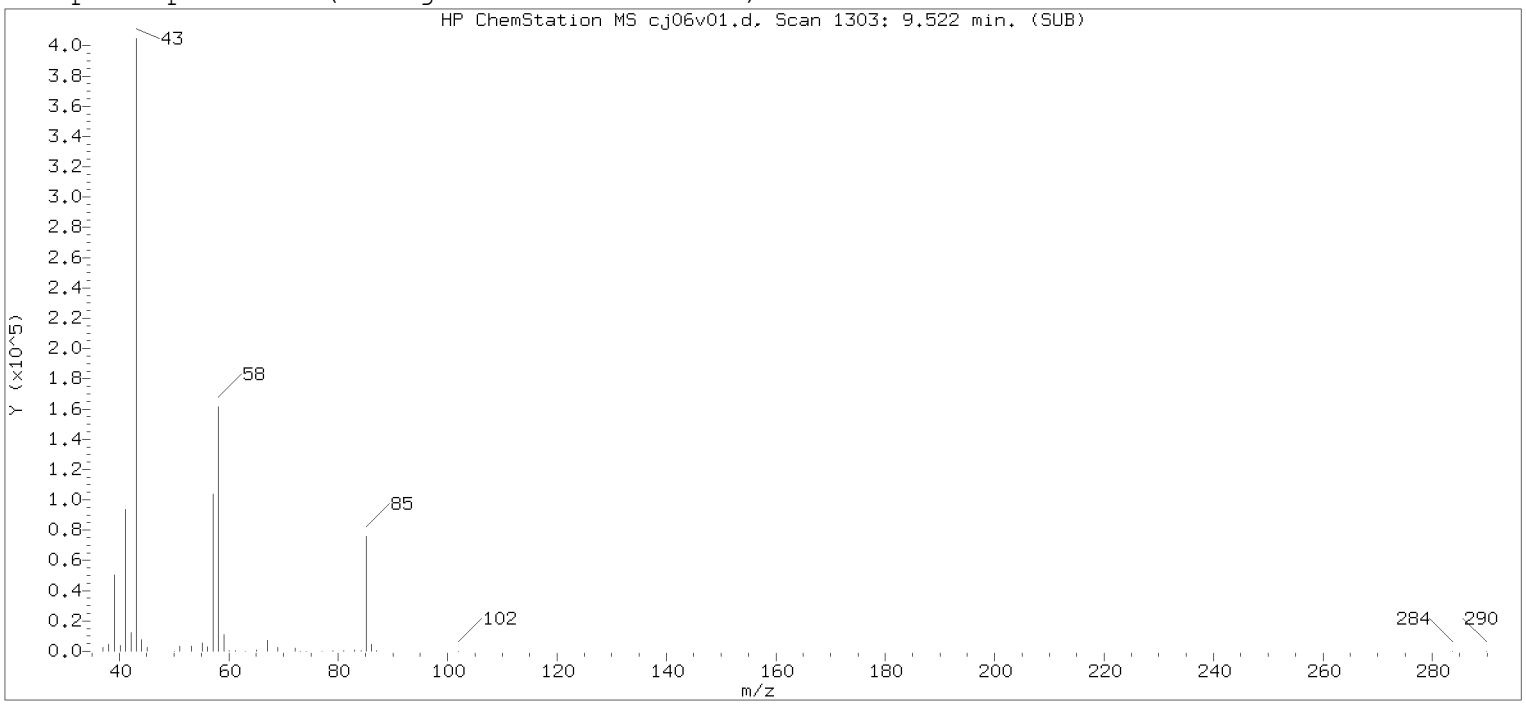
Compound Number : 83
Compound Name : 4-Methyl-2-Pentanone
Scan Number : 1303
Retention Time (minutes): 9.522
Quant Ion : 43.00
Area (flag) : 982179M
On-Column Amount (ng) : 25.0137
Integration start scan : 1289 Integration stop scan: 1330
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

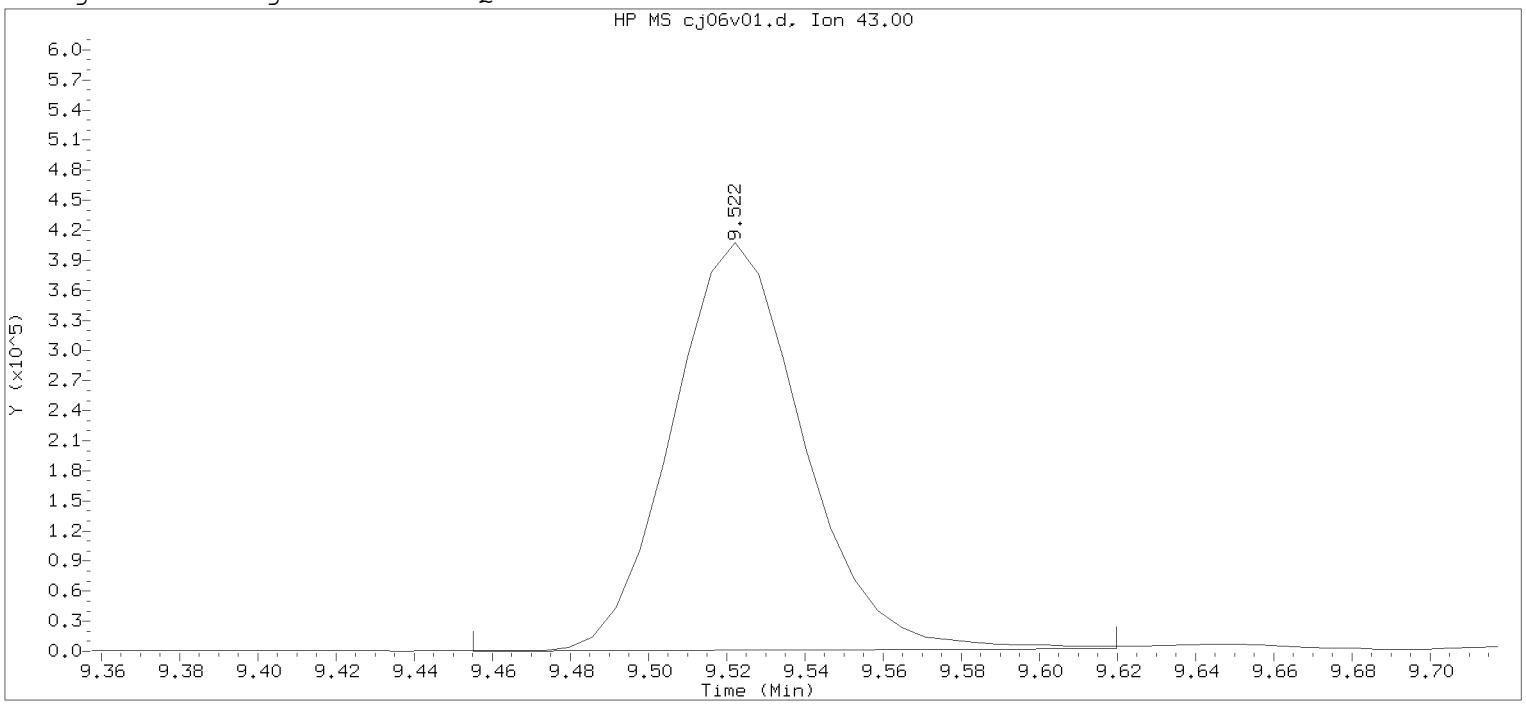
Analyst responsible for change: Digitally signed by Jennifer K. Howe
on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:44.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

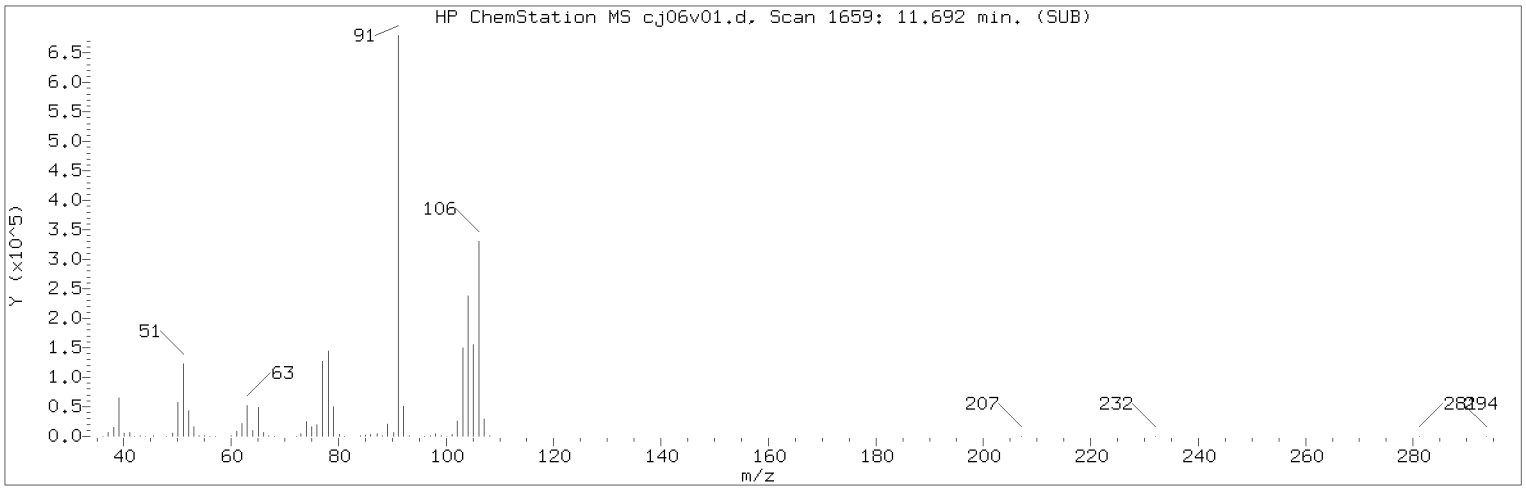
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:32 Automation

Sample Name: LCSLG Lab Sample ID: LCSLG

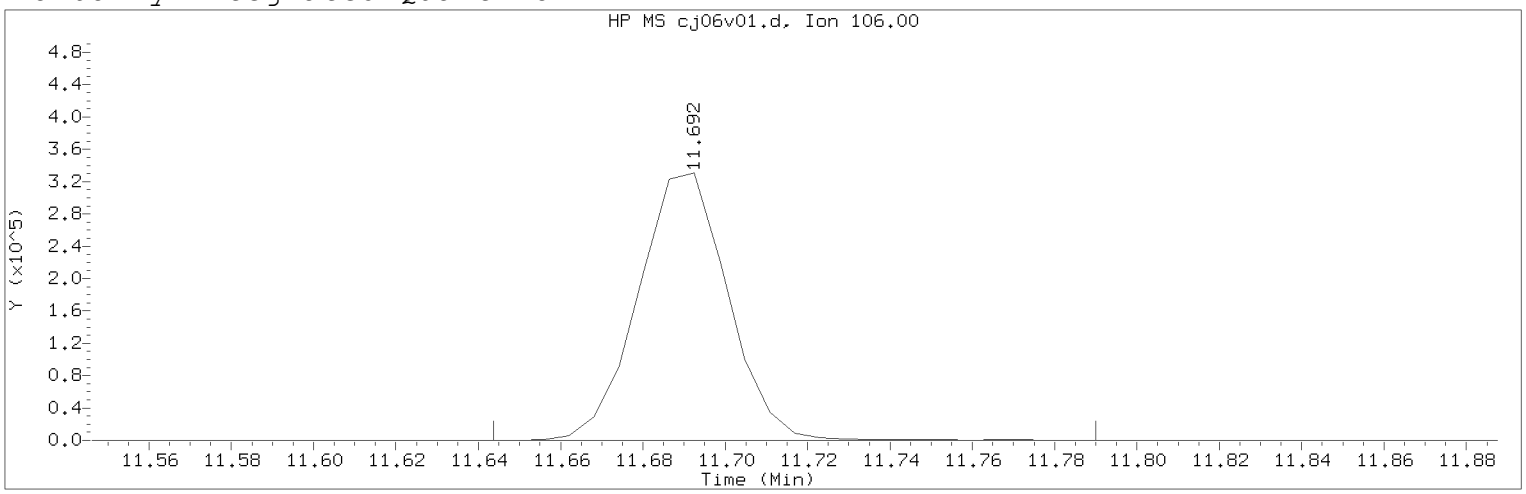
Compound Number : 83
Compound Name : 4-Methyl-2-Pentanone
Scan Number : 1303
Retention Time (minutes): 9.522
Quant Ion : 43.00
Area : 944860
On-column Amount (ng) : 24.0632
Integration start scan : 1291 Integration stop scan: 1318
Y at integration start : 318 Y at integration end: 2820

Digitally signed by Jennifer K. Howe on 01/07/2020 at 08:42.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 07-Jan-2020 08:42 jkh09052

Sample Name: LCSLG Lab Sample ID: LCSLG

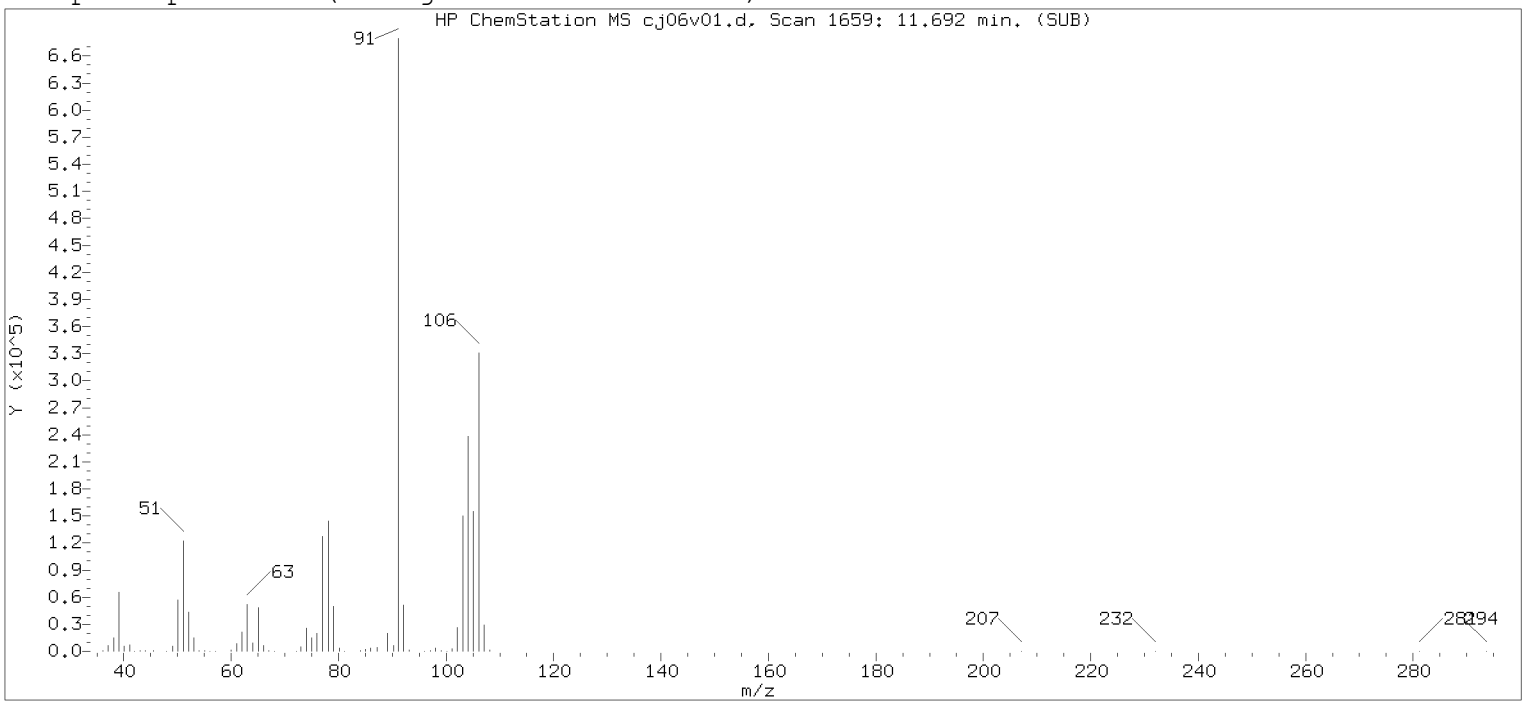
Compound Number : 106
Compound Name : o-Xylene
Scan Number : 1659
Retention Time (minutes): 11.692
Quant Ion : 106.00
Area (flag) : 500969M
On-Column Amount (ng) : 5.0873
Integration start scan : 1650 Integration stop scan: 1674
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

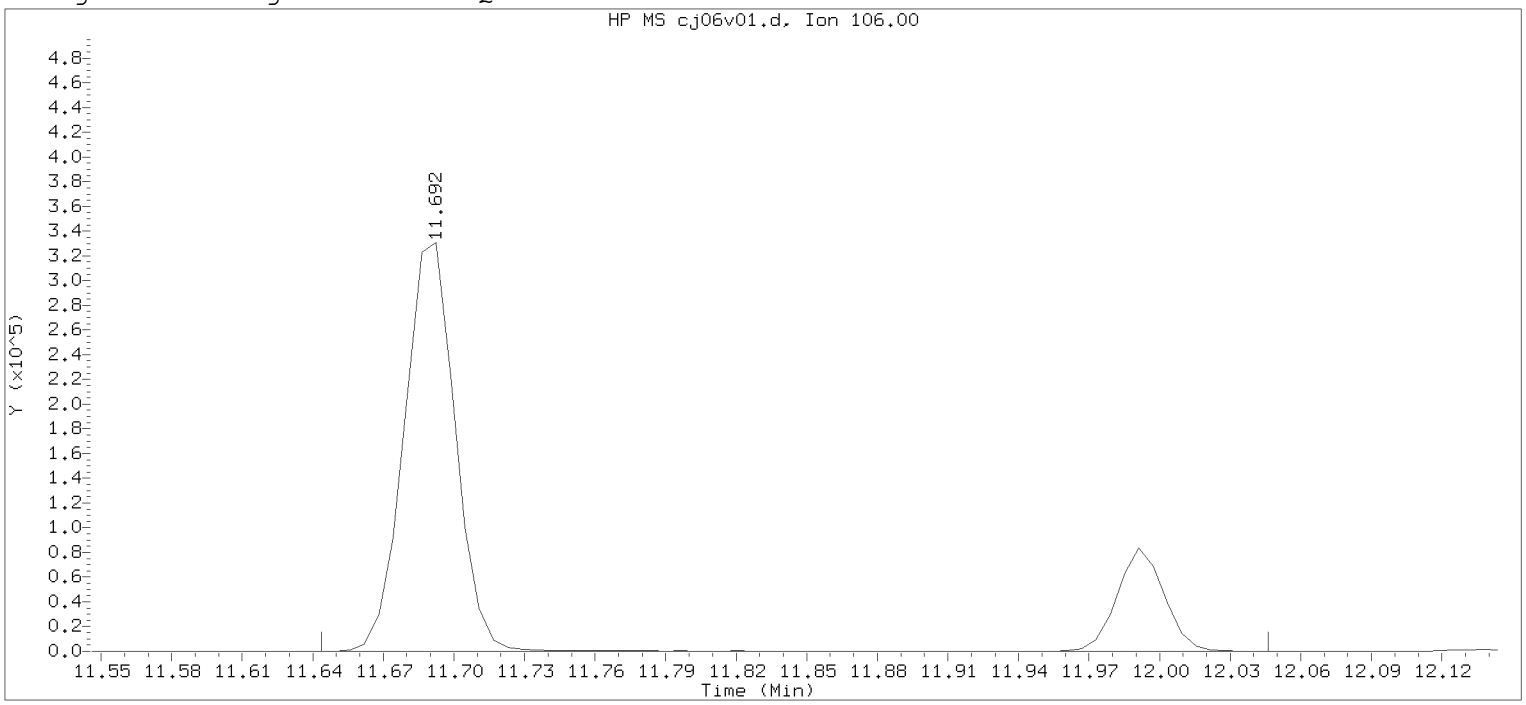
Analyst responsible for change: Digitally signed by Jennifer K. Howe
on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:44.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

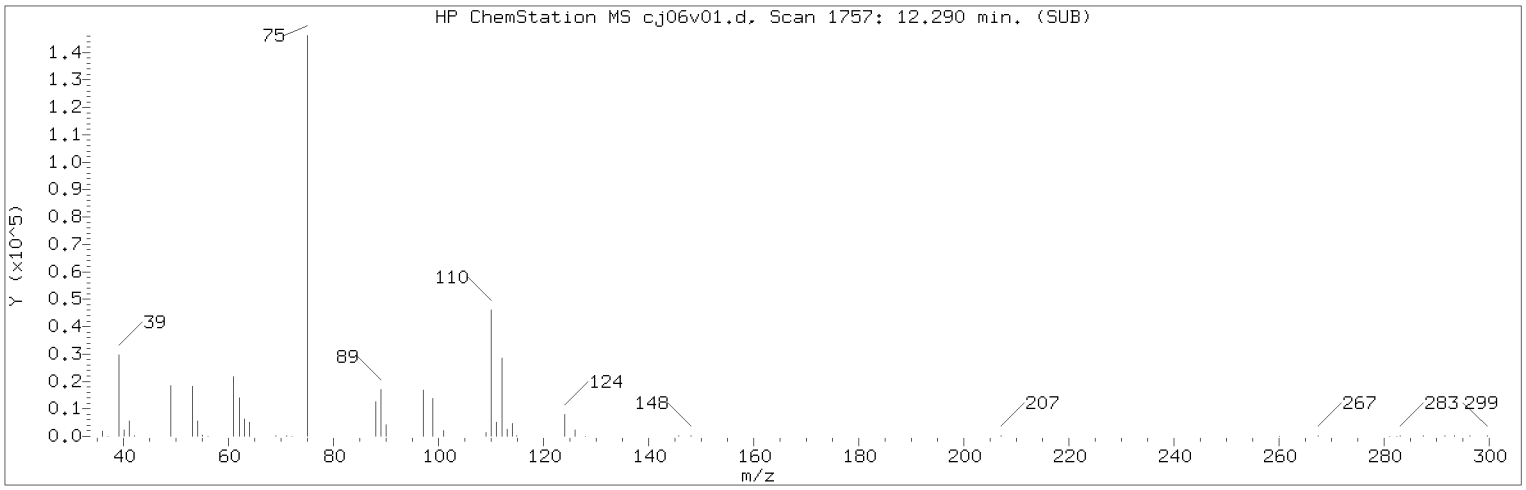
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:32 Automation

Sample Name: LCSLG Lab Sample ID: LCSLG

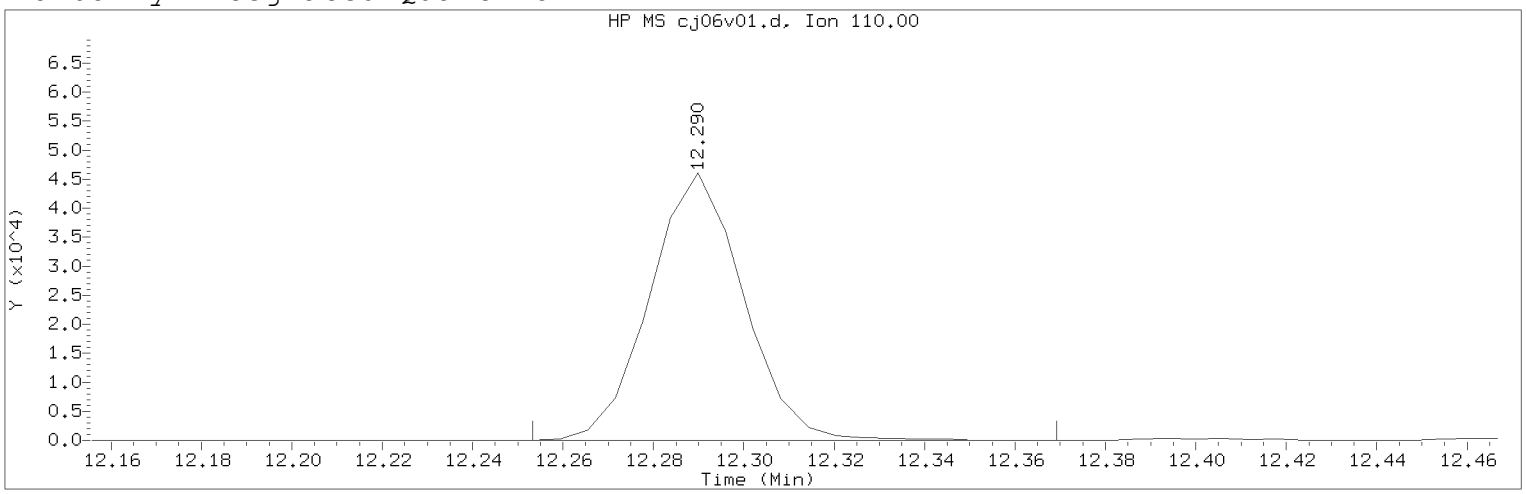
| | | | |
|---|---|---|---|
| Compound Number | : 106 | | |
| Compound Name | : o-Xylene | | |
| Scan Number | : 1659 | | |
| Retention Time (minutes) | : 11.692 | | |
| Quant Ion | : 106.00 | | |
| Area | : 617254 | | |
| On-column Amount (ng) | : 6.2682 | | |
| Integration start scan | : 1650 | Integration stop scan: | 1716 |
| Y at integration start | : 0 | Y at integration end: | 0 |

Digitally signed by Jennifer K. Howe on 01/07/2020 at 08:42.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 07-Jan-2020 08:42 jkh09052

Sample Name: LCSLG Lab Sample ID: LCSLG

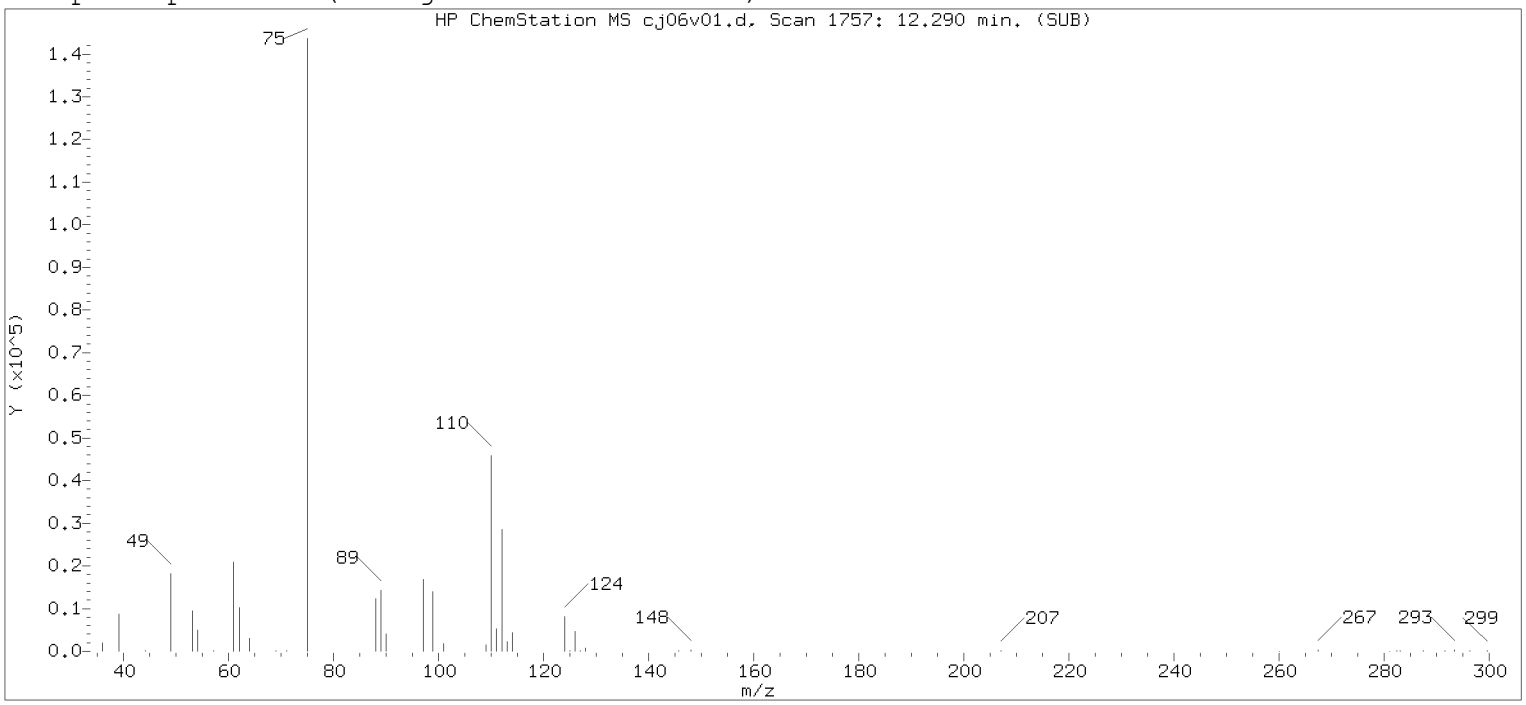
Compound Number : 118
Compound Name : 1,2,3-Trichloropropane
Scan Number : 1757
Retention Time (minutes): 12.290
Quant Ion : 110.00
Area (flag) : 66179M
On-Column Amount (ng) : 5.0062
Integration start scan : 1750 Integration stop scan: 1769
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

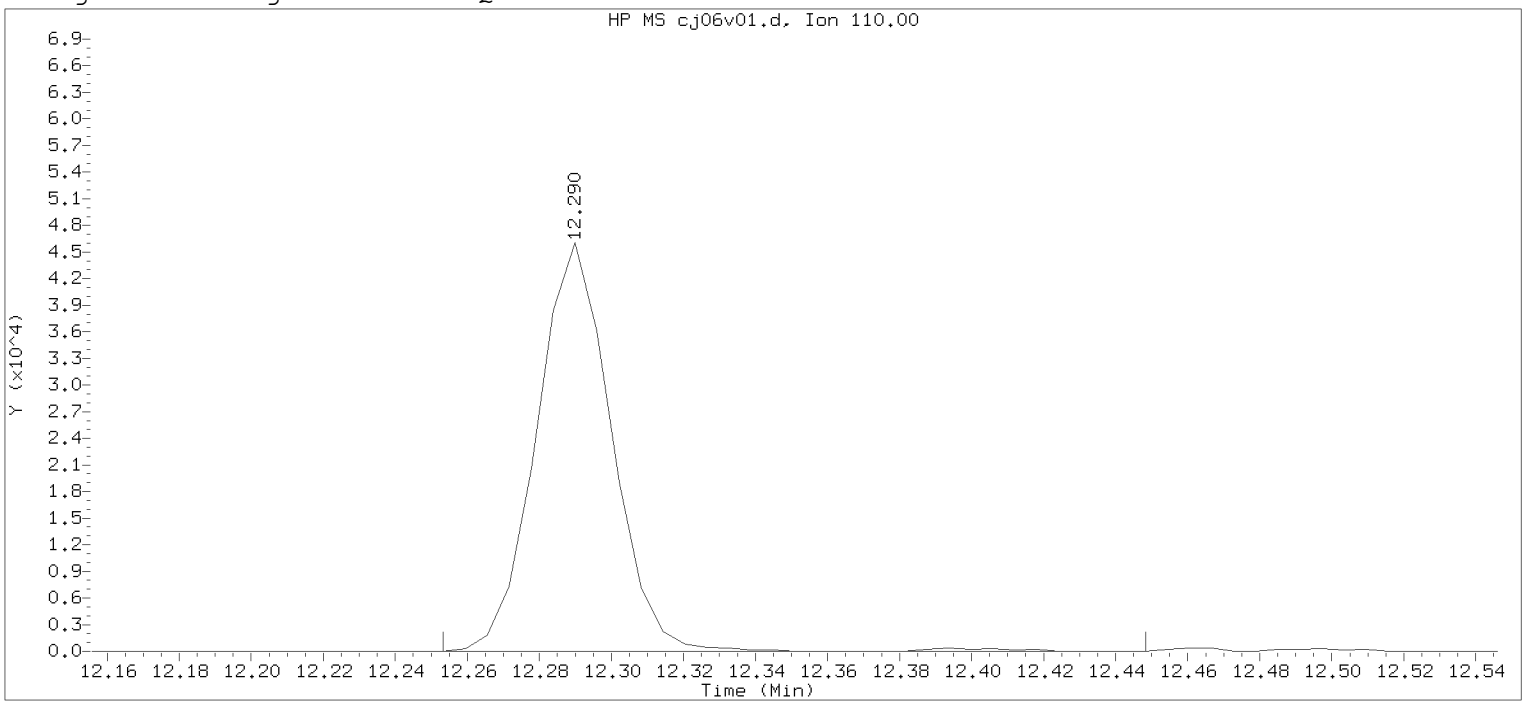
Analyst responsible for change: Digitally signed by Jennifer K. Howe
on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:44.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

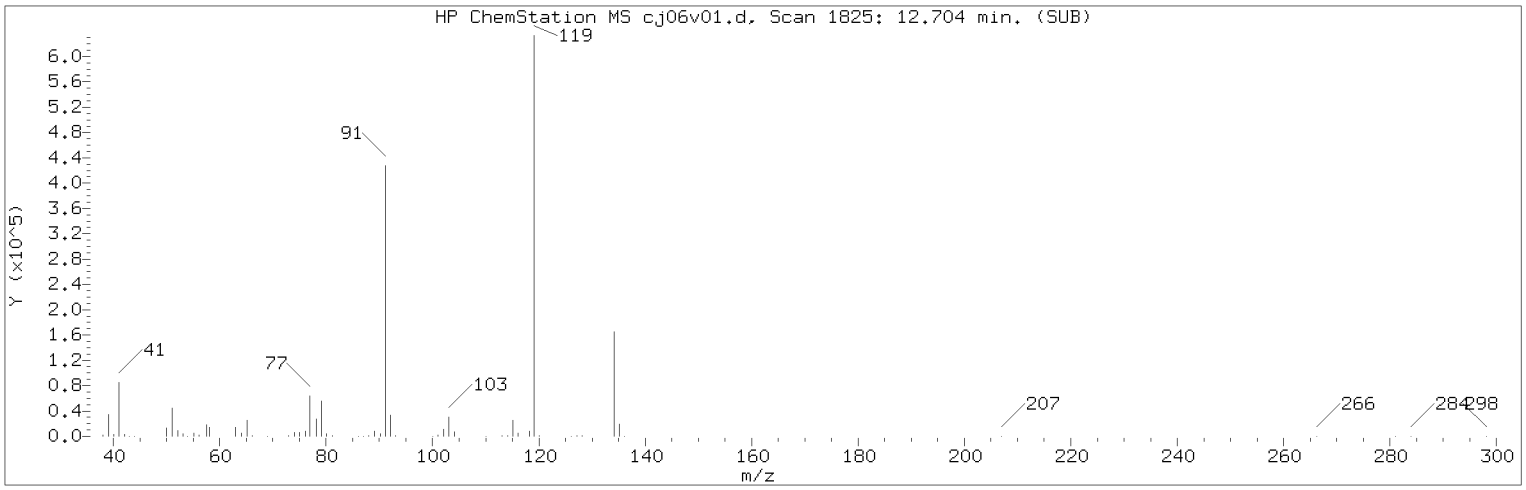
Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:32 Automation

Sample Name: LCSLG Lab Sample ID: LCSLG

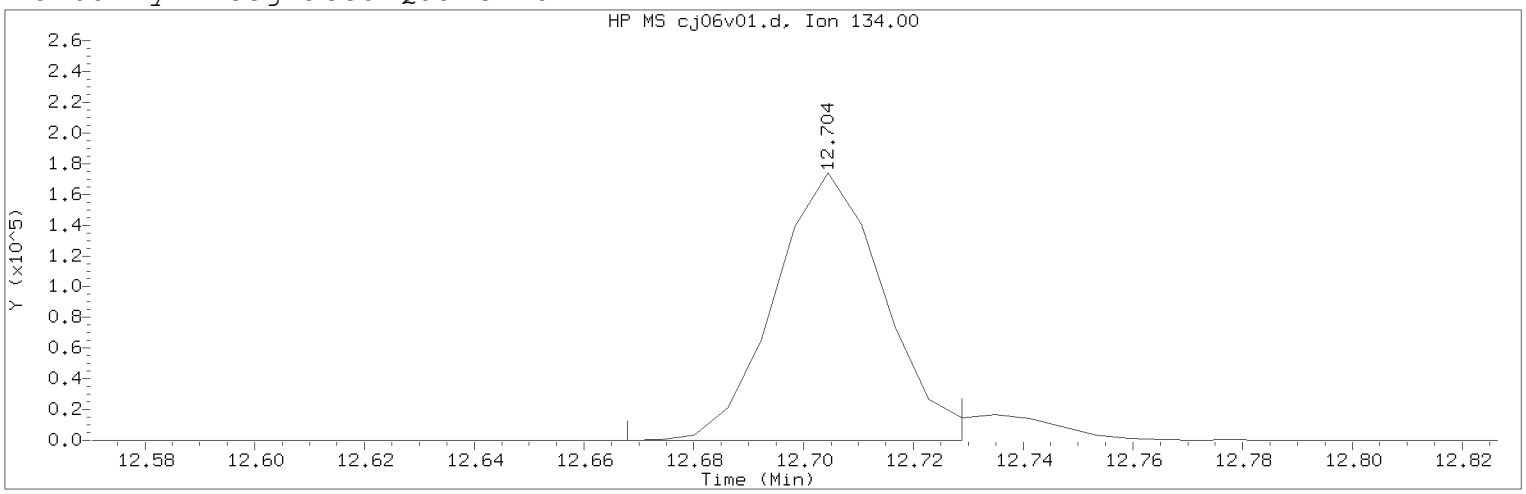
Compound Number : 118
Compound Name : 1,2,3-Trichloropropane
Scan Number : 1757
Retention Time (minutes): 12.290
Quant Ion : 110.00
Area : 66687
On-column Amount (ng) : 5.0447
Integration start scan : 1750 Integration stop scan: 1782
Y at integration start : 0 Y at integration end: 0

Digitally signed by Jennifer K. Howe on 01/07/2020 at 08:42.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14 Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 07-Jan-2020 08:42 jkh09052

Sample Name: LCSLG Lab Sample ID: LCSLG

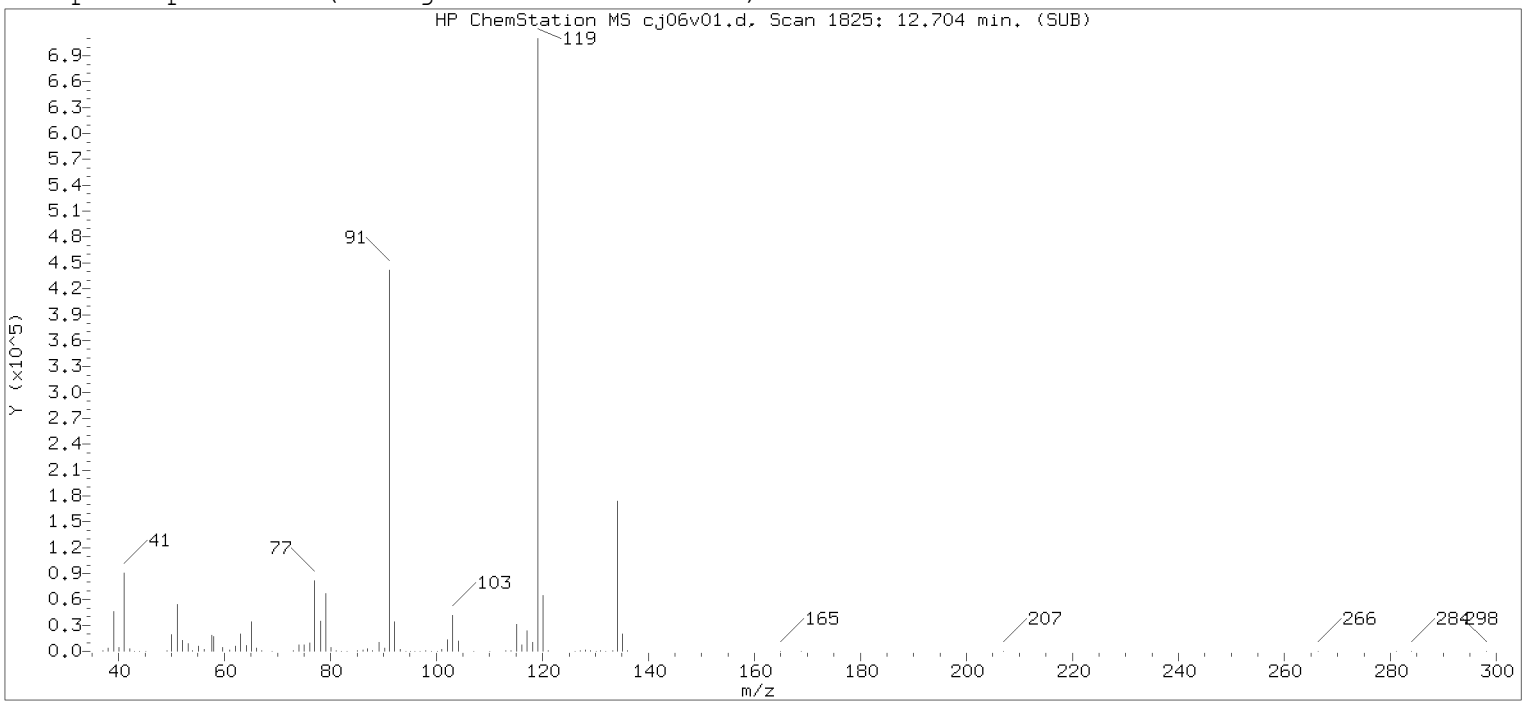
Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1825
Retention Time (minutes): 12.704
Quant Ion : 134.00
Area (flag) : 241135M
On-Column Amount (ng) : 5.1299
Integration start scan : 1818 Integration stop scan: 1828
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

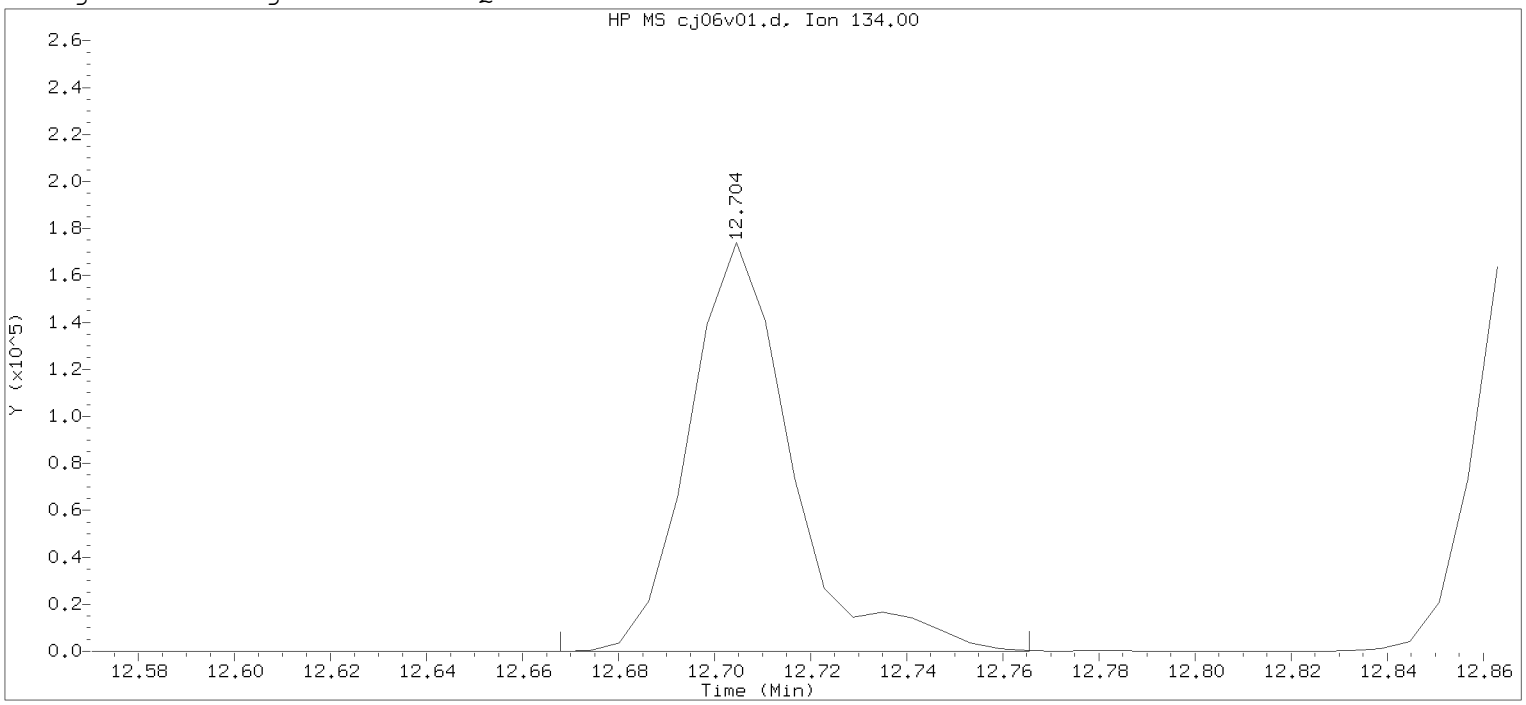
Analyst responsible for change: Digitally signed by Jennifer K. Howe
on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 01/07/2020 at 09:44.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20jan06i.b/cj06v01.d  Instrument ID: HP10193.i
Injection date and time: 06-JAN-2020 21:14  Analyst ID: JKH09052

Method used: /chem2/HP10193.i/20jan06i.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 06-JAN-2020 21:10
Date, time and analyst ID of latest file update: 06-Jan-2020 21:32 Automation

Sample Name: LCSLG  Lab Sample ID: LCSLG

Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1825
Retention Time (minutes): 12.704
Quant Ion : 134.00
Area : 257469
On-column Amount (ng) : 5.4097
Integration start scan : 1818  Integration stop scan: 1834
Y at integration start : 0  Y at integration end: 0

Digitally signed by Jennifer K. Howe on 01/07/2020 at 08:42.
Target 3.5 esignature user ID: jkh09052

Data File: /chem2/HP10193.i/20feb05a.b/cf05t01.d



Date : 05-FEB-2020 19:09

Client ID: BFB JAN28-20

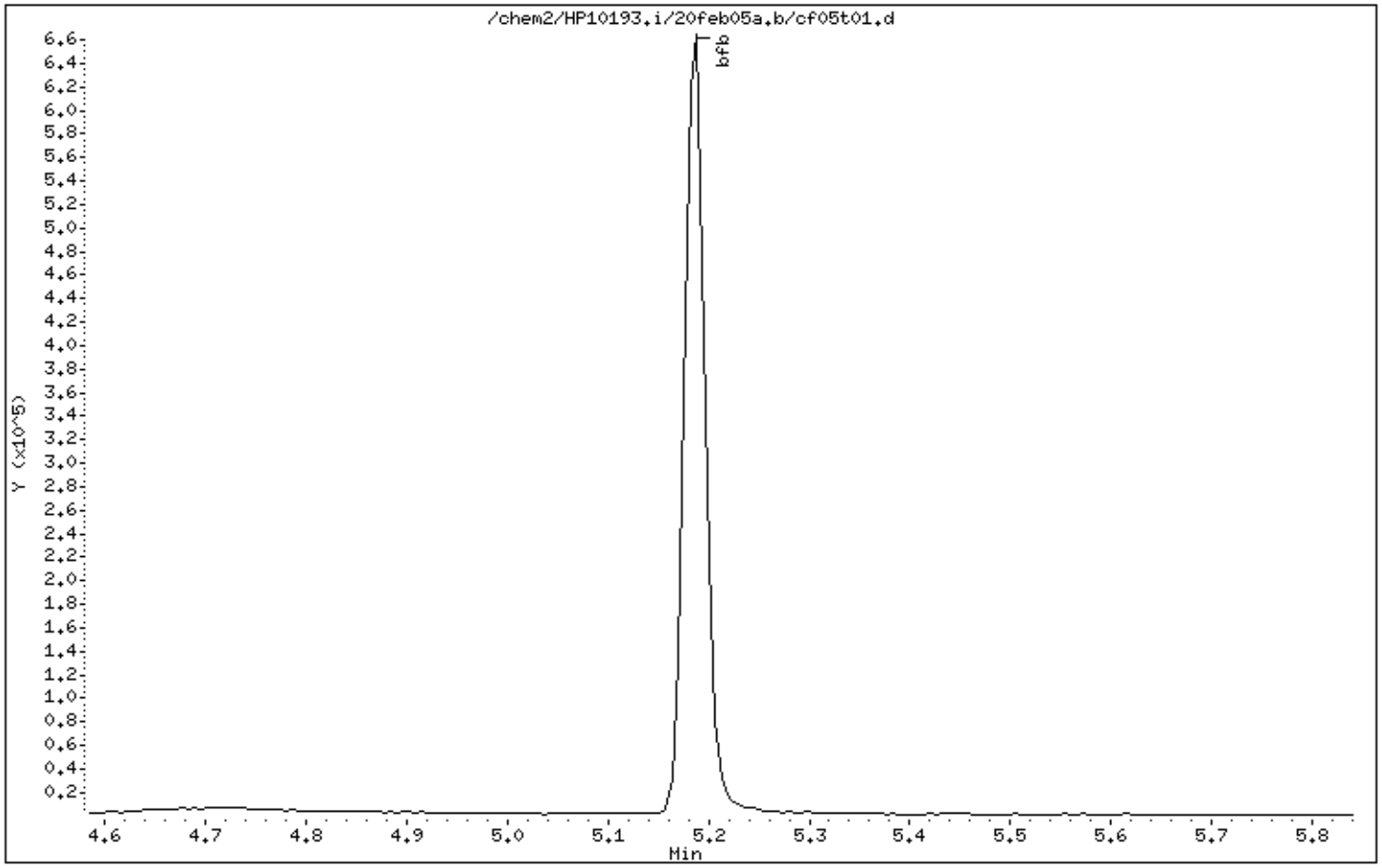
Instrument: HP10193.i

Sample Info: BFB JAN28-20;50NGBFB;1;3;;;;;;

Operator: MEC29284

Column phase: Rxi-624Sil MS

Column diameter: 0.25



Data File: /chem2/HP10193.i/20feb05a.b/cf05t01.d

Date : 05-FEB-2020 19:09

Client ID: BFB JAN28-20

Instrument: HP10193.i

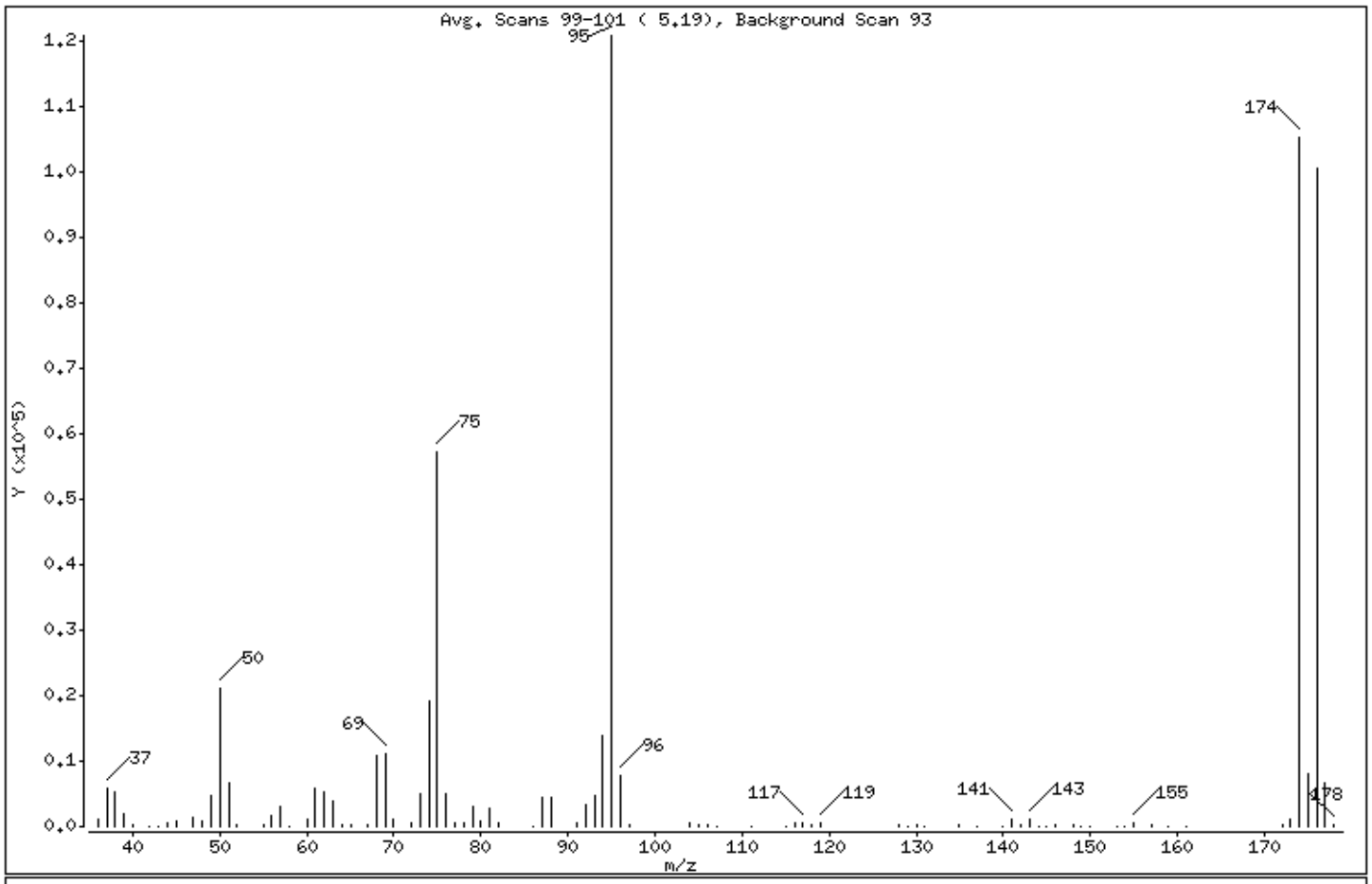
Sample Info: BFB JAN28-20;50NGBFB;1;3;;;;;;

Operator: MEC29284

Column phase: Rxi-624Sil MS

Column diameter: 0.25

1 bfb




| m/e | ION ABUNDANCE CRITERIA | % RELATIVE ABUNDANCE |
|---|---|---|
| 95 | Base Peak, 100% relative abundance | 100.00 |
| 50 | 15.00 - 40.00% of mass 95 | 17.47 |
| 75 | 30.00 - 60.00% of mass 95 | 47.34 |
| 96 | 5.00 - 9.00% of mass 95 | 6.48 |
| 173 | Less than 2.00% of mass 174 | 0.94 ( 1.08) |
| 174 | 50.00 - 100.00% of mass 95 | 87.11 |
| 175 | 5.00 - 9.00% of mass 174 | 6.69 ( 7.69) |
| 176 | 95.00 - 101.00% of mass 174 | 83.30 ( 95.62) |
| 177 | 5.00 - 9.00% of mass 176 | 5.52 ( 6.63) |

Date : 05-FEB-2020 19:09

Client ID: BFB JAN28-20 Instrument: HP10193.i

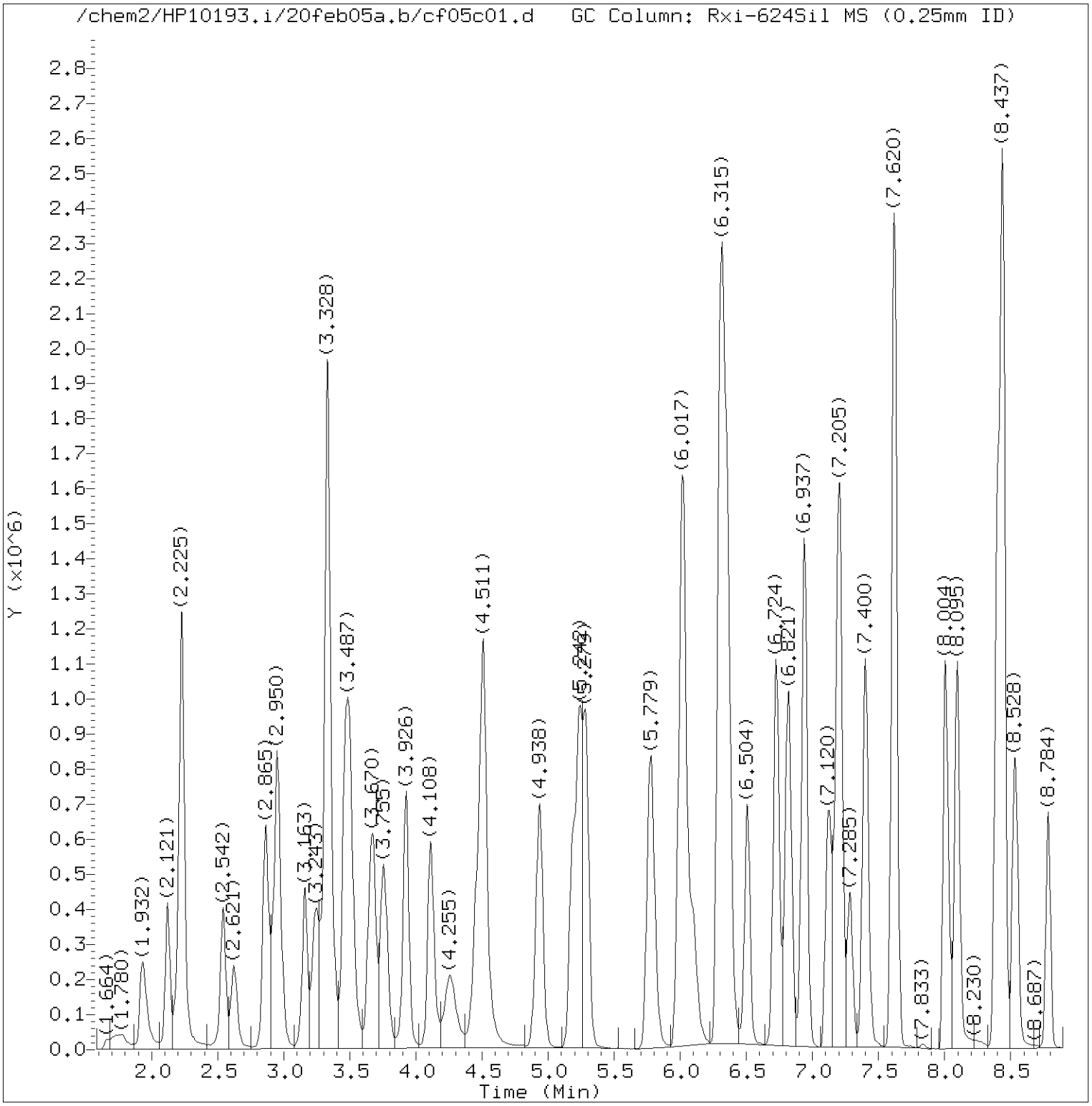
Sample Info: BFB JAN28-20;50NGBFB;1;3;;;;;;

Operator: MEC29284

Column phase: Rxi-624Sil MS Column diameter: 0.25

Data File: cf05t01.d
Spectrum: Avg. Scans 99-101 ( 5.19), Background Scan 93
Location of Maximum: 95.00
Number of points: 89

| m/z | Y | m/z | Y | m/z | Y | m/z | Y |
|---|---|---|---|---|---|---|---|
| 36.00 | 1055 | 64.00 | 385 | 94.00 | 13864 | 143.00 | 1065 |
| 37.00 | 5754 | 65.00 | 264 | 95.00 | 120856 | 144.00 | 130 |
| 38.00 | 5407 | 67.00 | 369 | 96.00 | 7830 | 145.00 | 118 |
| 39.00 | 2042 | 68.00 | 10888 | 97.00 | 197 | 146.00 | 173 |
| 40.00 | 251 | 69.00 | 11188 | 104.00 | 525 | 148.00 | 282 |
| 42.00 | 60 | 70.00 | 984 | 105.00 | 202 | 149.00 | 50 |
| 43.00 | 108 | 72.00 | 640 | 106.00 | 408 | 150.00 | 52 |
| 44.00 | 646 | 73.00 | 4865 | 107.00 | 52 | 153.00 | 58 |
| 45.00 | 967 | 74.00 | 19128 | 111.00 | 78 | 154.00 | 55 |
| 47.00 | 1471 | 75.00 | 57208 | 115.00 | 123 | 155.00 | 424 |
| 48.00 | 703 | 76.00 | 4880 | 116.00 | 466 | 157.00 | 226 |
| 49.00 | 4815 | 77.00 | 669 | 117.00 | 659 | 159.00 | 122 |
| 50.00 | 21112 | 78.00 | 419 | 118.00 | 412 | 161.00 | 90 |
| 51.00 | 6727 | 79.00 | 3012 | 119.00 | 627 | 172.00 | 390 |
| 52.00 | 333 | 80.00 | 869 | 128.00 | 388 | 173.00 | 1134 |
| 55.00 | 352 | 81.00 | 2720 | 129.00 | 51 | 174.00 | 105280 |
| 56.00 | 1647 | 82.00 | 604 | 130.00 | 384 | 175.00 | 8091 |
| 57.00 | 3054 | 86.00 | 74 | 131.00 | 67 | 176.00 | 100672 |
| 58.00 | 117 | 87.00 | 4395 | 135.00 | 148 | 177.00 | 6672 |
| 60.00 | 1074 | 88.00 | 4471 | 137.00 | 116 | 178.00 | 198 |
| 61.00 | 5765 | 91.00 | 425 | 140.00 | 51 | | |
| 62.00 | 5251 | 92.00 | 3243 | 141.00 | 1060 | | |
| 63.00 | 3872 | 93.00 | 4631 | 142.00 | 139 | | |




Total Ion Chromatogram (TIC)

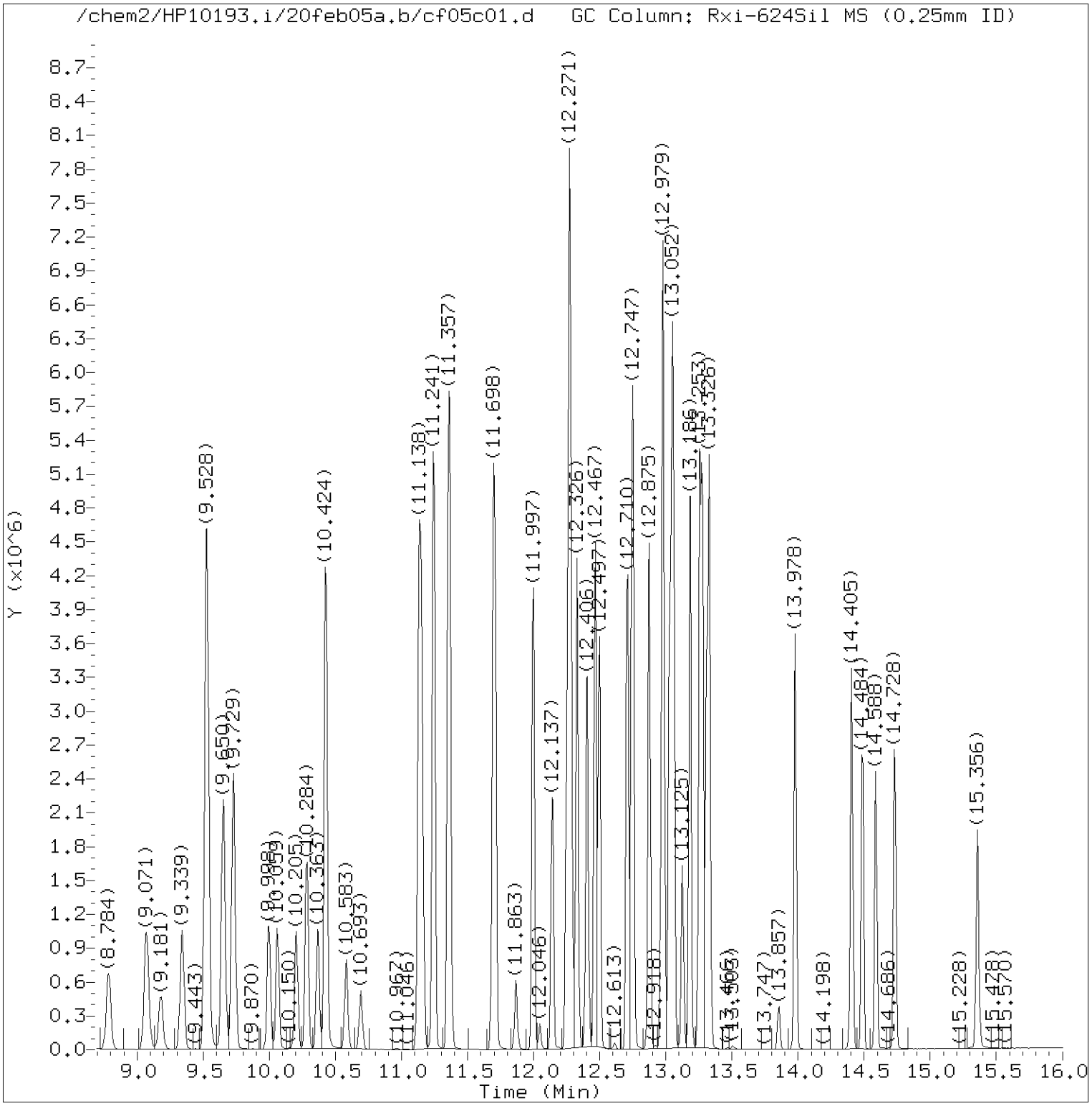
Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05c01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 19:46 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:06 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

Digitally signed by Miranda E. Campbell
on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05c01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 19:46 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:06 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

Digitally signed by Miranda E. Campbell
on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05c01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 19:46 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:06 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | 1.932 | 85 | 569352 | 9.186 |
| 2) Chloromethane | (2) | 2.121 | 50 | 661945 | 9.797 |
| 6) 1,3-Butadiene | (2) | 2.225 | 39 | 757885M | 13.347 |
| 5) Vinyl Chloride | (2) | 2.237 | 62 | 621187 | 9.799 |
| 7) Bromomethane | (2) | 2.542 | 94 | 401251 | 9.431 |
| 8) Chloroethane | (2) | 2.621 | 64 | 352216 | 9.367 |
| 9) Dichlorofluoromethane | (2) | 2.865 | 67 | 839586 | 10.239 |
| 10) Trichlorofluoromethane | (2) | 2.926 | 101 | 666637 | 10.635 |
| 12) Ethyl ether | (2) | 3.157 | 59 | 399994 | 9.725 |
| 13) Freon 123a | (2) | 3.243 | 67 | 521592 | 9.654 |
| 14) Acrolein | (1) | 3.328 | 56 | 3127381 | 443.187 |
| 16) 1,1-Dichloroethene | (2) | 3.462 | 96 | 395025 | 9.448 |
| 17) Freon 113 | (2) | 3.499 | 101 | 414980 | 10.078 |
| 15) Acetone | (1) | 3.499 | 43 | 891337 | 97.066 |
| 18) Methyl Iodide | (2) | 3.651 | 142 | 739533 | 9.431 |
| 19) Bromoethane | (2) | 3.682 | 108 | 335825 | 9.345 |
| 20) Carbon Disulfide | (2) | 3.755 | 76 | 1373382 | 9.156 |
| 23) Methyl Acetate | (2) | 3.901 | 43 | 241645 | 8.803 |
| 24) Allyl Chloride | (2) | 3.926 | 41 | 703825 | 9.143 |
| 25) Methylene Chloride | (2) | 4.108 | 84 | 453642 | 9.553 |
| 28)*t-Butyl Alcohol-d10 | (1) | 4.151 | 65 | 170617 | 50.000 |
| 30) t-Butyl Alcohol | (1) | 4.267 | 59 | 729701 | 208.893 |
| 31) Acrylonitrile | (1) | 4.450 | 53 | 557706 | 48.889 |
| 32) Methyl Tertiary Butyl Ether | (2) | 4.499 | 73 | 1201842 | 9.605 |
| 33) trans-1,2-Dichloroethene | (2) | 4.511 | 96 | 452746 | 9.575 |
| 34) n-Hexane | (2) | 4.931 | 57 | 683481 | 9.541 |
| 35) 1,1-Dichloroethane | (2) | 5.181 | 63 | 845756 | 9.764 |
| 36) di-Isopropyl Ether | (2) | 5.236 | 45 | 1639056 | 10.073 |
| 37) 2-Chloro-1,3-Butadiene | (2) | 5.291 | 53 | 751374 | 9.983 |
| 39) Ethyl t-butyl ether | (2) | 5.779 | 59 | 1478175 | 9.509 |
| 40) 2-Butanone | (1) | 5.992 | 43 | 1575099 | 97.748 |
| 41) cis-1,2-Dichloroethene | (2) | 6.017 | 96 | 505755 | 9.504 |
| 43) 2,2-Dichloropropane | (2) | 6.029 | 77 | 686427 | 9.510 |
| 44) Propionitrile | (1) | 6.096 | 54 | 812045 | 205.629 |
| 42) 1,2-Dichloroethene (Total) | (2) | | 96 | 958501 | 19.079 |
| 47) Methacrylonitrile | (1) | 6.309 | 67 | 1388579 | 92.732 |
| 49) Bromochloromethane | (2) | 6.352 | 128 | 225101 | 9.472 |
| 50) Tetrahydrofuran | (1) | 6.364 | 71 | 433211 | 90.375 |

M = Compound was manually integrated.
* = Compound is an internal standard.



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Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05c01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 19:46 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:06 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 51) Chloroform | (2) | 6.504 | 83 | 798169 | 9.920 |
| 53) 1,1,1-Trichloroethane | (2) | 6.724 | 97 | 710690 | 9.944 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 113 | 426381 | 10.188 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 111 | 437125 | 10.226 |
| 54) Cyclohexane | (2) | 6.821 | 56 | 847175 | 9.698 |
| 54) Cyclohexane | (2) | 6.821 | 84 | 708372 | 9.831 |
| 54) Cyclohexane | (2) | 6.821 | 69 | 252406 | 304.759 |
| 56) Carbon Tetrachloride | (2) | 6.937 | 117 | 608401 | 10.159 |
| 57) 1,1-Dichloropropene | (2) | 6.943 | 75 | 664433 | 9.910 |
| 58) Isobutyl Alcohol | (1) | 7.126 | 41 | 630147 | 540.951 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 102 | 92921 | 10.130 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 65 | 438880 | 10.367 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.187 | 104 | 59448 | 10.196 |
| 60) Benzene | (2) | 7.205 | 78 | 1938060 | 9.789 |
| 61) 1,2-Dichloroethane | (2) | 7.285 | 62 | 551372 | 9.873 |
| 61) 1,2-Dichloroethane | (2) | 7.285 | 98 | 49816 | 8.889 |
| 62) t-Amyl methyl ether | (2) | 7.400 | 73 | 1359390 | 9.626 |
| 64) n-Heptane | (2) | 7.620 | 43 | 756245 | 10.193 |
| 65)*Fluorobenzene | (2) | 7.620 | 96 | 1784527 | 10.000 |
| 67) n-Butanol | (1) | 8.004 | 56 | 1108453 | 1068.800 |
| 69) Trichloroethene | (2) | 8.095 | 95 | 486531 | 9.834 |
| 71) Methylcyclohexane | (2) | 8.400 | 83 | 831378 | 9.372 |
| 72) 1,2-Dichloropropane | (2) | 8.431 | 63 | 504806 | 9.915 |
| 73) Methyl Methacrylate | (1) | 8.522 | 69 | 270742 | 8.851 |
| 74) 1,4-Dioxane | (1) | 8.528 | 88 | 99954M | 518.280 |
| 74) 1,4-Dioxane | (1) | 8.443 | 58 | 21448 | 151.829 |
| 75) Dibromomethane | (2) | 8.547 | 93 | 240405 | 10.079 |
| 76) Bromodichloromethane | (2) | 8.784 | 83 | 599121 | 9.822 |
| 78) 2-Nitropropane | (1) | 9.071 | 41 | 913021 | 96.432 |
| 81) 1-Bromo-2-chloroethane | (2) | 9.181 | 63 | 542826 | 9.886 |
| 82) cis-1,3-Dichloropropene | (2) | 9.339 | 75 | 753371 | 9.581 |
| 83) 4-Methyl-2-Pentanone | (2) | 9.522 | 43 | 4087569 | 108.288 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1780193 | 9.875 |
| 84)$Toluene-d8 | (3) | 9.650 | 100 | 1143845 | 9.767 |
| 85) Toluene | (3) | 9.729 | 92 | 1229493 | 9.544 |
| 87) 1,3-Dichloropropene (total) | (3) | | 75 | 1410719 | 19.019 |
| 86) trans-1,3-Dichloropropene | (3) | 9.998 | 75 | 657348 | 9.438 |
| 88) Ethyl Methacrylate | (3) | 10.059 | 69 | 574694 | 9.220 |

M = Compound was manually integrated.
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$ = Compound is a surrogate standard.



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Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05c01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 19:46 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:06 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 90) 1,1,2-Trichloroethane | (3) | 10.205 | 97 | 350795 | 9.526 |
| 91) Tetrachloroethene | (3) | 10.284 | 166 | 544616 | 9.836 |
| 92) 1,3-Dichloropropane | (3) | 10.363 | 76 | 630447 | 9.690 |
| 93) 2-Hexanone | (3) | 10.424 | 43 | 2901805 | 103.411 |
| 95) Dibromochloromethane | (3) | 10.583 | 129 | 430580 | 9.657 |
| 97) 1,2-Dibromoethane | (3) | 10.693 | 107 | 347734 | 9.749 |
| 99)*Chlorobenzene-d5 | (3) | 11.131 | 117 | 1352823 | 10.000 |
| 98) 1-Chlorohexane | (3) | 11.138 | 91 | 680699 | 9.103 |
| 100) Chlorobenzene | (3) | 11.156 | 112 | 1394070 | 9.612 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | 11.241 | 131 | 491311 | 9.837 |
| 102) Ethylbenzene | (3) | 11.241 | 91 | 2437896 | 9.809 |
| 103) m+p-Xylene | (3) | 11.357 | 106 | 1903117 | 19.517 |
| 106) o-Xylene | (3) | 11.692 | 106 | 944208 | 9.748 |
| 108) Styrene | (3) | 11.711 | 104 | 1589193 | 9.712 |
| 107) Xylene (Total) | (3) | | 106 | 2847325 | 29.265 |
| 109) Bromoform | (3) | 11.863 | 173 | 263012 | 9.578 |
| 110) Isopropylbenzene | (3) | 11.997 | 105 | 2453268 | 9.837 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 674026 | 9.951 |
| 113)$4-Bromofluorobenzene | (3) | 12.143 | 174 | 588483 | 10.354 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | 12.247 | 83 | 479927 | 9.184 |
| 116) Bromobenzene | (4) | 12.259 | 156 | 612875 | 9.226 |
| 117) trans-1,4-Dichloro-2-butene | (1) | 12.271 | 53 | 1298681A | 92.006 |
| 118) 1,2,3-Trichloropropane | (4) | 12.296 | 110 | 127591M | 9.192 |
| 119) n-Propylbenzene | (4) | 12.326 | 91 | 2941936 | 9.371 |
| 121) 2-Chlorotoluene | (4) | 12.406 | 126 | 593509 | 9.067 |
| 123) 1,3,5-Trimethylbenzene | (4) | 12.467 | 105 | 2139204 | 9.237 |
| 124) 4-Chlorotoluene | (4) | 12.497 | 126 | 617529 | 9.046 |
| 127) tert-Butylbenzene | (4) | 12.710 | 134 | 460766M | 9.335 |
| 128) Pentachloroethane | (4) | 12.741 | 167 | 382176 | 8.990 |
| 129) 1,2,4-Trimethylbenzene | (4) | 12.753 | 105 | 2252758 | 9.229 |
| 130) sec-Butylbenzene | (4) | 12.875 | 105 | 2787118 | 9.382 |
| 133) 1,3-Dichlorobenzene | (4) | 12.973 | 146 | 1237155 | 9.400 |
| 134) p-Isopropyltoluene | (4) | 12.979 | 119 | 2429862 | 9.348 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.027 | 152 | 797506 | 10.000 |
| 136) 1,4-Dichlorobenzene | (4) | 13.046 | 146 | 1249153 | 9.248 |
| 137) 1,2,3-Trimethylbenzene | (4) | 13.058 | 120 | 962890 | 8.803 |
| 138) Benzyl Chloride | (4) | 13.125 | 126 | 210975 | 9.304 |
| 140) n-Butylbenzene | (4) | 13.277 | 92 | 1243449 | 9.525 |

M = Compound was manually integrated.
A = User selected an alternate hit.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.

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on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05c01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 19:46 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:06 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 141) 1,2-Dichlorobenzene | (4) | 13.308 | 146 | 1150211 | 9.305 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | 13.857 | 155 | 73639 | 9.479 |
| 146) 1,3,5-Trichlorobenzene | (4) | 13.978 | 180 | 1007634 | 9.239 |
| 147) 1,2,4-Trichlorobenzene | (4) | 14.405 | 180 | 896368 | 9.082 |
| 148) Hexachlorobutadiene | (4) | 14.491 | 225 | 445751 | 9.406 |
| 149) Naphthalene | (4) | 14.588 | 128 | 1623966 | 8.900 |
| 150) 1,2,3-Trichlorobenzene | (4) | 14.734 | 180 | 763523 | 8.830 |



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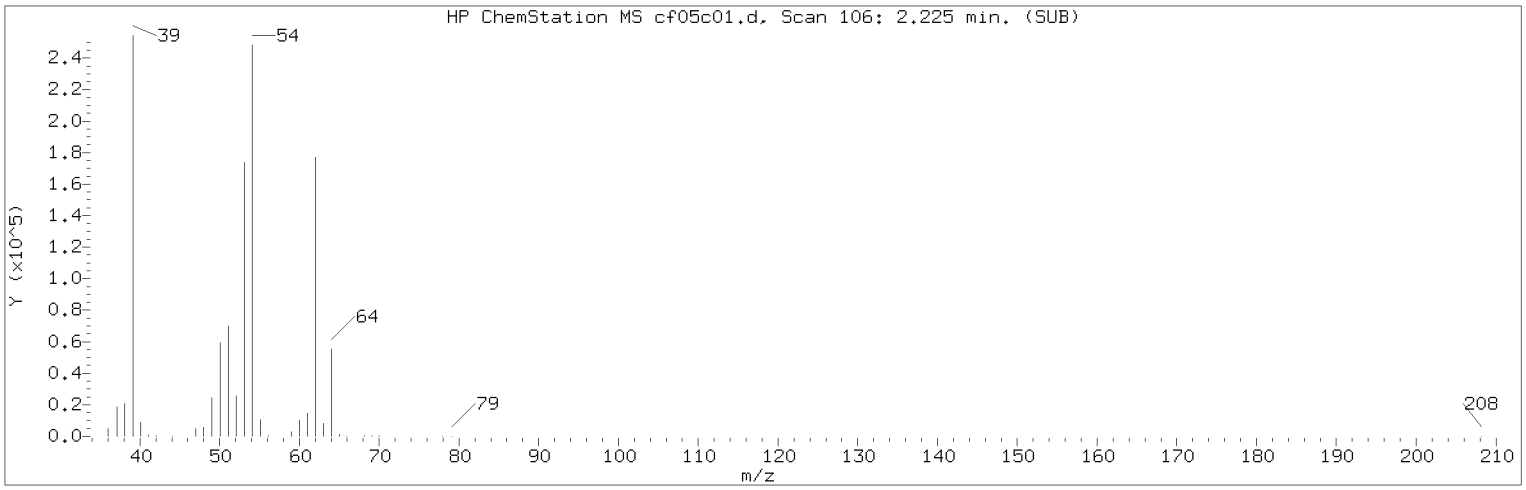
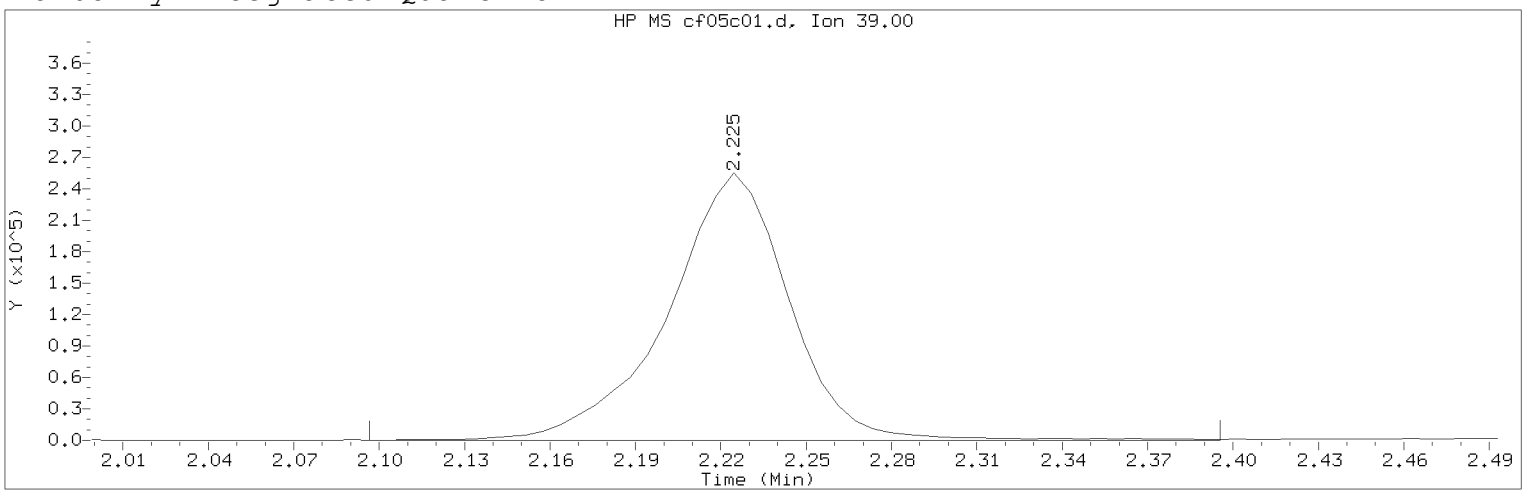
Target 3.5 esignature user ID: mec29284

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05c01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 19:46 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:06 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

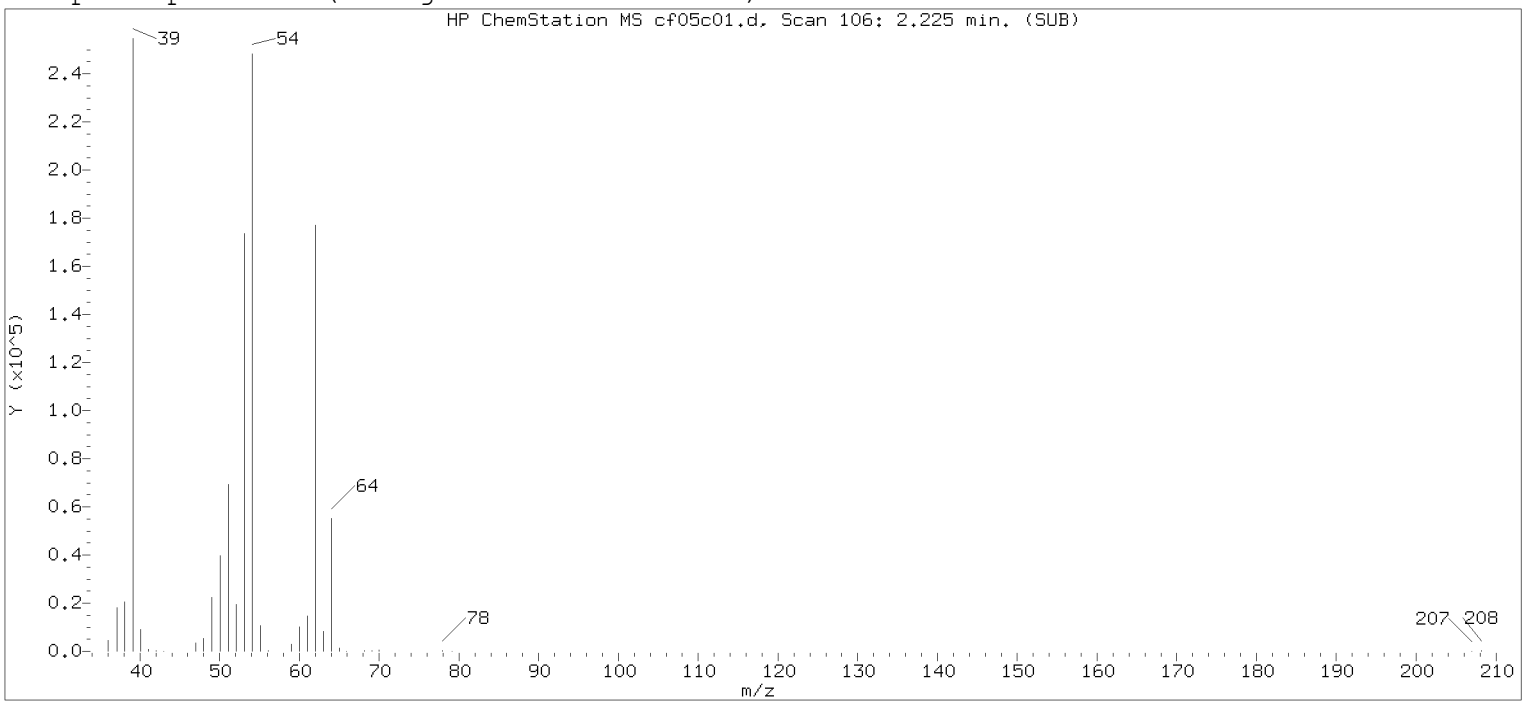
Compound Number : 6
Compound Name : 1,3-Butadiene
Scan Number : 106
Retention Time (minutes): 2.225
Quant Ion : 39.00
Area (flag) : 757885M
On-Column Amount (ng) : 13.3466
Integration start scan : 84 Integration stop scan: 133
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

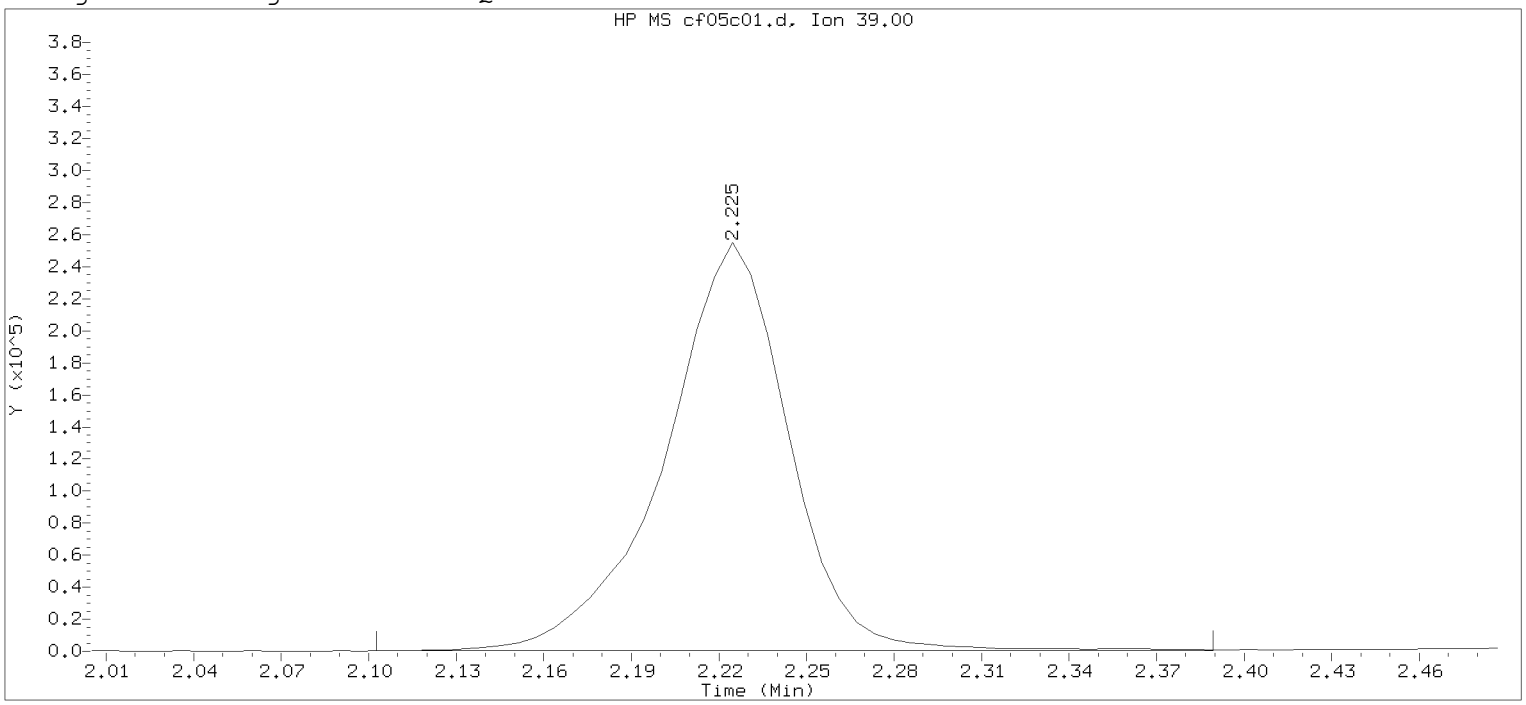
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05c01.d  Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 19:46  Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:03 Automation

Sample Name: VSTD010  Lab Sample ID: VSTD010

Compound Number : 6
Compound Name : 1,3-Butadiene
Scan Number : 106
Retention Time (minutes): 2.225
Quant Ion : 39.00
Area : 752347
On-column Amount (ng) : 13.2490
Integration start scan : 85  Integration stop scan: 132
Y at integration start : 297  Y at integration end: 297

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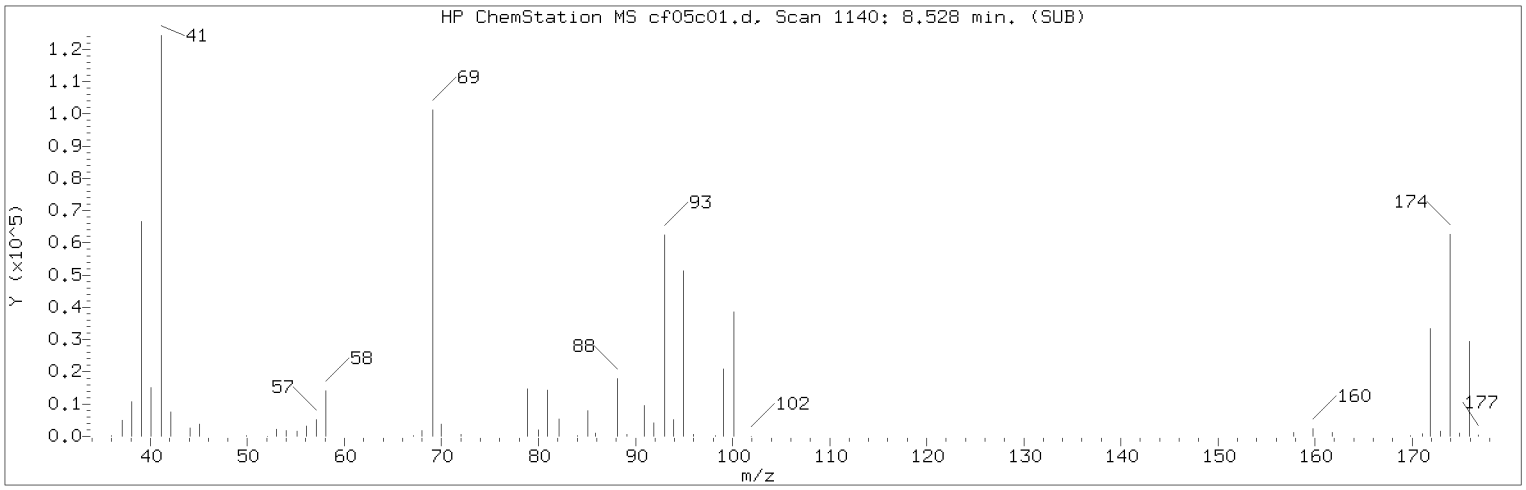
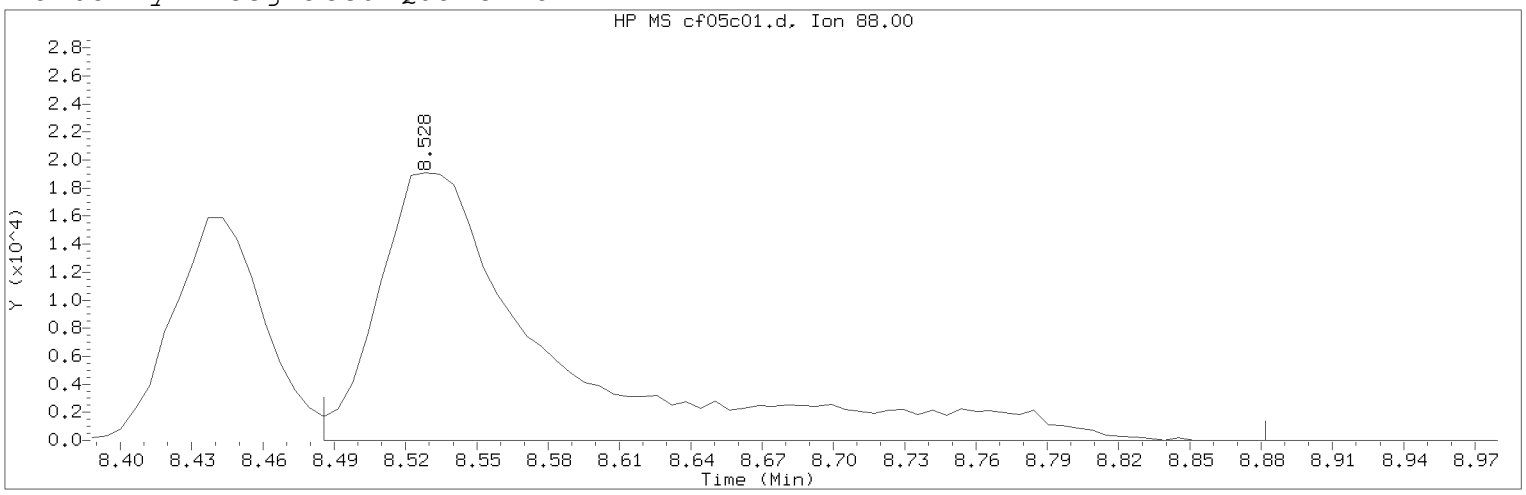
Target 3.5 esignature user ID: mec29284

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05c01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 19:46 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:06 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

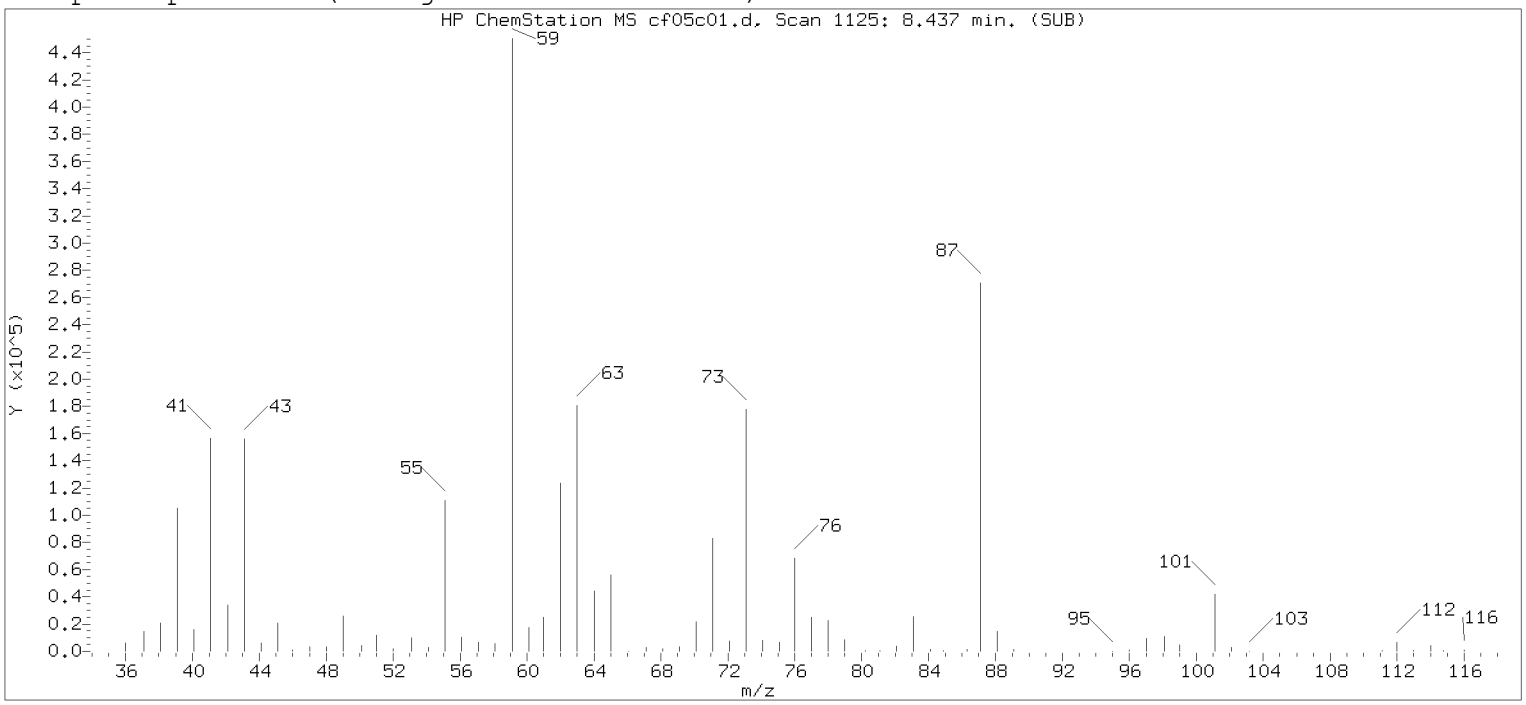
Compound Number : 74
Compound Name : 1,4-Dioxane
Scan Number : 1140
Retention Time (minutes): 8.528
Quant Ion : 88.00
Area (flag) : 99954M
On-Column Amount (ng) : 518.2800
Integration start scan : 1132 Integration stop scan: 1197
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

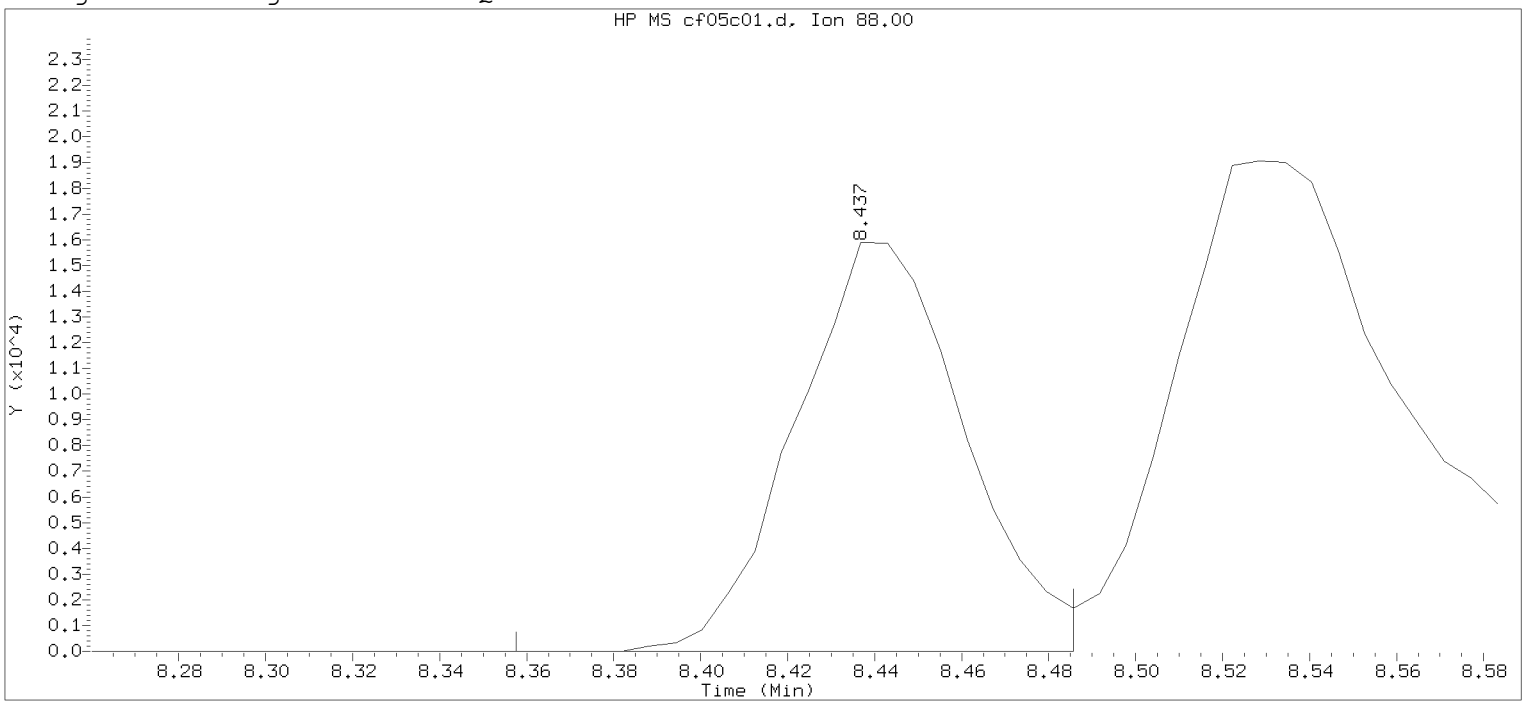
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05c01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 19:46 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:03 Automation

Sample Name: VSTD010 Lab Sample ID: VSTD010

| | | | |
|---|---|---|---|
| Compound Number | : 74 | | |
| Compound Name | : 1,4-Dioxane | | |
| Scan Number | : 1125 | | |
| Retention Time (minutes) | : 8.437 | | |
| Quant Ion | : 88.00 | | |
| Area | : 42592 | | |
| On-column Amount (ng) | : 220.8482 | | |
| Integration start scan | : 1111 | Integration stop scan: | 1132 |
| Y at integration start | : 0 | Y at integration end: | 0 |

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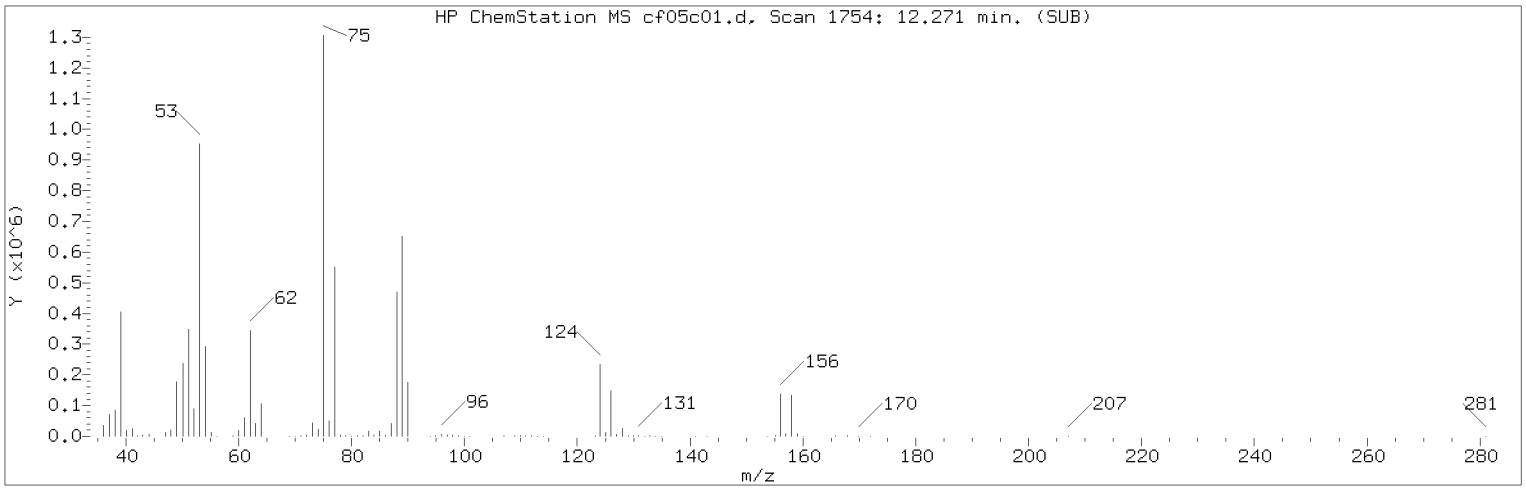
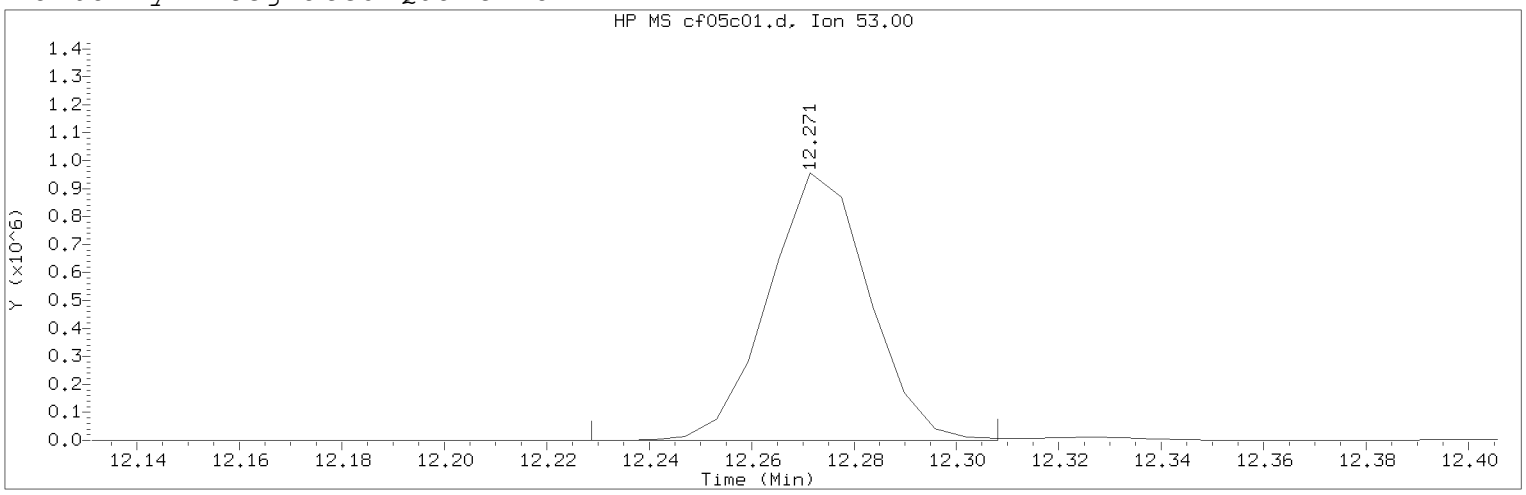
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05c01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 19:46 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:06 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

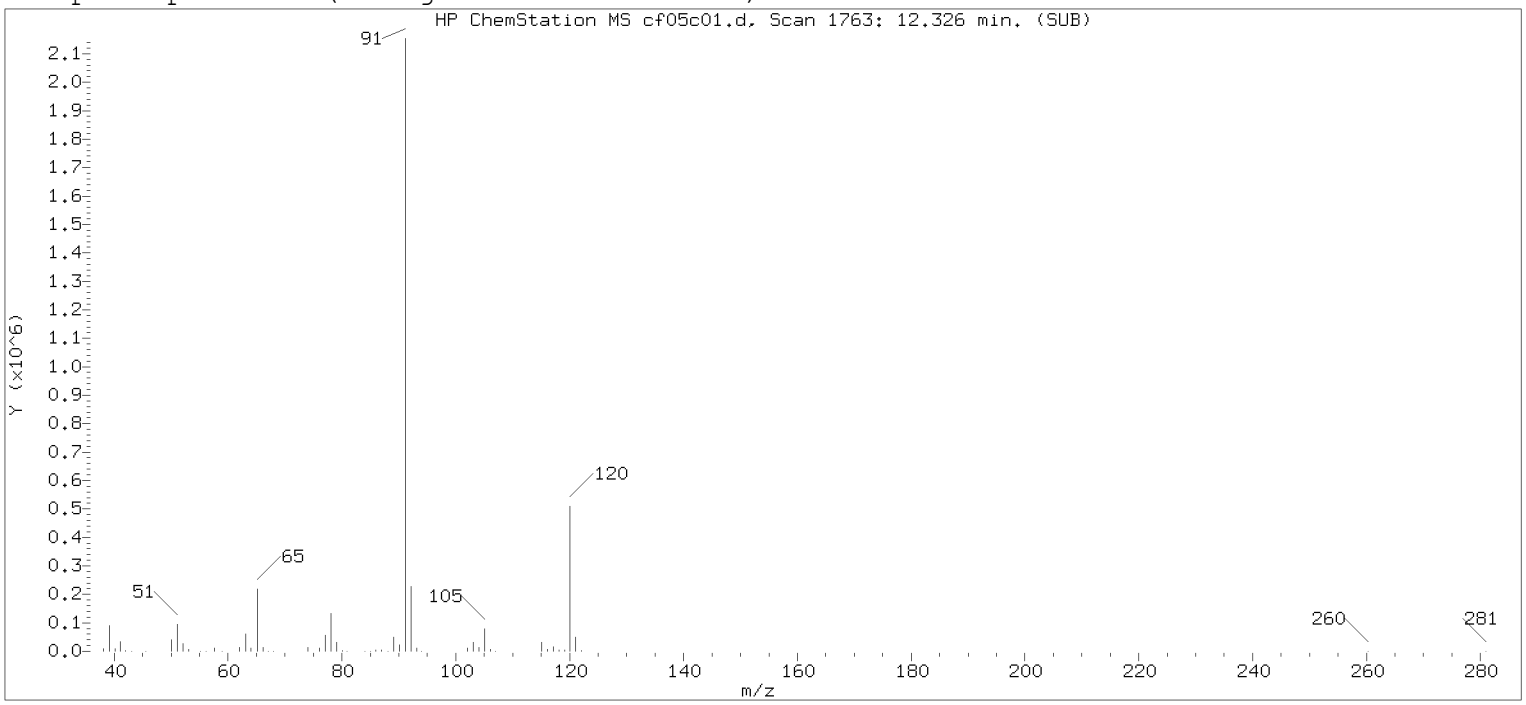
Compound Number : 117
Compound Name : trans-1,4-Dichloro-2-butene
Scan Number : 1754
Retention Time (minutes): 12.271
Quant Ion : 53.00
Area (flag) : 1298681A
On-Column Amount (ng) : 92.0055
Integration start scan : 1746 Integration stop scan: 1759
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

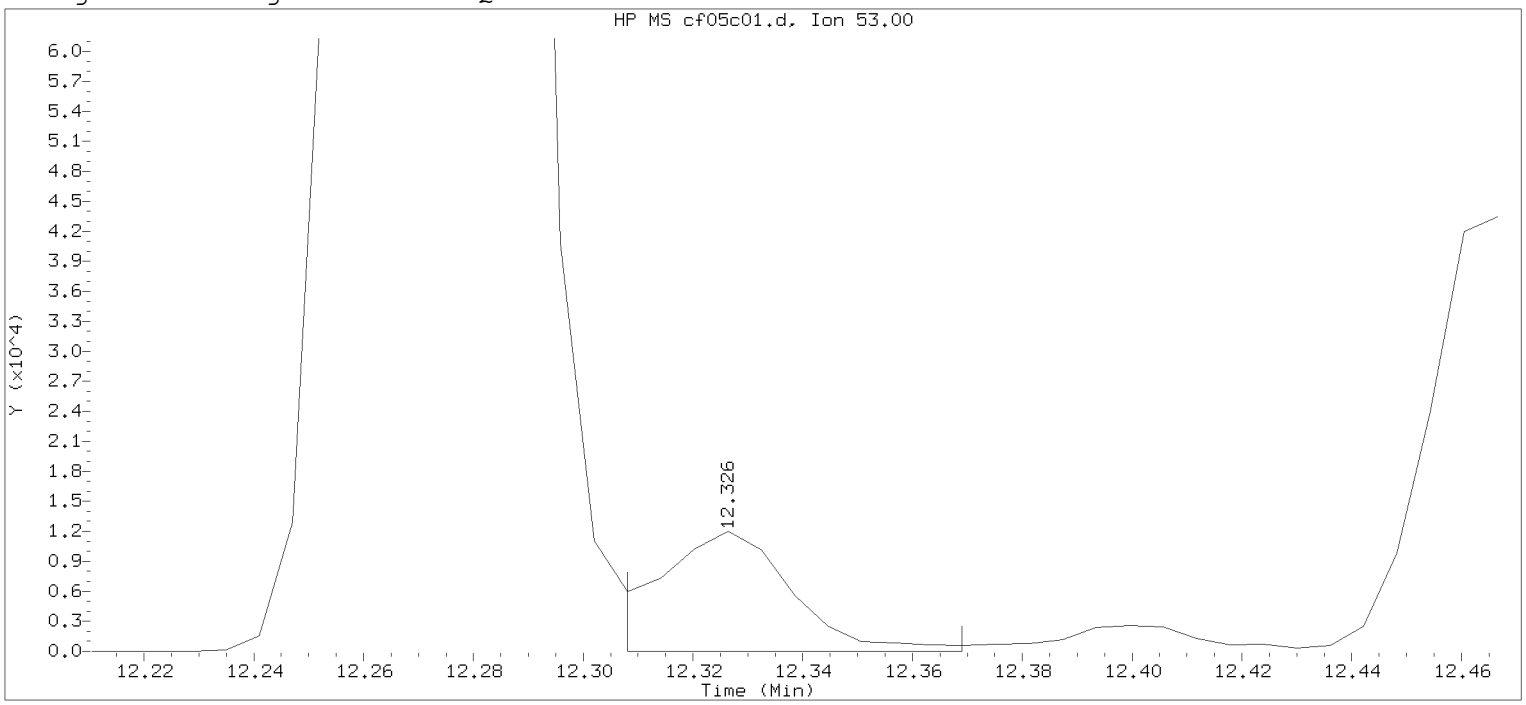
Analyst responsible for change: Digitally signed by Miranda E. Campbell
on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05c01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 19:46 Analyst ID: MEC29284

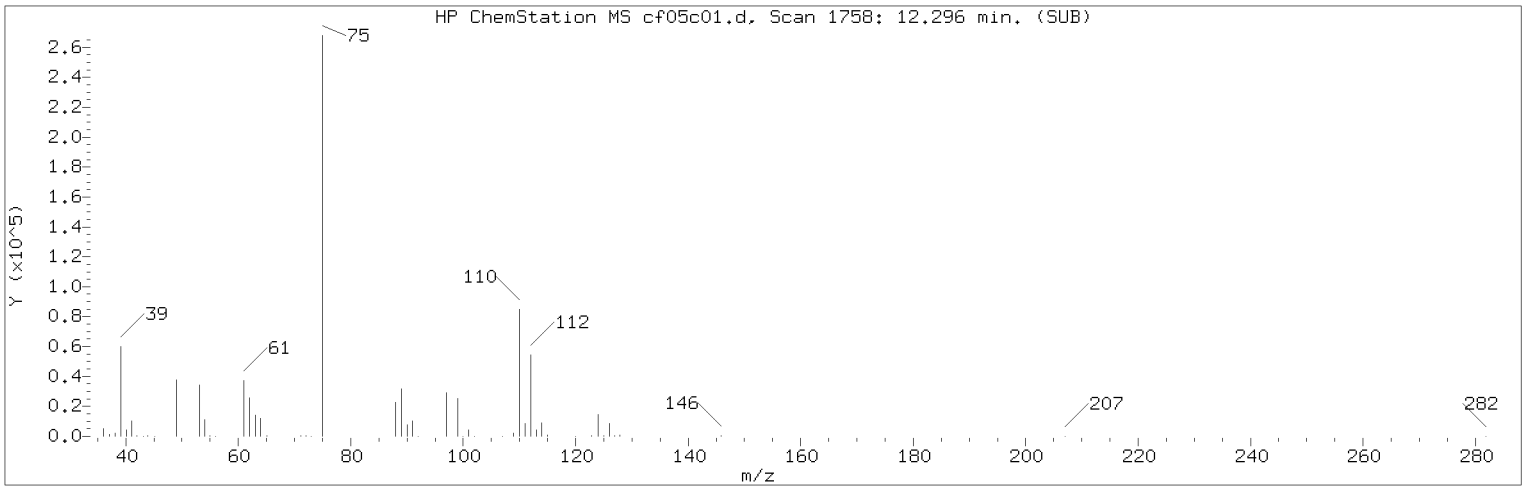
Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:03 Automation

Sample Name: VSTD010 Lab Sample ID: VSTD010

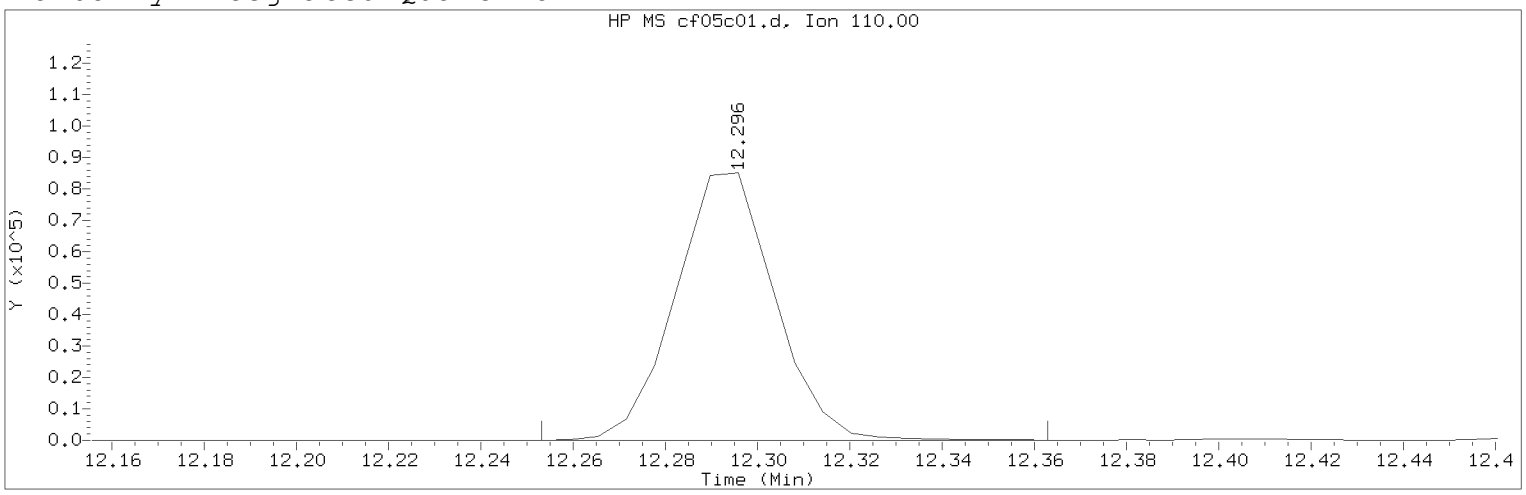
Compound Number : 117
Compound Name : trans-1,4-Dichloro-2-butene
Scan Number : 1763
Retention Time (minutes): 12.326
Quant Ion : 53.00
Area : 19575
On-column Amount (ng) : 1.3868
Integration start scan : 1759 Integration stop scan: 1769
Y at integration start : 0 Y at integration end: 0

Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12.
Target 3.5 esignature used.

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05c01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 19:46 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:06 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

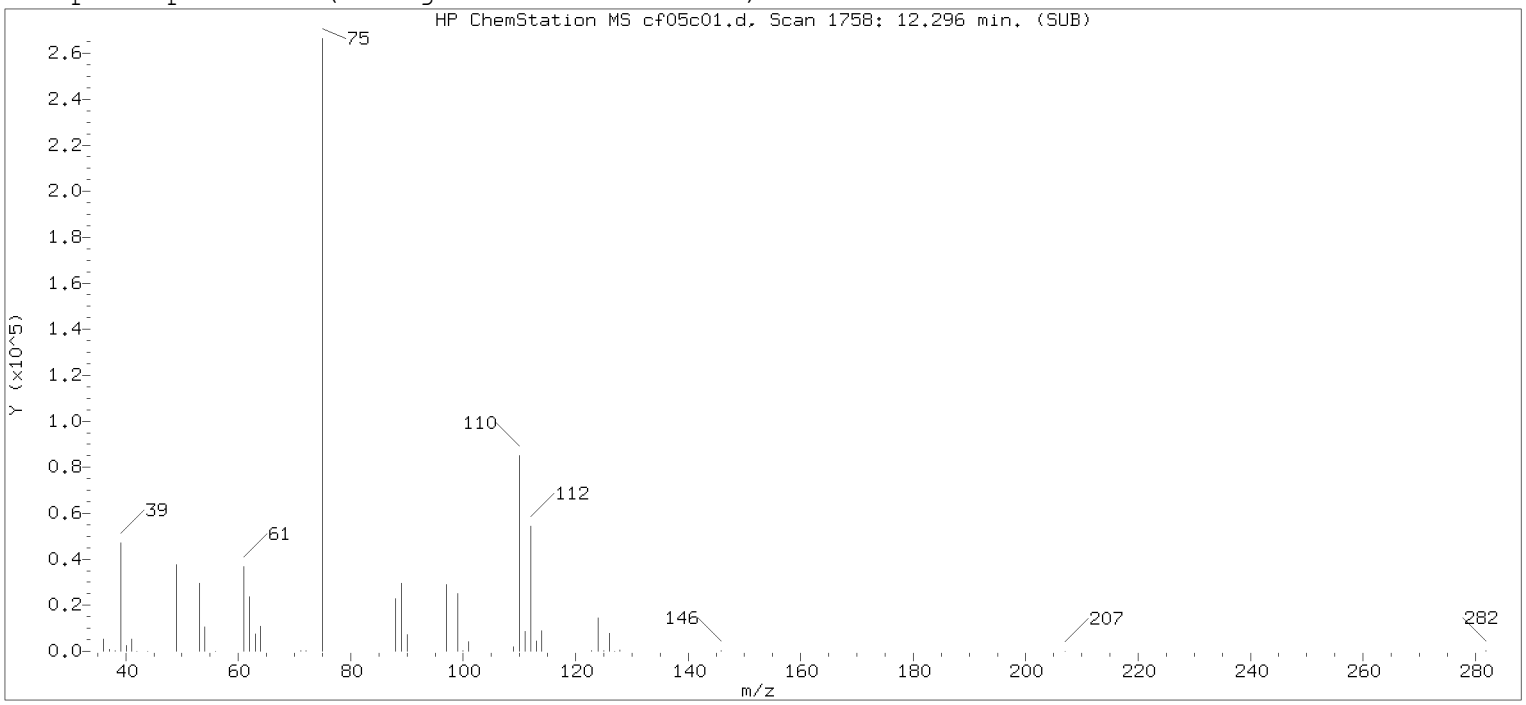
Compound Number : 118
Compound Name : 1,2,3-Trichloropropane
Scan Number : 1758
Retention Time (minutes): 12.296
Quant Ion : 110.00
Area (flag) : 127591M
On-Column Amount (ng) : 9.1922
Integration start scan : 1750 Integration stop scan: 1768
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

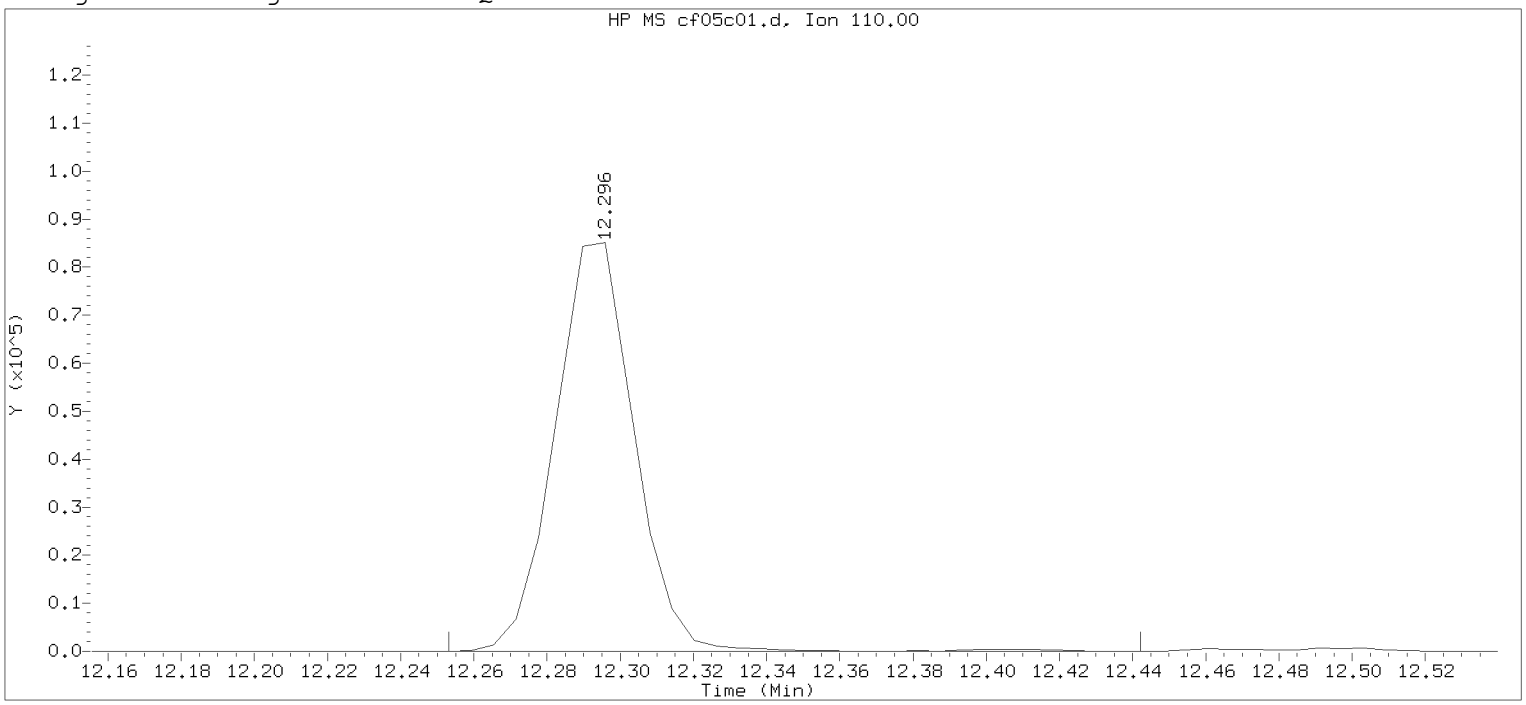
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05c01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 19:46 Analyst ID: MEC29284

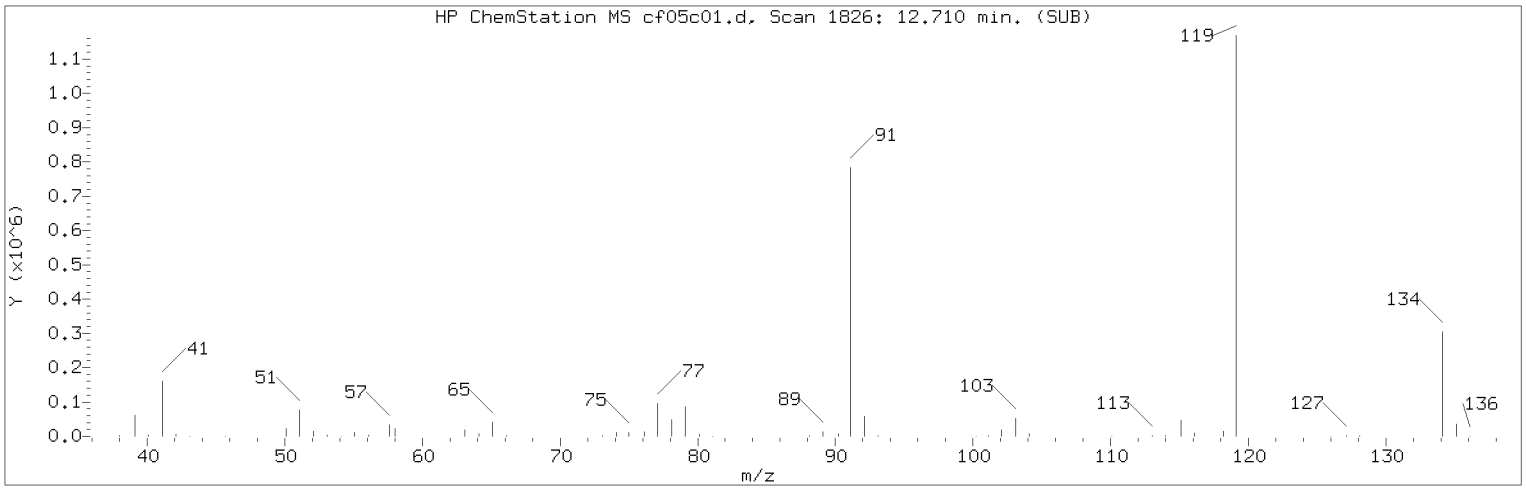
Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:03 Automation

Sample Name: VSTD010 Lab Sample ID: VSTD010

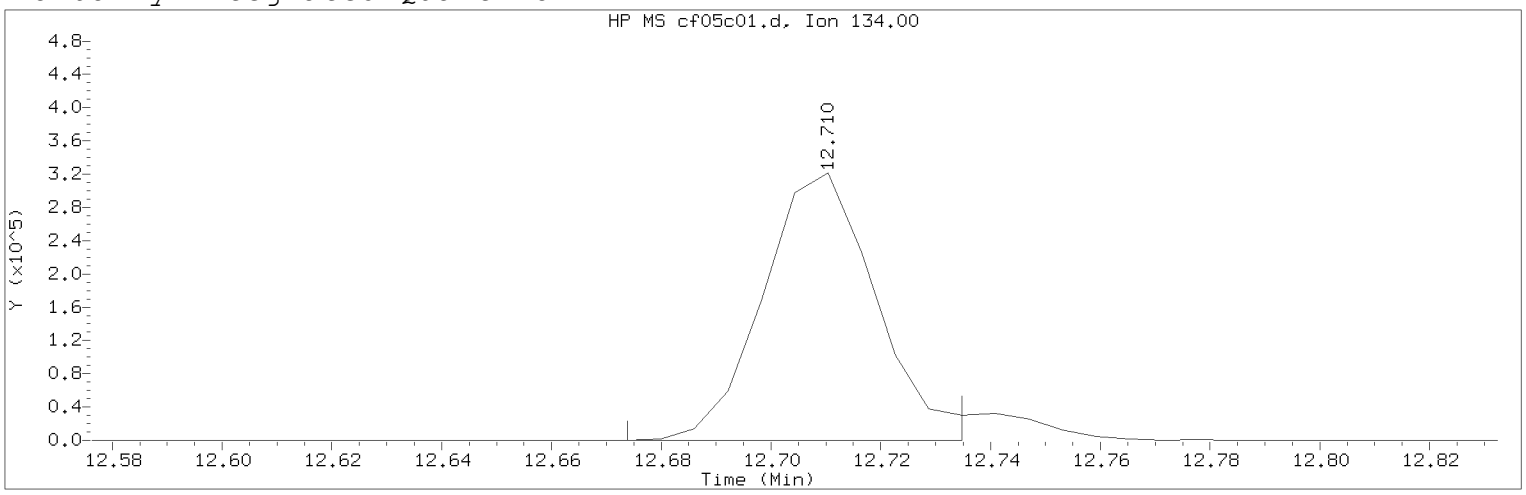
Compound Number : 118
Compound Name : 1,2,3-Trichloropropane
Scan Number : 1758
Retention Time (minutes): 12.296
Quant Ion : 110.00
Area : 128357
On-column Amount (ng) : 9.2473
Integration start scan : 1750 Integration stop scan: 1781
Y at integration start : 0 Y at integration end: 0

Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05c01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 19:46 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:06 mec29284

Sample Name: VSTD010 Lab Sample ID: VSTD010

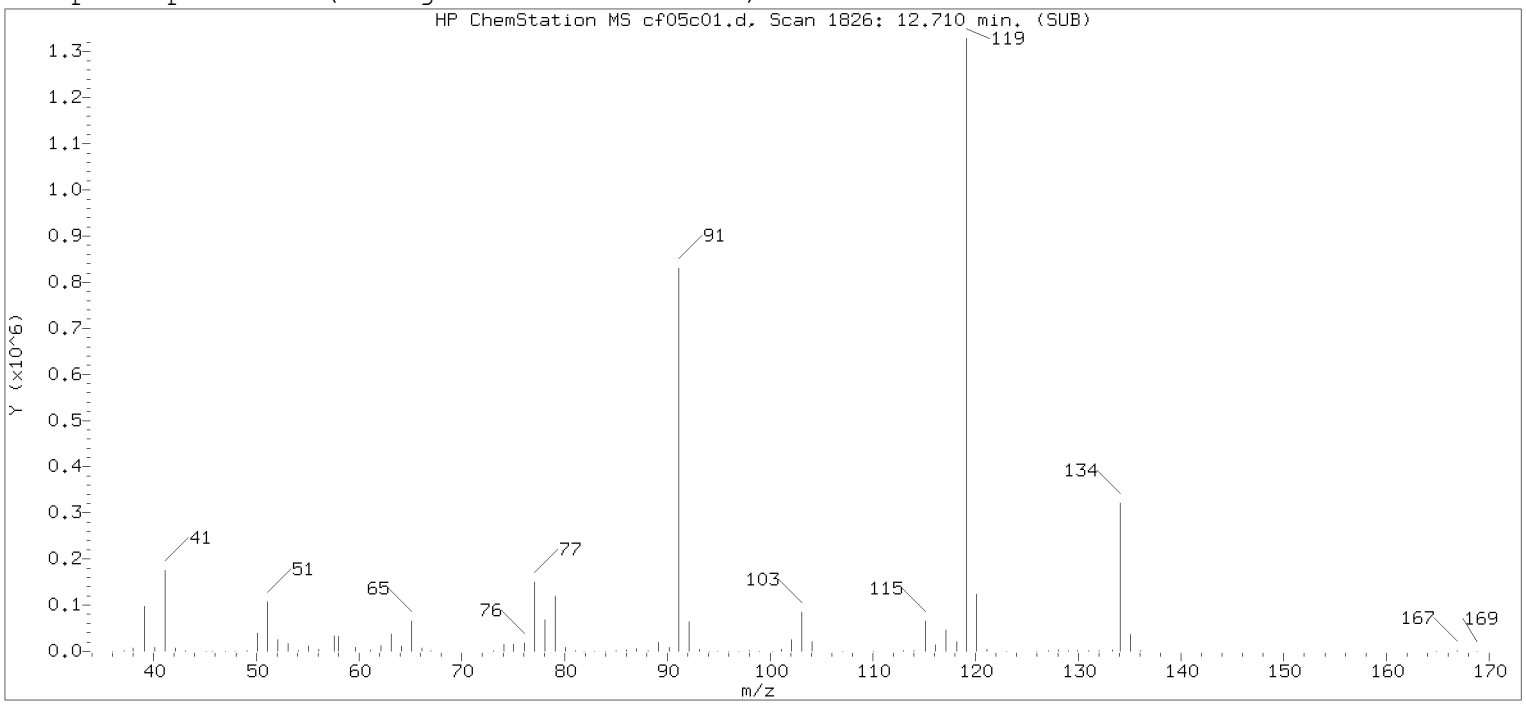
Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1826
Retention Time (minutes): 12.710
Quant Ion : 134.00
Area (flag) : 460766M
On-Column Amount (ng) : 9.3355
Integration start scan : 1819 Integration stop scan: 1829
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

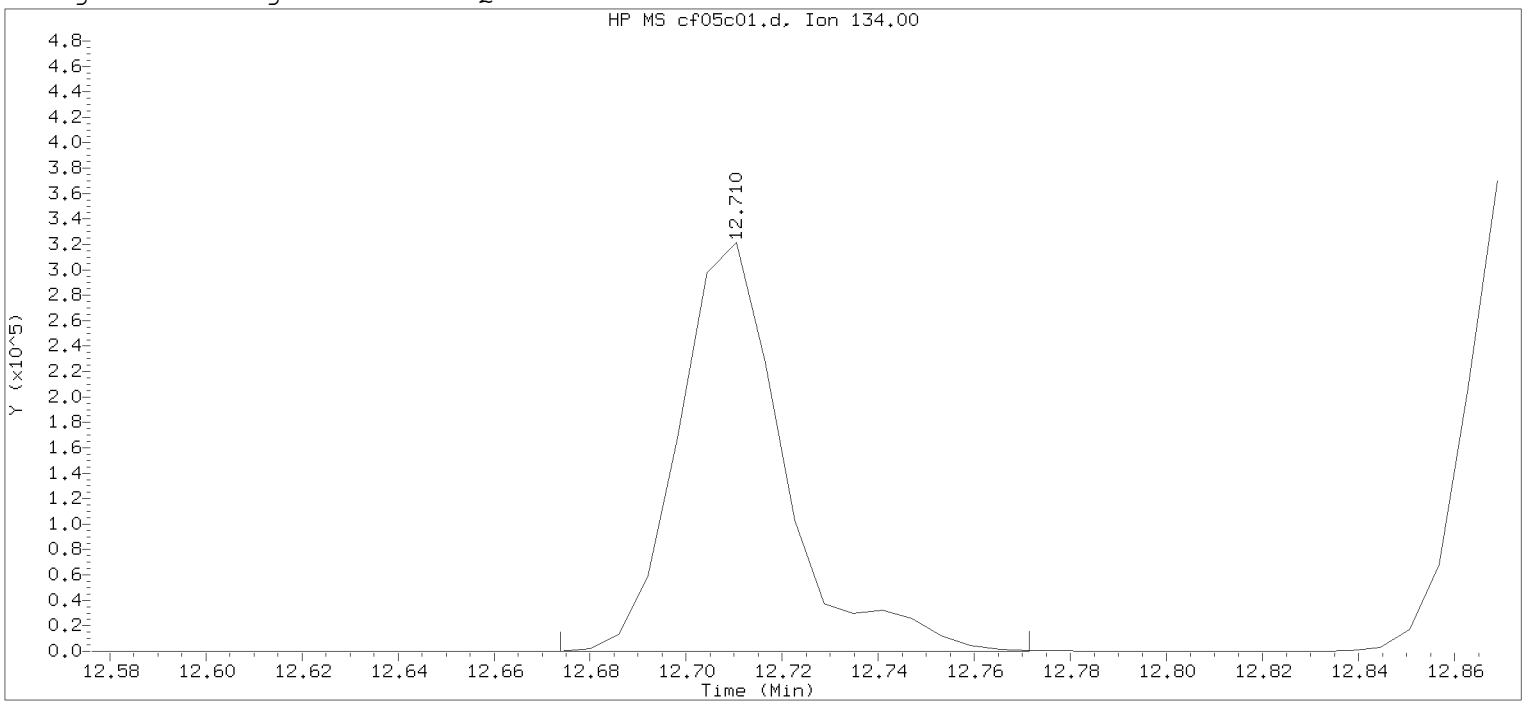
Analyst responsible for change: Digitally signed by Miranda E. Campbell
on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05c01.d  Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 19:46  Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:03 Automation

Sample Name: VSTD010  Lab Sample ID: VSTD010

Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1826
Retention Time (minutes): 12.710
Quant Ion : 134.00
Area : 488561
On-column Amount (ng) : 9.8986
Integration start scan : 1819  Integration stop scan: 1835
Y at integration start : 0  Y at integration end: 0

Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

# Raw QC Data

# Volatiles by GC/MS

# Lancaster Laboratories
## Analysis Summary for GC/MS Volatiles

VBLKC92

Data file: /chem2/HP10193.i/20feb05a.b/cf05b01.d
Data file Sample Info. Line: VBLKC92;VBLKC92;1;3;;;;;;
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Injection date and time: **05-FEB-2020 20:53**
Instrument ID: **HP10193.i** Batch: **C200361AA**

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **8260W25**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

**Analysis Comments:**

| Internal Standards | RT | (+/-RT) | Scan | QIon | Area | (+/- %Change) | Conc. (on-column) | QC Flag |
|---|---|---|---|---|---|---|---|---|
| 28) t-Butyl Alcohol-d10 | 4.133 | ( 0.018) | 419 | 65 | 169953 | ( 0) | 50.00 | |
| 65) Fluorobenzene | 7.614 | ( 0.006) | 990 | 96 | 1746532 | ( -2) | 10.00 | |
| 99) Chlorobenzene-d5 | 11.132 | ( 0.000) | 1567 | 117 | 1307000 | ( -3) | 10.00 | |
| 135) 1,4-Dichlorobenzene-d4 | 13.028 | ( 0.000) | 1878 | 152 | 743344 | ( -7) | 10.00 | |

| Surrogate Standards | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | %Rec. | QC flags | QC Limits |
|---|---|---|---|---|---|---|---|---|---|
| 52) Dibromofluoromethane | (2) | 6.724 | (-0.001) | 113 | 420631 | 10.269 | 103% | | 80 - 120 |
| 59) 1,2-Dichloroethane-d4 | (2) | 7.181 | (-0.001) | 102 | 91364 | 10.177 | 102% | | 80 - 120 |
| 84) Toluene-d8 | (3) | 9.650 | ( 0.000) | 98 | 1738317 | 9.980 | 100% | | 80 - 120 |
| 113) 4-Bromofluorobenzene | (3) | 12.137 | ( 0.000) | 95 | 643698 | 9.836 | 98% | | 80 - 120 |

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit | LOQ (in sample) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 2) Chloromethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 5) Vinyl Chloride | (2) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 6) 1,3-Butadiene | (2) | | | | Not Detected | | | | | 0.2 | 1 |
| 7) Bromomethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 8) Chloroethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 9) Dichlorofluoromethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 10) Trichlorofluoromethane | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 12) Ethyl ether | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 13) Freon 123a | (2) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 14) Acrolein | (1) | | | | Not Detected | | | | | 3 | 25 |
| 16) 1,1-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 17) Freon 113 | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 15) Acetone | (1) | | | | Not Detected | | | | | 1 | 5 |
| 18) Methyl Iodide | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 19) Bromoethane | (2) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 20) Carbon Disulfide | (2) | | | | Not Detected | | | | | 0.09 | 1 |
| 24) Allyl Chloride | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 23) Methyl Acetate | (2) | | | | Not Detected | | | | | 0.1 | 1 |
| 25) Methylene Chloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 30) t-Butyl Alcohol | (1) | | | | Not Detected | | | | | 2 | 10 |
| 31) Acrylonitrile | (1) | | | | Not Detected | | | | | 0.3 | 5 |
| 33) trans-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 32) Methyl Tertiary Butyl Ether | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 34) n-Hexane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 35) 1,1-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 36) di-Isopropyl Ether | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 37) 2-Chloro-1,3-Butadiene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 39) Ethyl t-butyl ether | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 41) cis-1,2-Dichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 42) 1,2-Dichloroethene (Total) | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |

Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12. Target 3.5 esignature user ID: mec29284

# Analysis Summary for GC/MS Volatiles

Data file: /chem2/HP10193.i/20feb05a.b/cf05b01.d Injection date and time: **05-FEB-2020 20:53**
Data file Sample Info. Line: VBLKC92;VBLKC92;1;3;;;;;; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **8260W25**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 43) 2,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 40) 2-Butanone | (1) | | | | Not Detected | | | | | 0.7 | 5 |
| 44) Propionitrile | (1) | | | | Not Detected | | | | | 2 | 10 |
| 47) Methacrylonitrile | (1) | | | | Not Detected | | | | | 0.6 | 5 |
| 49) Bromochloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 50) Tetrahydrofuran | (1) | | | | Not Detected | | | | | 0.6 | 5 |
| 51) Chloroform | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 53) 1,1,1-Trichloroethane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 54) Cyclohexane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 57) 1,1-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 56) Carbon Tetrachloride | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 58) Isobutyl Alcohol | (1) | | | | Not Detected | | | | | 5 | 25 |
| 60) Benzene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 61) 1,2-Dichloroethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 62) t-Amyl methyl ether | (2) | | | | Not Detected | | | | | 0.3 | 1 |
| 64) n-Heptane | (2) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 67) n-Butanol | (1) | | | | Not Detected | | | | | 34 | 50 |
| 69) Trichloroethene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 71) Methylcyclohexane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 72) 1,2-Dichloropropane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 73) Methyl Methacrylate | (1) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 75) Dibromomethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 74) 1,4-Dioxane | (1) | | | | Not Detected | | | | | 9 | 100 |
| 76) Bromodichloromethane | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 78) 2-Nitropropane | (1) | | | | Not Detected | | | | | 1 | 5 |
| 81) 1-Bromo-2-chloroethane | (2) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 82) cis-1,3-Dichloropropene | (2) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 83) 4-Methyl-2-Pentanone | (2) | | | | Not Detected | | | | | 0.6 | 5 |
| 85) Toluene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 86) trans-1,3-Dichloropropene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 87) 1,3-Dichloropropene (total) | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 88) Ethyl Methacrylate | (3) | | | | Not Detected | | | | | 0.3 | 1 |
| 90) 1,1,2-Trichloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 91) Tetrachloroethene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 92) 1,3-Dichloropropane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 93) 2-Hexanone | (3) | | | | Not Detected | | | | | 0.7 | 5 |
| 95) Dibromochloromethane | (3) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 97) 1,2-Dibromoethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 98) 1-Chlorohexane | (3) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 100) Chlorobenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 102) Ethylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 103) m+p-Xylene | (3) | | | | Not Detected | | | | | 0.08 | 0.5 |
| 106) o-Xylene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 107) Xylene (Total) | (3) | | | | Not Detected | | | | | 0.1 | 1 |
| 108) Styrene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 109) Bromoform | (3) | | | | Not Detected | | | | | 0.3 | 1 |
| 110) Isopropylbenzene | (3) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 116) Bromobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 117) trans-1,4-Dichloro-2-butene | (1) | | | | Not Detected | | | | | 0.8 | 5 |
| 118) 1,2,3-Trichloropropane | (4) | | | | Not Detected | | | | | 0.06 | 1 |
| 119) n-Propylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 121) 2-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |

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Analysis Summary for GC/MS Volatiles

Data file: /chem2/HP10193.i/20feb05a.b/cf05b01.d Injection date and time: **05-FEB-2020 20:53**
Data file Sample Info. Line: VBLKC92;VBLKC92;1;3;;;;;; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **8260W25**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

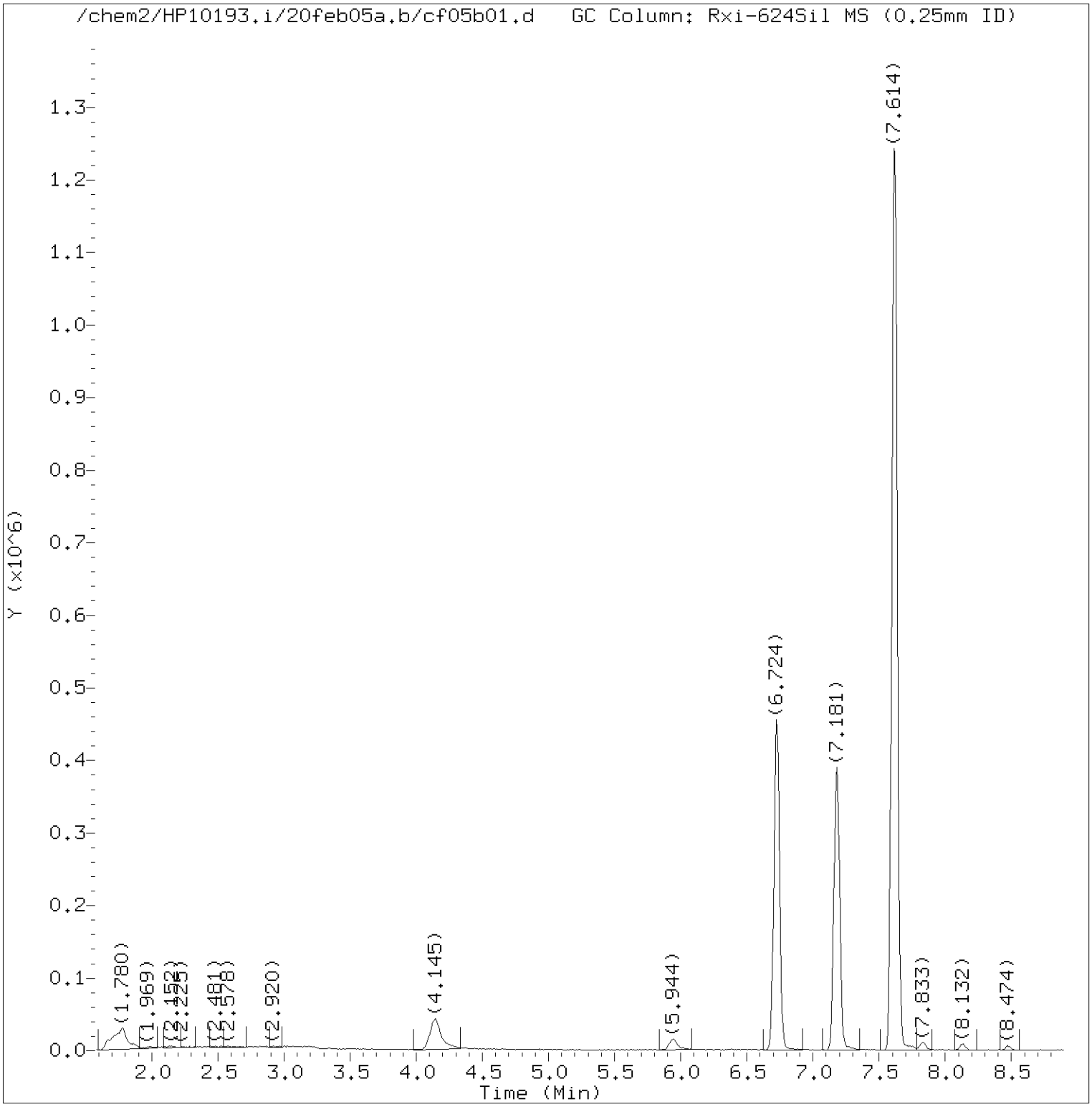
Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 123) 1,3,5-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 124) 4-Chlorotoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 127) tert-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 128) Pentachloroethane | (4) | | | | Not Detected | | | | | 0.3 | 1 |
| 129) 1,2,4-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 130) sec-Butylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 133) 1,3-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 134) p-Isopropyltoluene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 136) 1,4-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.06 | 0.5 |
| 137) 1,2,3-Trimethylbenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 138) Benzyl Chloride | (4) | | | | Not Detected | | | | | 0.2 | 0.5 |
| 140) n-Butylbenzene | (4) | | | | Not Detected | | | | | 0.07 | 0.5 |
| 141) 1,2-Dichlorobenzene | (4) | | | | Not Detected | | | | | 0.05 | 0.5 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | | | | Not Detected | | | | | 0.2 | 0.5 |
| 146) 1,3,5-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 147) 1,2,4-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 148) Hexachlorobutadiene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |
| 149) Naphthalene | (4) | | | | Not Detected | | | | | 0.09 | 0.5 |
| 150) 1,2,3-Trichlorobenzene | (4) | | | | Not Detected | | | | | 0.1 | 0.5 |

Total number of targets = 104

Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12. Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23. PARALLAX ID: kek01027




Total Ion Chromatogram (TIC)

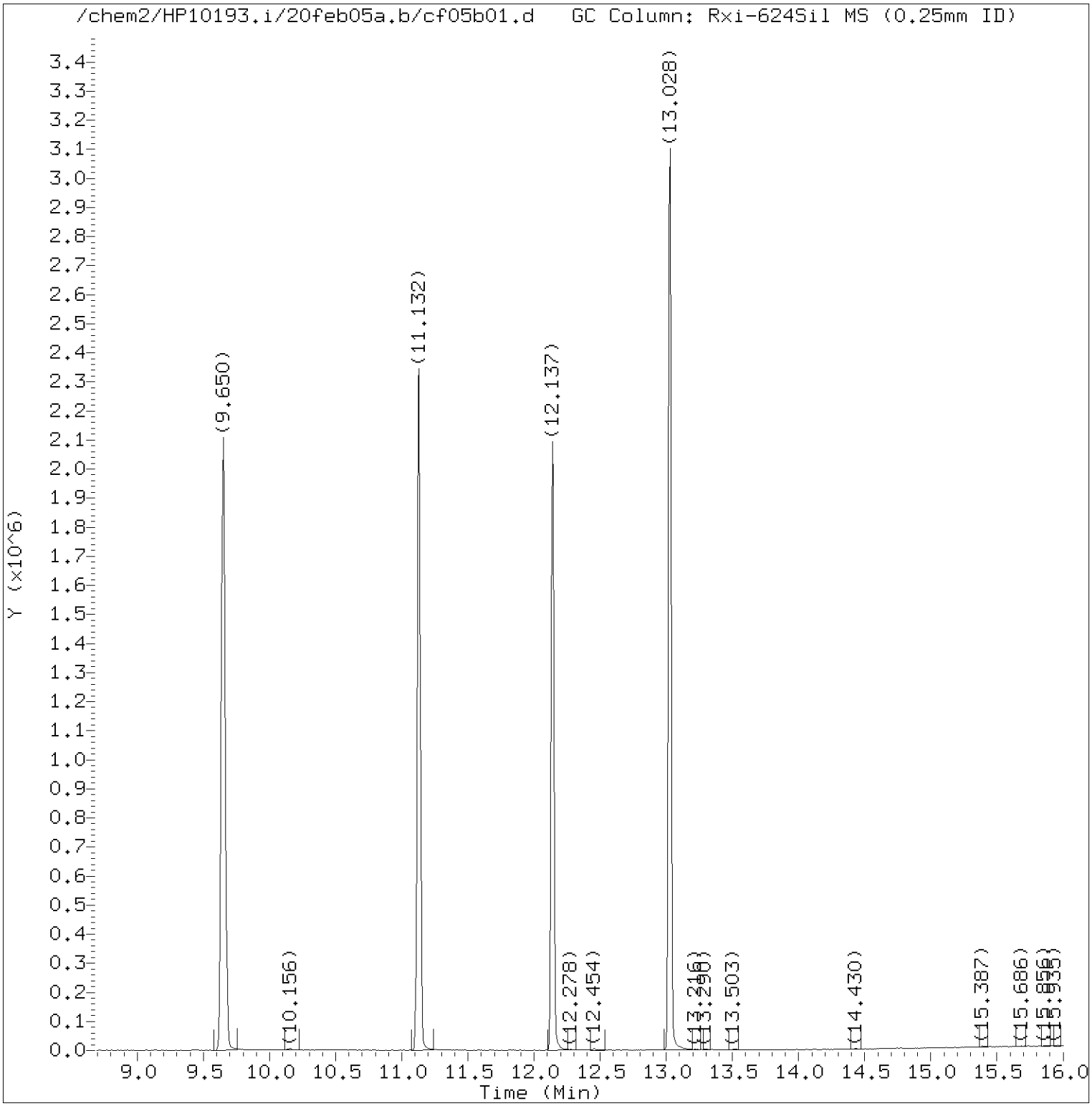
Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05b01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:53 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Sample Name: VBLKC92 Lab Sample ID: VBLKC92

Digitally signed by Miranda E. Campbell
on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05b01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:53 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Sample Name: VBLKC92 Lab Sample ID: VBLKC92

Digitally signed by Miranda E. Campbell
on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05b01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:53 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Sample Name: VBLKC92 Lab Sample ID: VBLKC92

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 28)*t-Butyl Alcohol-d10 | (1) | 4.133 | 65 | 169953 | 50.000 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 113 | 420631 | 10.269 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 102 | 91364 | 10.177 |
| 65)*Fluorobenzene | (2) | 7.614 | 96 | 1746532 | 10.000 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1738317 | 9.980 |
| 99)*Chlorobenzene-d5 | (3) | 11.132 | 117 | 1307000 | 10.000 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 643698 | 9.836 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.028 | 152 | 743344 | 10.000 |

* = Compound is an internal standard.
$ = Compound is a surrogate standard.



Digitally signed by Miranda E. Campbell
on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

PO48DMS

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1251389MS

Data file: /chem2/HP10193.i/20feb05a.b/cf05s10.d Injection date and time: **06-FEB-2020 00:28**
Data file Sample Info. Line: PO48DMS;1251389MS;1;3;MS;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

**Analysis Comments:**

| Internal Standards | RT | (+/-RT) | Scan | QIon | Area | (+/- %Change) | Conc. (on-column) | QC Flag |
|---|---|---|---|---|---|---|---|---|
| 28) t-Butyl Alcohol-d10 | 4.127 | ( 0.024) | 418 | 65 | 167805 | ( -2) | 50.00 | |
| 65) Fluorobenzene | 7.620 | ( 0.000) | 991 | 96 | 1729090 | ( -3) | 10.00 | |
| 99) Chlorobenzene-d5 | 11.131 | ( 0.000) | 1567 | 117 | 1294234 | ( -4) | 10.00 | |
| 135) 1,4-Dichlorobenzene-d4 | 13.027 | ( 0.000) | 1878 | 152 | 745789 | ( -6) | 10.00 | |

| Surrogate Standards | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | %Rec. | QC flags | QC Limits |
|---|---|---|---|---|---|---|---|---|---|
| 52) Dibromofluoromethane | (2) | 6.724 | ( 0.000) | 113 | 416437 | 10.269 | 103% | | 80 - 120 |
| 59) 1,2-Dichloroethane-d4 | (2) | 7.181 | ( 0.000) | 102 | 89491 | 10.069 | 101% | | 80 - 120 |
| 84) Toluene-d8 | (3) | 9.650 | ( 0.000) | 98 | 1728138 | 10.020 | 100% | | 80 - 120 |
| 113) 4-Bromofluorobenzene | (3) | 12.137 | ( 0.000) | 95 | 639678 | 9.871 | 99% | | 80 - 120 |

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit | LOQ (in sample) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | 1.932 | ( 0.000) | 85 | 253079 | 4.214 | 4.21 | | | 0.1 | 0.5 |
| 2) Chloromethane | (2) | 2.121 | ( 0.000) | 50 | 308747 | 4.716 | 4.72 | | | 0.09 | 0.5 |
| 5) Vinyl Chloride | (2) | 2.237 | ( 0.000) | 62 | 320390 | 5.216 | 5.22 | | | 0.08 | 0.5 |
| 7) Bromomethane | (2) | 2.542 | ( 0.000) | 94 | 200306 | 4.859 | 4.86 | | | 0.1 | 0.5 |
| 8) Chloroethane | (2) | 2.627 | (-0.000) | 64 | 184056 | 5.052 | 5.05 | | | 0.09 | 0.5 |
| 10) Trichlorofluoromethane | (2) | 2.920 | ( 0.000) | 101 | 375338 | 6.180 | 6.18 | | | 0.1 | 0.5 |
| 16) 1,1-Dichloroethene | (2) | 3.462 | ( 0.000) | 96 | 210182 | 5.188 | 5.19 | | | 0.05 | 0.5 |
| 15) Acetone | (1) | 3.505 | (-0.006) | 43 | 313711 | 34.735 | 34.74 | | | 1 | 5 |
| 20) Carbon Disulfide | (2) | 3.761 | (-0.000) | 76 | 733574 | 5.047 | 5.05 | | | 0.09 | 1 |
| 25) Methylene Chloride | (2) | 4.108 | ( 0.000) | 84 | 233923 | 5.084 | 5.08 | | | 0.06 | 0.5 |
| 30) t-Butyl Alcohol | (1) | 4.267 | (-0.006) | 59 | 184128M | 53.594 | 53.59 | | | 2 | 10 |
| 33) trans-1,2-Dichloroethene | (2) | 4.511 | ( 0.000) | 96 | 233598 | 5.099 | 5.10 | | | 0.05 | 0.5 |
| 32) Methyl Tertiary Butyl Ether | (2) | 4.505 | (-0.000) | 73 | 574698 | 4.740 | 4.74 | | | 0.05 | 0.5 |
| 35) 1,1-Dichloroethane | (2) | 5.181 | (-0.000) | 63 | 434832 | 5.181 | 5.18 | | | 0.05 | 0.5 |
| 41) cis-1,2-Dichloroethene | (2) | 6.023 | (-0.000) | 96 | 273263 | 5.300 | 5.30 | | | 0.05 | 0.5 |
| 43) 2,2-Dichloropropane | (2) | 6.029 | ( 0.000) | 77 | 355738 | 5.086 | 5.09 | | | 0.06 | 0.5 |
| 40) 2-Butanone | (1) | 5.998 | (-0.010) | 43 | 551279 | 34.785 | 34.78 | | | 0.7 | 5 |
| 49) Bromochloromethane | (2) | 6.352 | (-0.000) | 128 | 108949 | 4.732 | 4.73 | | | 0.05 | 0.5 |
| 51) Chloroform | (2) | 6.504 | ( 0.000) | 83 | 407848 | 5.231 | 5.23 | | | 0.05 | 0.5 |
| 53) 1,1,1-Trichloroethane | (2) | 6.730 | (-0.000) | 97 | 360027M | 5.199 | 5.20 | | | 0.06 | 0.5 |
| 57) 1,1-Dichloropropene | (2) | 6.937 | ( 0.000) | 75 | 344387 | 5.301 | 5.30 | | | 0.05 | 0.5 |
| 56) Carbon Tetrachloride | (2) | 6.937 | (-0.000) | 117 | 316476 | 5.454 | 5.45 | | | 0.06 | 0.5 |
| 60) Benzene | (2) | 7.205 | ( 0.000) | 78 | 987113 | 5.146 | 5.15 | | | 0.05 | 0.5 |
| 61) 1,2-Dichloroethane | (2) | 7.285 | ( 0.000) | 62 | 271153M | 5.011 | 5.01 | | | 0.05 | 0.5 |
| 69) Trichloroethene | (2) | 8.089 | ( 0.000) | 95 | 253810 | 5.294 | 5.29 | | | 0.05 | 0.5 |
| 72) 1,2-Dichloropropane | (2) | 8.431 | (-0.000) | 63 | 256901 | 5.208 | 5.21 | | | 0.05 | 0.5 |
| 75) Dibromomethane | (2) | 8.540 | ( 0.000) | 93 | 117982 | 5.105 | 5.11 | | | 0.05 | 0.5 |
| 76) Bromodichloromethane | (2) | 8.784 | (-0.000) | 83 | 292955 | 4.957 | 4.96 | | | 0.05 | 0.5 |
| 82) cis-1,3-Dichloropropene | (2) | 9.339 | (-0.000) | 75 | 349307 | 4.585 | 4.58 | | | 0.05 | 0.5 |
| 83) 4-Methyl-2-Pentanone | (2) | 9.528 | (-0.000) | 43 | 912401 | 24.946 | 24.95 | | | 0.6 | 5 |
| 85) Toluene | (3) | 9.729 | ( 0.000) | 92 | 621604 | 5.044 | 5.04 | | | 0.05 | 0.5 |

**M = Compound was manually integrated.**

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:07. Target 3.5 esignature user ID: jkh09052

PO48DMS

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1251389MS

Data file: /chem2/HP10193.i/20feb05a.b/cf05s10.d Injection date and time: **06-FEB-2020 00:28**
Data file Sample Info. Line: PO48DMS;1251389MS;1;3;MS;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

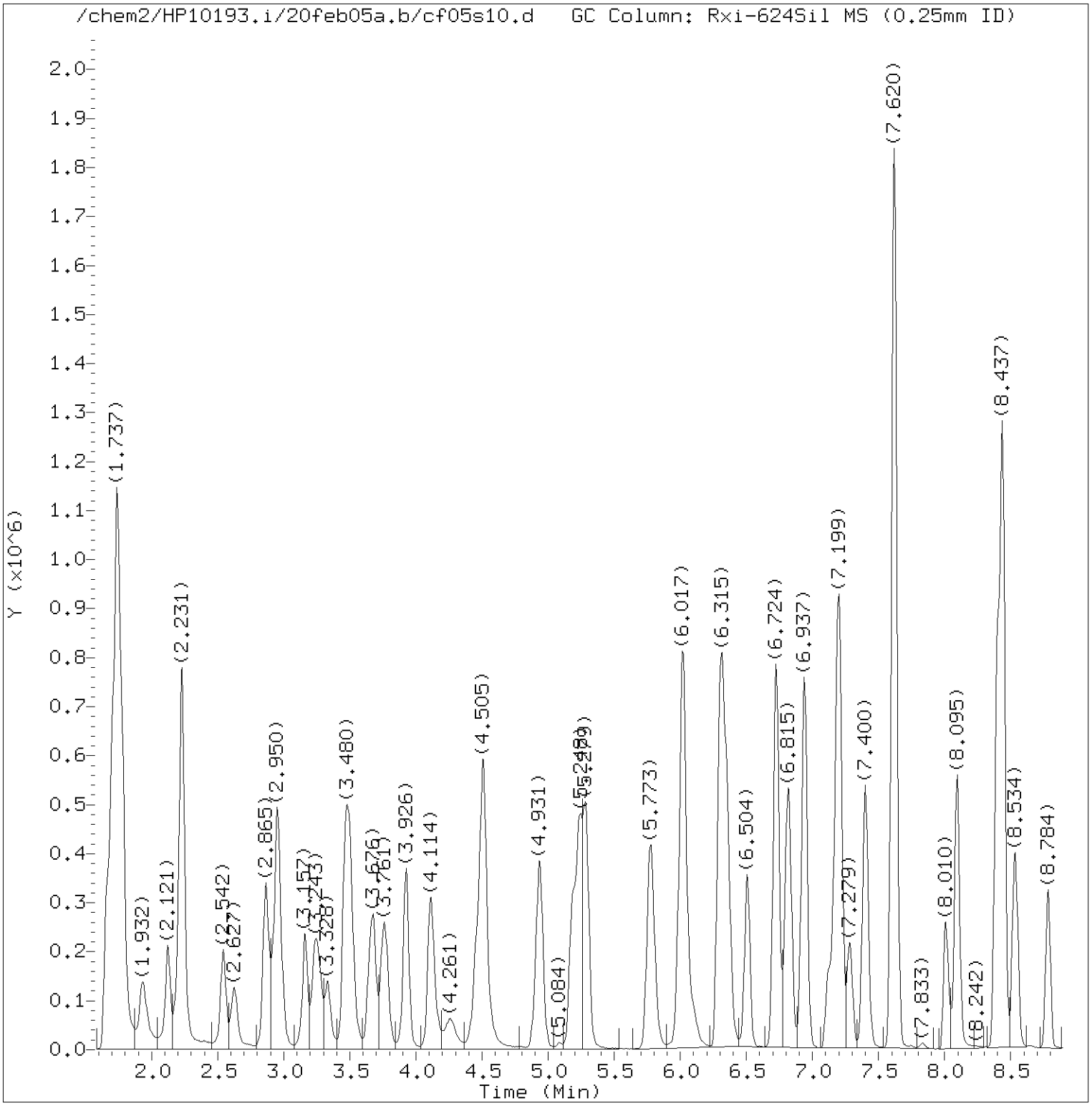
| Target Compounds | I.S. Ref. | RT (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ |
|---|---|---|---|---|---|---|---|---|---|---|
| 86) trans-1,3-Dichloropropene | (3) | 9.991( 0.000) | 75 | 286600 | 4.301 | 4.30 | | | 0.05 | 0.5 |
| 90) 1,1,2-Trichloroethane | (3) | 10.205( 0.000) | 97 | 175341 | 4.977 | 4.98 | | | 0.05 | 0.5 |
| 91) Tetrachloroethene | (3) | 10.278( 0.000) | 166 | 286120 | 5.401 | 5.40 | | | 0.05 | 0.5 |
| 92) 1,3-Dichloropropane | (3) | 10.363( 0.000) | 76 | 297451 | 4.779 | 4.78 | | | 0.05 | 0.5 |
| 95) Dibromochloromethane | (3) | 10.583(-0.000) | 129 | 202050 | 4.737 | 4.74 | | | 0.06 | 0.5 |
| 97) 1,2-Dibromoethane | (3) | 10.692(-0.000) | 107 | 165222 | 4.842 | 4.84 | | | 0.05 | 0.5 |
| 100) Chlorobenzene | (3) | 11.156(-0.000) | 112 | 698548 | 5.035 | 5.03 | | | 0.05 | 0.5 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | 11.241(-0.000) | 131 | 233641 | 4.890 | 4.89 | | | 0.05 | 0.5 |
| 102) Ethylbenzene | (3) | 11.241(-0.000) | 91 | 1212799 | 5.101 | 5.10 | | | 0.05 | 0.5 |
| 103) m+p-Xylene | (3) | 11.363(-0.000) | 106 | 960363 | 10.295 | 10.29 | | | 0.08 | 0.5 |
| 106) o-Xylene | (3) | 11.692(-0.000) | 106 | 457928 | 4.941 | 4.94 | | | 0.05 | 0.5 |
| 108) Styrene | (3) | 11.710(-0.000) | 104 | 775214 | 4.952 | 4.95 | | | 0.05 | 0.5 |
| 109) Bromoform | (3) | 11.863(-0.000) | 173 | 115424 | 4.394 | 4.39 | | | 0.3 | 1 |
| 110) Isopropylbenzene | (3) | 11.997(-0.000) | 105 | 1231319 | 5.161 | 5.16 | | | 0.05 | 0.5 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | 12.247( 0.000) | 83 | 222420M | 4.551 | 4.55 | | | 0.06 | 0.5 |
| 116) Bromobenzene | (4) | 12.253( 0.000) | 156 | 304790 | 4.906 | 4.91 | | | 0.05 | 0.5 |
| 118) 1,2,3-Trichloropropane | (4) | 12.290( 0.000) | 110 | 60825 | 4.686 | 4.69 | | | 0.06 | 1 |
| 119) n-Propylbenzene | (4) | 12.326( 0.000) | 91 | 1487736 | 5.067 | 5.07 | | | 0.05 | 0.5 |
| 121) 2-Chlorotoluene | (4) | 12.399( 0.000) | 126 | 294906 | 4.818 | 4.82 | | | 0.05 | 0.5 |
| 123) 1,3,5-Trimethylbenzene | (4) | 12.466( 0.000) | 105 | 1050910 | 4.853 | 4.85 | | | 0.05 | 0.5 |
| 124) 4-Chlorotoluene | (4) | 12.497( 0.000) | 126 | 306836 | 4.807 | 4.81 | | | 0.05 | 0.5 |
| 127) tert-Butylbenzene | (4) | 12.710(-0.000) | 134 | 230188M | 4.987 | 4.99 | | | 0.05 | 0.5 |
| 129) 1,2,4-Trimethylbenzene | (4) | 12.747( 0.000) | 105 | 1085014 | 4.753 | 4.75 | | | 0.05 | 0.5 |
| 130) sec-Butylbenzene | (4) | 12.869( 0.000) | 105 | 1398976 | 5.036 | 5.04 | | | 0.05 | 0.5 |
| 133) 1,3-Dichlorobenzene | (4) | 12.972( 0.000) | 146 | 605519 | 4.920 | 4.92 | | | 0.05 | 0.5 |
| 134) p-Isopropyltoluene | (4) | 12.979( 0.000) | 119 | 1205428 | 4.959 | 4.96 | | | 0.05 | 0.5 |
| 136) 1,4-Dichlorobenzene | (4) | 13.046(-0.000) | 146 | 620670 | 4.914 | 4.91 | | | 0.06 | 0.5 |
| 140) n-Butylbenzene | (4) | 13.271( 0.000) | 92 | 614996 | 5.038 | 5.04 | | | 0.07 | 0.5 |
| 141) 1,2-Dichlorobenzene | (4) | 13.308(-0.000) | 146 | 568170 | 4.915 | 4.92 | | | 0.05 | 0.5 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | 13.856(-0.019) | 155 | 34007 | 4.451 | 4.45 | | | 0.2 | 0.5 |
| 147) 1,2,4-Trichlorobenzene | (4) | 14.405(-0.000) | 180 | 432440 | 4.685 | 4.69 | | | 0.09 | 0.5 |
| 148) Hexachlorobutadiene | (4) | 14.490(-0.000) | 225 | 229349 | 5.175 | 5.18 | | | 0.1 | 0.5 |
| 149) Naphthalene | (4) | 14.588(-0.000) | 128 | 743028 | 4.355 | 4.35 | | | 0.09 | 0.5 |
| 150) 1,2,3-Trichlorobenzene | (4) | 14.734(-0.000) | 180 | 363886 | 4.500 | 4.50 | | | 0.1 | 0.5 |

**M = Compound was manually integrated.**

Total number of targets = 65

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:07. Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23. PARALLAX ID: kek01027




Total Ion Chromatogram (TIC)

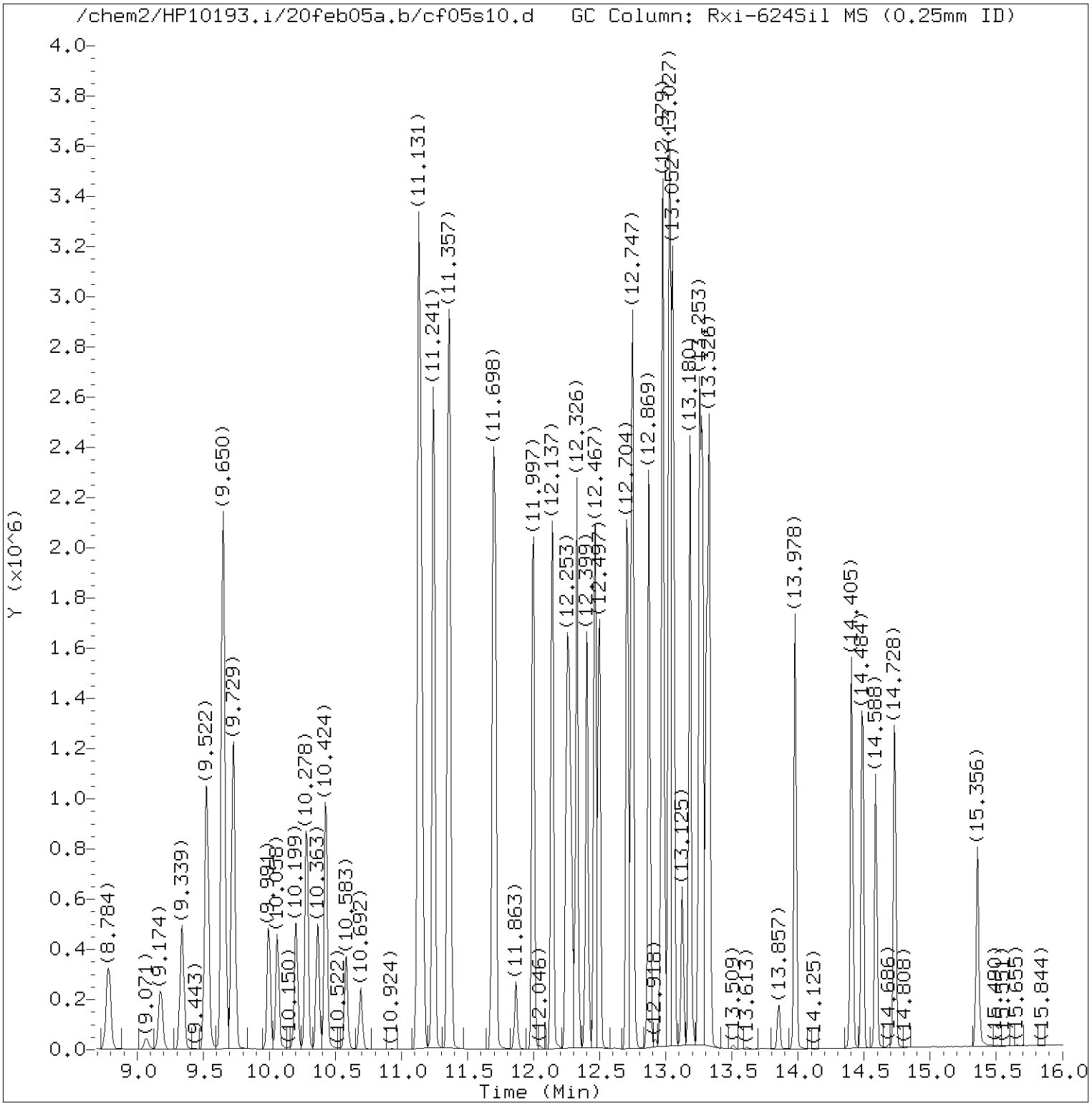
Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s10.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:28 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Sample Name: PO48DMS Lab Sample ID: 1251389MS

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:07.
Target 3.5 esignature user ID: jkh09052




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s10.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:28 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Sample Name: PO48DMS Lab Sample ID: 1251389MS

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:07.
Target 3.5 esignature user ID: jkh09052

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s10.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:28 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Sample Name: PO48DMS Lab Sample ID: 1251389MS

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | 1.932 | 85 | 253079 | 4.214 |
| 2) Chloromethane | (2) | 2.121 | 50 | 308747 | 4.716 |
| 5) Vinyl Chloride | (2) | 2.237 | 62 | 320390 | 5.216 |
| 7) Bromomethane | (2) | 2.542 | 94 | 200306 | 4.859 |
| 8) Chloroethane | (2) | 2.627 | 64 | 184056 | 5.052 |
| 10) Trichlorofluoromethane | (2) | 2.920 | 101 | 375338 | 6.180 |
| 16) 1,1-Dichloroethene | (2) | 3.462 | 96 | 210182 | 5.188 |
| 15) Acetone | (1) | 3.505 | 43 | 313711 | 34.735 |
| 20) Carbon Disulfide | (2) | 3.761 | 76 | 733574 | 5.047 |
| 25) Methylene Chloride | (2) | 4.108 | 84 | 233923 | 5.084 |
| 28)*t-Butyl Alcohol-d10 | (1) | 4.127 | 65 | 167805 | 50.000 |
| 30) t-Butyl Alcohol | (1) | 4.267 | 59 | 184128M | 53.594 |
| 32) Methyl Tertiary Butyl Ether | (2) | 4.505 | 73 | 574698 | 4.740 |
| 33) trans-1,2-Dichloroethene | (2) | 4.511 | 96 | 233598 | 5.099 |
| 35) 1,1-Dichloroethane | (2) | 5.181 | 63 | 434832 | 5.181 |
| 40) 2-Butanone | (1) | 5.998 | 43 | 551279 | 34.785 |
| 41) cis-1,2-Dichloroethene | (2) | 6.023 | 96 | 273263 | 5.300 |
| 43) 2,2-Dichloropropane | (2) | 6.029 | 77 | 355738 | 5.086 |
| 49) Bromochloromethane | (2) | 6.352 | 128 | 108949 | 4.732 |
| 51) Chloroform | (2) | 6.504 | 83 | 407848 | 5.231 |
| 52)$Dibromofluoromethane | (2) | 6.724 | 113 | 416437 | 10.269 |
| 53) 1,1,1-Trichloroethane | (2) | 6.730 | 97 | 360027M | 5.199 |
| 56) Carbon Tetrachloride | (2) | 6.937 | 117 | 316476 | 5.454 |
| 57) 1,1-Dichloropropene | (2) | 6.937 | 75 | 344387 | 5.301 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 102 | 89491 | 10.069 |
| 60) Benzene | (2) | 7.205 | 78 | 987113 | 5.146 |
| 61) 1,2-Dichloroethane | (2) | 7.285 | 62 | 271153M | 5.011 |
| 65)*Fluorobenzene | (2) | 7.620 | 96 | 1729090 | 10.000 |
| 69) Trichloroethene | (2) | 8.089 | 95 | 253810 | 5.294 |
| 72) 1,2-Dichloropropane | (2) | 8.431 | 63 | 256901 | 5.208 |
| 75) Dibromomethane | (2) | 8.540 | 93 | 117982 | 5.105 |
| 76) Bromodichloromethane | (2) | 8.784 | 83 | 292955 | 4.957 |
| 82) cis-1,3-Dichloropropene | (2) | 9.339 | 75 | 349307 | 4.585 |
| 83) 4-Methyl-2-Pentanone | (2) | 9.528 | 43 | 912401 | 24.946 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1728138 | 10.020 |
| 85) Toluene | (3) | 9.729 | 92 | 621604 | 5.044 |
| 86) trans-1,3-Dichloropropene | (3) | 9.991 | 75 | 286600 | 4.301 |
| 90) 1,1,2-Trichloroethane | (3) | 10.205 | 97 | 175341 | 4.977 |

M = Compound was manually integrated.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.



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on 02/06/2020 at 09:07.
Target 3.5 esignature user ID: jkh09052

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s10.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:28 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Sample Name: PO48DMS Lab Sample ID: 1251389MS

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 91) Tetrachloroethene | (3) | 10.278 | 166 | 286120 | 5.401 |
| 92) 1,3-Dichloropropane | (3) | 10.363 | 76 | 297451 | 4.779 |
| 95) Dibromochloromethane | (3) | 10.583 | 129 | 202050 | 4.737 |
| 97) 1,2-Dibromoethane | (3) | 10.692 | 107 | 165222 | 4.842 |
| 99)*Chlorobenzene-d5 | (3) | 11.131 | 117 | 1294234 | 10.000 |
| 100) Chlorobenzene | (3) | 11.156 | 112 | 698548 | 5.035 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | 11.241 | 131 | 233641 | 4.890 |
| 102) Ethylbenzene | (3) | 11.241 | 91 | 1212799 | 5.101 |
| 103) m+p-Xylene | (3) | 11.363 | 106 | 960363 | 10.295 |
| 106) o-Xylene | (3) | 11.692 | 106 | 457928 | 4.941 |
| 108) Styrene | (3) | 11.711 | 104 | 775214 | 4.952 |
| 109) Bromoform | (3) | 11.863 | 173 | 115424 | 4.394 |
| 110) Isopropylbenzene | (3) | 11.997 | 105 | 1231319 | 5.161 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 639678 | 9.871 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | 12.247 | 83 | 222420M | 4.551 |
| 116) Bromobenzene | (4) | 12.253 | 156 | 304790 | 4.906 |
| 118) 1,2,3-Trichloropropane | (4) | 12.290 | 110 | 60825 | 4.686 |
| 119) n-Propylbenzene | (4) | 12.326 | 91 | 1487736 | 5.067 |
| 121) 2-Chlorotoluene | (4) | 12.399 | 126 | 294906 | 4.818 |
| 123) 1,3,5-Trimethylbenzene | (4) | 12.467 | 105 | 1050910 | 4.853 |
| 124) 4-Chlorotoluene | (4) | 12.497 | 126 | 306836 | 4.807 |
| 127) tert-Butylbenzene | (4) | 12.710 | 134 | 230188M | 4.987 |
| 129) 1,2,4-Trimethylbenzene | (4) | 12.747 | 105 | 1085014 | 4.753 |
| 130) sec-Butylbenzene | (4) | 12.869 | 105 | 1398976 | 5.036 |
| 133) 1,3-Dichlorobenzene | (4) | 12.973 | 146 | 605519 | 4.920 |
| 134) p-Isopropyltoluene | (4) | 12.979 | 119 | 1205428 | 4.959 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.027 | 152 | 745789 | 10.000 |
| 136) 1,4-Dichlorobenzene | (4) | 13.046 | 146 | 620670 | 4.914 |
| 140) n-Butylbenzene | (4) | 13.271 | 92 | 614996 | 5.038 |
| 141) 1,2-Dichlorobenzene | (4) | 13.308 | 146 | 568170 | 4.915 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | 13.857 | 155 | 34007 | 4.451 |
| 147) 1,2,4-Trichlorobenzene | (4) | 14.405 | 180 | 432440 | 4.685 |
| 148) Hexachlorobutadiene | (4) | 14.491 | 225 | 229349 | 5.175 |
| 149) Naphthalene | (4) | 14.588 | 128 | 743028 | 4.355 |
| 150) 1,2,3-Trichlorobenzene | (4) | 14.734 | 180 | 363886 | 4.500 |

M = Compound was manually integrated.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.



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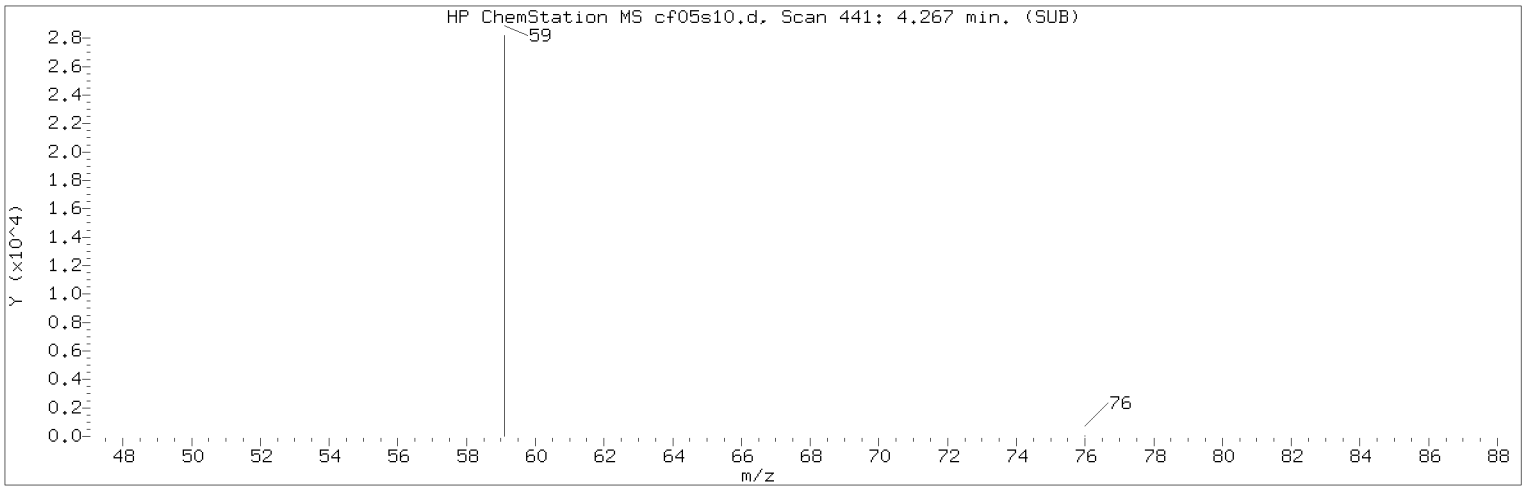
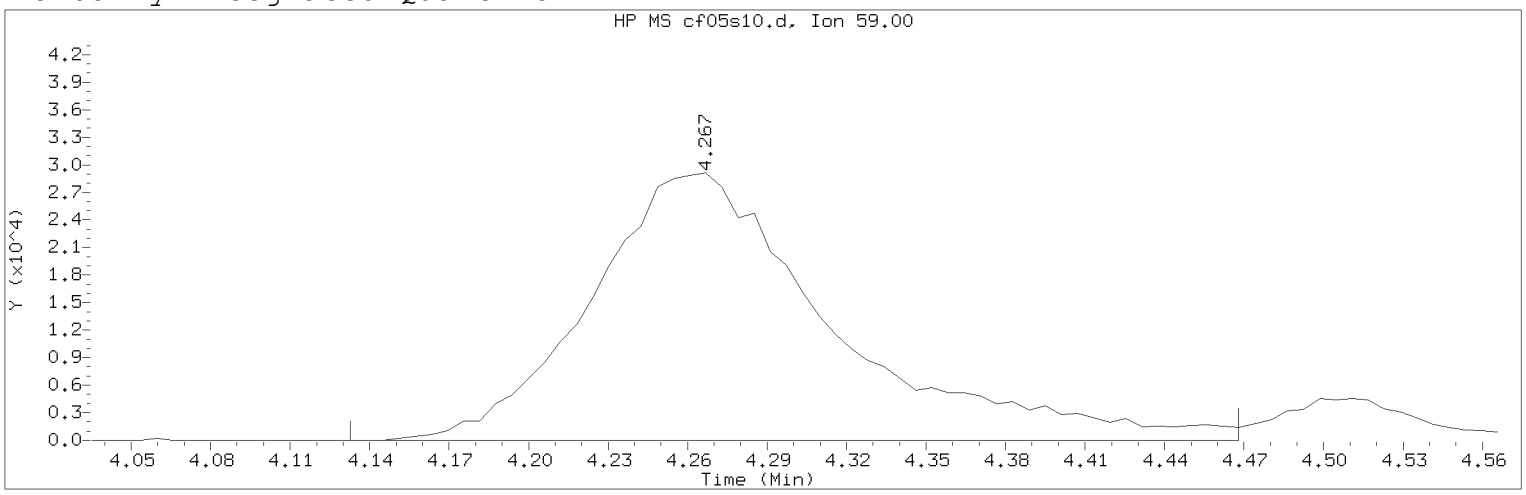
Target 3.5 esignature user ID: jkh09052

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05s10.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:28 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Sample Name: PO48DMS Lab Sample ID: 1251389MS

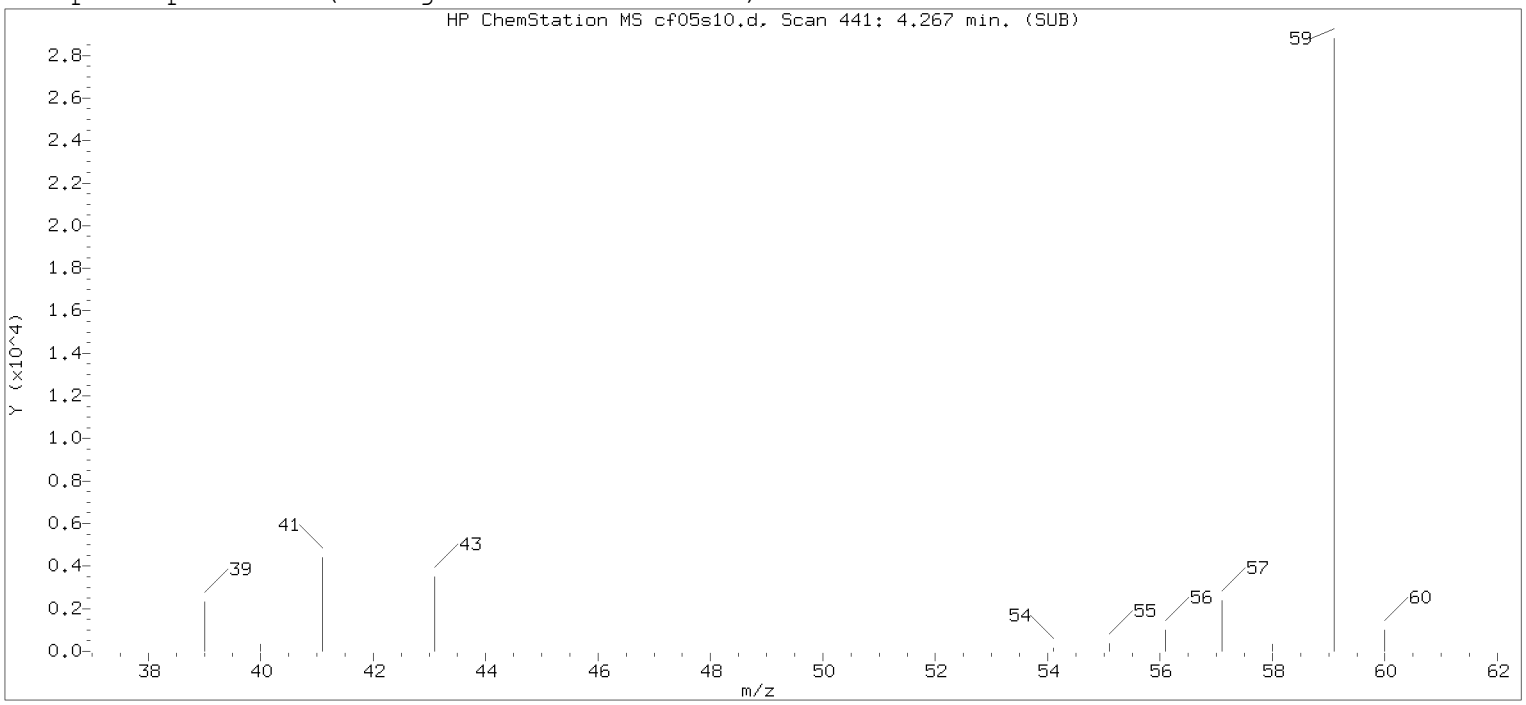
Compound Number : 30
Compound Name : t-Butyl Alcohol
Scan Number : 441
Retention Time (minutes): 4.267
Quant Ion : 59.00
Area (flag) : 184128M
On-Column Amount (ng) : 53.5941
Integration start scan : 418 Integration stop scan: 473
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

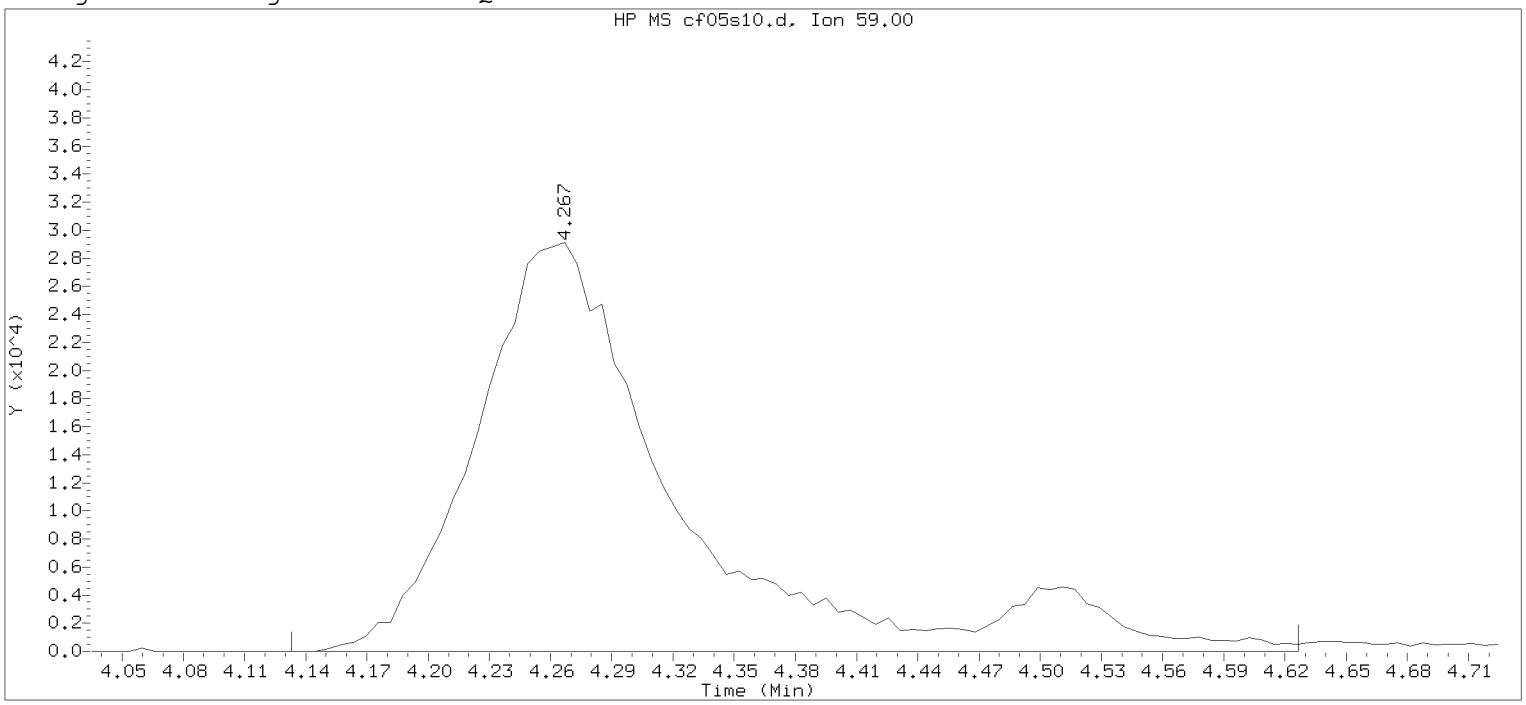
Analyst responsible for change: Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:07.
Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05s10.d  Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:28  Analyst ID: MEC29284

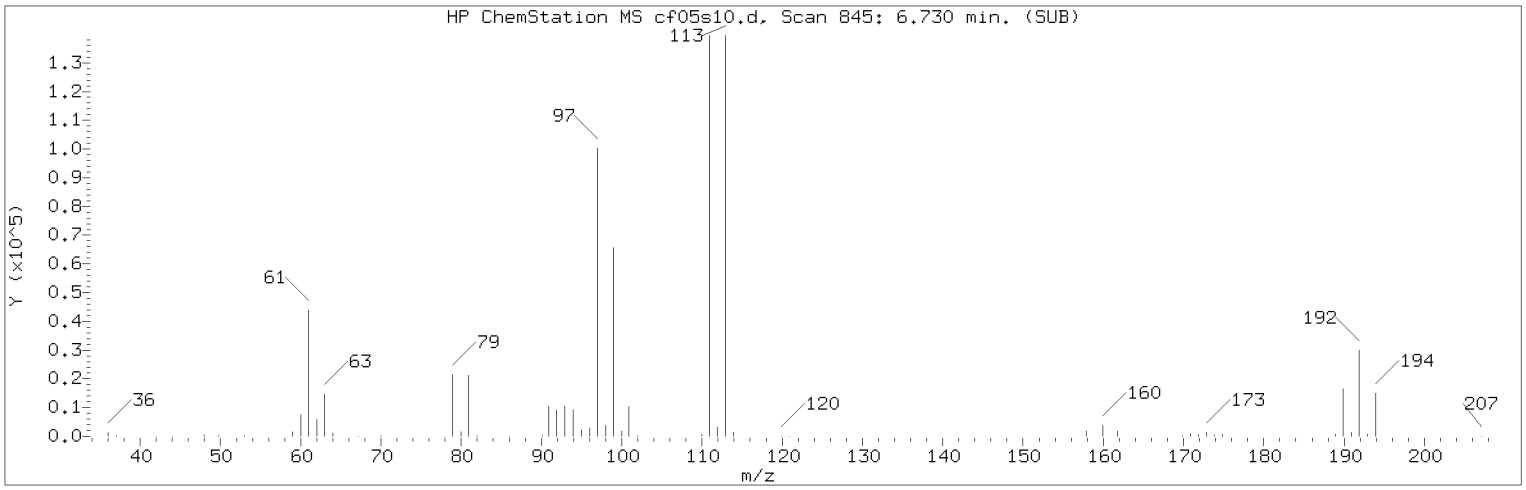
Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 00:45 Automation

Sample Name: PO48DMS  Lab Sample ID: 1251389MS

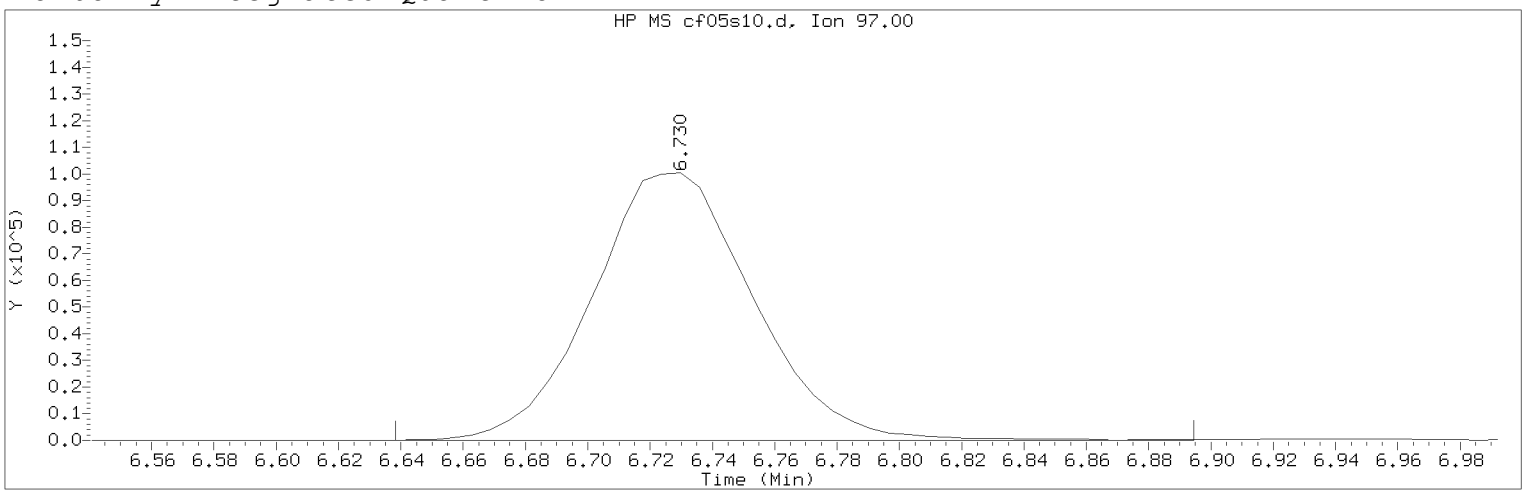
Compound Number : 30
Compound Name : t-Butyl Alcohol
Scan Number : 441
Retention Time (minutes): 4.267
Quant Ion : 59.00
Area : 202794
On-column Amount (ng) : 59.0271
Integration start scan : 418  Integration stop scan: 499
Y at integration start : 0  Y at integration end: 0

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:07.
Target 3.5 esignature user ID: jkh0920

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05s10.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:28 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Sample Name: PO48DMS Lab Sample ID: 1251389MS

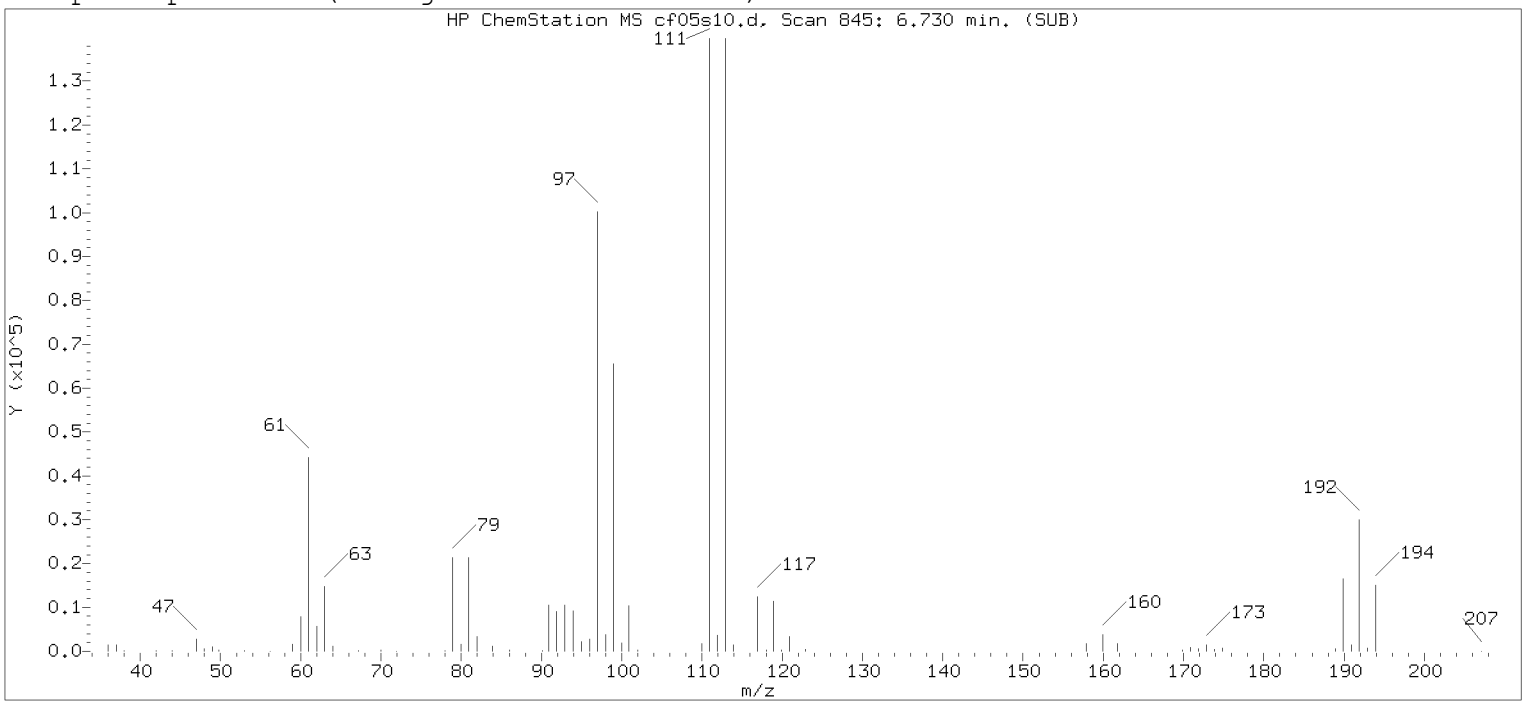
Compound Number : 53
Compound Name : 1,1,1-Trichloroethane
Scan Number : 845
Retention Time (minutes): 6.730
Quant Ion : 97.00
Area (flag) : 360027M
On-Column Amount (ng) : 5.1991
Integration start scan : 829 Integration stop scan: 871
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

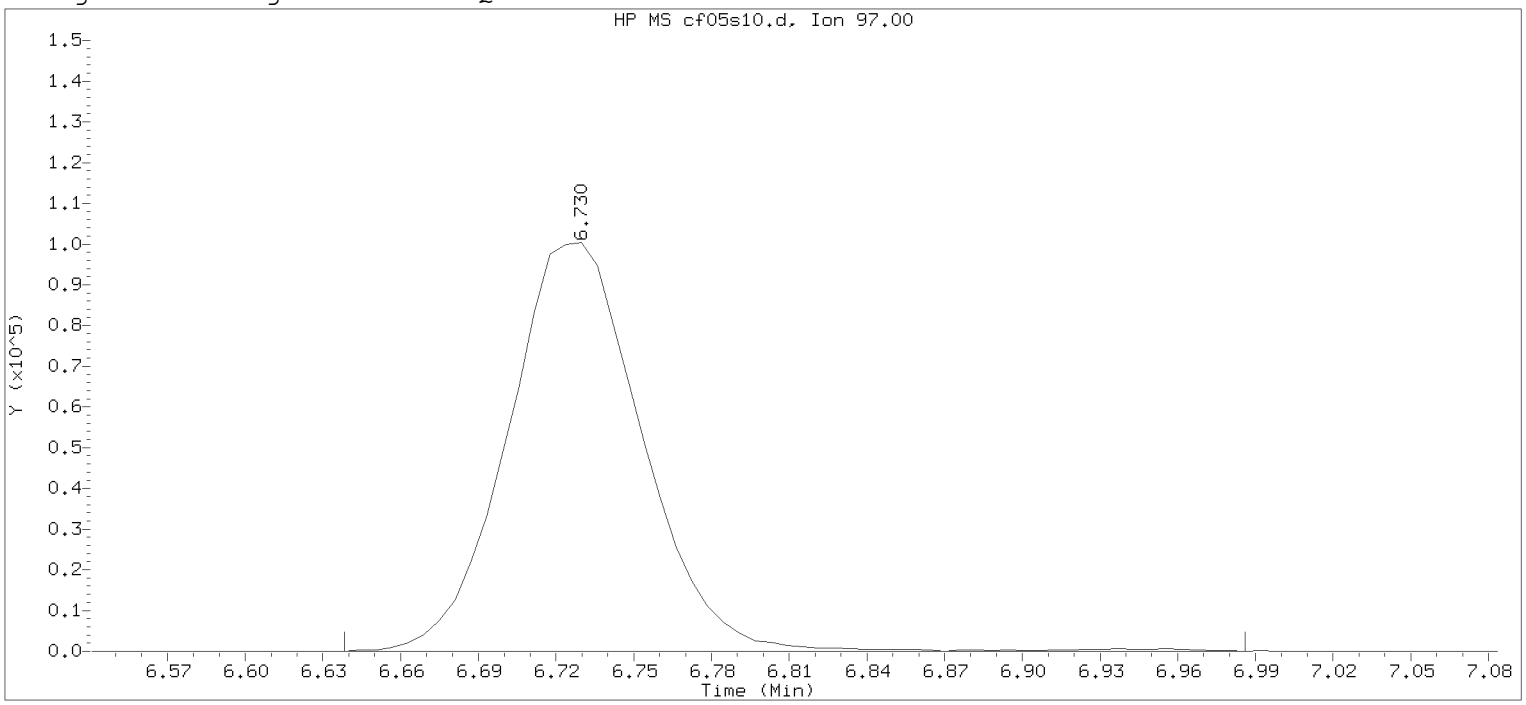
Analyst responsible for change: Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:07.
Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05s10.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:28 Analyst ID: MEC29284

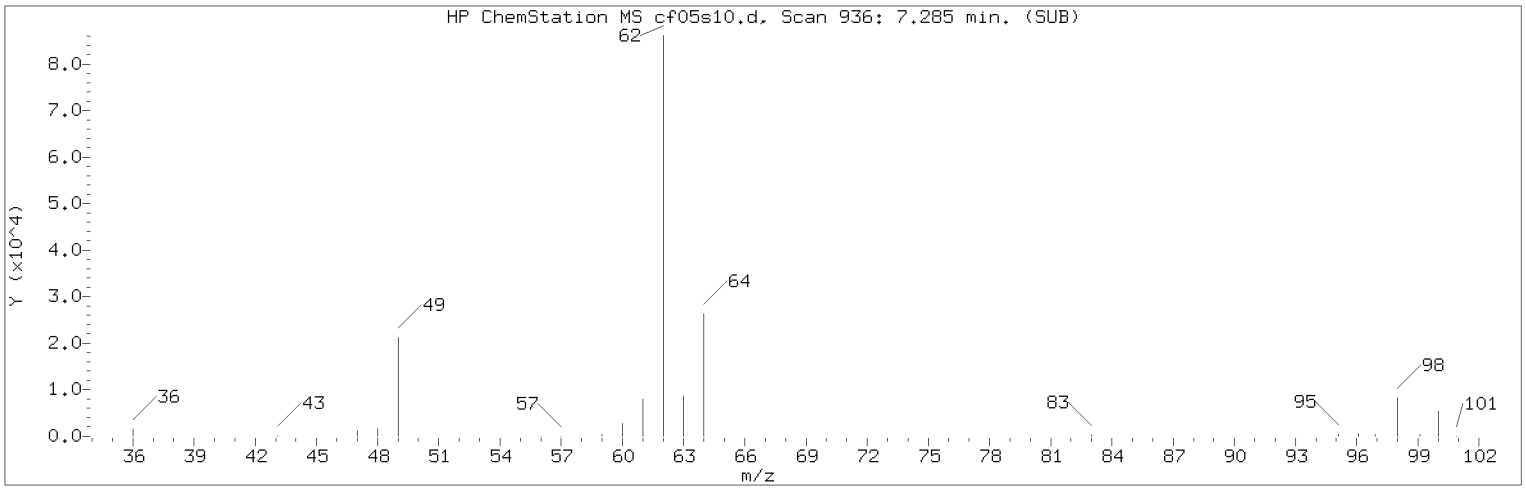
Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 00:45 Automation

Sample Name: PO48DMS Lab Sample ID: 1251389MS

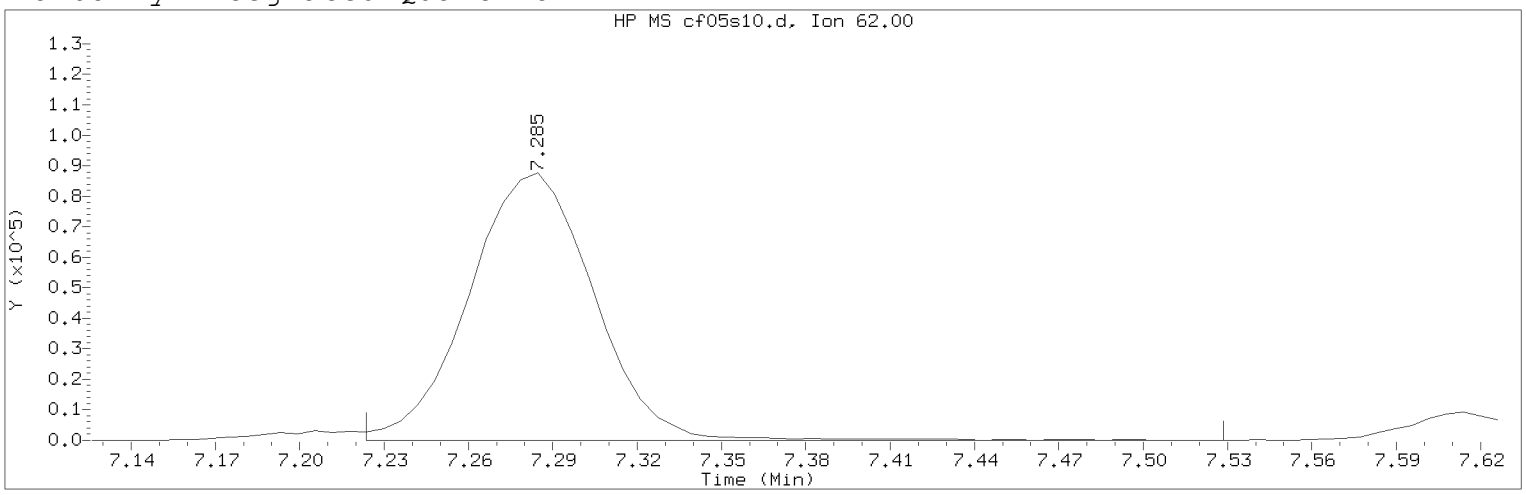
| | | | |
|---|---|---|---|
| Compound Number | : 53 | | |
| Compound Name | : 1,1,1-Trichloroethane | | |
| Scan Number | : 845 | | |
| Retention Time (minutes) | : 6.730 | | |
| Quant Ion | : 97.00 | | |
| Area | : 361942 | | |
| On-column Amount (ng) | : 5.2267 | | |
| Integration start scan | : 829 | Integration stop scan: | 886 |
| Y at integration start | : 0 | Y at integration end: | 0 |

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:07.
Target 3.5 esignature used.

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05s10.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:28 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Sample Name: PO48DMS Lab Sample ID: 1251389MS

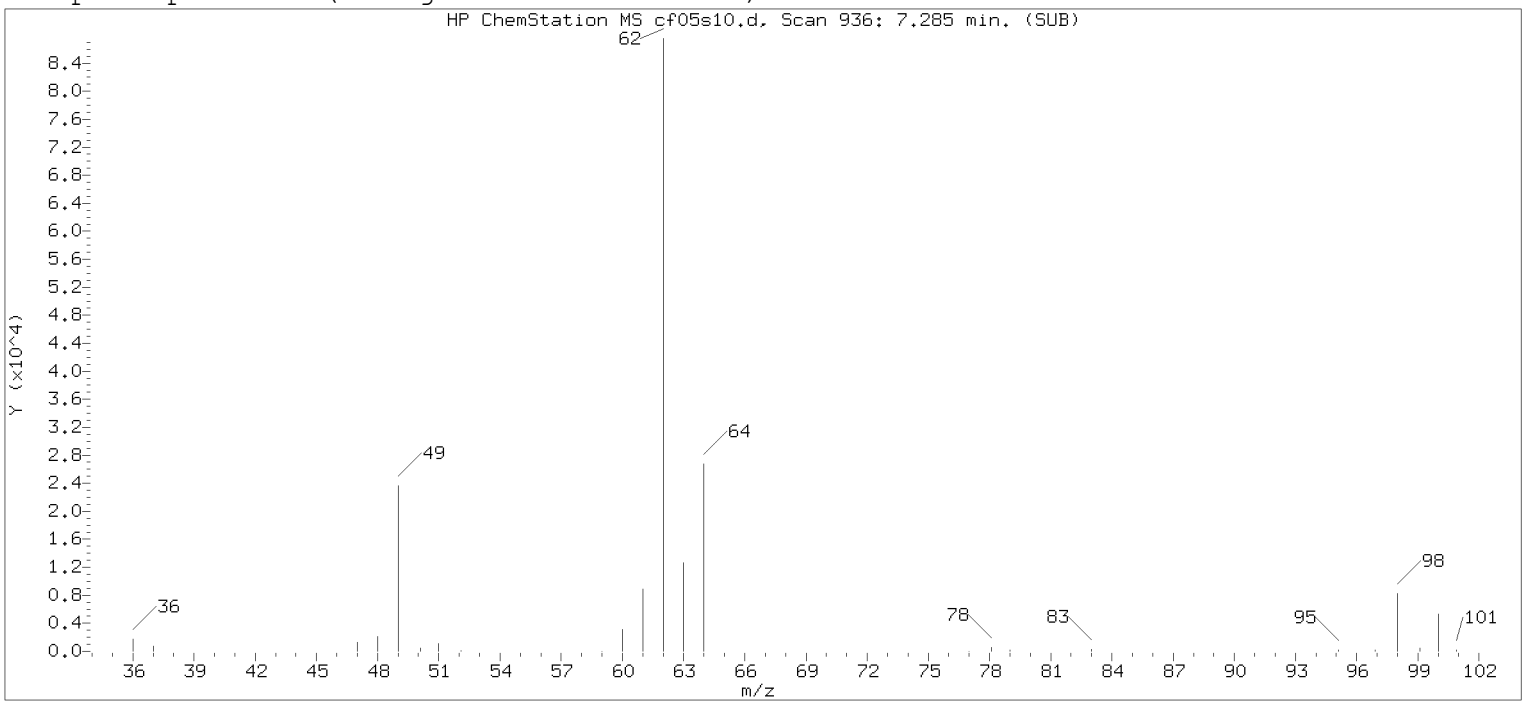
Compound Number : 61
Compound Name : 1,2-Dichloroethane
Scan Number : 936
Retention Time (minutes): 7.285
Quant Ion : 62.00
Area (flag) : 271153M
On-Column Amount (ng) : 5.0112
Integration start scan : 925 Integration stop scan: 975
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

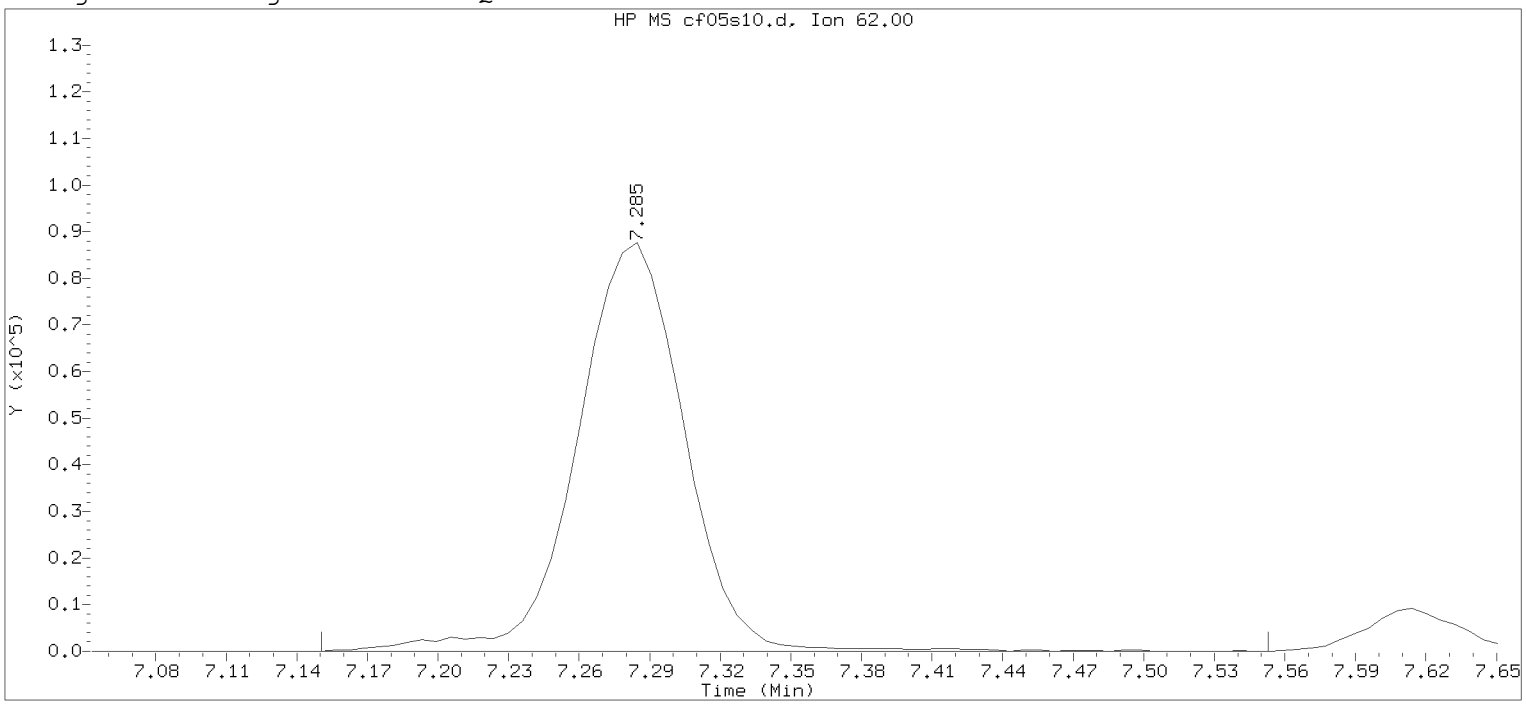
Analyst responsible for change: Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:07.
Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05s10.d  Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:28  Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 00:45 Automation

Sample Name: PO48DMS  Lab Sample ID: 1251389MS

Compound Number : 61
Compound Name : 1,2-Dichloroethane
Scan Number : 936
Retention Time (minutes): 7.285
Quant Ion : 62.00
Area : 277963
On-column Amount (ng) : 5.1370
Integration start scan : 913  Integration stop scan: 979
Y at integration start : 0  Y at integration end: 0

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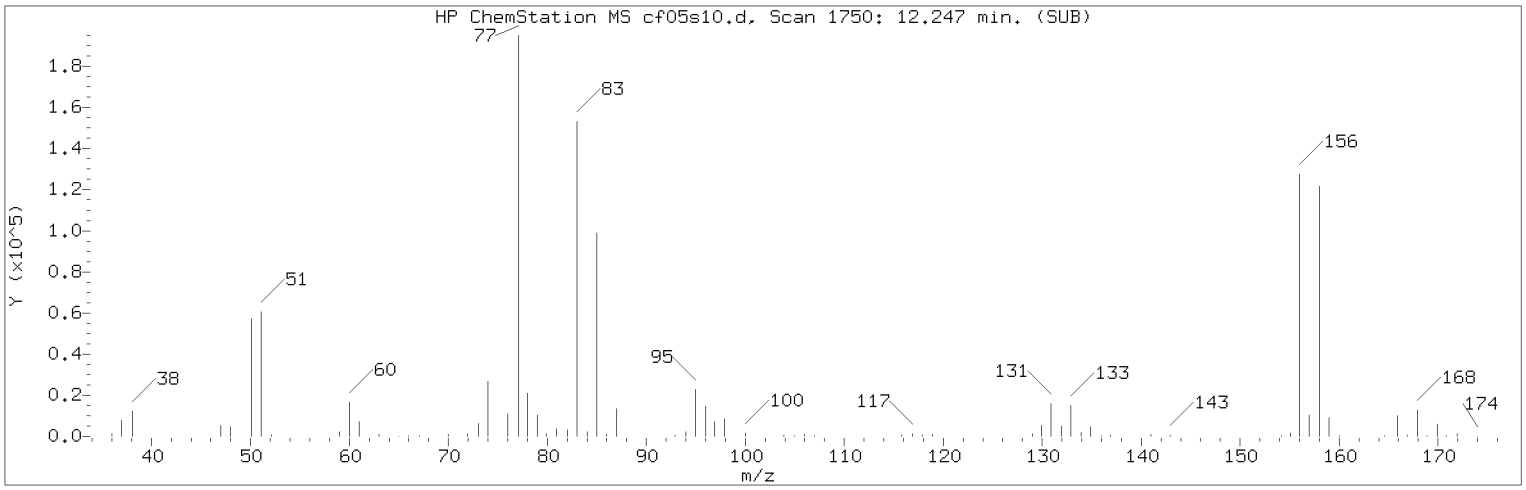
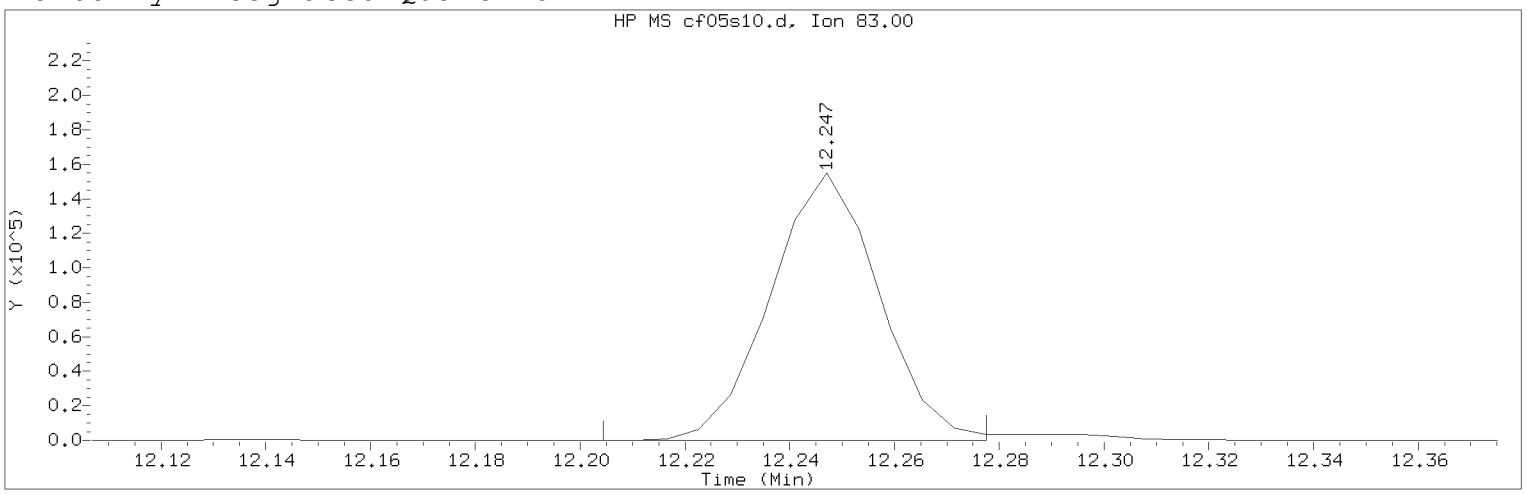
Target 3.5 esignature user ID: jkh0942

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05s10.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:28 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Sample Name: PO48DMS Lab Sample ID: 1251389MS

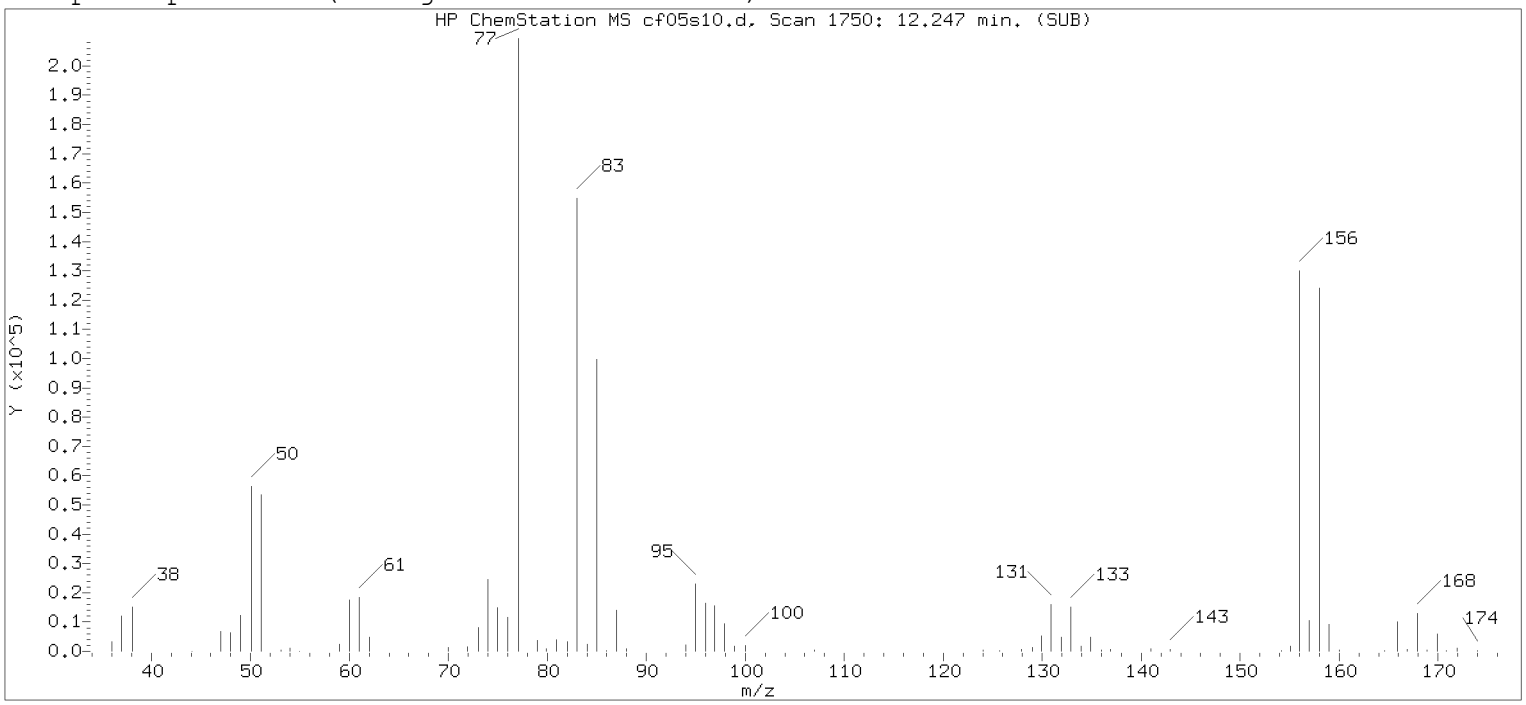
Compound Number : 115
Compound Name : 1,1,2,2-Tetrachloroethane
Scan Number : 1750
Retention Time (minutes): 12.247
Quant Ion : 83.00
Area (flag) : 222420M
On-Column Amount (ng) : 4.5513
Integration start scan : 1742 Integration stop scan: 1754
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

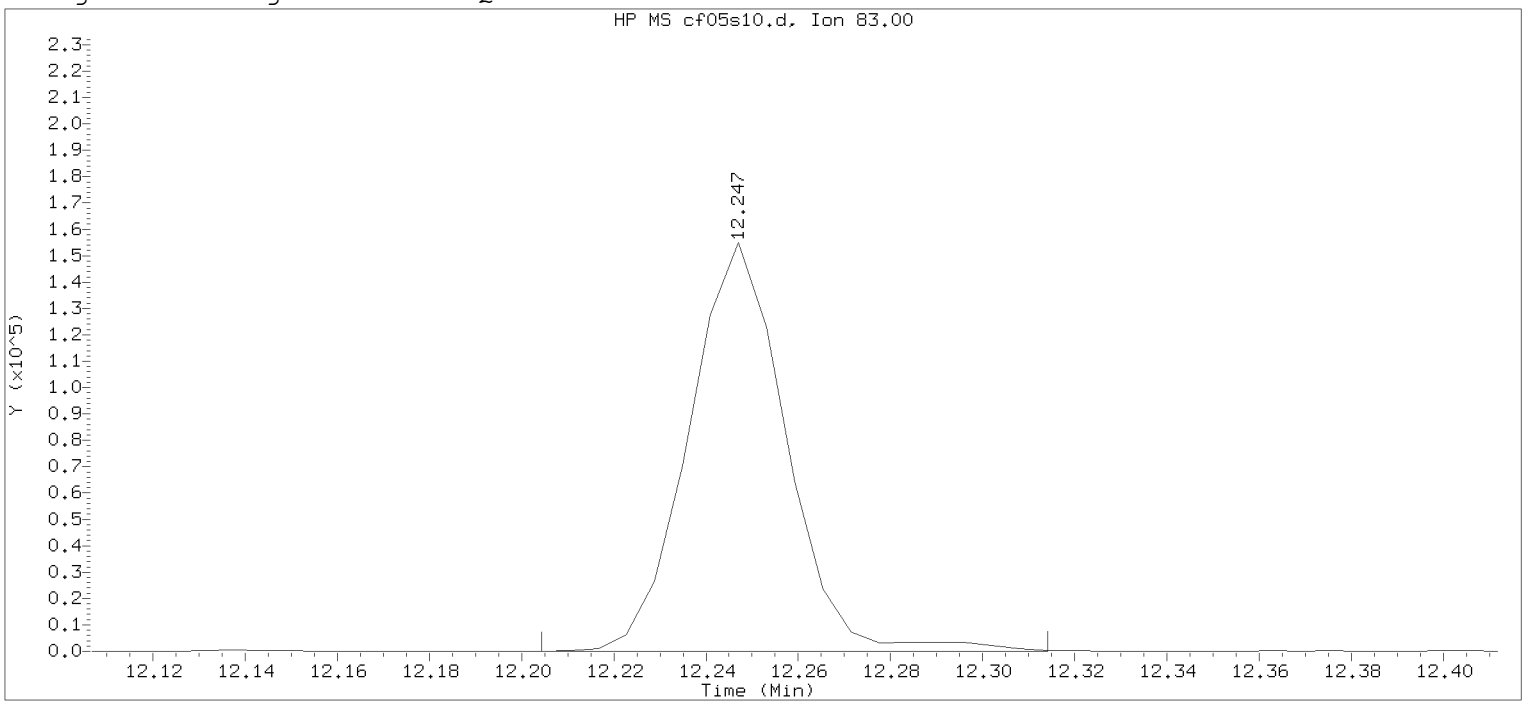
Analyst responsible for change: Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:07.
Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05s10.d  Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:28  Analyst ID: MEC29284

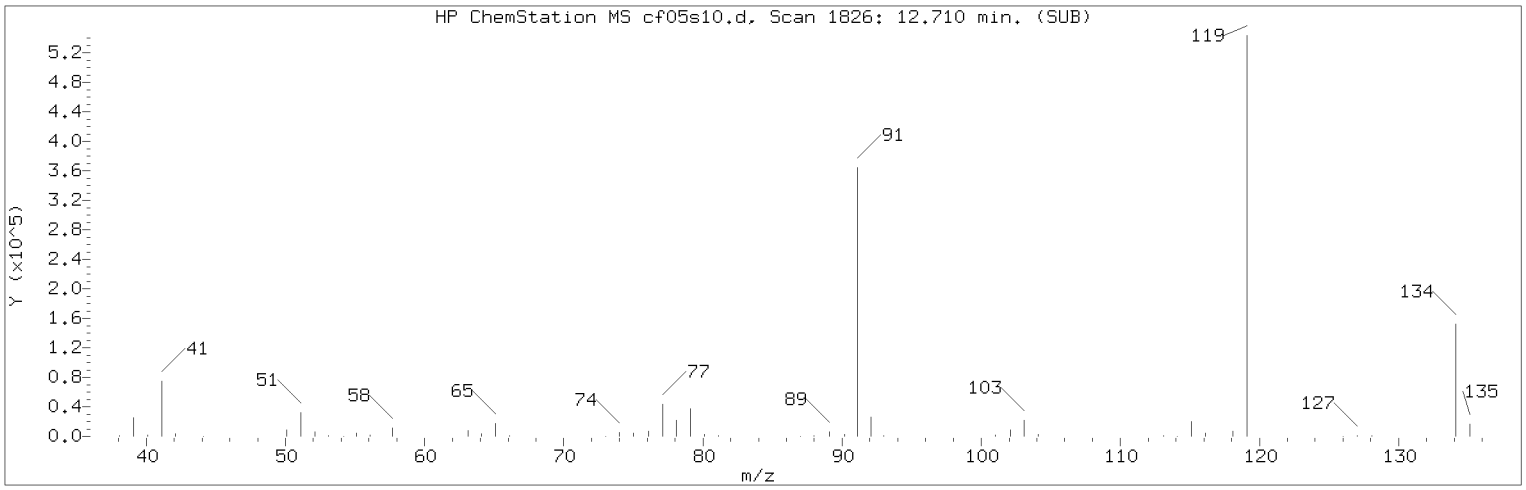
Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 00:45 Automation

Sample Name: PO48DMS  Lab Sample ID: 1251389MS

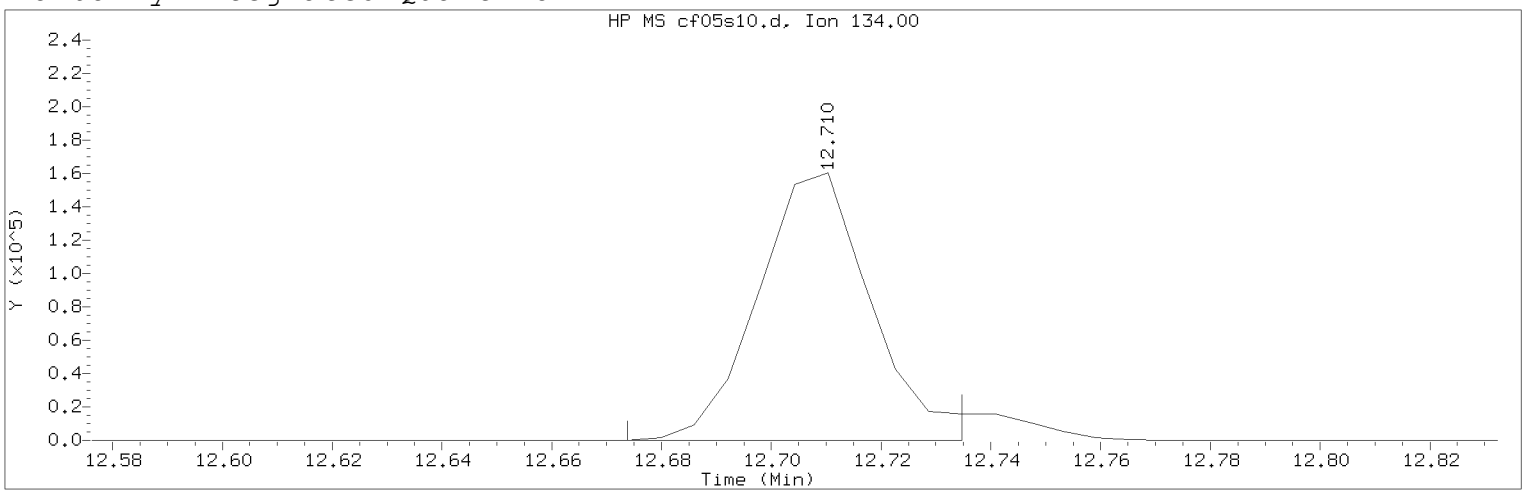
Compound Number : 115
Compound Name : 1,1,2,2-Tetrachloroethane
Scan Number : 1750
Retention Time (minutes): 12.247
Quant Ion : 83.00
Area : 227388
On-column Amount (ng) : 4.6530
Integration start scan : 1742  Integration stop scan: 1760
Y at integration start : 0  Y at integration end: 0

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:07.
Target 3.5 esignature user ID: jkh0976

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05s10.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:28 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Sample Name: PO48DMS Lab Sample ID: 1251389MS

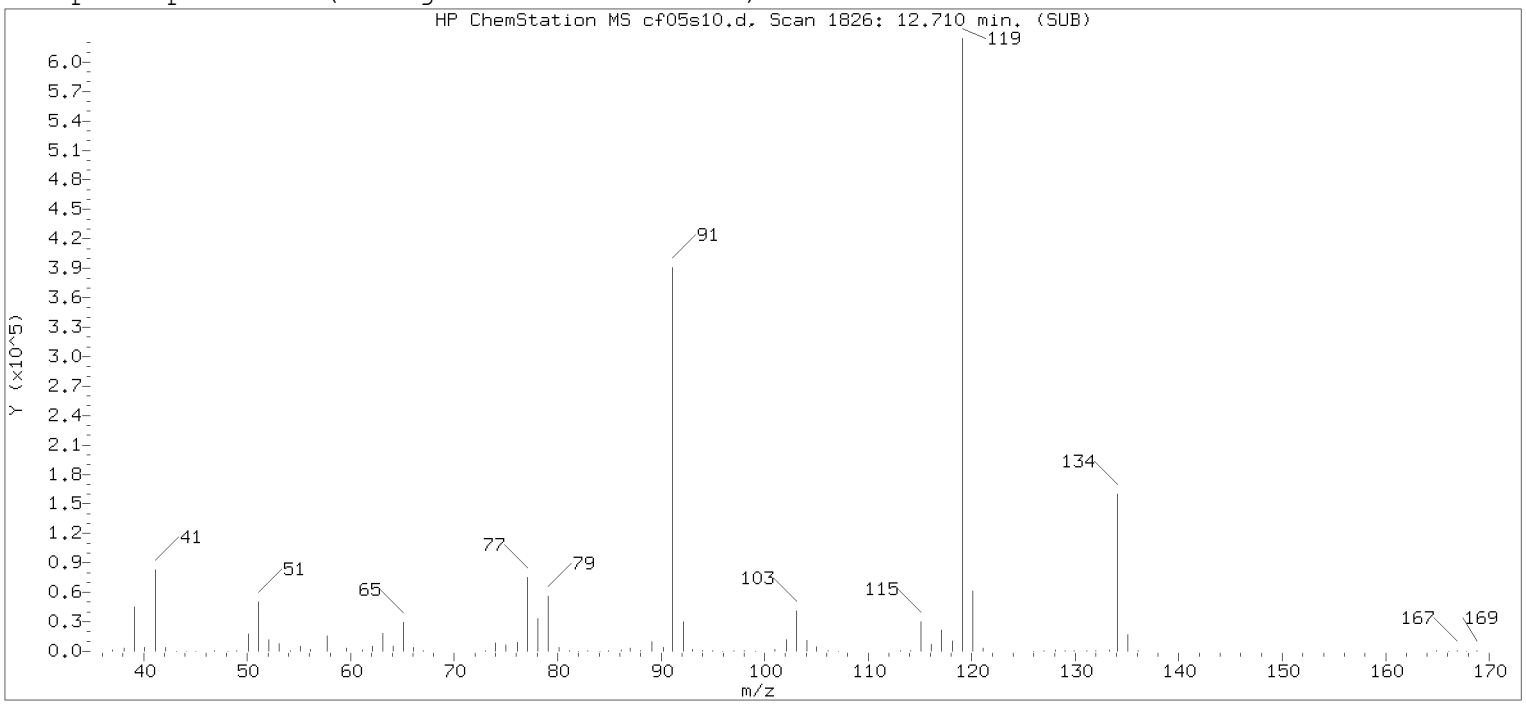
Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1826
Retention Time (minutes): 12.710
Quant Ion : 134.00
Area (flag) : 230188M
On-Column Amount (ng) : 4.9872
Integration start scan : 1819 Integration stop scan: 1829
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

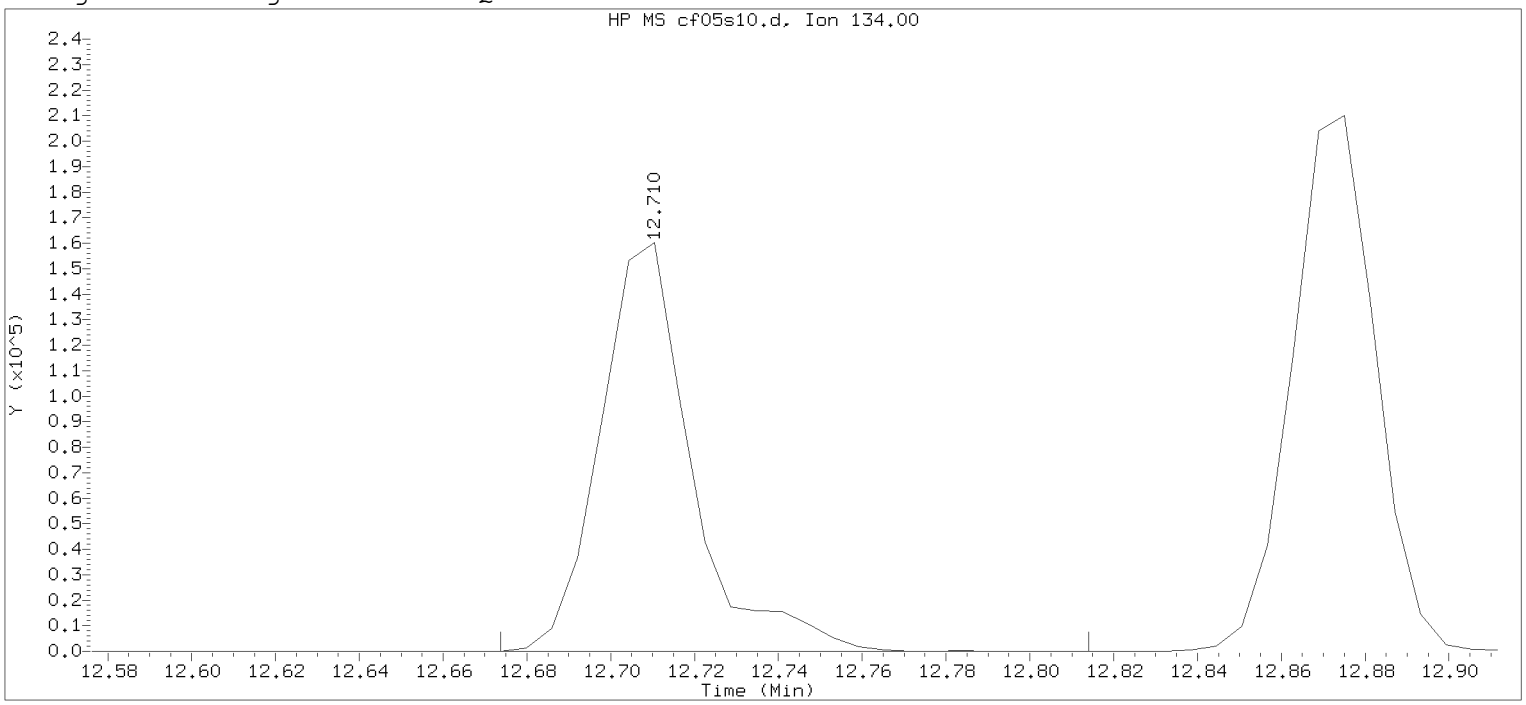
Analyst responsible for change: Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:07.
Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05s10.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:28 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 00:45 Automation

Sample Name: PO48DMS Lab Sample ID: 1251389MS

| | | | |
|---|---|---|---|
| Compound Number | : 127 | | |
| Compound Name | : tert-Butylbenzene | | |
| Scan Number | : 1826 | | |
| Retention Time (minutes) | : 12.710 | | |
| Quant Ion | : 134.00 | | |
| Area | : 242615 | | |
| On-column Amount (ng) | : 5.2564 | | |
| Integration start scan | : 1819 | Integration stop scan: | 1842 |
| Y at integration start | : 0 | Y at integration end: | 0 |

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:07.
Target 3.5 esignature used [illegible]

Data file: /chem2/HP10193.i/20feb05a.b/cf05s11.d Injection date and time: **06-FEB-2020 00:50**
Data file Sample Info. Line: PO48DMSD;1251390MSD;1;3;MSD;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

**Analysis Comments:**

| Internal Standards | RT | (+/-RT) | Scan | QIon | Area | (+/- %Change) | Conc. (on-column) | QC Flag |
|---|---|---|---|---|---|---|---|---|
| 28) t-Butyl Alcohol-d10 | 4.133 | ( 0.018) | 419 | 65 | 157945 | ( -7) | 50.00 | |
| 65) Fluorobenzene | 7.614 | ( 0.006) | 990 | 96 | 1726755 | ( -3) | 10.00 | |
| 99) Chlorobenzene-d5 | 11.125 | ( 0.006) | 1566 | 117 | 1285432 | ( -5) | 10.00 | |
| 135) 1,4-Dichlorobenzene-d4 | 13.027 | ( 0.000) | 1878 | 152 | 736009 | ( -8) | 10.00 | |

| Surrogate Standards | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | %Rec. | QC flags | QC Limits |
|---|---|---|---|---|---|---|---|---|---|
| 52) Dibromofluoromethane | (2) | 6.718 | ( 0.000) | 113 | 413193 | 10.203 | 102% | | 80 - 120 |
| 59) 1,2-Dichloroethane-d4 | (2) | 7.175 | ( 0.000) | 102 | 90343M | 10.178 | 102% | | 80 - 120 |
| 84) Toluene-d8 | (3) | 9.650 | ( 0.000) | 98 | 1723966 | 10.064 | 101% | | 80 - 120 |
| 113) 4-Bromofluorobenzene | (3) | 12.137 | (-0.001) | 95 | 638919 | 9.927 | 99% | | 80 - 120 |

**M = Surrogate Standard was manually integrated.**

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ (in sample) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | 1.926 | ( 0.000) | 85 | 266922 | 4.451 | 4.45 | | | 0.1 | 0.5 |
| 2) Chloromethane | (2) | 2.121 | (-0.000) | 50 | 318356 | 4.869 | 4.87 | | | 0.09 | 0.5 |
| 5) Vinyl Chloride | (2) | 2.231 | ( 0.000) | 62 | 328066 | 5.348 | 5.35 | | | 0.08 | 0.5 |
| 7) Bromomethane | (2) | 2.536 | ( 0.000) | 94 | 204485 | 4.967 | 4.97 | | | 0.1 | 0.5 |
| 8) Chloroethane | (2) | 2.615 | ( 0.000) | 64 | 186363 | 5.122 | 5.12 | | | 0.09 | 0.5 |
| 10) Trichlorofluoromethane | (2) | 2.920 | ( 0.000) | 101 | 387182 | 6.384 | 6.38 | | | 0.1 | 0.5 |
| 16) 1,1-Dichloroethene | (2) | 3.456 | ( 0.000) | 96 | 209793 | 5.186 | 5.19 | | | 0.05 | 0.5 |
| 15) Acetone | (1) | 3.493 | (-0.002) | 43 | 320142 | 37.660 | 37.66 | | | 1 | 5 |
| 20) Carbon Disulfide | (2) | 3.761 | (-0.001) | 76 | 734390 | 5.060 | 5.06 | | | 0.09 | 1 |
| 25) Methylene Chloride | (2) | 4.108 | (-0.000) | 84 | 230600 | 5.018 | 5.02 | | | 0.06 | 0.5 |
| 30) t-Butyl Alcohol | (1) | 4.255 | (-0.001) | 59 | 182375 | 56.398 | 56.40 | | | 2 | 10 |
| 33) trans-1,2-Dichloroethene | (2) | 4.505 | ( 0.000) | 96 | 233247 | 5.098 | 5.10 | | | 0.05 | 0.5 |
| 32) Methyl Tertiary Butyl Ether | (2) | 4.492 | ( 0.000) | 73 | 583499 | 4.819 | 4.82 | | | 0.05 | 0.5 |
| 35) 1,1-Dichloroethane | (2) | 5.175 | ( 0.000) | 63 | 435815 | 5.200 | 5.20 | | | 0.05 | 0.5 |
| 41) cis-1,2-Dichloroethene | (2) | 6.016 | (-0.000) | 96 | 270404 | 5.251 | 5.25 | | | 0.05 | 0.5 |
| 43) 2,2-Dichloropropane | (2) | 6.029 | (-0.000) | 77 | 353883 | 5.067 | 5.07 | | | 0.06 | 0.5 |
| 40) 2-Butanone | (1) | 5.992 | (-0.006) | 43 | 560926 | 37.603 | 37.60 | | | 0.7 | 5 |
| 49) Bromochloromethane | (2) | 6.346 | ( 0.000) | 128 | 108821 | 4.732 | 4.73 | | | 0.05 | 0.5 |
| 51) Chloroform | (2) | 6.504 | (-0.000) | 83 | 410837 | 5.277 | 5.28 | | | 0.05 | 0.5 |
| 53) 1,1,1-Trichloroethane | (2) | 6.724 | (-0.000) | 97 | 362133 | 5.237 | 5.24 | | | 0.06 | 0.5 |
| 57) 1,1-Dichloropropene | (2) | 6.943 | (-0.000) | 75 | 344386 | 5.308 | 5.31 | | | 0.05 | 0.5 |
| 56) Carbon Tetrachloride | (2) | 6.931 | ( 0.000) | 117 | 319176 | 5.508 | 5.51 | | | 0.06 | 0.5 |
| 60) Benzene | (2) | 7.205 | (-0.000) | 78 | 976316 | 5.096 | 5.10 | | | 0.05 | 0.5 |
| 61) 1,2-Dichloroethane | (2) | 7.285 | (-0.000) | 62 | 269615 | 4.989 | 4.99 | | | 0.05 | 0.5 |
| 69) Trichloroethene | (2) | 8.089 | (-0.000) | 95 | 251348 | 5.250 | 5.25 | | | 0.05 | 0.5 |
| 72) 1,2-Dichloropropane | (2) | 8.431 | (-0.000) | 63 | 255161 | 5.179 | 5.18 | | | 0.05 | 0.5 |
| 75) Dibromomethane | (2) | 8.540 | (-0.000) | 93 | 118650 | 5.141 | 5.14 | | | 0.05 | 0.5 |
| 76) Bromodichloromethane | (2) | 8.778 | (-0.000) | 83 | 293094 | 4.966 | 4.97 | | | 0.05 | 0.5 |
| 82) cis-1,3-Dichloropropene | (2) | 9.339 | (-0.000) | 75 | 349345 | 4.592 | 4.59 | | | 0.05 | 0.5 |
| 83) 4-Methyl-2-Pentanone | (2) | 9.522 | (-0.001) | 43 | 914733 | 25.044 | 25.04 | | | 0.6 | 5 |

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Data file: /chem2/HP10193.i/20feb05a.b/cf05s11.d Injection date and time: **06-FEB-2020 00:50**
Data file Sample Info. Line: PO48DMSD;1251390MSD;1;3;MSD;PUP93;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **1321**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: **038A** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

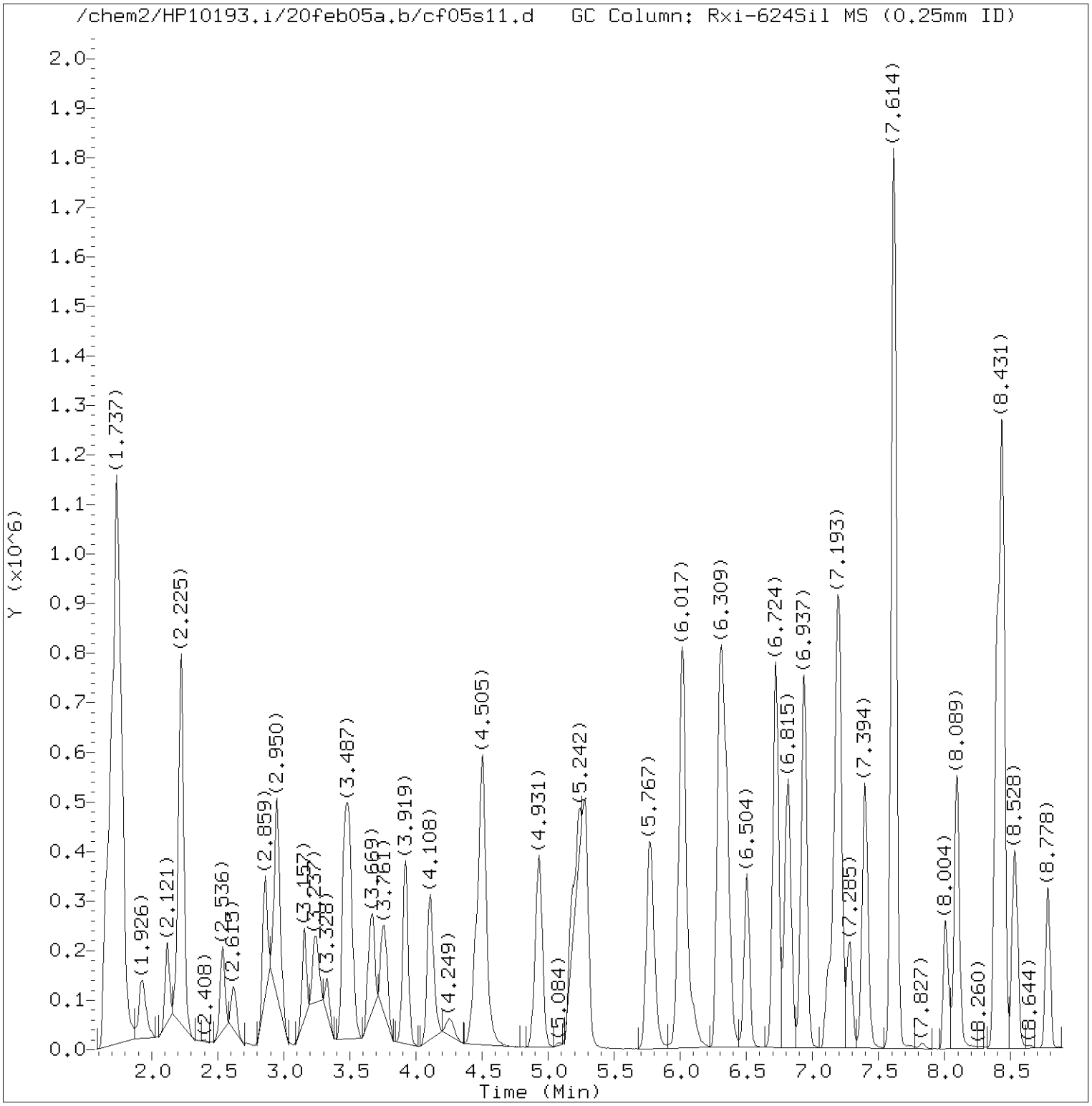
| Target Compounds | I.S. Ref. | RT (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ |
|---|---|---|---|---|---|---|---|---|---|---|
| 85) Toluene | (3) | 9.729(-0.000) | 92 | 624248 | 5.100 | 5.10 | | | 0.05 | 0.5 |
| 86) trans-1,3-Dichloropropene | (3) | 9.991( 0.000) | 75 | 286983 | 4.336 | 4.34 | | | 0.05 | 0.5 |
| 90) 1,1,2-Trichloroethane | (3) | 10.199( 0.000) | 97 | 175671 | 5.020 | 5.02 | | | 0.05 | 0.5 |
| 91) Tetrachloroethene | (3) | 10.278( 0.000) | 166 | 281525 | 5.351 | 5.35 | | | 0.05 | 0.5 |
| 92) 1,3-Dichloropropane | (3) | 10.363(-0.000) | 76 | 303133 | 4.903 | 4.90 | | | 0.05 | 0.5 |
| 95) Dibromochloromethane | (3) | 10.583(-0.000) | 129 | 202080 | 4.770 | 4.77 | | | 0.06 | 0.5 |
| 97) 1,2-Dibromoethane | (3) | 10.692(-0.000) | 107 | 164555 | 4.855 | 4.86 | | | 0.05 | 0.5 |
| 100) Chlorobenzene | (3) | 11.156(-0.000) | 112 | 690177 | 5.008 | 5.01 | | | 0.05 | 0.5 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | 11.241(-0.000) | 131 | 236136 | 4.976 | 4.98 | | | 0.05 | 0.5 |
| 102) Ethylbenzene | (3) | 11.241(-0.000) | 91 | 1212261 | 5.133 | 5.13 | | | 0.05 | 0.5 |
| 103) m+p-Xylene | (3) | 11.357(-0.000) | 106 | 954881 | 10.306 | 10.31 | | | 0.08 | 0.5 |
| 106) o-Xylene | (3) | 11.692(-0.000) | 106 | 462602 | 5.026 | 5.03 | | | 0.05 | 0.5 |
| 108) Styrene | (3) | 11.704(-0.000) | 104 | 769796 | 4.951 | 4.95 | | | 0.05 | 0.5 |
| 109) Bromoform | (3) | 11.863(-0.000) | 173 | 115266 | 4.418 | 4.42 | | | 0.3 | 1 |
| 110) Isopropylbenzene | (3) | 11.997(-0.000) | 105 | 1247738 | 5.265 | 5.27 | | | 0.05 | 0.5 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | 12.247( 0.000) | 83 | 220105 | 4.564 | 4.56 | | | 0.06 | 0.5 |
| 116) Bromobenzene | (4) | 12.253( 0.000) | 156 | 303529 | 4.951 | 4.95 | | | 0.05 | 0.5 |
| 118) 1,2,3-Trichloropropane | (4) | 12.290( 0.000) | 110 | 62017M | 4.841 | 4.84 | | | 0.06 | 1 |
| 119) n-Propylbenzene | (4) | 12.326( 0.000) | 91 | 1463765 | 5.052 | 5.05 | | | 0.05 | 0.5 |
| 121) 2-Chlorotoluene | (4) | 12.399( 0.000) | 126 | 294222 | 4.871 | 4.87 | | | 0.05 | 0.5 |
| 123) 1,3,5-Trimethylbenzene | (4) | 12.466( 0.000) | 105 | 1051850 | 4.922 | 4.92 | | | 0.05 | 0.5 |
| 124) 4-Chlorotoluene | (4) | 12.497( 0.000) | 126 | 304815 | 4.838 | 4.84 | | | 0.05 | 0.5 |
| 127) tert-Butylbenzene | (4) | 12.710(-0.000) | 134 | 233302M | 5.122 | 5.12 | | | 0.05 | 0.5 |
| 129) 1,2,4-Trimethylbenzene | (4) | 12.747( 0.000) | 105 | 1079498 | 4.792 | 4.79 | | | 0.05 | 0.5 |
| 130) sec-Butylbenzene | (4) | 12.875(-0.000) | 105 | 1407201 | 5.133 | 5.13 | | | 0.05 | 0.5 |
| 133) 1,3-Dichlorobenzene | (4) | 12.972( 0.000) | 146 | 604156 | 4.974 | 4.97 | | | 0.05 | 0.5 |
| 134) p-Isopropyltoluene | (4) | 12.979( 0.000) | 119 | 1200040 | 5.002 | 5.00 | | | 0.05 | 0.5 |
| 136) 1,4-Dichlorobenzene | (4) | 13.046(-0.000) | 146 | 619595 | 4.970 | 4.97 | | | 0.06 | 0.5 |
| 140) n-Butylbenzene | (4) | 13.271( 0.000) | 92 | 615133 | 5.106 | 5.11 | | | 0.07 | 0.5 |
| 141) 1,2-Dichlorobenzene | (4) | 13.308(-0.000) | 146 | 563638 | 4.941 | 4.94 | | | 0.05 | 0.5 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | 13.856(-0.014) | 155 | 33942 | 4.719 | 4.72 | | | 0.2 | 0.5 |
| 147) 1,2,4-Trichlorobenzene | (4) | 14.405(-0.000) | 180 | 437702 | 4.805 | 4.81 | | | 0.09 | 0.5 |
| 148) Hexachlorobutadiene | (4) | 14.484( 0.000) | 225 | 227197 | 5.195 | 5.19 | | | 0.1 | 0.5 |
| 149) Naphthalene | (4) | 14.588(-0.000) | 128 | 755342 | 4.486 | 4.49 | | | 0.09 | 0.5 |
| 150) 1,2,3-Trichlorobenzene | (4) | 14.728( 0.000) | 180 | 369039 | 4.624 | 4.62 | | | 0.1 | 0.5 |

**M = Compound was manually integrated.**

Total number of targets = 65

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:08. Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23. PARALLAX ID: kek01027




Total Ion Chromatogram (TIC)

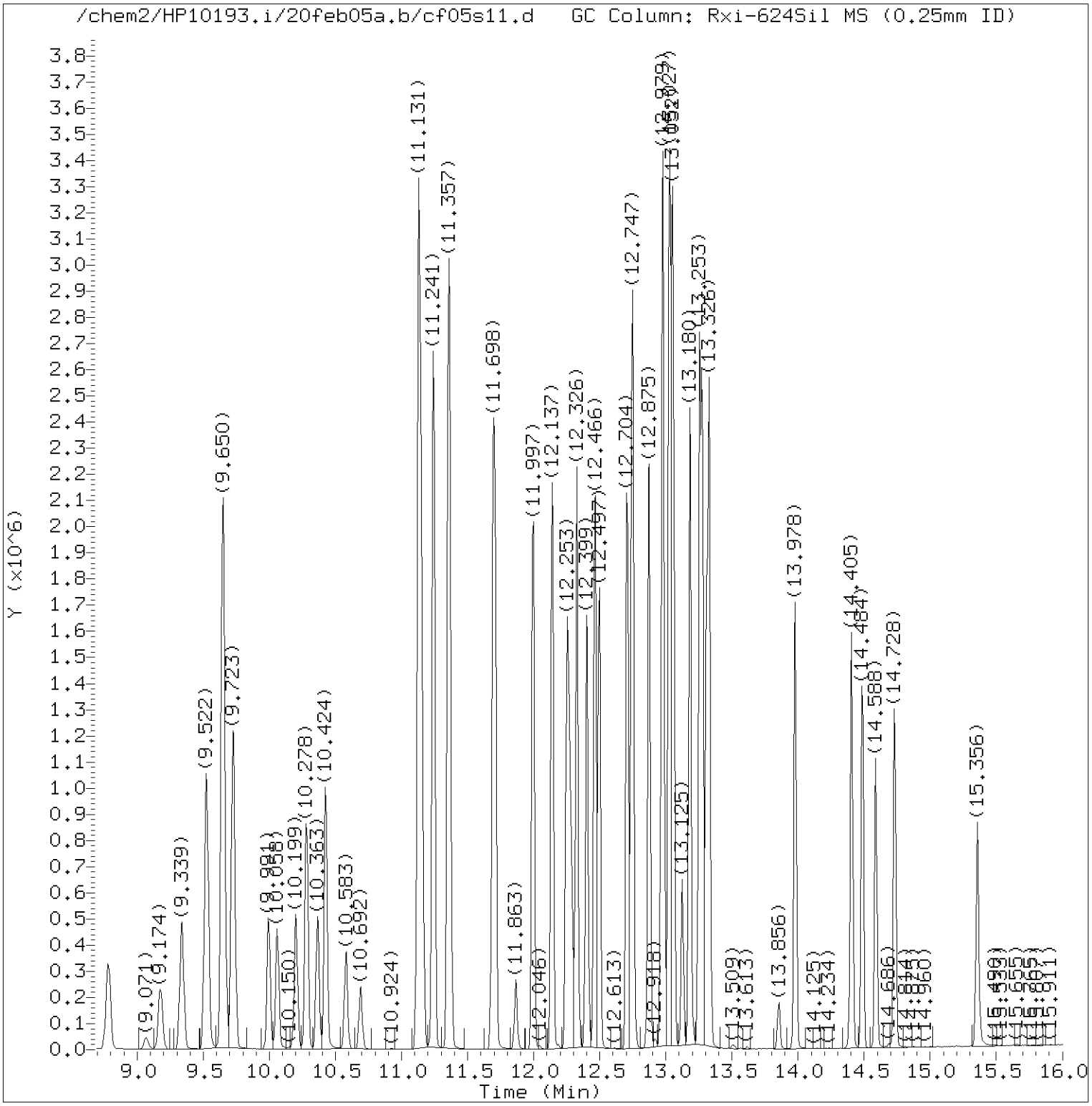
Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s11.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:50 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Sample Name: PO48DMSD Lab Sample ID: 1251390MSD

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:08.
Target 3.5 esignature user ID: jkh09052




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s11.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:50 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Sample Name: PO48DMSD Lab Sample ID: 1251390MSD

Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:08.
Target 3.5 esignature user ID: jkh09052

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s11.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:50 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Sample Name: PO48DMSD Lab Sample ID: 1251390MSD

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | 1.926 | 85 | 266922 | 4.451 |
| 2) Chloromethane | (2) | 2.121 | 50 | 318356 | 4.869 |
| 5) Vinyl Chloride | (2) | 2.231 | 62 | 328066 | 5.348 |
| 7) Bromomethane | (2) | 2.536 | 94 | 204485 | 4.967 |
| 8) Chloroethane | (2) | 2.615 | 64 | 186363 | 5.122 |
| 10) Trichlorofluoromethane | (2) | 2.920 | 101 | 387182 | 6.384 |
| 16) 1,1-Dichloroethene | (2) | 3.456 | 96 | 209793 | 5.186 |
| 15) Acetone | (1) | 3.493 | 43 | 320142 | 37.660 |
| 20) Carbon Disulfide | (2) | 3.761 | 76 | 734390 | 5.060 |
| 25) Methylene Chloride | (2) | 4.108 | 84 | 230600 | 5.018 |
| 28)*t-Butyl Alcohol-d10 | (1) | 4.133 | 65 | 157945 | 50.000 |
| 30) t-Butyl Alcohol | (1) | 4.255 | 59 | 182375 | 56.398 |
| 32) Methyl Tertiary Butyl Ether | (2) | 4.492 | 73 | 583499 | 4.819 |
| 33) trans-1,2-Dichloroethene | (2) | 4.505 | 96 | 233247 | 5.098 |
| 35) 1,1-Dichloroethane | (2) | 5.175 | 63 | 435815 | 5.200 |
| 40) 2-Butanone | (1) | 5.992 | 43 | 560926 | 37.603 |
| 41) cis-1,2-Dichloroethene | (2) | 6.017 | 96 | 270404 | 5.251 |
| 43) 2,2-Dichloropropane | (2) | 6.029 | 77 | 353883 | 5.067 |
| 49) Bromochloromethane | (2) | 6.346 | 128 | 108821 | 4.732 |
| 51) Chloroform | (2) | 6.504 | 83 | 410837 | 5.277 |
| 52)$Dibromofluoromethane | (2) | 6.718 | 113 | 413193 | 10.203 |
| 53) 1,1,1-Trichloroethane | (2) | 6.724 | 97 | 362133 | 5.237 |
| 56) Carbon Tetrachloride | (2) | 6.931 | 117 | 319176 | 5.508 |
| 57) 1,1-Dichloropropene | (2) | 6.943 | 75 | 344386 | 5.308 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.175 | 102 | 90343M | 10.178 |
| 60) Benzene | (2) | 7.205 | 78 | 976316 | 5.096 |
| 61) 1,2-Dichloroethane | (2) | 7.285 | 62 | 269615 | 4.989 |
| 65)*Fluorobenzene | (2) | 7.614 | 96 | 1726755 | 10.000 |
| 69) Trichloroethene | (2) | 8.089 | 95 | 251348 | 5.250 |
| 72) 1,2-Dichloropropane | (2) | 8.431 | 63 | 255161 | 5.179 |
| 75) Dibromomethane | (2) | 8.540 | 93 | 118650 | 5.141 |
| 76) Bromodichloromethane | (2) | 8.778 | 83 | 293094 | 4.966 |
| 82) cis-1,3-Dichloropropene | (2) | 9.339 | 75 | 349345 | 4.592 |
| 83) 4-Methyl-2-Pentanone | (2) | 9.522 | 43 | 914733 | 25.044 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1723966 | 10.064 |
| 85) Toluene | (3) | 9.729 | 92 | 624248 | 5.100 |
| 86) trans-1,3-Dichloropropene | (3) | 9.991 | 75 | 286983 | 4.336 |
| 90) 1,1,2-Trichloroethane | (3) | 10.199 | 97 | 175671 | 5.020 |

M = Compound was manually integrated.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.



Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:08.
Target 3.5 esignature user ID: jkh09052

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05s11.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:50 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Sample Name: PO48DMSD Lab Sample ID: 1251390MSD

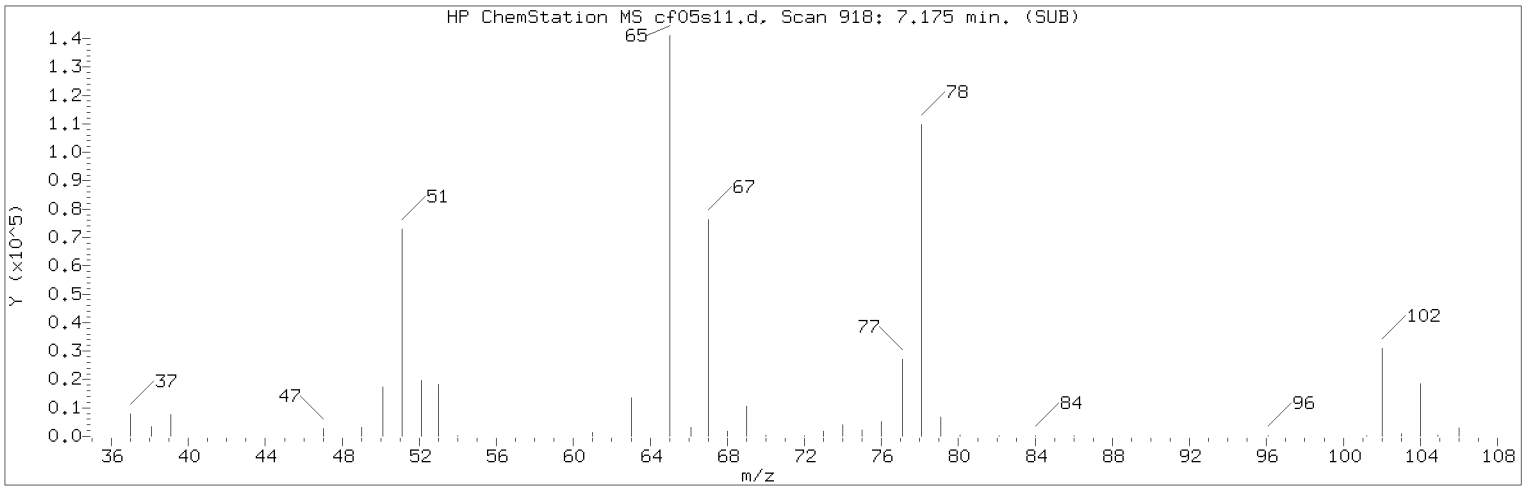
| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 91) Tetrachloroethene | (3) | 10.278 | 166 | 281525 | 5.351 |
| 92) 1,3-Dichloropropane | (3) | 10.363 | 76 | 303133 | 4.903 |
| 95) Dibromochloromethane | (3) | 10.583 | 129 | 202080 | 4.770 |
| 97) 1,2-Dibromoethane | (3) | 10.692 | 107 | 164555 | 4.855 |
| 99)*Chlorobenzene-d5 | (3) | 11.125 | 117 | 1285432 | 10.000 |
| 100) Chlorobenzene | (3) | 11.156 | 112 | 690177 | 5.008 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | 11.241 | 131 | 236136 | 4.976 |
| 102) Ethylbenzene | (3) | 11.241 | 91 | 1212261 | 5.133 |
| 103) m+p-Xylene | (3) | 11.357 | 106 | 954881 | 10.306 |
| 106) o-Xylene | (3) | 11.692 | 106 | 462602 | 5.026 |
| 108) Styrene | (3) | 11.704 | 104 | 769796 | 4.951 |
| 109) Bromoform | (3) | 11.863 | 173 | 115266 | 4.418 |
| 110) Isopropylbenzene | (3) | 11.997 | 105 | 1247738 | 5.265 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 638919 | 9.927 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | 12.247 | 83 | 220105 | 4.564 |
| 116) Bromobenzene | (4) | 12.253 | 156 | 303529 | 4.951 |
| 118) 1,2,3-Trichloropropane | (4) | 12.290 | 110 | 62017M | 4.841 |
| 119) n-Propylbenzene | (4) | 12.326 | 91 | 1463765 | 5.052 |
| 121) 2-Chlorotoluene | (4) | 12.399 | 126 | 294222 | 4.871 |
| 123) 1,3,5-Trimethylbenzene | (4) | 12.466 | 105 | 1051850 | 4.922 |
| 124) 4-Chlorotoluene | (4) | 12.497 | 126 | 304815 | 4.838 |
| 127) tert-Butylbenzene | (4) | 12.710 | 134 | 233302M | 5.122 |
| 129) 1,2,4-Trimethylbenzene | (4) | 12.747 | 105 | 1079498 | 4.792 |
| 130) sec-Butylbenzene | (4) | 12.875 | 105 | 1407201 | 5.133 |
| 133) 1,3-Dichlorobenzene | (4) | 12.973 | 146 | 604156 | 4.974 |
| 134) p-Isopropyltoluene | (4) | 12.979 | 119 | 1200040 | 5.002 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.027 | 152 | 736009 | 10.000 |
| 136) 1,4-Dichlorobenzene | (4) | 13.046 | 146 | 619595 | 4.970 |
| 140) n-Butylbenzene | (4) | 13.271 | 92 | 615133 | 5.106 |
| 141) 1,2-Dichlorobenzene | (4) | 13.308 | 146 | 563638 | 4.941 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | 13.856 | 155 | 33942 | 4.719 |
| 147) 1,2,4-Trichlorobenzene | (4) | 14.405 | 180 | 437702 | 4.805 |
| 148) Hexachlorobutadiene | (4) | 14.484 | 225 | 227197 | 5.195 |
| 149) Naphthalene | (4) | 14.588 | 128 | 755342 | 4.486 |
| 150) 1,2,3-Trichlorobenzene | (4) | 14.728 | 180 | 369039 | 4.624 |

M = Compound was manually integrated.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.

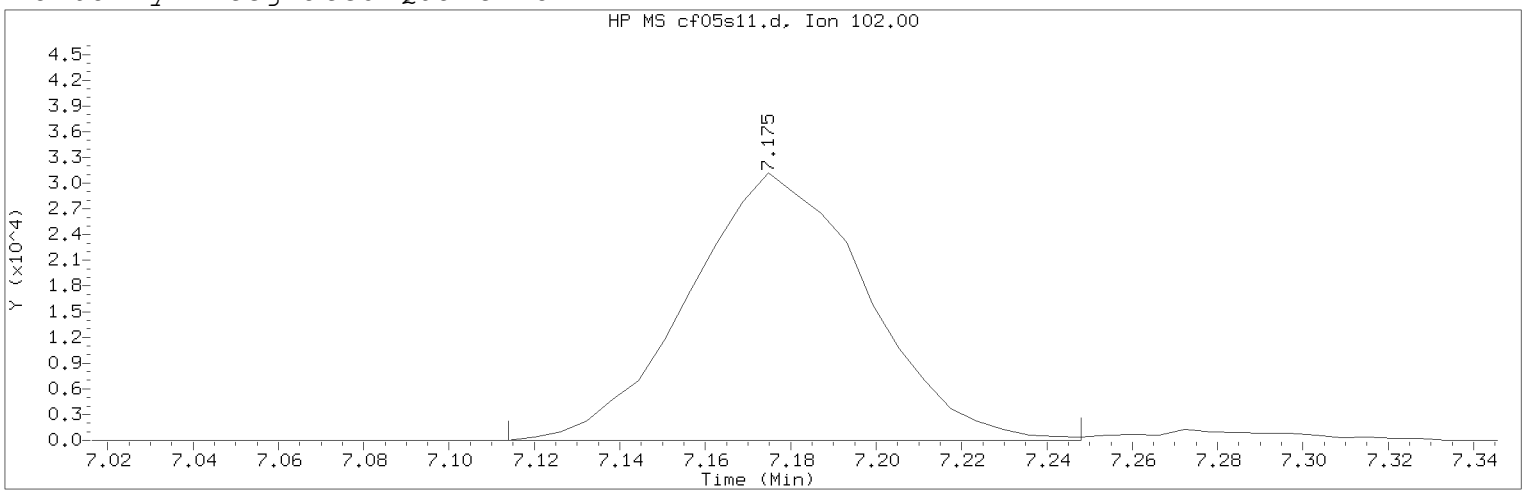


Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:08.
Target 3.5 esignature user ID: jkh09052

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05s11.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:50 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Sample Name: PO48DMSD Lab Sample ID: 1251390MSD

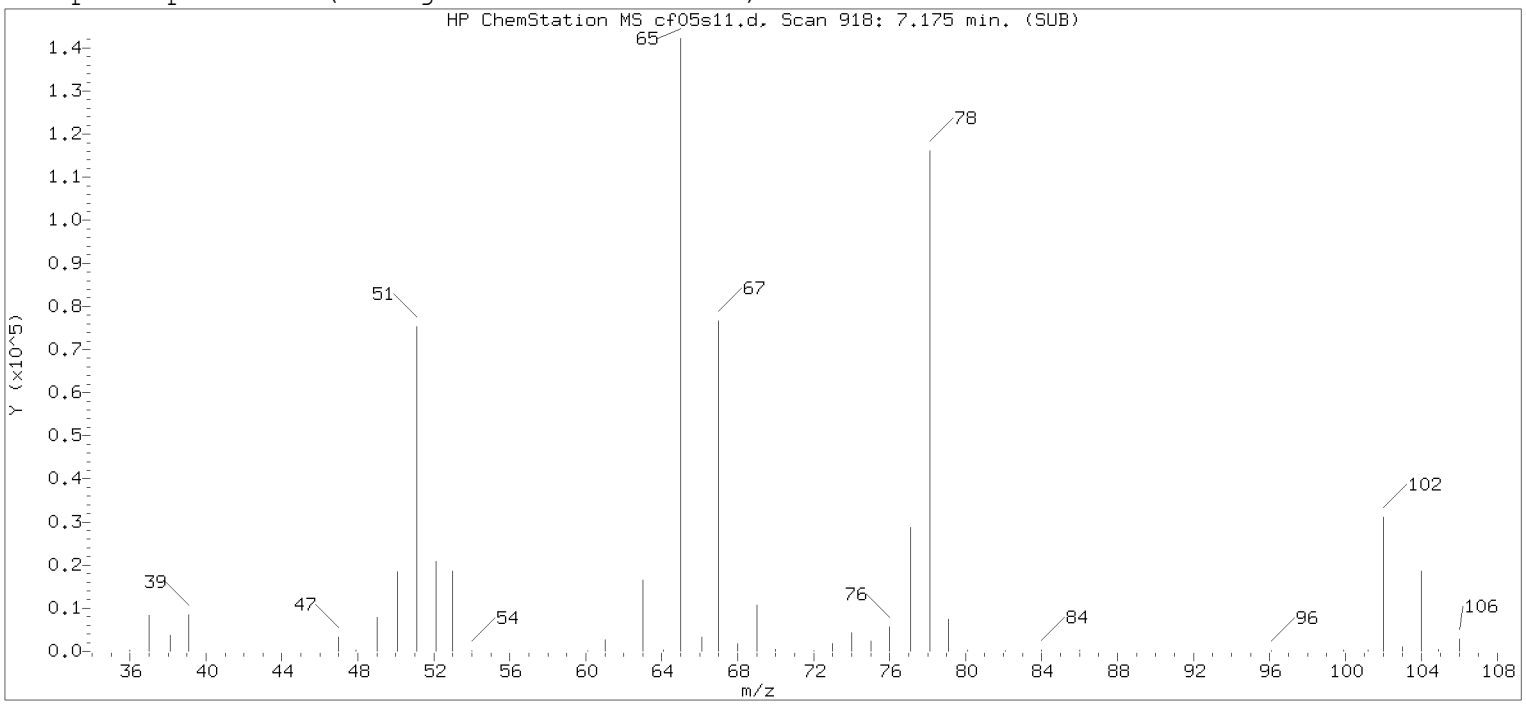
Compound Number : 59
Compound Name : 1,2-Dichloroethane-d4
Scan Number : 918
Retention Time (minutes): 7.175
Quant Ion : 102.00
Area (flag) : 90343M
On-Column Amount (ng) : 10.1785
Integration start scan : 907 Integration stop scan: 929
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

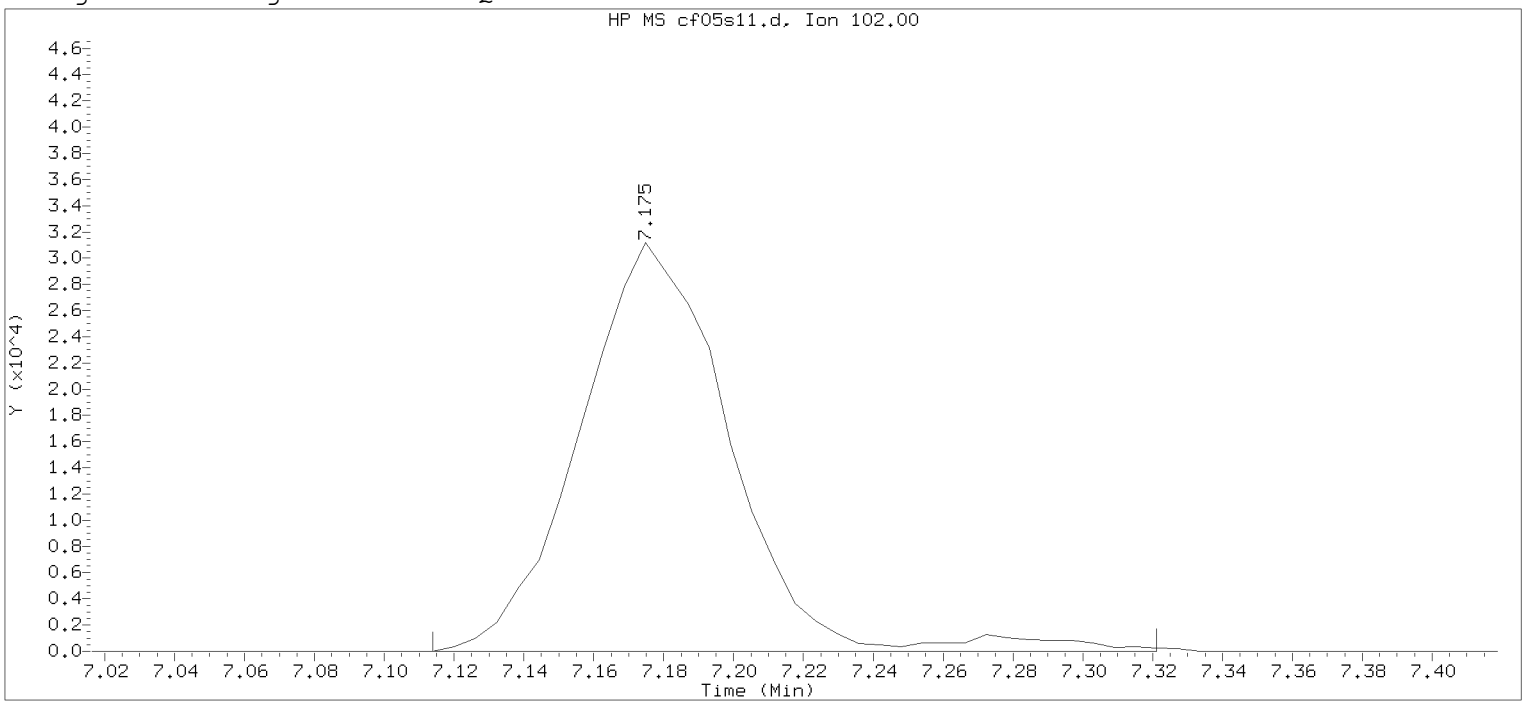
Analyst responsible for change: Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:08.
Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05s11.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:50 Analyst ID: MEC29284

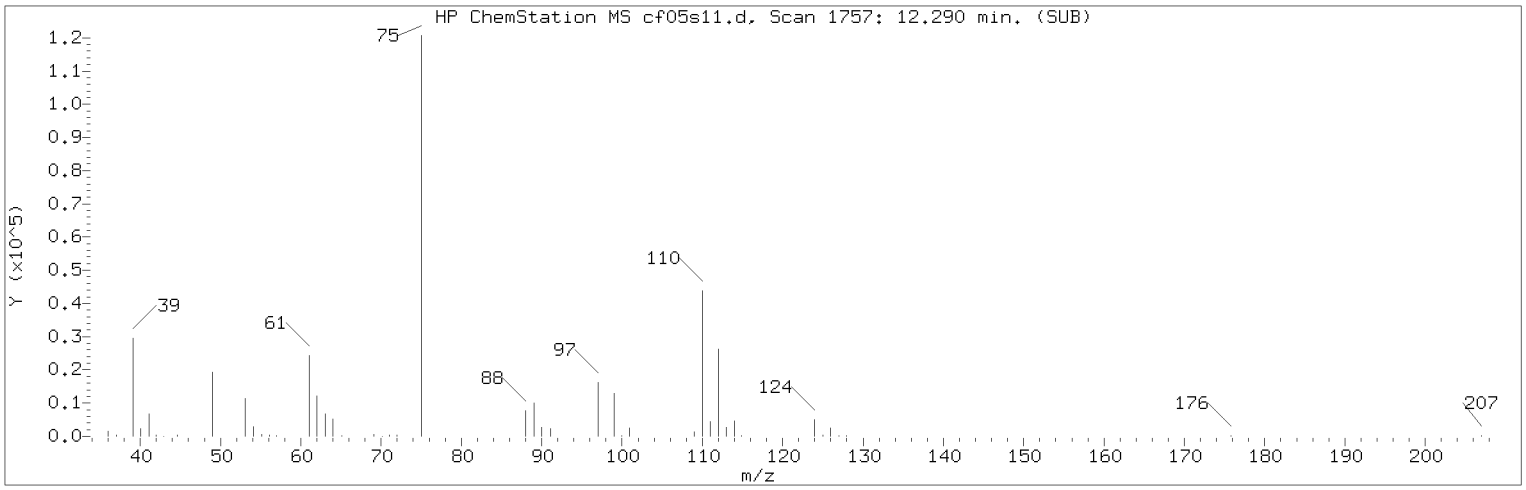
Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 01:08 Automation

Sample Name: PO48DMSD Lab Sample ID: 1251390MSD

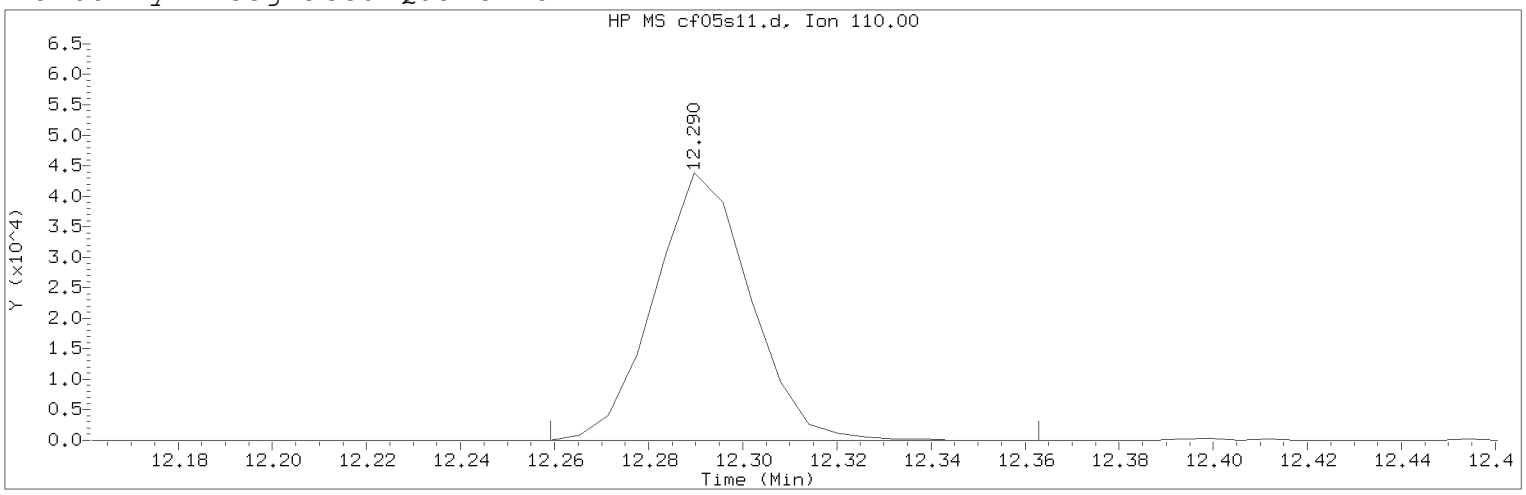
Compound Number : 59
Compound Name : 1,2-Dichloroethane-d4
Scan Number : 918
Retention Time (minutes): 7.175
Quant Ion : 102.00
Area : 93300
On-column Amount (ng) : 10.5117
Integration start scan : 907 Integration stop scan: 941
Y at integration start : 0 Y at integration end: 0

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:08.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05s11.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:50 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Sample Name: PO48DMSD Lab Sample ID: 1251390MSD

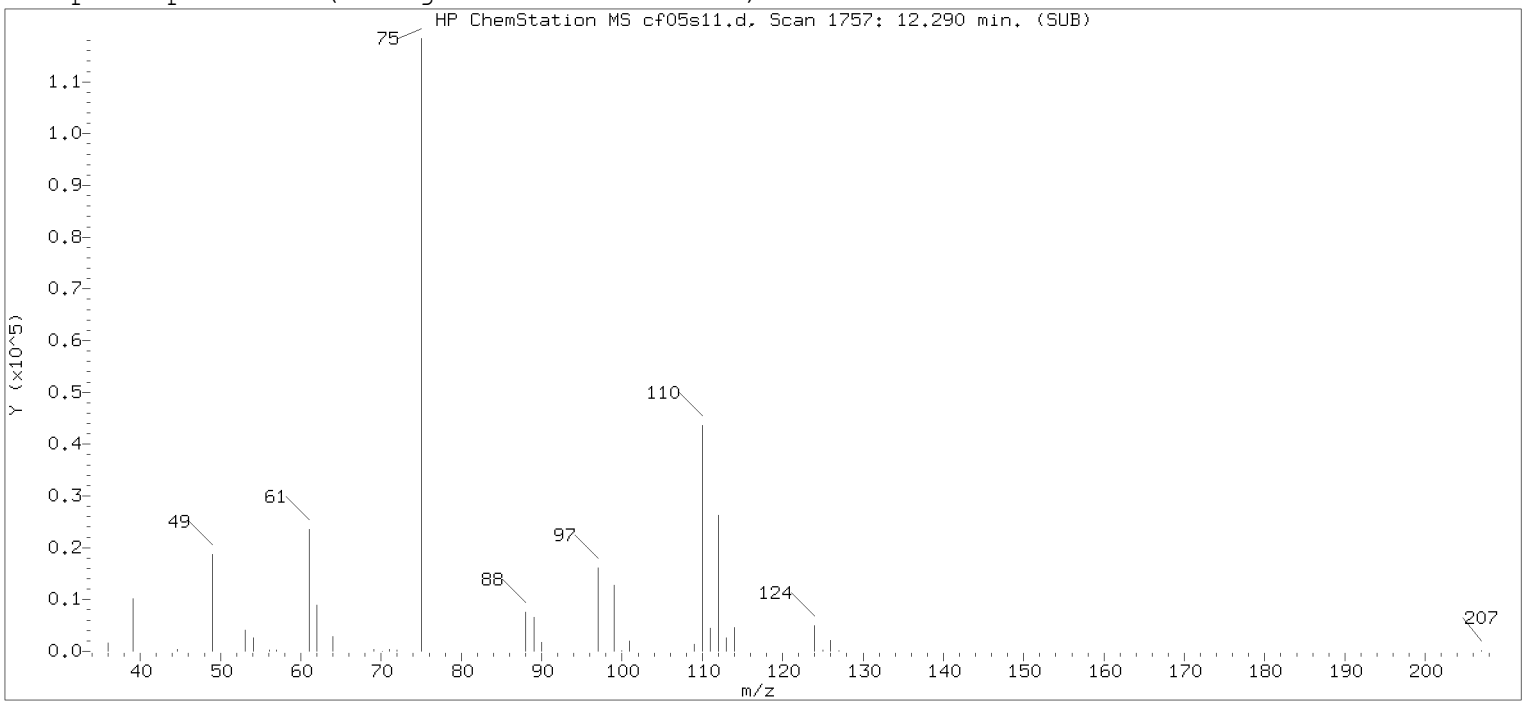
Compound Number : 118
Compound Name : 1,2,3-Trichloropropane
Scan Number : 1757
Retention Time (minutes): 12.290
Quant Ion : 110.00
Area (flag) : 62017M
On-Column Amount (ng) : 4.8412
Integration start scan : 1751 Integration stop scan: 1768
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

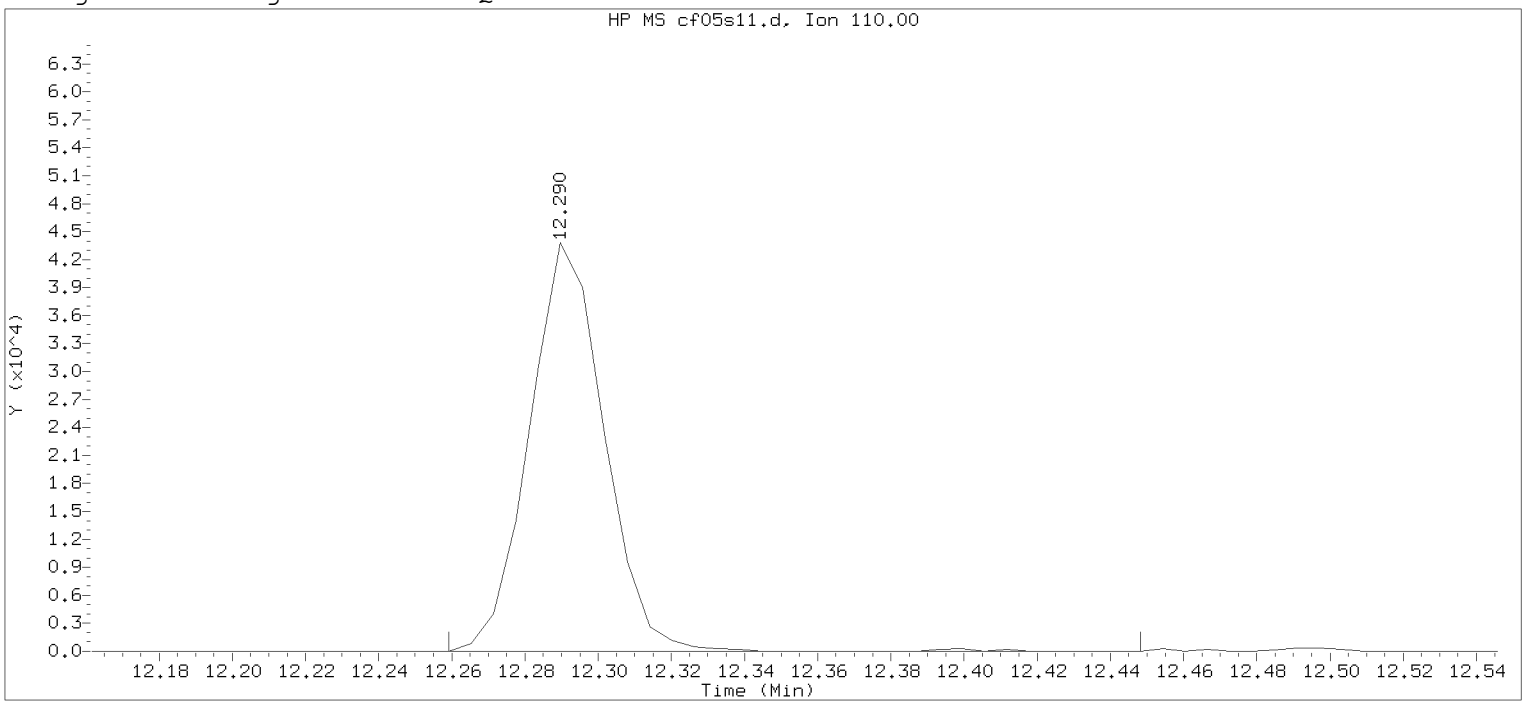
Analyst responsible for change: Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:08.
Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05s11.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:50 Analyst ID: MEC29284

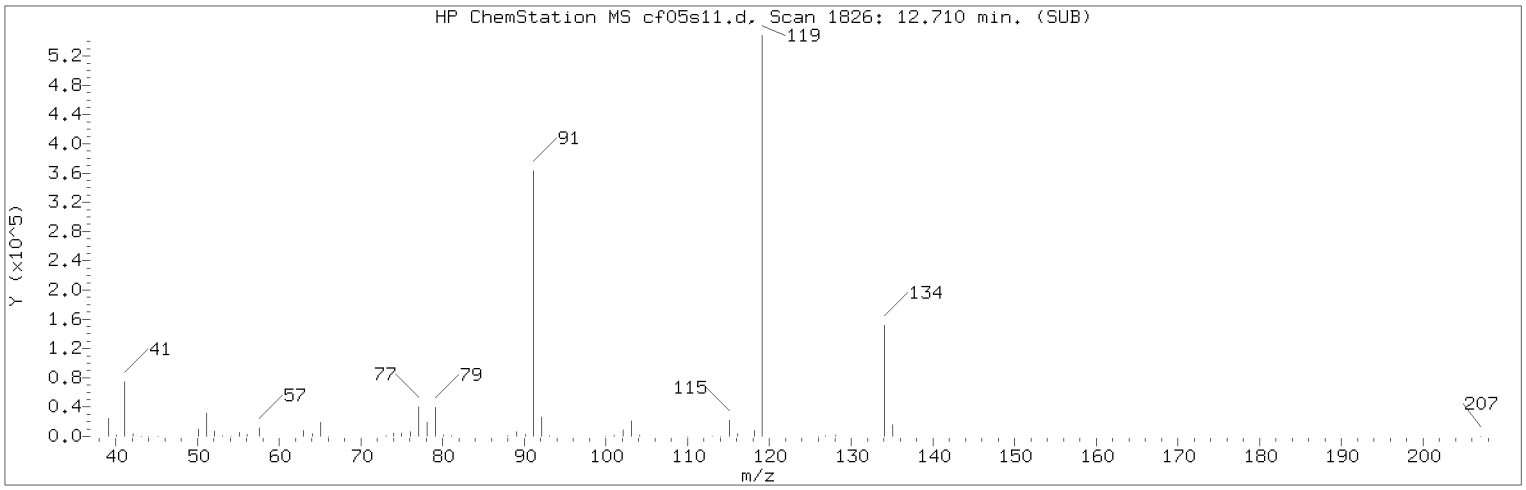
Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 01:08 Automation

Sample Name: PO48DMSD Lab Sample ID: 1251390MSD

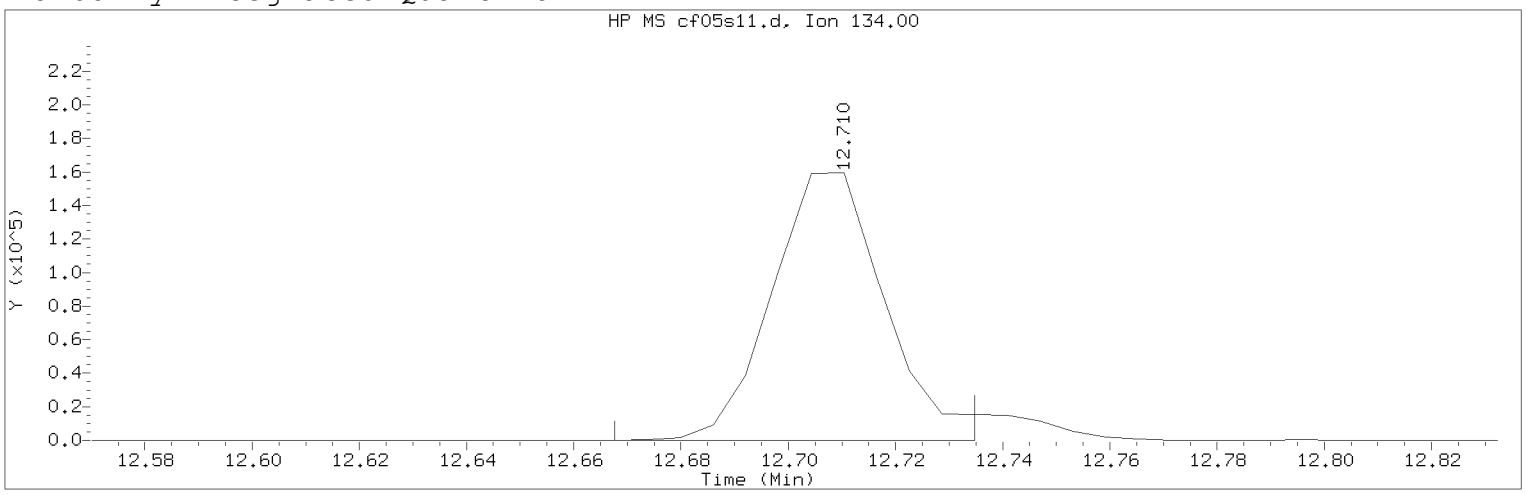
Compound Number : 118
Compound Name : 1,2,3-Trichloropropane
Scan Number : 1757
Retention Time (minutes): 12.290
Quant Ion : 110.00
Area : 62275
On-column Amount (ng) : 4.8614
Integration start scan : 1751 Integration stop scan: 1782
Y at integration start : 0 Y at integration end: 0

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:08.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05s11.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:50 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 1321
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 09:07 jkh09052

Sample Name: PO48DMSD Lab Sample ID: 1251390MSD

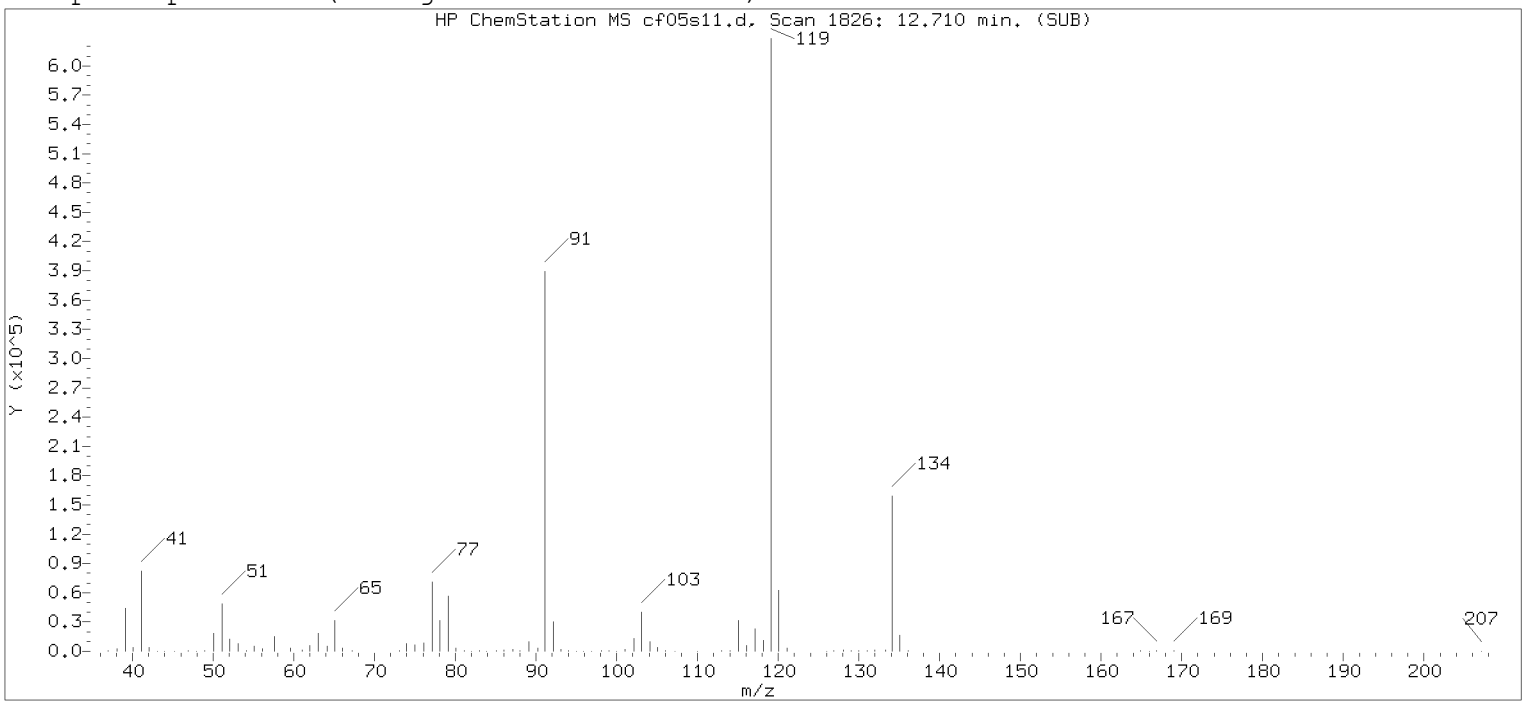
Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1826
Retention Time (minutes): 12.710
Quant Ion : 134.00
Area (flag) : 233302M
On-Column Amount (ng) : 5.1218
Integration start scan : 1818 Integration stop scan: 1829
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

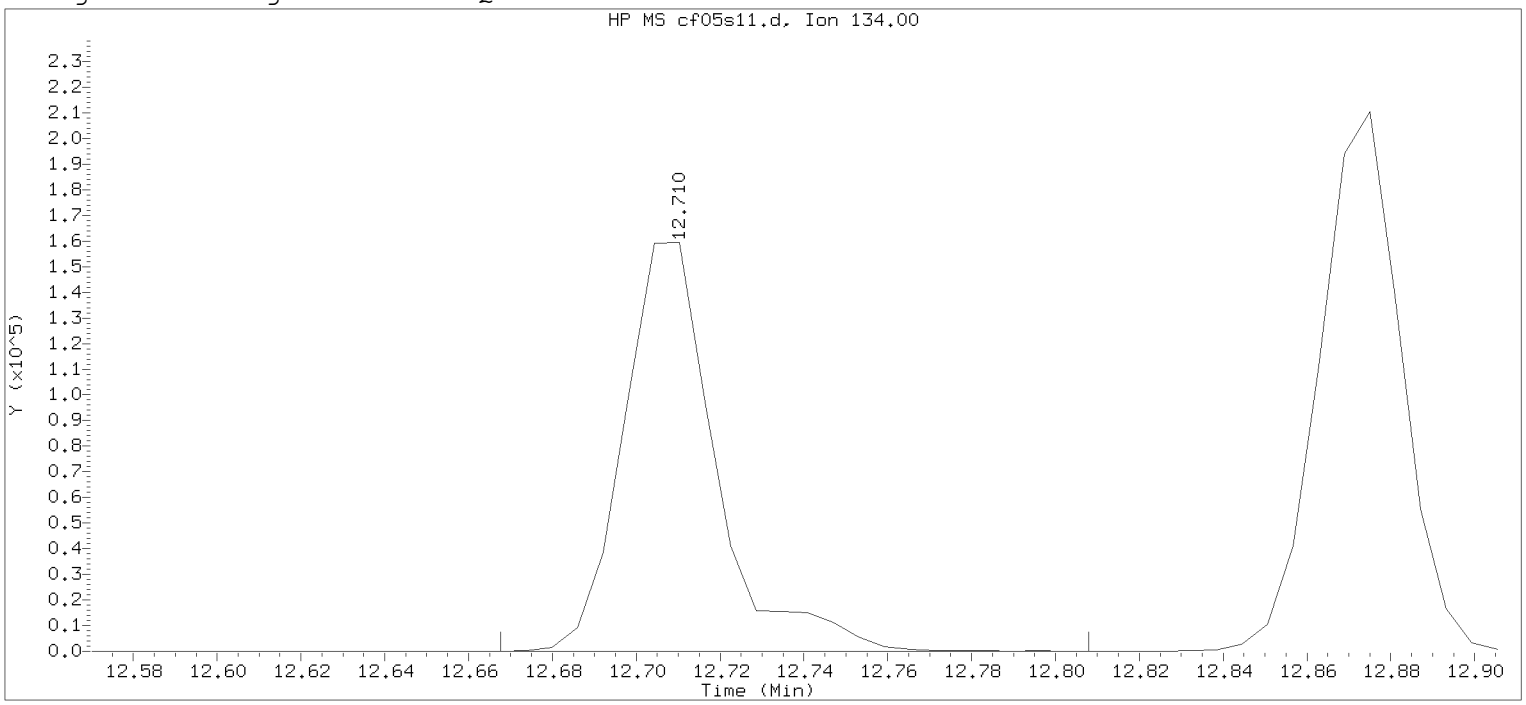
Analyst responsible for change: Digitally signed by Jennifer K. Howe
on 02/06/2020 at 09:08.
Target 3.5 esignature user ID: jkh09052

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05s11.d Instrument ID: HP10193.i
Injection date and time: 06-FEB-2020 00:50 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 06-Feb-2020 01:08 Automation

Sample Name: PO48DMSD Lab Sample ID: 1251390MSD

| | | | |
|---|---|---|---|
| Compound Number | : 127 | | |
| Compound Name | : tert-Butylbenzene | | |
| Scan Number | : 1826 | | |
| Retention Time (minutes) | : 12.710 | | |
| Quant Ion | : 134.00 | | |
| Area | : 246144 | | |
| On-column Amount (ng) | : 5.4038 | | |
| Integration start scan | : 1818 | Integration stop scan: | 1841 |
| Y at integration start | : 0 | Y at integration end: | 0 |

Digitally signed by Jennifer K. Howe on 02/06/2020 at 09:08.
Target 3.5 esignature used [illegible]

Data file: /chem2/HP10193.i/20feb05a.b/cf05l01.d Injection date and time: **05-FEB-2020 20:08**
Data file Sample Info. Line: LCSC92;LCSC92;1;3;LCS;;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **8260W25**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

**Analysis Comments:**

| Internal Standards | RT | (+/-RT) | Scan | QIon | Area | (+/- %Change) | Conc. (on-column) | QC Flag |
|---|---|---|---|---|---|---|---|---|
| 28) t-Butyl Alcohol-d10 | 4.133 | ( 0.018) | 419 | 65 | 175629 | ( 3) | 50.00 | |
| 65) Fluorobenzene | 7.614 | ( 0.006) | 990 | 96 | 1799580 | ( 1) | 10.00 | |
| 99) Chlorobenzene-d5 | 11.125 | ( 0.006) | 1566 | 117 | 1352171 | ( 0) | 10.00 | |
| 135) 1,4-Dichlorobenzene-d4 | 13.028 | ( 0.000) | 1878 | 152 | 784172 | ( -2) | 10.00 | |

| Surrogate Standards | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | %Rec. | QC flags | QC Limits |
|---|---|---|---|---|---|---|---|---|---|
| 52) Dibromofluoromethane | (2) | 6.718 | ( 0.000) | 113 | 434748 | 10.301 | 103% | | 80 - 120 |
| 59) 1,2-Dichloroethane-d4 | (2) | 7.181 | (-0.001) | 102 | 95868M | 10.364 | 104% | | 80 - 120 |
| 84) Toluene-d8 | (3) | 9.650 | ( 0.000) | 98 | 1802721 | 10.004 | 100% | | 80 - 120 |
| 113) 4-Bromofluorobenzene | (3) | 12.137 | (-0.001) | 95 | 678442 | 10.021 | 100% | | 80 - 120 |

**M = Surrogate Standard was manually integrated.**

| Target Compounds | I.S. Ref. | RT | (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | 1.926 | ( 0.000) | 85 | 227684 | 3.643 | 3.64 | | | 0.1 | 0.5 |
| 2) Chloromethane | (2) | 2.115 | ( 0.000) | 50 | 296590 | 4.353 | 4.35 | | | 0.09 | 0.5 |
| 5) Vinyl Chloride | (2) | 2.231 | ( 0.000) | 62 | 290217 | 4.540 | 4.54 | | | 0.08 | 0.5 |
| 6) 1,3-Butadiene | (2) | 2.219 | ( 0.000) | 39 | 361650M | 6.315 | 6.32 | | | 0.2 | 1 |
| 7) Bromomethane | (2) | 2.536 | ( 0.000) | 94 | 193019 | 4.499 | 4.50 | | | 0.1 | 0.5 |
| 8) Chloroethane | (2) | 2.615 | ( 0.000) | 64 | 170208 | 4.489 | 4.49 | | | 0.09 | 0.5 |
| 9) Dichlorofluoromethane | (2) | 2.853 | ( 0.001) | 67 | 408366 | 4.938 | 4.94 | | | 0.09 | 0.5 |
| 10) Trichlorofluoromethane | (2) | 2.914 | ( 0.001) | 101 | 338204 | 5.351 | 5.35 | | | 0.1 | 0.5 |
| 12) Ethyl ether | (2) | 3.151 | ( 0.000) | 59 | 207630 | 5.006 | 5.01 | | | 0.05 | 0.5 |
| 13) Freon 123a | (2) | 3.237 | ( 0.000) | 67 | 259356 | 4.760 | 4.76 | | | 0.1 | 0.5 |
| 14) Acrolein | (1) | 3.328 | (-0.003) | 56 | 228489 | 31.456 | 31.46 | | | 3 | 25 |
| 16) 1,1-Dichloroethene | (2) | 3.456 | ( 0.000) | 96 | 190289 | 4.513 | 4.51 | | | 0.05 | 0.5 |
| 17) Freon 113 | (2) | 3.487 | ( 0.001) | 101 | 198691 | 4.785 | 4.78 | | | 0.06 | 0.5 |
| 15) Acetone | (1) | 3.499 | (-0.003) | 43 | 328538 | 34.757 | 34.76 | | | 1 | 5 |
| 18) Methyl Iodide | (2) | 3.645 | ( 0.000) | 142 | 353249 | 4.467 | 4.47 | | | 0.06 | 0.5 |
| 19) Bromoethane | (2) | 3.676 | ( 0.000) | 108 | 157256 | 4.339 | 4.34 | | | 0.09 | 0.5 |
| 20) Carbon Disulfide | (2) | 3.749 | ( 0.000) | 76 | 659404 | 4.359 | 4.36 | | | 0.09 | 1 |
| 24) Allyl Chloride | (2) | 3.920 | ( 0.000) | 41 | 355662 | 4.581 | 4.58 | | | 0.05 | 0.5 |
| 23) Methyl Acetate | (2) | 3.901 | (-0.000) | 43 | 128871 | 4.656 | 4.66 | | | 0.1 | 1 |
| 25) Methylene Chloride | (2) | 4.102 | ( 0.000) | 84 | 227176 | 4.744 | 4.74 | | | 0.06 | 0.5 |
| 30) t-Butyl Alcohol | (1) | 4.255 | (-0.001) | 59 | 190631 | 53.015 | 53.02 | | | 2 | 10 |
| 31) Acrylonitrile | (1) | 4.450 | (-0.004) | 53 | 290613 | 24.749 | 24.75 | | | 0.3 | 5 |
| 33) trans-1,2-Dichloroethene | (2) | 4.505 | ( 0.000) | 96 | 219203 | 4.597 | 4.60 | | | 0.05 | 0.5 |
| 32) Methyl Tertiary Butyl Ether | (2) | 4.499 | (-0.000) | 73 | 620259 | 4.915 | 4.92 | | | 0.05 | 0.5 |
| 34) n-Hexane | (2) | 4.932 | (-0.000) | 57 | 336062 | 4.652 | 4.65 | | | 0.05 | 0.5 |
| 35) 1,1-Dichloroethane | (2) | 5.175 | ( 0.000) | 63 | 415283 | 4.754 | 4.75 | | | 0.05 | 0.5 |
| 36) di-Isopropyl Ether | (2) | 5.236 | (-0.000) | 45 | 824572 | 5.025 | 5.02 | | | 0.05 | 0.5 |
| 37) 2-Chloro-1,3-Butadiene | (2) | 5.285 | ( 0.000) | 53 | 358493 | 4.723 | 4.72 | | | 0.05 | 0.5 |
| 39) Ethyl t-butyl ether | (2) | 5.767 | ( 0.000) | 59 | 753562 | 4.807 | 4.81 | | | 0.06 | 0.5 |
| 41) cis-1,2-Dichloroethene | (2) | 6.017 | (-0.000) | 96 | 265183 | 4.941 | 4.94 | | | 0.05 | 0.5 |

**M = Compound was manually integrated.**

Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12. Target 3.5 esignature user ID: mec29284

# Analysis Summary for GC/MS Volatiles

Data file: /chem2/HP10193.i/20feb05a.b/cf05101.d Injection date and time: **05-FEB-2020 20:08**
Data file Sample Info. Line: LCSC92;LCSC92;1;3;LCS;;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **8260W25**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

| Target Compounds | I.S. Ref. | RT (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ |
|---|---|---|---|---|---|---|---|---|---|---|
| 42) 1,2-Dichloroethene (Total) | (2) | | 96 | 484386 | 9.539 | 9.54 | | | 0.05 | 0.5 |
| 43) 2,2-Dichloropropane | (2) | 6.023( 0.000) | 77 | 332892 | 4.573 | 4.57 | | | 0.06 | 0.5 |
| 40) 2-Butanone | (1) | 5.992(-0.006) | 43 | 606888 | 36.588 | 36.59 | | | 0.7 | 5 |
| 44) Propionitrile | (1) | 6.096(-0.006) | 54 | 160946 | 39.592 | 39.59 | | | 2 | 10 |
| 47) Methacrylonitrile | (1) | 6.303(-0.005) | 67 | 531828 | 34.503 | 34.50 | | | 0.6 | 5 |
| 49) Bromochloromethane | (2) | 6.346( 0.000) | 128 | 109993 | 4.590 | 4.59 | | | 0.05 | 0.5 |
| 50) Tetrahydrofuran | (1) | 6.358(-0.005) | 71 | 109258 | 22.143 | 22.14 | | | 0.6 | 5 |
| 51) Chloroform | (2) | 6.504(-0.000) | 83 | 397655 | 4.901 | 4.90 | | | 0.05 | 0.5 |
| 53) 1,1,1-Trichloroethane | (2) | 6.724(-0.000) | 97 | 333161 | 4.623 | 4.62 | | | 0.06 | 0.5 |
| 54) Cyclohexane | (2) | 6.815( 0.000) | 56 | 392599 | 4.457 | 4.46 | | | 0.05 | 0.5 |
| 57) 1,1-Dichloropropene | (2) | 6.937( 0.000) | 75 | 314063 | 4.645 | 4.64 | | | 0.05 | 0.5 |
| 56) Carbon Tetrachloride | (2) | 6.931( 0.000) | 117 | 289319 | 4.791 | 4.79 | | | 0.06 | 0.5 |
| 58) Isobutyl Alcohol | (1) | 7.120(-0.006) | 41 | 165396 | 137.933 | 137.93 | | | 5 | 25 |
| 60) Benzene | (2) | 7.206(-0.000) | 78 | 930403 | 4.660 | 4.66 | | | 0.05 | 0.5 |
| 61) 1,2-Dichloroethane | (2) | 7.279( 0.000) | 62 | 282165 | 5.010 | 5.01 | | | 0.05 | 0.5 |
| 62) t-Amyl methyl ether | (2) | 7.394( 0.000) | 73 | 685582 | 4.814 | 4.81 | | | 0.3 | 1 |
| 64) n-Heptane | (2) | 7.620(-0.000) | 43 | 348195 | 4.654 | 4.65 | | | 0.06 | 0.5 |
| 67) n-Butanol | (1) | 8.004(-0.008) | 56 | 278737 | 261.096 | 261.10 | | | 34 | 50 |
| 69) Trichloroethene | (2) | 8.096(-0.000) | 95 | 236668 | 4.743 | 4.74 | | | 0.05 | 0.5 |
| 71) Methylcyclohexane | (2) | 8.394(-0.000) | 83 | 392084 | 4.383 | 4.38 | | | 0.05 | 0.5 |
| 72) 1,2-Dichloropropane | (2) | 8.431(-0.000) | 63 | 254752 | 4.962 | 4.96 | | | 0.05 | 0.5 |
| 73) Methyl Methacrylate | (1) | 8.522(-0.009) | 69 | 139312 | 4.424 | 4.42 | | | 0.09 | 0.5 |
| 75) Dibromomethane | (2) | 8.541(-0.000) | 93 | 122355 | 5.087 | 5.09 | | | 0.05 | 0.5 |
| 74) 1,4-Dioxane | (1) | 8.534(-0.010) | 88 | 26822M | 135.107 | 135.11 | | | 9 | 100 |
| 76) Bromodichloromethane | (2) | 8.778(-0.000) | 83 | 296532 | 4.821 | 4.82 | | | 0.05 | 0.5 |
| 78) 2-Nitropropane | (1) | 9.065(-0.008) | 41 | 43859 | 4.500 | 4.50 | | J | 1 | 5 |
| 81) 1-Bromo-2-chloroethane | (2) | 9.175(-0.000) | 63 | 275460 | 4.975 | 4.97 | | | 0.08 | 0.5 |
| 82) cis-1,3-Dichloropropene | (2) | 9.339(-0.000) | 75 | 366670 | 4.624 | 4.62 | | | 0.05 | 0.5 |
| 83) 4-Methyl-2-Pentanone | (2) | 9.522(-0.000) | 43 | 996187M | 26.170 | 26.17 | | | 0.6 | 5 |
| 85) Toluene | (3) | 9.723( 0.000) | 92 | 596920 | 4.636 | 4.64 | | | 0.05 | 0.5 |
| 86) trans-1,3-Dichloropropene | (3) | 9.992( 0.000) | 75 | 311917 | 4.480 | 4.48 | | | 0.05 | 0.5 |
| 87) 1,3-Dichloropropene (total) | (3) | | 75 | 678587 | 9.105 | 9.10 | | | 0.05 | 0.5 |
| 88) Ethyl Methacrylate | (3) | 10.059(-0.000) | 69 | 270435 | 4.341 | 4.34 | | | 0.3 | 1 |
| 90) 1,1,2-Trichloroethane | (3) | 10.199( 0.000) | 97 | 183317 | 4.980 | 4.98 | | | 0.05 | 0.5 |
| 91) Tetrachloroethene | (3) | 10.284(-0.000) | 166 | 265002 | 4.788 | 4.79 | | | 0.05 | 0.5 |
| 92) 1,3-Dichloropropane | (3) | 10.363(-0.000) | 76 | 312029 | 4.798 | 4.80 | | | 0.05 | 0.5 |
| 93) 2-Hexanone | (3) | 10.424(-0.000) | 43 | 728109 | 25.960 | 25.96 | | | 0.7 | 5 |
| 95) Dibromochloromethane | (3) | 10.583(-0.000) | 129 | 216485 | 4.858 | 4.86 | | | 0.06 | 0.5 |
| 97) 1,2-Dibromoethane | (3) | 10.693(-0.000) | 107 | 172645 | 4.843 | 4.84 | | | 0.05 | 0.5 |
| 98) 1-Chlorohexane | (3) | 11.138(-0.000) | 91 | 316981 | 4.241 | 4.24 | | | 0.1 | 0.5 |
| 100) Chlorobenzene | (3) | 11.156(-0.000) | 112 | 689288 | 4.755 | 4.76 | | | 0.05 | 0.5 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | 11.241(-0.000) | 131 | 238181 | 4.771 | 4.77 | | | 0.05 | 0.5 |
| 102) Ethylbenzene | (3) | 11.241(-0.000) | 91 | 1159700 | 4.668 | 4.67 | | | 0.05 | 0.5 |
| 103) m+p-Xylene | (3) | 11.357(-0.000) | 106 | 916097 | 9.400 | 9.40 | | | 0.08 | 0.5 |
| 106) o-Xylene | (3) | 11.692(-0.000) | 106 | 456252 | 4.712 | 4.71 | | | 0.05 | 0.5 |
| 107) Xylene (Total) | (3) | | 106 | 1372349 | 14.112 | 14.11 | | | 0.1 | 1 |
| 108) Styrene | (3) | 11.711(-0.000) | 104 | 762563 | 4.663 | 4.66 | | | 0.05 | 0.5 |
| 109) Bromoform | (3) | 11.863(-0.000) | 173 | 125749 | 4.582 | 4.58 | | | 0.3 | 1 |
| 110) Isopropylbenzene | (3) | 11.997(-0.000) | 105 | 1168442 | 4.687 | 4.69 | | | 0.05 | 0.5 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | 12.247(-0.000) | 83 | 242547 | 4.720 | 4.72 | | | 0.06 | 0.5 |
| 116) Bromobenzene | (4) | 12.253( 0.000) | 156 | 303854 | 4.652 | 4.65 | | | 0.05 | 0.5 |
| 117) trans-1,4-Dichloro-2-butene | (1) | 12.272(-0.013) | 53 | 312002 | 21.473 | 21.47 | | | 0.8 | 5 |
| 118) 1,2,3-Trichloropropane | (4) | 12.290( 0.000) | 110 | 64373M | 4.717 | 4.72 | | | 0.06 | 1 |
| 119) n-Propylbenzene | (4) | 12.326(-0.000) | 91 | 1412853 | 4.577 | 4.58 | | | 0.05 | 0.5 |

**M = Compound was manually integrated.**

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Analysis Summary for GC/MS Volatiles

Data file: /chem2/HP10193.i/20feb05a.b/cf05l01.d Injection date and time: **05-FEB-2020 20:08**
Data file Sample Info. Line: LCSC92;LCSC92;1;3;LCS;;;;cf05b01; Instrument ID: **HP10193.i** Batch: **C200361AA**
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Blank Data file reference: **/chem2/HP10193.i/20feb05a.b/cf05b01.d**

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: **8260W25**
Calibration date and time (Last Method Edit): 05-FEB-2020 20:03
Mid Level Daily Calibration Standard Reference: **/chem2/HP10193.i/20feb05a.b/cf05c01.d**

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 25 ml Sample Volume (Vo): 25 ml

| Target Compounds | I.S. Ref. | RT (+/-RRT) | QIon | Area | Conc. (on-column) | Conc. (in sample) | Blank Conc. | Qual. | Reporting Limit (in sample) | LOQ |
|---|---|---|---|---|---|---|---|---|---|---|
| 121) 2-Chlorotoluene | (4) | 12.400( 0.000) | 126 | 287454 | 4.466 | 4.47 | | | 0.05 | 0.5 |
| 123) 1,3,5-Trimethylbenzene | (4) | 12.467(-0.000) | 105 | 1022054 | 4.488 | 4.49 | | | 0.05 | 0.5 |
| 124) 4-Chlorotoluene | (4) | 12.497(-0.000) | 126 | 301177 | 4.487 | 4.49 | | | 0.05 | 0.5 |
| 127) tert-Butylbenzene | (4) | 12.704( 0.000) | 134 | 213516M | 4.400 | 4.40 | | | 0.05 | 0.5 |
| 128) Pentachloroethane | (4) | 12.741(-0.000) | 167 | 184862 | 4.423 | 4.42 | | | 0.3 | 1 |
| 129) 1,2,4-Trimethylbenzene | (4) | 12.747( 0.000) | 105 | 1065809 | 4.441 | 4.44 | | | 0.05 | 0.5 |
| 130) sec-Butylbenzene | (4) | 12.875(-0.000) | 105 | 1324985 | 4.536 | 4.54 | | | 0.05 | 0.5 |
| 133) 1,3-Dichlorobenzene | (4) | 12.973(-0.000) | 146 | 602310 | 4.654 | 4.65 | | | 0.05 | 0.5 |
| 134) p-Isopropyltoluene | (4) | 12.979(-0.000) | 119 | 1153954 | 4.515 | 4.51 | | | 0.05 | 0.5 |
| 136) 1,4-Dichlorobenzene | (4) | 13.046(-0.000) | 146 | 625667 | 4.711 | 4.71 | | | 0.06 | 0.5 |
| 137) 1,2,3-Trimethylbenzene | (4) | 13.058( 0.000) | 120 | 479308 | 4.457 | 4.46 | | | 0.05 | 0.5 |
| 138) Benzyl Chloride | (4) | 13.125(-0.000) | 126 | 91533 | 4.105 | 4.11 | | | 0.2 | 0.5 |
| 140) n-Butylbenzene | (4) | 13.271( 0.000) | 92 | 590702 | 4.602 | 4.60 | | | 0.07 | 0.5 |
| 141) 1,2-Dichlorobenzene | (4) | 13.308( 0.000) | 146 | 575829 | 4.738 | 4.74 | | | 0.05 | 0.5 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | 13.857(-0.014) | 155 | 37414 | 4.678 | 4.68 | | | 0.2 | 0.5 |
| 146) 1,3,5-Trichlorobenzene | (4) | 13.978( 0.000) | 180 | 494032 | 4.607 | 4.61 | | | 0.1 | 0.5 |
| 147) 1,2,4-Trichlorobenzene | (4) | 14.405( 0.000) | 180 | 453865 | 4.677 | 4.68 | | | 0.09 | 0.5 |
| 148) Hexachlorobutadiene | (4) | 14.491( 0.000) | 225 | 217942 | 4.677 | 4.68 | | | 0.1 | 0.5 |
| 149) Naphthalene | (4) | 14.588( 0.000) | 128 | 815654 | 4.546 | 4.55 | | | 0.09 | 0.5 |
| 150) 1,2,3-Trichlorobenzene | (4) | 14.728( 0.000) | 180 | 383995 | 4.516 | 4.52 | | | 0.1 | 0.5 |

**M = Compound was manually integrated.**

Total number of targets = 104

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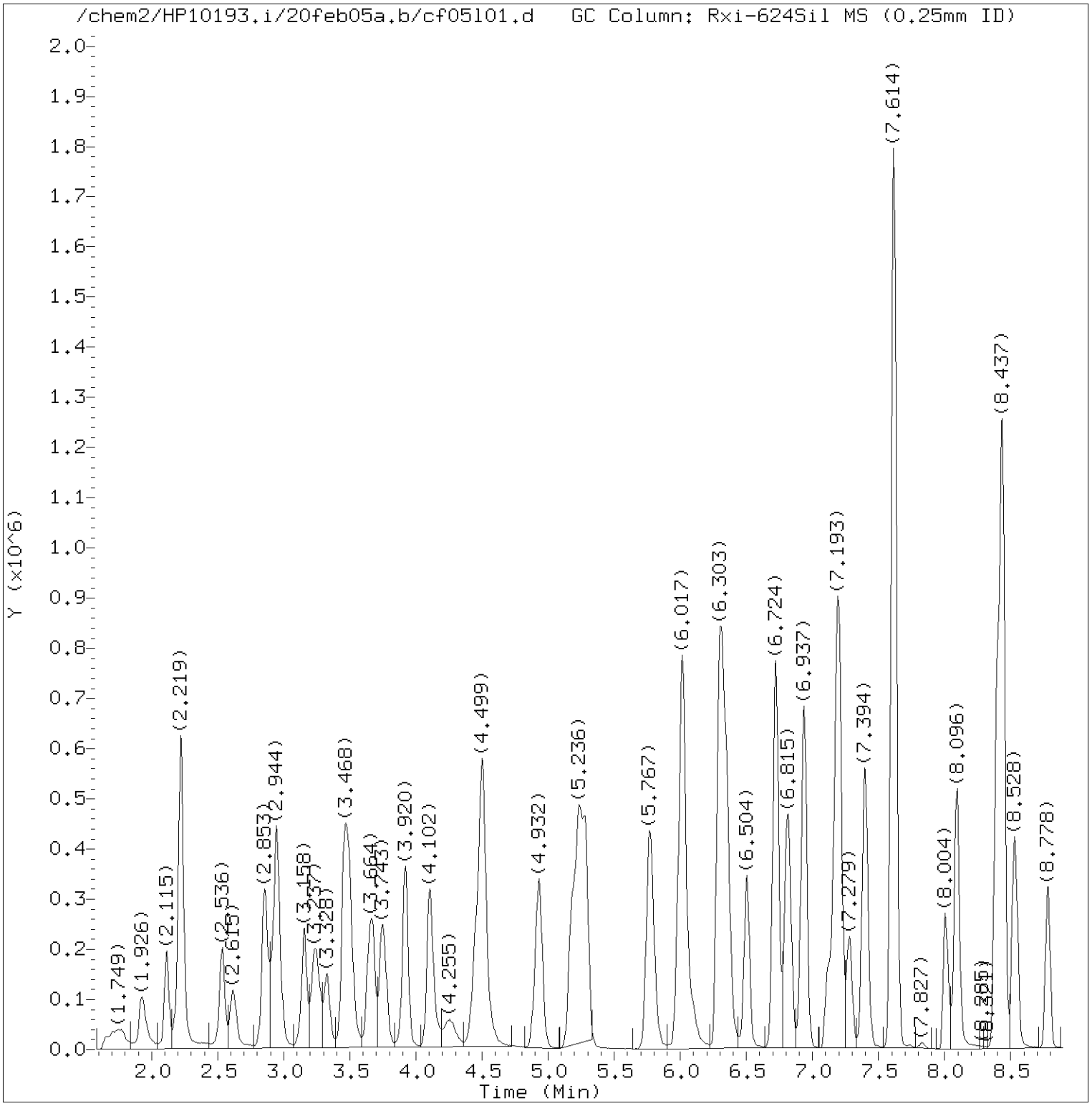
Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23. PARALLAX ID: kek01027




Total Ion Chromatogram (TIC)

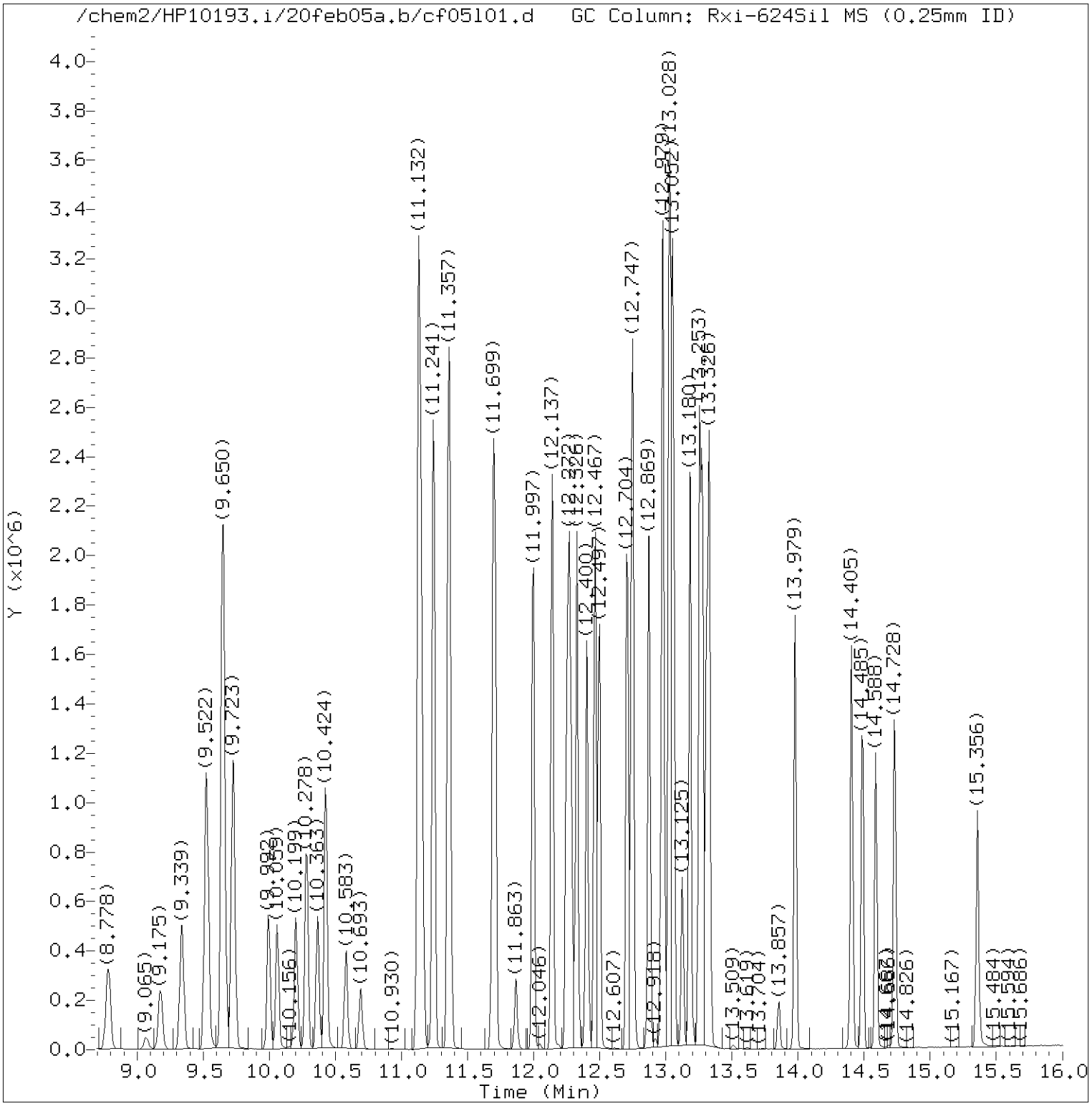
Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05l01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:08 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Sample Name: LCSC92 Lab Sample ID: LCSC92

Digitally signed by Miranda E. Campbell
on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284




Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05l01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:08 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Sample Name: LCSC92 Lab Sample ID: LCSC92

Digitally signed by Miranda E. Campbell
on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05l01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:08 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Sample Name: LCSC92 Lab Sample ID: LCSC92

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 1) Dichlorodifluoromethane | (2) | 1.926 | 85 | 227684 | 3.643 |
| 2) Chloromethane | (2) | 2.115 | 50 | 296590 | 4.353 |
| 6) 1,3-Butadiene | (2) | 2.219 | 39 | 361650M | 6.315 |
| 5) Vinyl Chloride | (2) | 2.231 | 62 | 290217 | 4.540 |
| 7) Bromomethane | (2) | 2.536 | 94 | 193019 | 4.499 |
| 8) Chloroethane | (2) | 2.615 | 64 | 170208 | 4.489 |
| 9) Dichlorofluoromethane | (2) | 2.853 | 67 | 408366 | 4.938 |
| 10) Trichlorofluoromethane | (2) | 2.914 | 101 | 338204 | 5.351 |
| 12) Ethyl ether | (2) | 3.151 | 59 | 207630 | 5.006 |
| 13) Freon 123a | (2) | 3.237 | 67 | 259356 | 4.760 |
| 14) Acrolein | (1) | 3.328 | 56 | 228489 | 31.456 |
| 16) 1,1-Dichloroethene | (2) | 3.456 | 96 | 190289 | 4.513 |
| 17) Freon 113 | (2) | 3.487 | 101 | 198691 | 4.785 |
| 15) Acetone | (1) | 3.499 | 43 | 328538 | 34.757 |
| 18) Methyl Iodide | (2) | 3.645 | 142 | 353249 | 4.467 |
| 19) Bromoethane | (2) | 3.676 | 108 | 157256 | 4.339 |
| 20) Carbon Disulfide | (2) | 3.749 | 76 | 659404 | 4.359 |
| 23) Methyl Acetate | (2) | 3.901 | 43 | 128871 | 4.656 |
| 24) Allyl Chloride | (2) | 3.920 | 41 | 355662 | 4.581 |
| 25) Methylene Chloride | (2) | 4.102 | 84 | 227176 | 4.744 |
| 28)*t-Butyl Alcohol-d10 | (1) | 4.133 | 65 | 175629 | 50.000 |
| 30) t-Butyl Alcohol | (1) | 4.255 | 59 | 190631 | 53.015 |
| 31) Acrylonitrile | (1) | 4.450 | 53 | 290613 | 24.749 |
| 32) Methyl Tertiary Butyl Ether | (2) | 4.499 | 73 | 620259 | 4.915 |
| 33) trans-1,2-Dichloroethene | (2) | 4.505 | 96 | 219203 | 4.597 |
| 34) n-Hexane | (2) | 4.932 | 57 | 336062 | 4.652 |
| 35) 1,1-Dichloroethane | (2) | 5.175 | 63 | 415283 | 4.754 |
| 36) di-Isopropyl Ether | (2) | 5.236 | 45 | 824572 | 5.025 |
| 37) 2-Chloro-1,3-Butadiene | (2) | 5.285 | 53 | 358493 | 4.723 |
| 39) Ethyl t-butyl ether | (2) | 5.767 | 59 | 753562 | 4.807 |
| 40) 2-Butanone | (1) | 5.992 | 43 | 606888 | 36.588 |
| 41) cis-1,2-Dichloroethene | (2) | 6.017 | 96 | 265183 | 4.941 |
| 43) 2,2-Dichloropropane | (2) | 6.023 | 77 | 332892 | 4.573 |
| 44) Propionitrile | (1) | 6.096 | 54 | 160946 | 39.592 |
| 42) 1,2-Dichloroethene (Total) | (2) | | 96 | 484386 | 9.539 |
| 47) Methacrylonitrile | (1) | 6.303 | 67 | 531828 | 34.503 |
| 49) Bromochloromethane | (2) | 6.346 | 128 | 109993 | 4.590 |
| 50) Tetrahydrofuran | (1) | 6.358 | 71 | 109258 | 22.143 |

M = Compound was manually integrated.
* = Compound is an internal standard.



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on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05l01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:08 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Sample Name: LCSC92 Lab Sample ID: LCSC92

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 51) Chloroform | (2) | 6.504 | 83 | 397655 | 4.901 |
| 52)$Dibromofluoromethane | (2) | 6.718 | 113 | 434748 | 10.301 |
| 53) 1,1,1-Trichloroethane | (2) | 6.724 | 97 | 333161 | 4.623 |
| 54) Cyclohexane | (2) | 6.815 | 56 | 392599 | 4.457 |
| 56) Carbon Tetrachloride | (2) | 6.931 | 117 | 289319 | 4.791 |
| 57) 1,1-Dichloropropene | (2) | 6.937 | 75 | 314063 | 4.645 |
| 58) Isobutyl Alcohol | (1) | 7.120 | 41 | 165396 | 137.933 |
| 59)$1,2-Dichloroethane-d4 | (2) | 7.181 | 102 | 95868M | 10.364 |
| 60) Benzene | (2) | 7.206 | 78 | 930403 | 4.660 |
| 61) 1,2-Dichloroethane | (2) | 7.279 | 62 | 282165 | 5.010 |
| 62) t-Amyl methyl ether | (2) | 7.394 | 73 | 685582 | 4.814 |
| 65)*Fluorobenzene | (2) | 7.614 | 96 | 1799580 | 10.000 |
| 64) n-Heptane | (2) | 7.620 | 43 | 348195 | 4.654 |
| 67) n-Butanol | (1) | 8.004 | 56 | 278737 | 261.096 |
| 69) Trichloroethene | (2) | 8.096 | 95 | 236668 | 4.743 |
| 71) Methylcyclohexane | (2) | 8.394 | 83 | 392084 | 4.383 |
| 72) 1,2-Dichloropropane | (2) | 8.431 | 63 | 254752 | 4.962 |
| 73) Methyl Methacrylate | (1) | 8.522 | 69 | 139312 | 4.424 |
| 74) 1,4-Dioxane | (1) | 8.535 | 88 | 26822M | 135.107 |
| 75) Dibromomethane | (2) | 8.541 | 93 | 122355 | 5.087 |
| 76) Bromodichloromethane | (2) | 8.778 | 83 | 296532 | 4.821 |
| 78) 2-Nitropropane | (1) | 9.065 | 41 | 43859 | 4.500 |
| 81) 1-Bromo-2-chloroethane | (2) | 9.175 | 63 | 275460 | 4.975 |
| 82) cis-1,3-Dichloropropene | (2) | 9.339 | 75 | 366670 | 4.624 |
| 83) 4-Methyl-2-Pentanone | (2) | 9.522 | 43 | 996187M | 26.170 |
| 84)$Toluene-d8 | (3) | 9.650 | 98 | 1802721 | 10.004 |
| 85) Toluene | (3) | 9.723 | 92 | 596920 | 4.636 |
| 87) 1,3-Dichloropropene (total) | (3) | | 75 | 678587 | 9.105 |
| 86) trans-1,3-Dichloropropene | (3) | 9.992 | 75 | 311917 | 4.480 |
| 88) Ethyl Methacrylate | (3) | 10.059 | 69 | 270435 | 4.341 |
| 90) 1,1,2-Trichloroethane | (3) | 10.199 | 97 | 183317 | 4.980 |
| 91) Tetrachloroethene | (3) | 10.284 | 166 | 265002 | 4.788 |
| 92) 1,3-Dichloropropane | (3) | 10.363 | 76 | 312029 | 4.798 |
| 93) 2-Hexanone | (3) | 10.424 | 43 | 728109 | 25.960 |
| 95) Dibromochloromethane | (3) | 10.583 | 129 | 216485 | 4.858 |
| 97) 1,2-Dibromoethane | (3) | 10.693 | 107 | 172645 | 4.843 |
| 99)*Chlorobenzene-d5 | (3) | 11.125 | 117 | 1352171 | 10.000 |
| 98) 1-Chlorohexane | (3) | 11.138 | 91 | 316981 | 4.241 |

M = Compound was manually integrated.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.



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on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

Quant Report

Target Revision 3.5

Data File: /chem2/HP10193.i/20feb05a.b/cf05l01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:08 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Sample Name: LCSC92 Lab Sample ID: LCSC92

| Compounds | I.S. Ref. | RT | QIon | Area | On-Column Amount (ng) |
|---|---|---|---|---|---|
| 100) Chlorobenzene | (3) | 11.156 | 112 | 689288 | 4.755 |
| 101) 1,1,1,2-Tetrachloroethane | (3) | 11.241 | 131 | 238181 | 4.771 |
| 102) Ethylbenzene | (3) | 11.241 | 91 | 1159700 | 4.668 |
| 103) m+p-Xylene | (3) | 11.357 | 106 | 916097 | 9.400 |
| 106) o-Xylene | (3) | 11.692 | 106 | 456252 | 4.712 |
| 108) Styrene | (3) | 11.711 | 104 | 762563 | 4.663 |
| 107) Xylene (Total) | (3) | | 106 | 1372349 | 14.112 |
| 109) Bromoform | (3) | 11.863 | 173 | 125749 | 4.582 |
| 110) Isopropylbenzene | (3) | 11.997 | 105 | 1168442 | 4.687 |
| 113)$4-Bromofluorobenzene | (3) | 12.137 | 95 | 678442 | 10.021 |
| 115) 1,1,2,2-Tetrachloroethane | (4) | 12.247 | 83 | 242547 | 4.720 |
| 116) Bromobenzene | (4) | 12.253 | 156 | 303854 | 4.652 |
| 117) trans-1,4-Dichloro-2-butene | (1) | 12.272 | 53 | 312002 | 21.473 |
| 118) 1,2,3-Trichloropropane | (4) | 12.290 | 110 | 64373M | 4.717 |
| 119) n-Propylbenzene | (4) | 12.326 | 91 | 1412853 | 4.577 |
| 121) 2-Chlorotoluene | (4) | 12.400 | 126 | 287454 | 4.466 |
| 123) 1,3,5-Trimethylbenzene | (4) | 12.467 | 105 | 1022054 | 4.488 |
| 124) 4-Chlorotoluene | (4) | 12.497 | 126 | 301177 | 4.487 |
| 127) tert-Butylbenzene | (4) | 12.704 | 134 | 213516M | 4.400 |
| 128) Pentachloroethane | (4) | 12.741 | 167 | 184862 | 4.423 |
| 129) 1,2,4-Trimethylbenzene | (4) | 12.747 | 105 | 1065809 | 4.441 |
| 130) sec-Butylbenzene | (4) | 12.875 | 105 | 1324985 | 4.536 |
| 133) 1,3-Dichlorobenzene | (4) | 12.973 | 146 | 602310 | 4.654 |
| 134) p-Isopropyltoluene | (4) | 12.979 | 119 | 1153954 | 4.515 |
| 135)*1,4-Dichlorobenzene-d4 | (4) | 13.028 | 152 | 784172 | 10.000 |
| 136) 1,4-Dichlorobenzene | (4) | 13.046 | 146 | 625667 | 4.711 |
| 137) 1,2,3-Trimethylbenzene | (4) | 13.058 | 120 | 479308 | 4.457 |
| 138) Benzyl Chloride | (4) | 13.125 | 126 | 91533 | 4.105 |
| 140) n-Butylbenzene | (4) | 13.271 | 92 | 590702 | 4.602 |
| 141) 1,2-Dichlorobenzene | (4) | 13.308 | 146 | 575829 | 4.738 |
| 145) 1,2-Dibromo-3-chloropropane | (1) | 13.857 | 155 | 37414 | 4.678 |
| 146) 1,3,5-Trichlorobenzene | (4) | 13.979 | 180 | 494032 | 4.607 |
| 147) 1,2,4-Trichlorobenzene | (4) | 14.405 | 180 | 453865 | 4.677 |
| 148) Hexachlorobutadiene | (4) | 14.491 | 225 | 217942 | 4.677 |
| 149) Naphthalene | (4) | 14.588 | 128 | 815654 | 4.546 |
| 150) 1,2,3-Trichlorobenzene | (4) | 14.728 | 180 | 383995 | 4.516 |

M = Compound was manually integrated.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.



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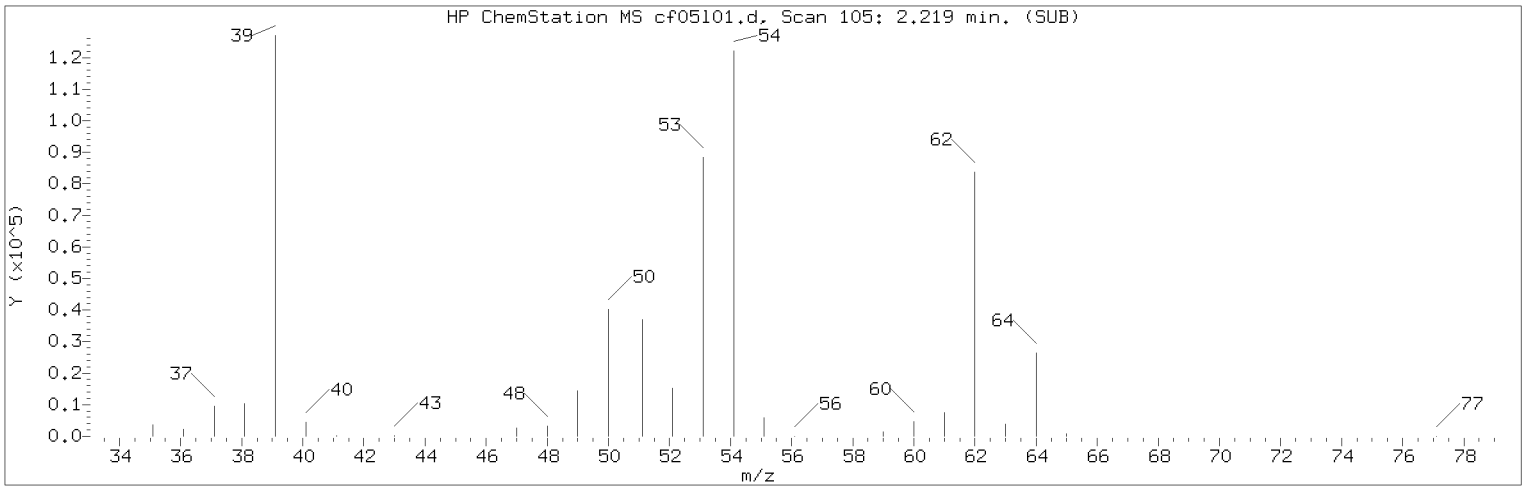
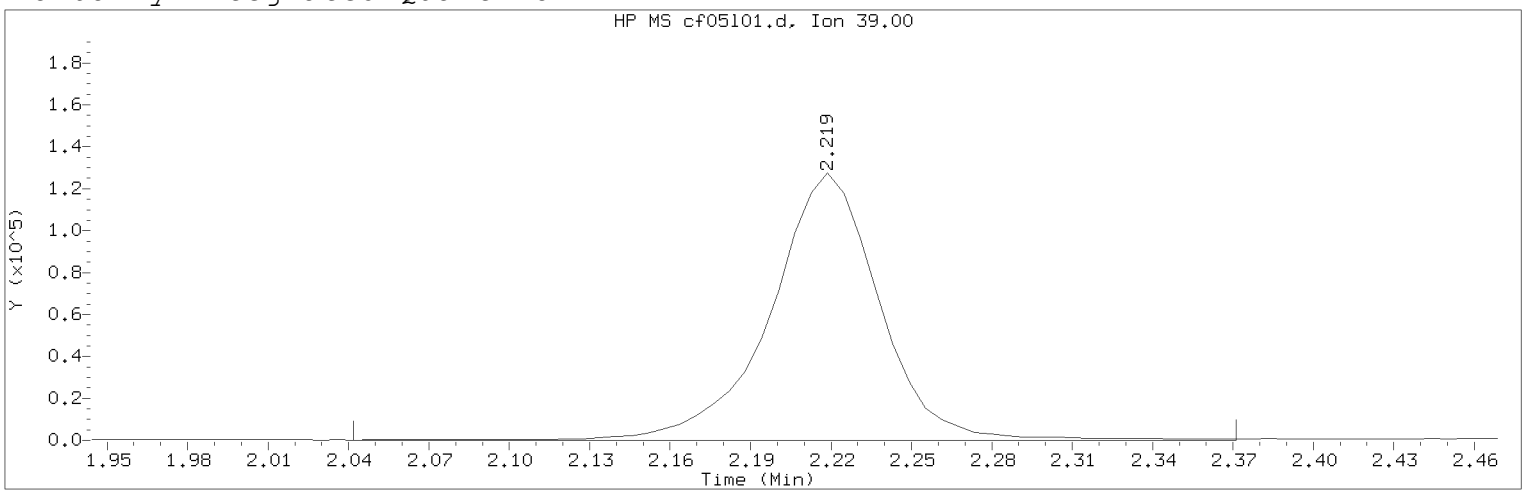
on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05l01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:08 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Sample Name: LCSC92 Lab Sample ID: LCSC92

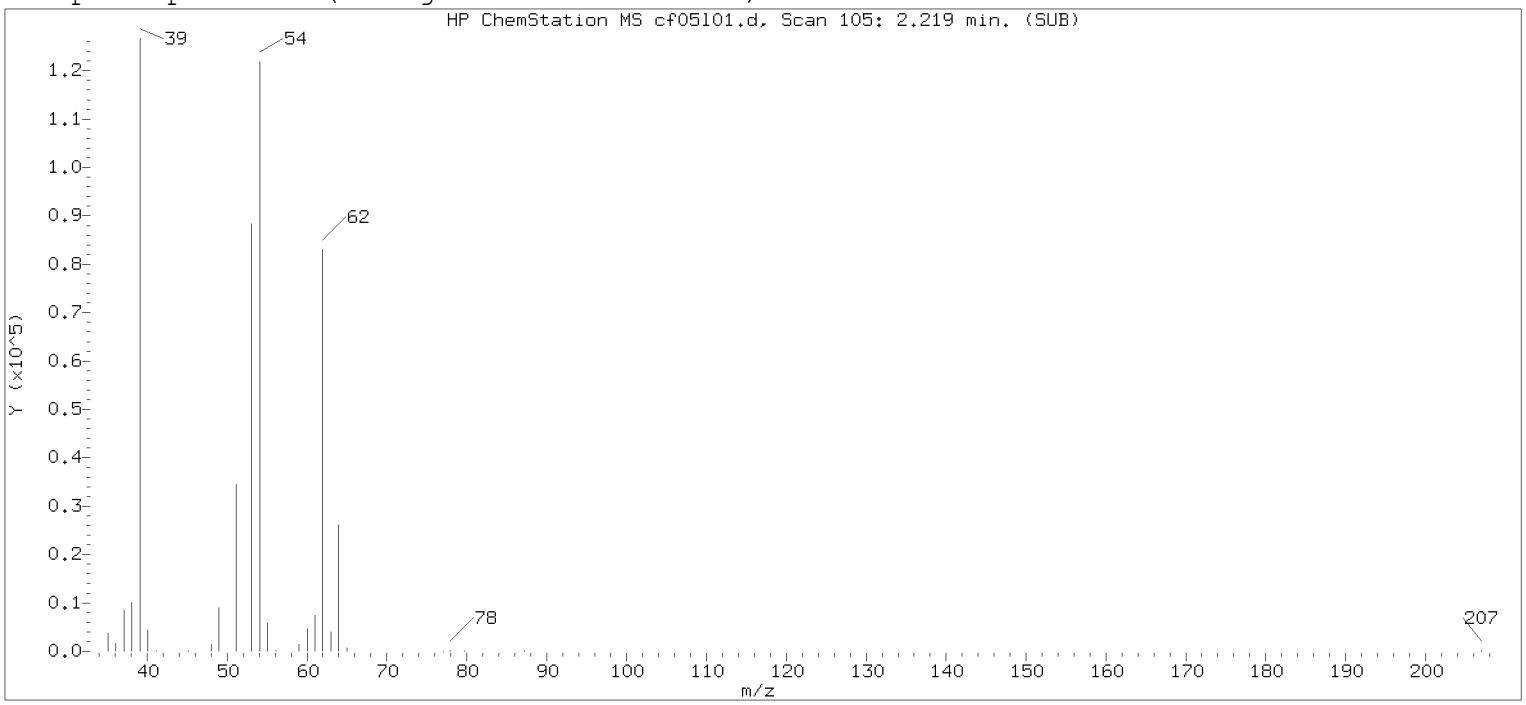
Compound Number : 6
Compound Name : 1,3-Butadiene
Scan Number : 105
Retention Time (minutes): 2.219
Quant Ion : 39.00
Area (flag) : 361650M
On-Column Amount (ng) : 6.3155
Integration start scan : 75 Integration stop scan: 129
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

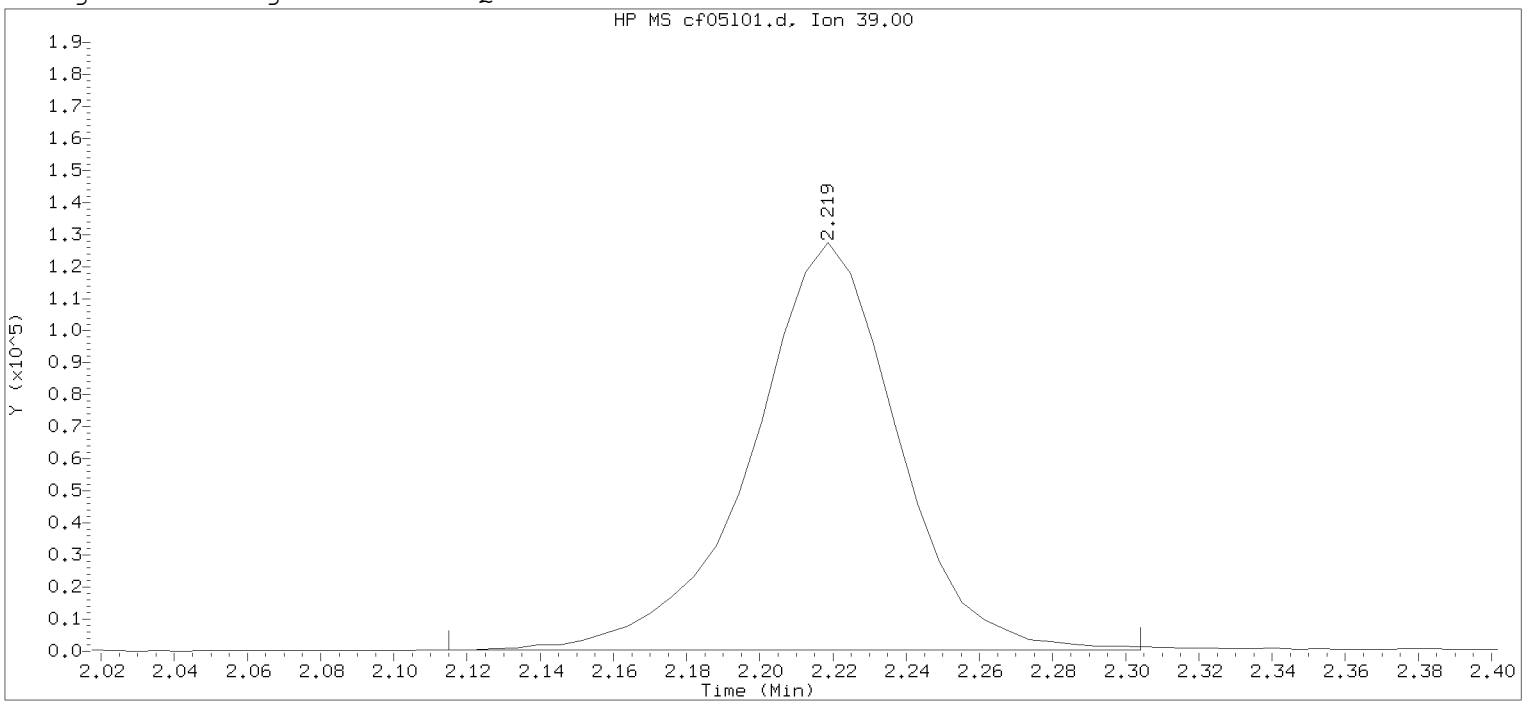
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05l01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:08 Analyst ID: MEC29284

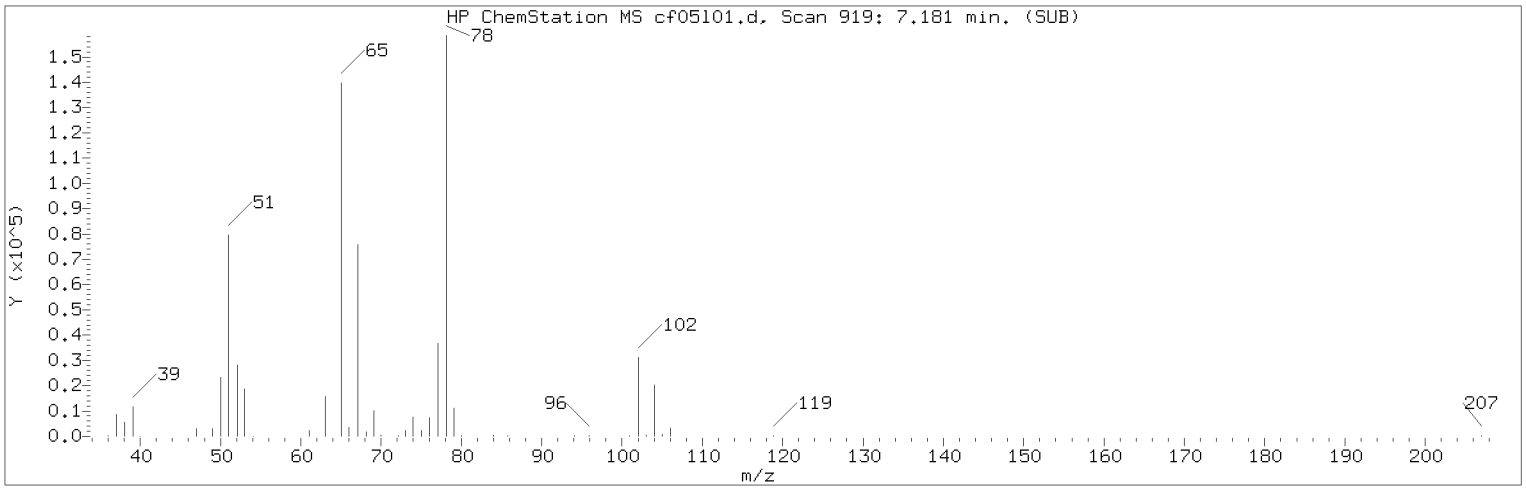
Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:26 Automation

Sample Name: LCSC92 Lab Sample ID: LCSC92

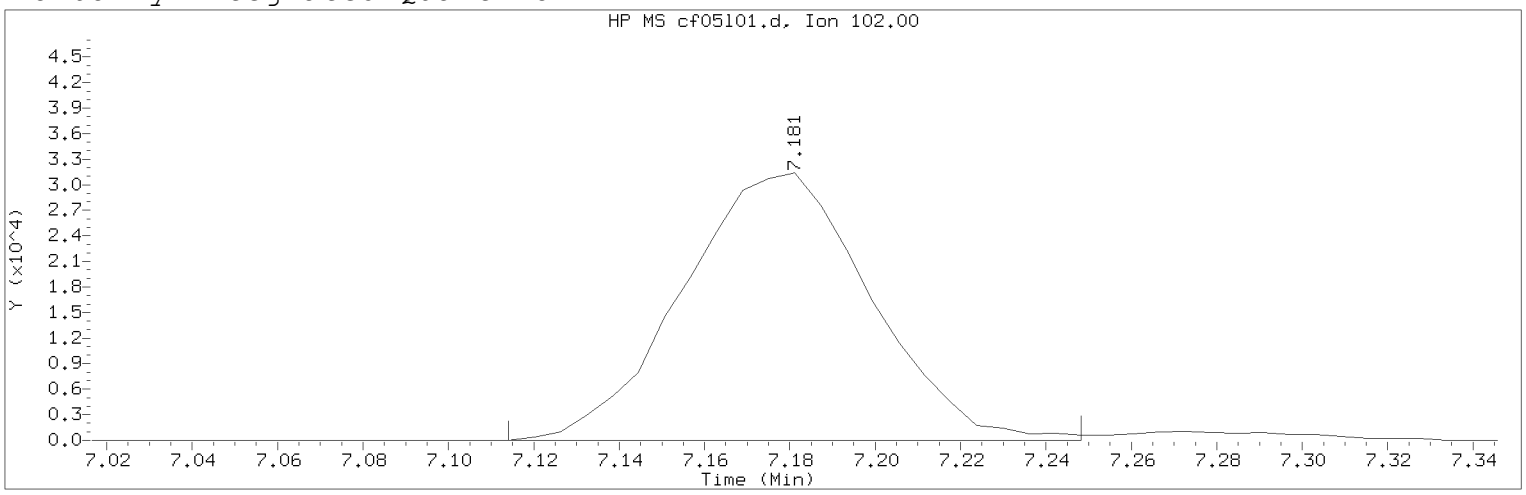
Compound Number : 6
Compound Name : 1,3-Butadiene
Scan Number : 105
Retention Time (minutes): 2.219
Quant Ion : 39.00
Area : 353349
On-column Amount (ng) : 6.1705
Integration start scan : 87 Integration stop scan: 118
Y at integration start : 327 Y at integration end: 327

Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05l01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:08 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Sample Name: LCSC92 Lab Sample ID: LCSC92

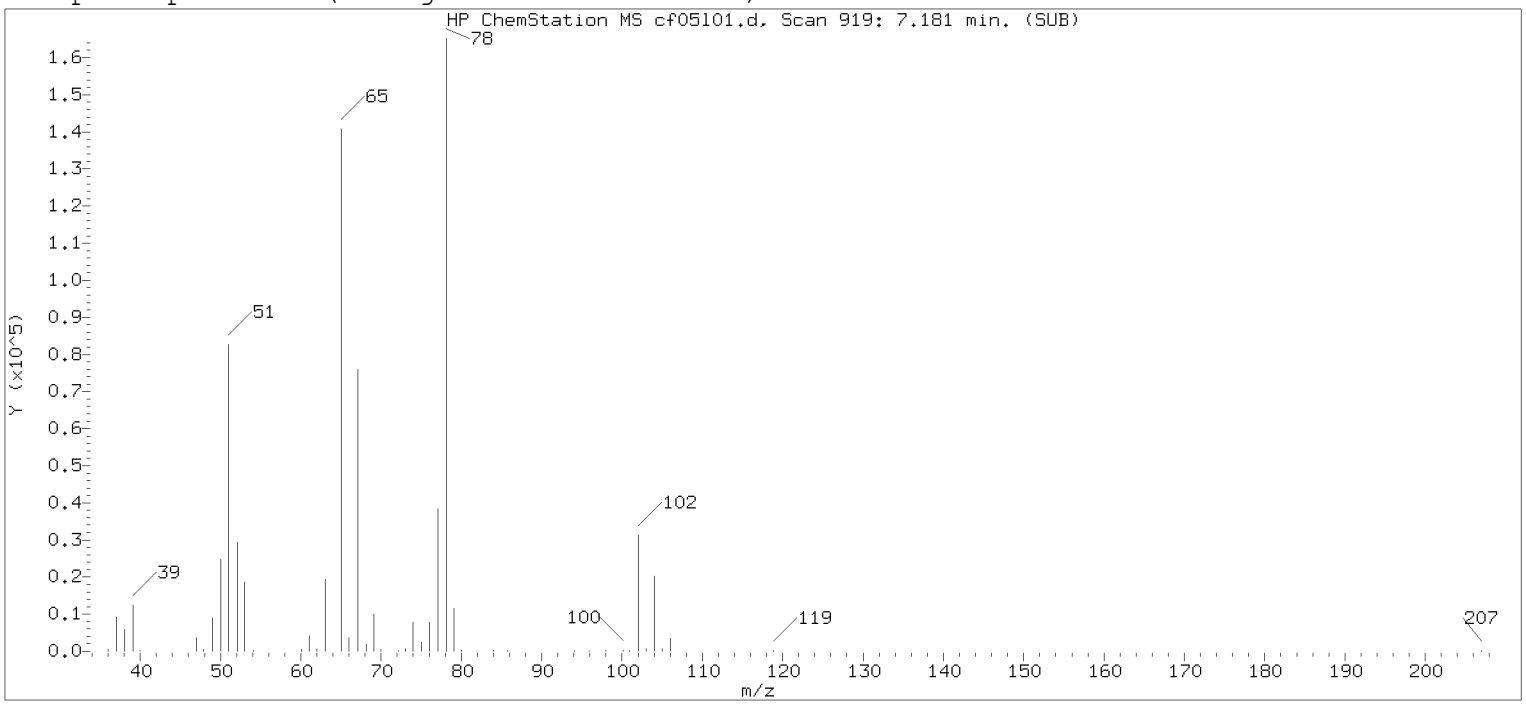
Compound Number : 59
Compound Name : 1,2-Dichloroethane-d4
Scan Number : 919
Retention Time (minutes): 7.181
Quant Ion : 102.00
Area (flag) : 95868M
On-Column Amount (ng) : 10.3639
Integration start scan : 907 Integration stop scan: 929
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

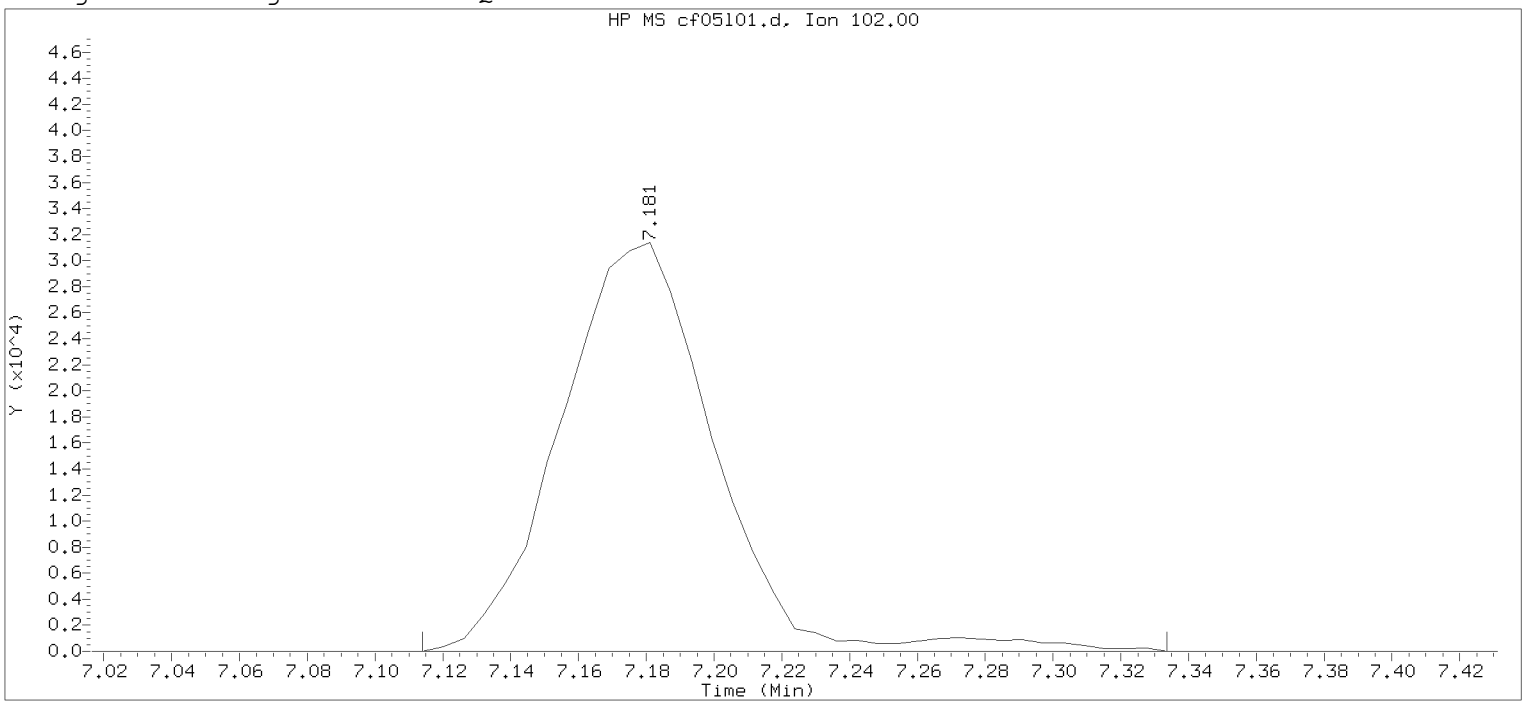
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05l01.d  Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:08  Analyst ID: MEC29284

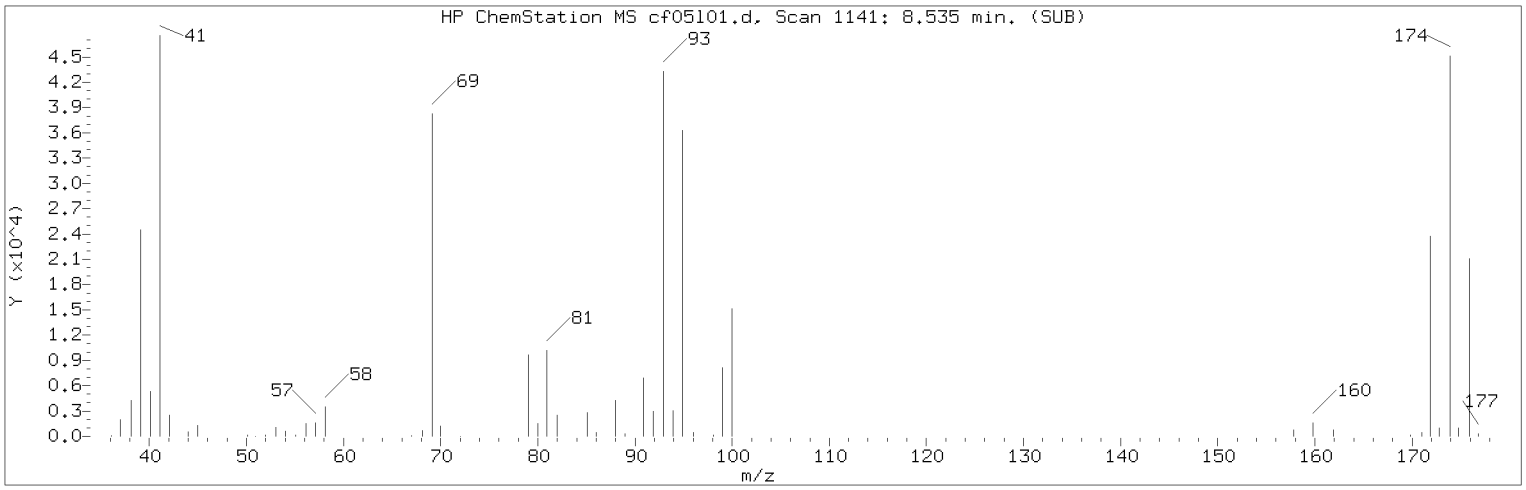
Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:26 Automation

Sample Name: LCSC92  Lab Sample ID: LCSC92

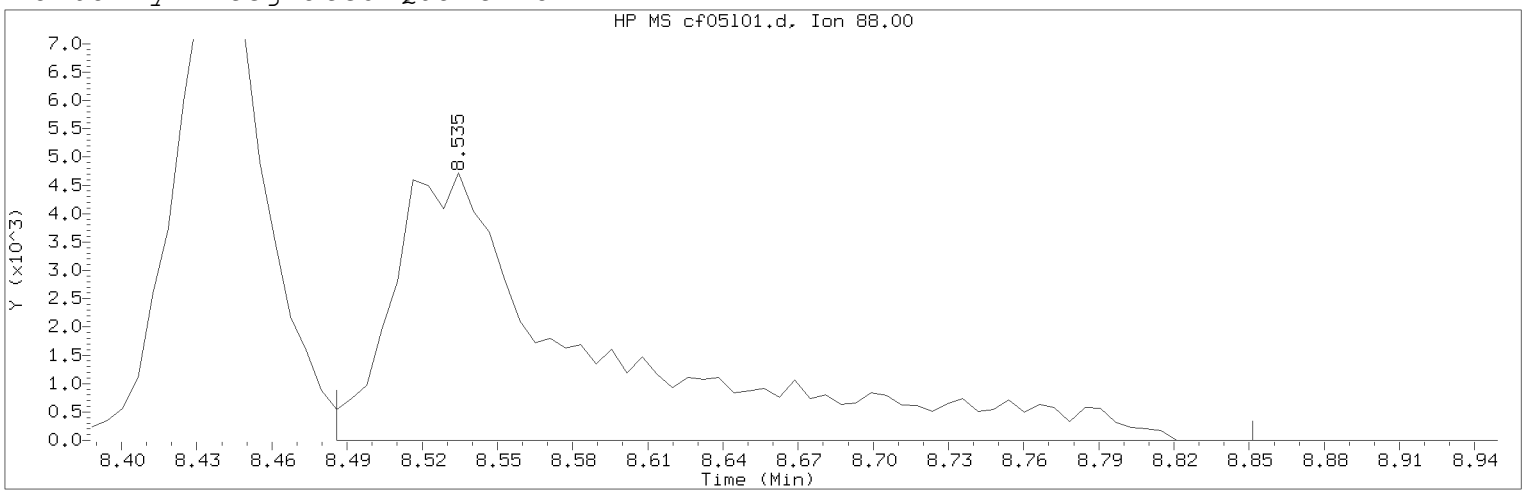
Compound Number : 59
Compound Name : 1,2-Dichloroethane-d4
Scan Number : 919
Retention Time (minutes): 7.181
Quant Ion : 102.00
Area : 98968
On-column Amount (ng) : 10.6991
Integration start scan : 907  Integration stop scan: 943
Y at integration start : 0  Y at integration end: 0

Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05l01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:08 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Sample Name: LCSC92 Lab Sample ID: LCSC92

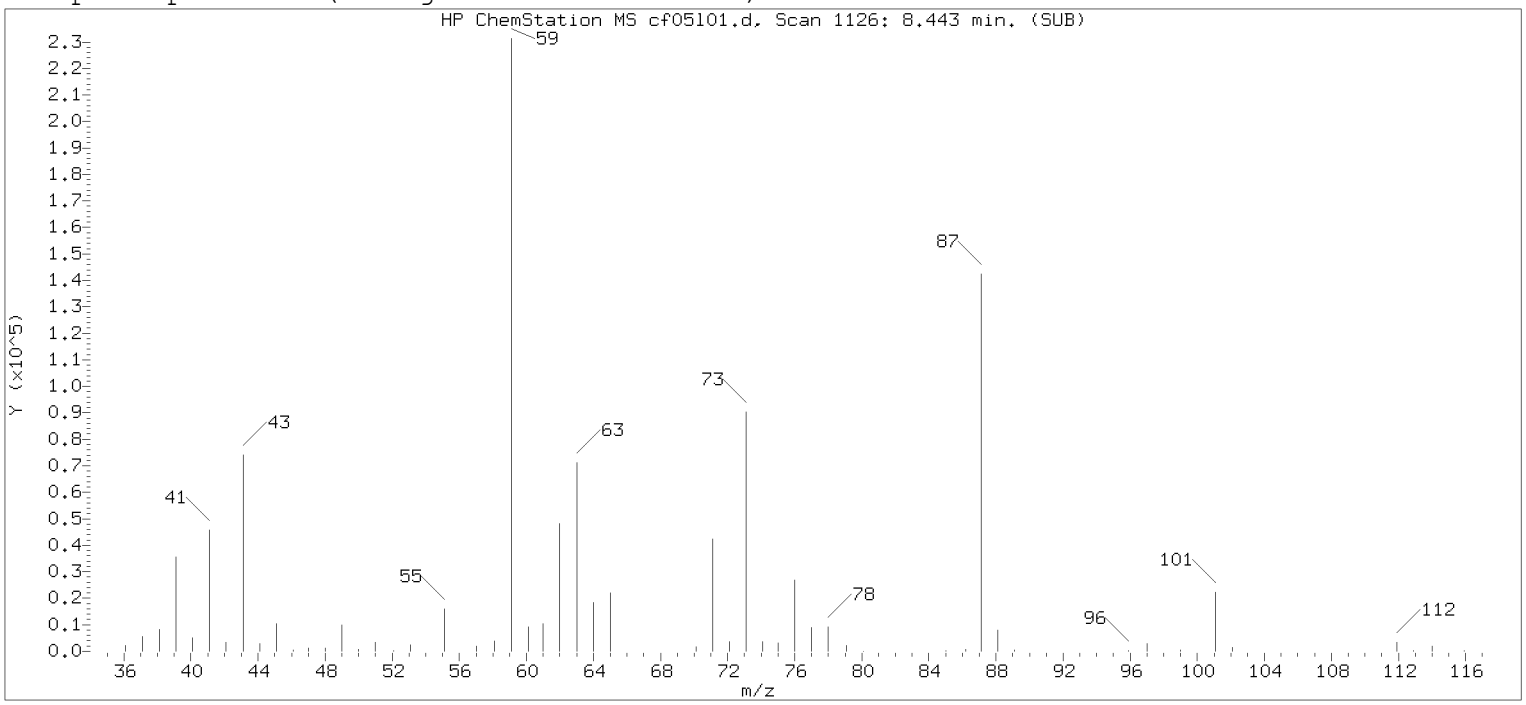
Compound Number : 74
Compound Name : 1,4-Dioxane
Scan Number : 1141
Retention Time (minutes): 8.535
Quant Ion : 88.00
Area (flag) : 26822M
On-Column Amount (ng) : 135.1073
Integration start scan : 1132 Integration stop scan: 1192
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

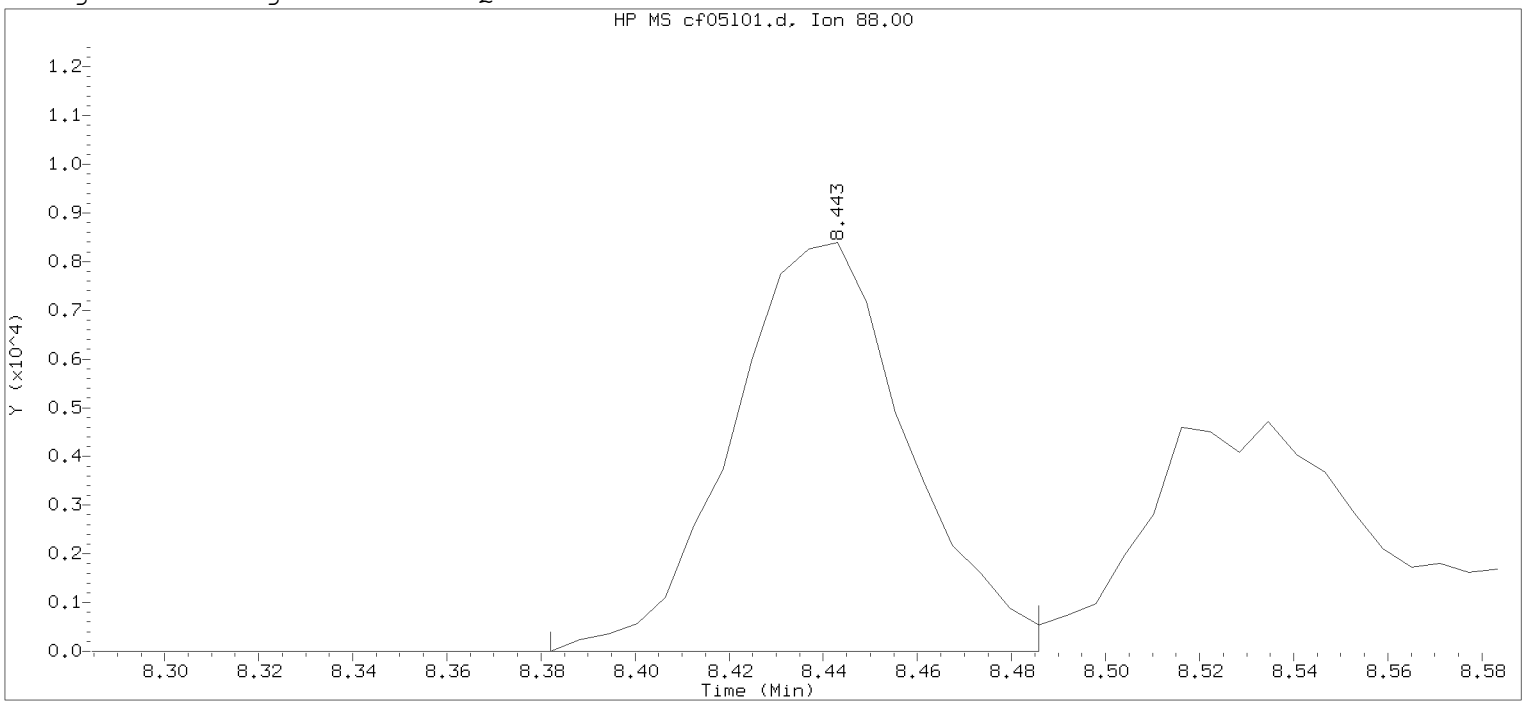
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05l01.d  Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:08  Analyst ID: MEC29284

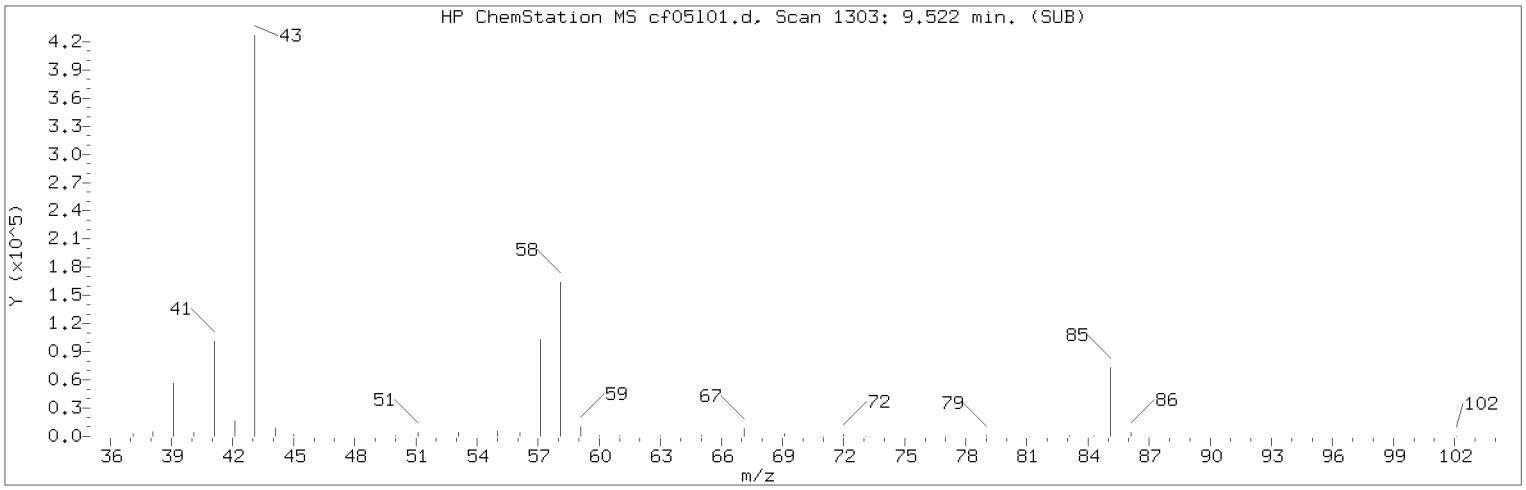
Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m  Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:26 Automation

Sample Name: LCSC92  Lab Sample ID: LCSC92

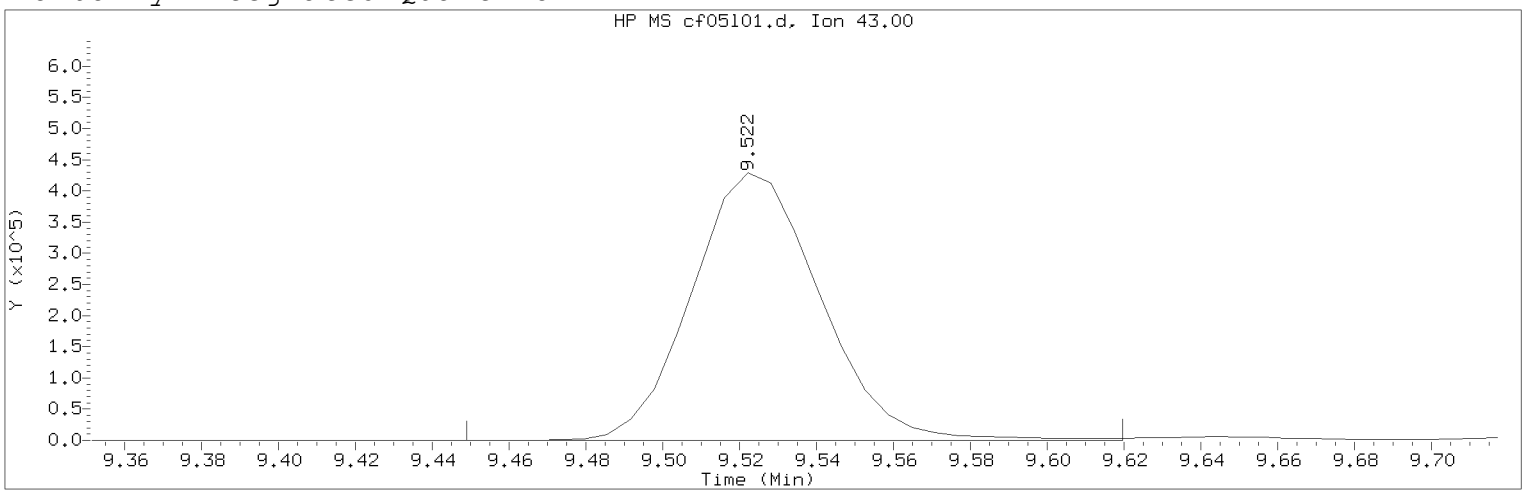
Compound Number : 74
Compound Name : 1,4-Dioxane
Scan Number : 1126
Retention Time (minutes): 8.443
Quant Ion : 88.00
Area : 21758
On-column Amount (ng) : 109.5989
Integration start scan : 1115  Integration stop scan: 1132
Y at integration start : 0  Y at integration end: 0

Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29454

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05l01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:08 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Sample Name: LCSC92 Lab Sample ID: LCSC92

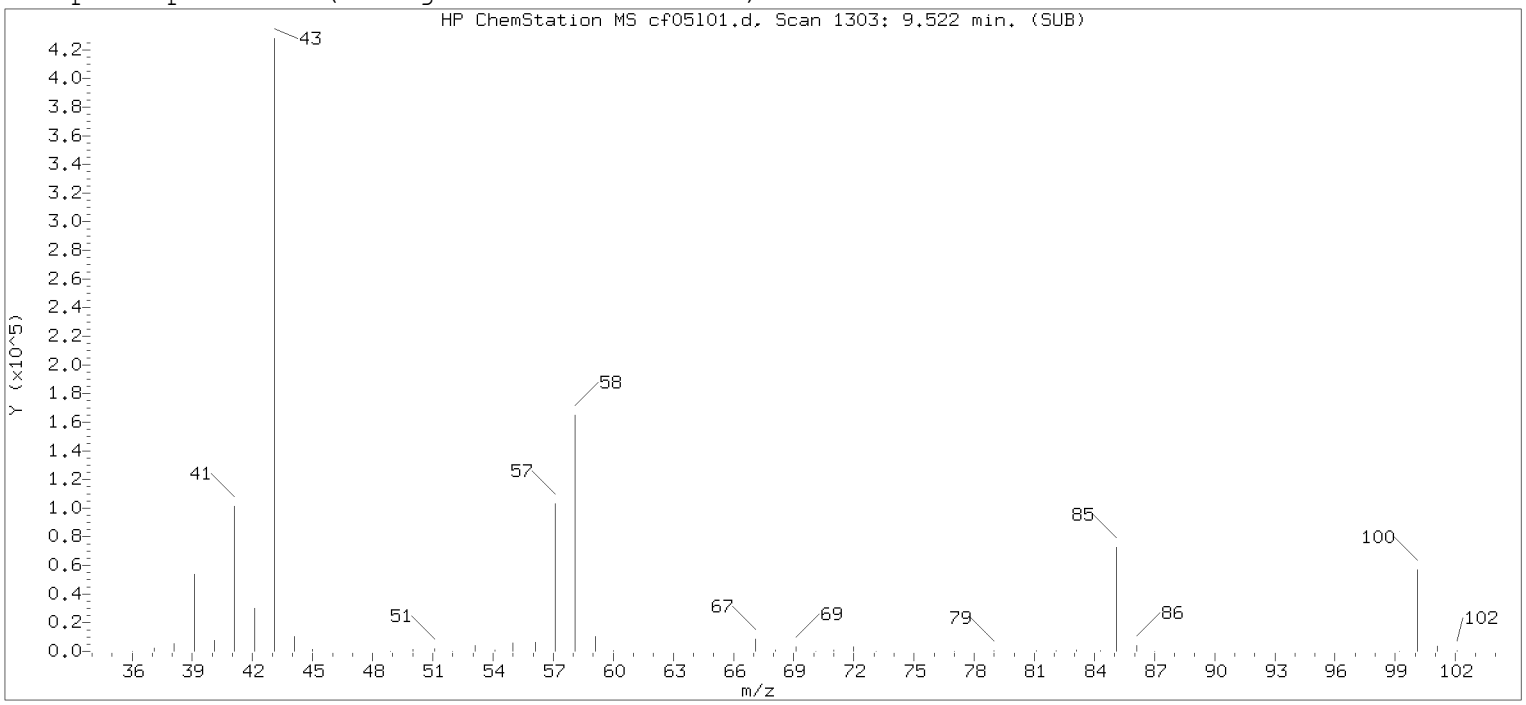
Compound Number : 83
Compound Name : 4-Methyl-2-Pentanone
Scan Number : 1303
Retention Time (minutes): 9.522
Quant Ion : 43.00
Area (flag) : 996187M
On-Column Amount (ng) : 26.1702
Integration start scan : 1290 Integration stop scan: 1318
Y at integration start : 0 Y at integration end: 27

Reason for manual integration: improper integration

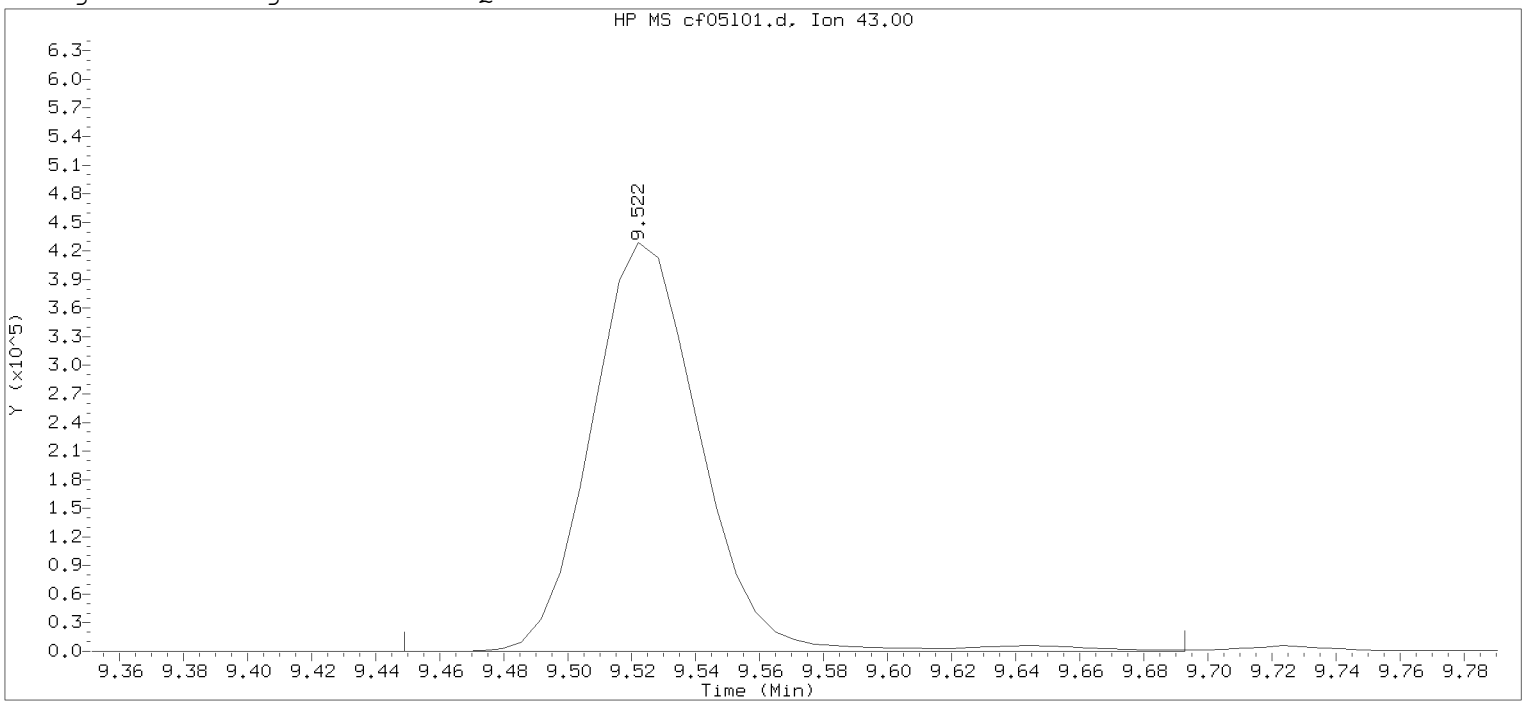
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05l01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:08 Analyst ID: MEC29284

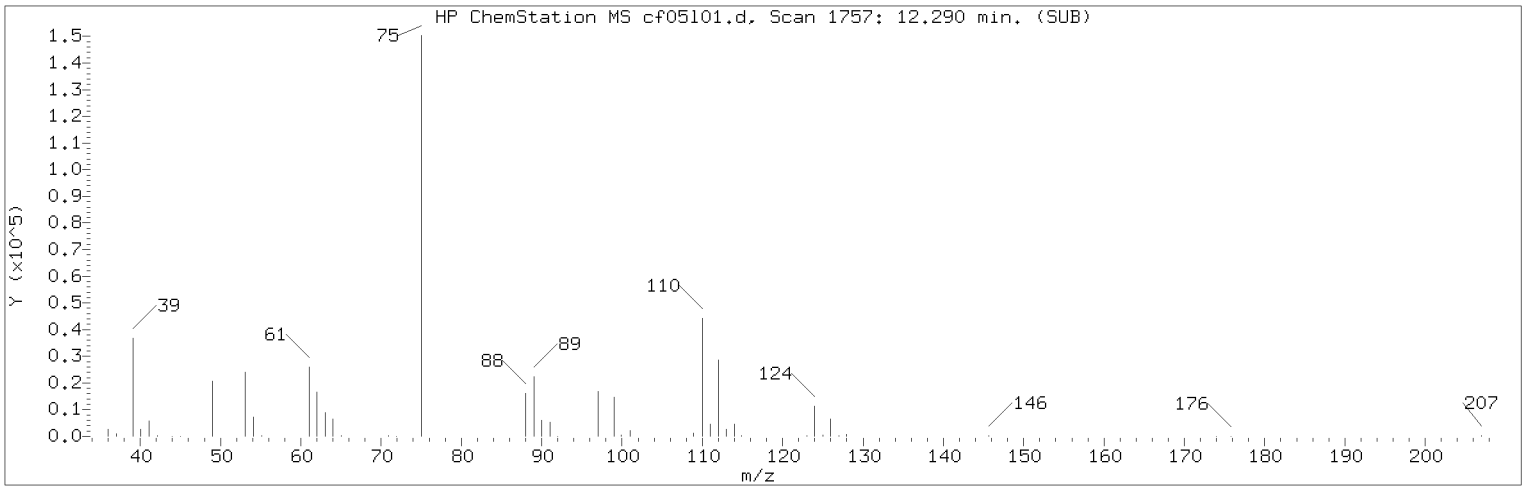
Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:26 Automation

Sample Name: LCSC92 Lab Sample ID: LCSC92

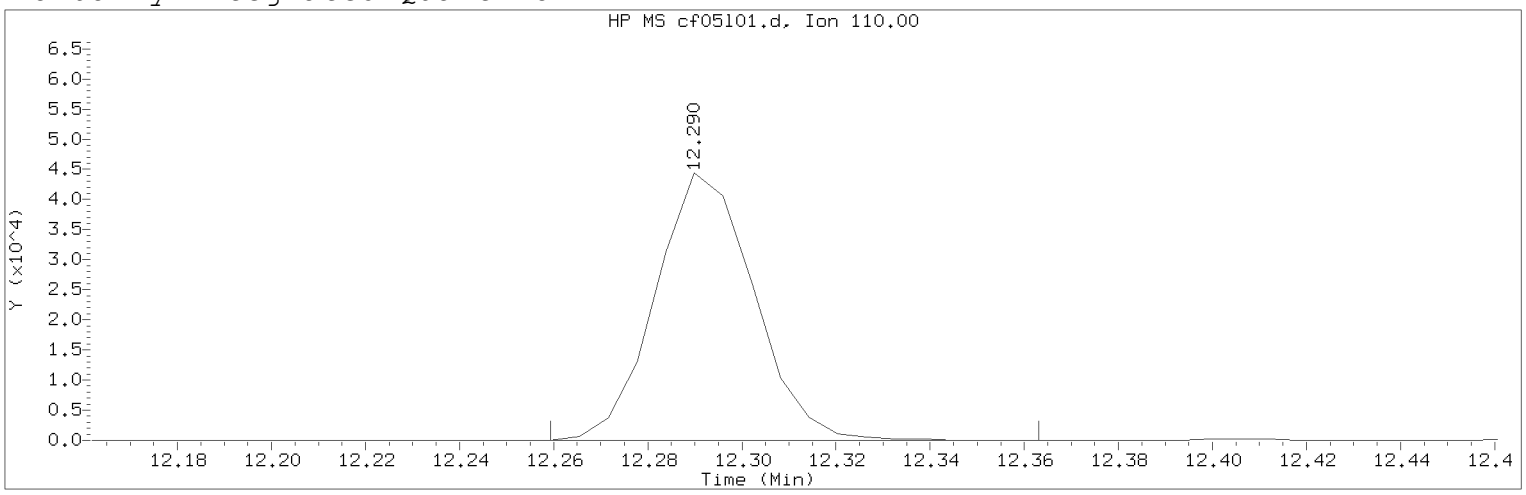
Compound Number : 83
Compound Name : 4-Methyl-2-Pentanone
Scan Number : 1303
Retention Time (minutes): 9.522
Quant Ion : 43.00
Area : 1011325
On-column Amount (ng) : 26.5679
Integration start scan : 1290 Integration stop scan: 1330
Y at integration start : 0 Y at integration end: 39

Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05l01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:08 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Sample Name: LCSC92 Lab Sample ID: LCSC92

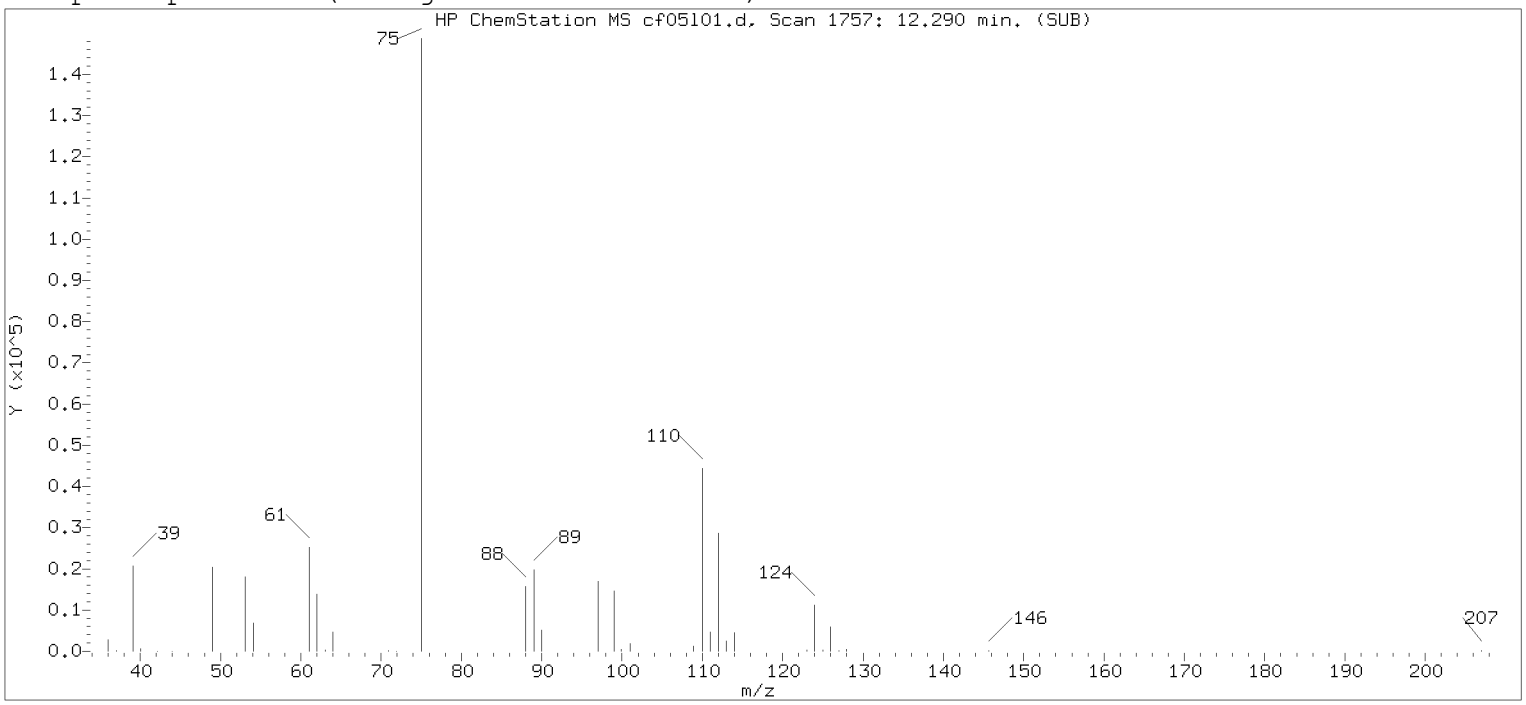
Compound Number : 118
Compound Name : 1,2,3-Trichloropropane
Scan Number : 1757
Retention Time (minutes): 12.290
Quant Ion : 110.00
Area (flag) : 64373M
On-Column Amount (ng) : 4.7165
Integration start scan : 1751 Integration stop scan: 1768
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

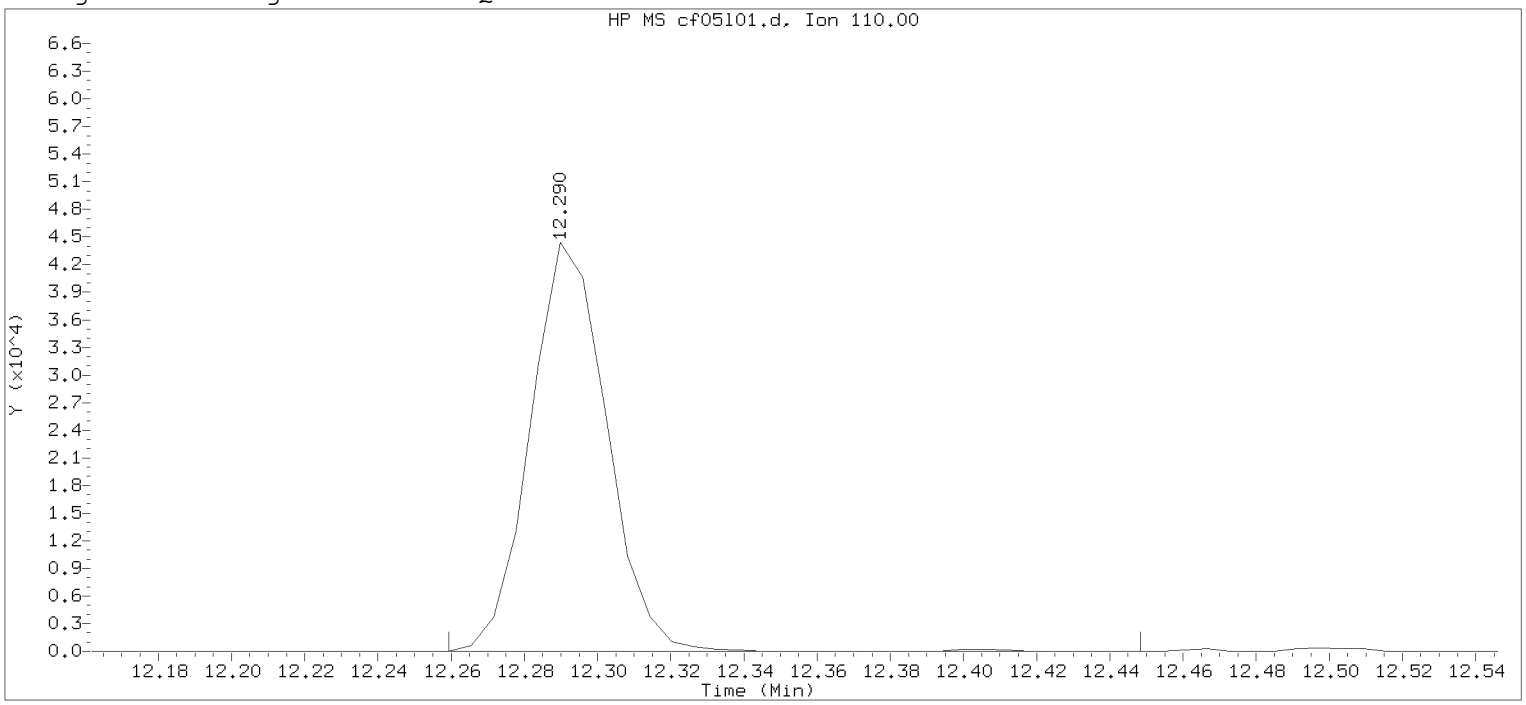
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05l01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:08 Analyst ID: MEC29284

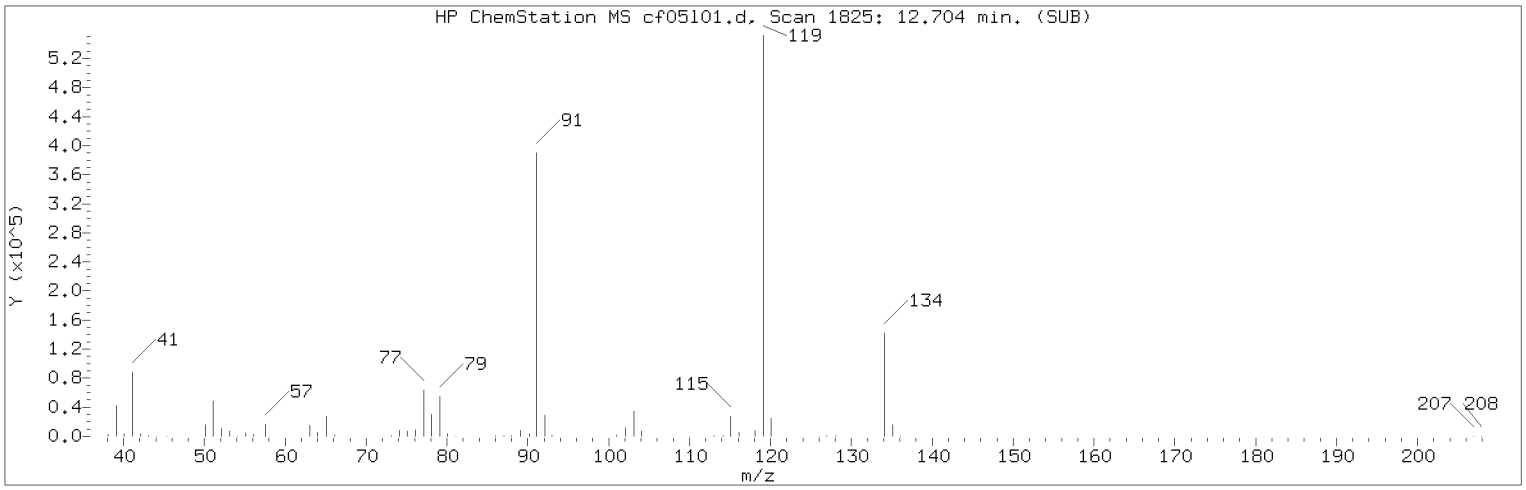
Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:26 Automation

Sample Name: LCSC92 Lab Sample ID: LCSC92

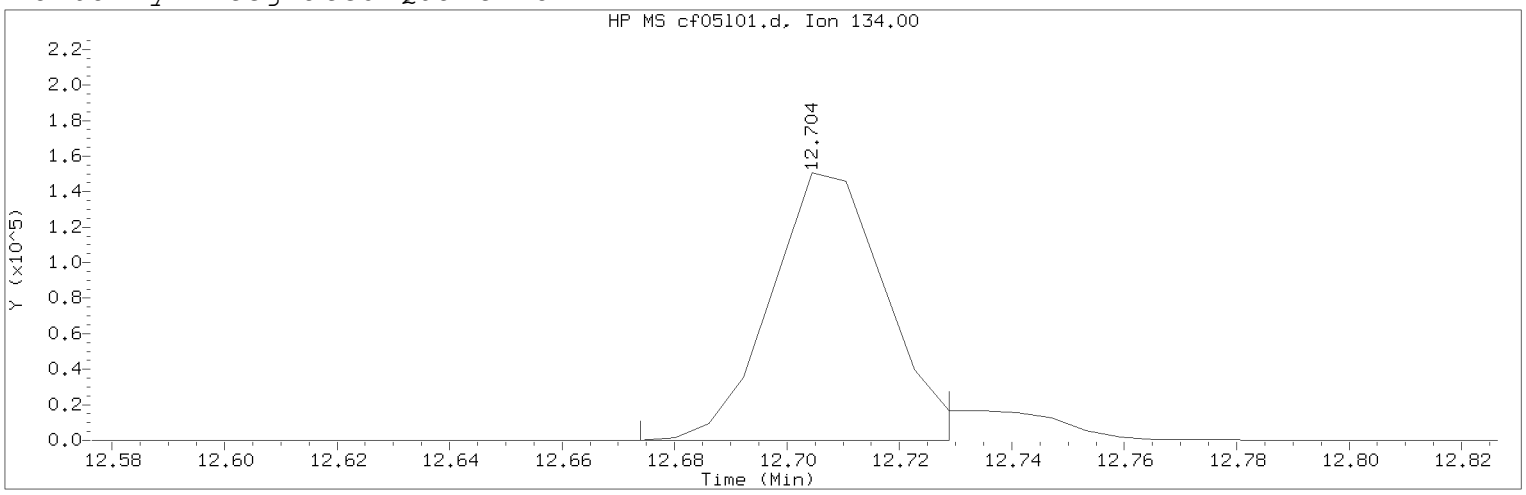
Compound Number : 118
Compound Name : 1,2,3-Trichloropropane
Scan Number : 1757
Retention Time (minutes): 12.290
Quant Ion : 110.00
Area : 64593
On-column Amount (ng) : 4.7327
Integration start scan : 1751 Integration stop scan: 1782
Y at integration start : 0 Y at integration end: 0

Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12.
Target 3.5 esignature used [illegible]

Sample Spectrum (Background Subtracted)




Manually Integrated Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05l01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:08 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 21:11 mec29284

Sample Name: LCSC92 Lab Sample ID: LCSC92

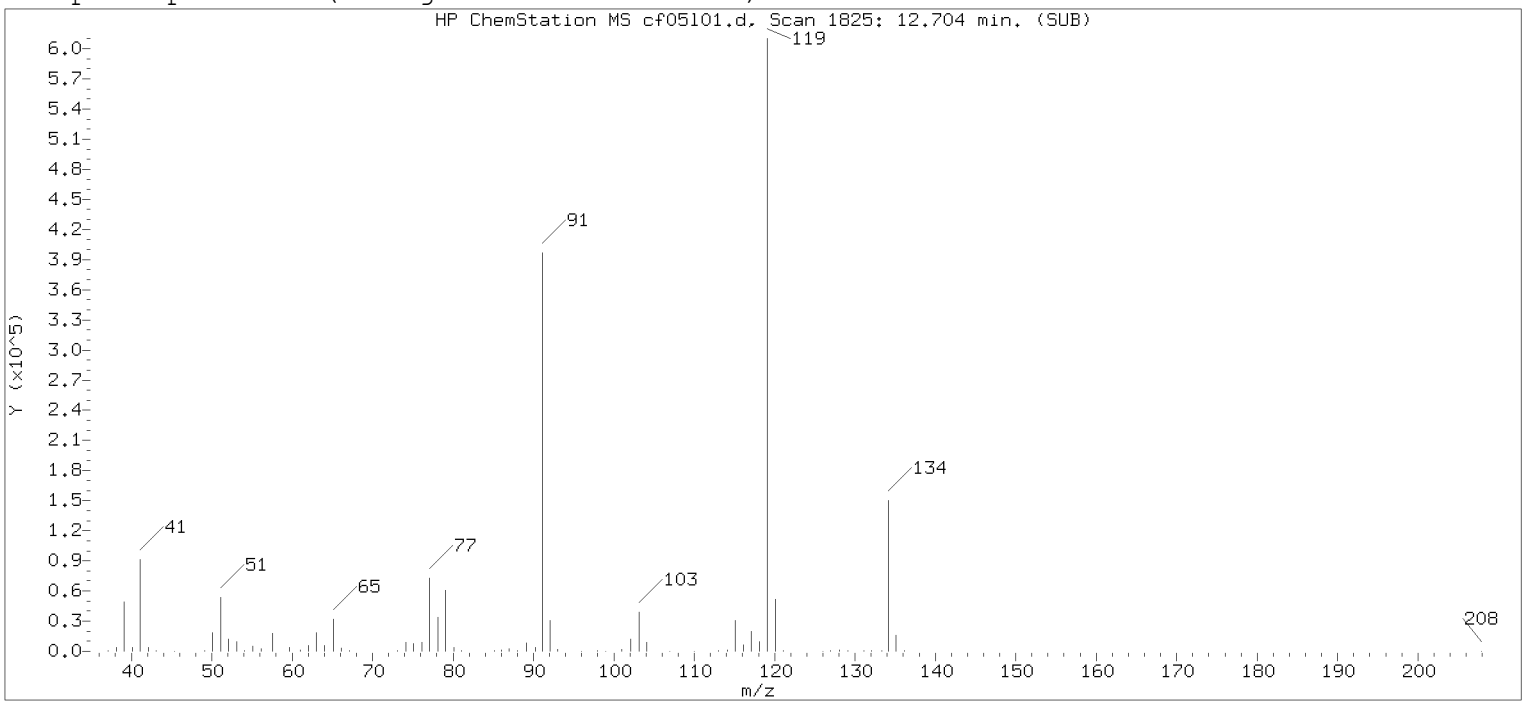
Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1825
Retention Time (minutes): 12.704
Quant Ion : 134.00
Area (flag) : 213516M
On-Column Amount (ng) : 4.3996
Integration start scan : 1819 Integration stop scan: 1828
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

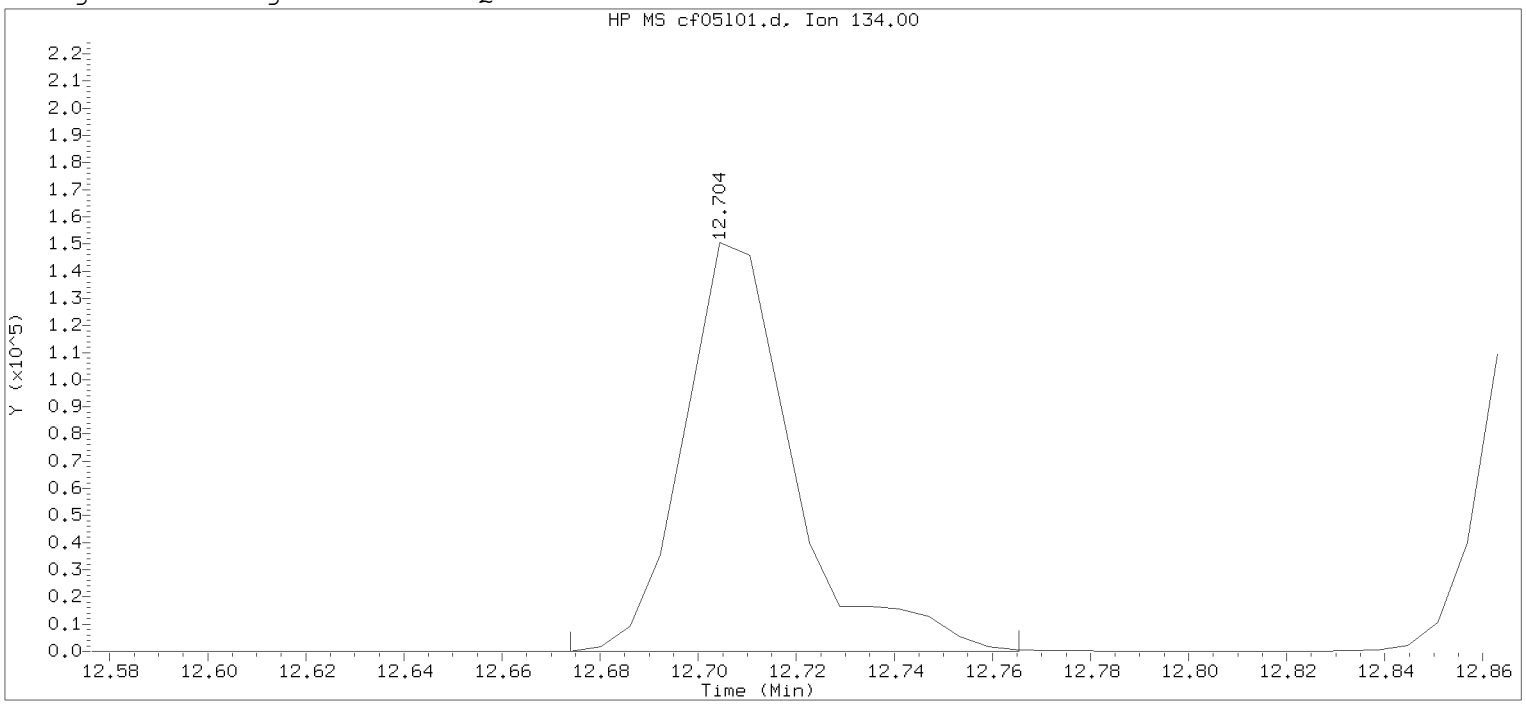
Analyst responsible for change: Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12.
Target 3.5 esignature user ID: mec29284

Secondary review performed and digitally signed by Kelly E. Keller on 02/06/2020 at 11:23.
PARALLAX ID: kek01027

Sample Spectrum (Background Subtracted)




Original Integration of Quant Ion




Data File: /chem2/HP10193.i/20feb05a.b/cf05l01.d Instrument ID: HP10193.i
Injection date and time: 05-FEB-2020 20:08 Analyst ID: MEC29284

Method used: /chem2/HP10193.i/20feb05a.b/m8260b25.m Sublist used: 8260W25
Calibration date and time: 05-FEB-2020 20:03
Date, time and analyst ID of latest file update: 05-Feb-2020 20:26 Automation

Sample Name: LCSC92 Lab Sample ID: LCSC92

Compound Number : 127
Compound Name : tert-Butylbenzene
Scan Number : 1825
Retention Time (minutes): 12.704
Quant Ion : 134.00
Area : 232698
On-column Amount (ng) : 4.7948
Integration start scan : 1819 Integration stop scan: 1834
Y at integration start : 0 Y at integration end: 0

Digitally signed by Miranda E. Campbell on 02/05/2020 at 21:12.
Target 3.5 esignature used [illegible]

# CO2 by Headspace Data

# Case Narrative/Conformance Summary

# CO2 by Headspace

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# Case Narrative/Conformance Summary

**CLIENT: Chevron Env Management Company**
**SDG: PUP93**

## EPH/Miscellaneous GC

**Fraction: CO2 by Headspace**

| Sample # | Client ID | Matrix Liquid | Matrix Solid | DF | Comments |
|---|---|---|---|---|---|
| 1251371 | MW-24I-W-200130 | X | | 1 | |
| 1251373 | MW-23-W-200130 | X | | 1 | |
| 1251376 | MW-25I-W-200130 | X | | 1 | |
| 1251378 | MW-44I-W-200130 | X | | 1 | |
| 1251380 | DUP1-WD-200130 | X | | 1 | Field Duplicate Sample |
| 1251382 | MW-44D-W-200130 | X | | 1 | |
| 1251384 | MW-11IP-W-200130 | X | | 1 | |
| 1251386 | MW-2D-W-200130 | X | | 1 | |
| 1251388 | MW-48D-W-200130 | X | | 1 | Unspiked |
| 1251389 | MW-48DMS-W-200130 | X | | 1 | Matrix Spike |
| 1251390 | MW-48DMSD-W-200130 | X | | 1 | Matrix Spike Duplicate |
| 1251396 | MW-48I-W-200130 | X | | 1 | |

See QC Reference List for Associated Batch QC Samples

### SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

### HOLDING TIME:

All holding times were met.

### PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

### CALIBRATION/STANDARDIZATION:

All criteria were met.

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# Case Narrative/Conformance Summary

**CLIENT: Chevron Env Management Company**
**SDG: PUP93**

## EPH/Miscellaneous GC

**Fraction: CO2 by Headspace**

## QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

**MS/MSD**

Batch#: 200340011A (Sample number(s): 1251371, 1251373, 1251376, 1251378, 1251380, 1251382, 1251384, 1251386, 1251388-1251390, 1251396, UNSPK: 1251388)
The relative percent difference(s) for the following analyte(s) in the MS/MSD is outside the acceptance window: CO2 by Headspace
The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: CO2 by Headspace

## SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

**Abbreviation Key**

| | |
|---|---|
| UNSPK = Unspiked (for MS/MSD) | LOQ = Limit of Quantitation |
| +MS = Matrix Spike | MDL = Method Detection Limit |
| MSD = Matrix Spike Duplicate | ND = Not Detected |
| BKG = Background (for Duplicate) | J = Estimated Value |
| D = Duplicate (DUP) | E= out of calibration range |
| LCS = Lab Control Sample | RE = Repreparation/Reanalysis |
| LCSD = Lab Control Sample Duplicate | * = Out of Specification |

# Quality Control and Calibration Summary Forms

# CO2 by Headspace

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# Quality Control Reference List
## EPH/Miscellaneous GC

**CLIENT: Chevron Env Management Company**
**SDG: PUP93**

**Fraction: CO2 by Headspace**

| Analysis | Batch Number | Sample Number | Analysis Date |
|---|---|---|---|
| CO2 by Headspace | 200340011A | PBLK11034 | 02/03/2020 10:40 |
| | | LCS11034 | 02/03/2020 11:20 |
| | | 1251371 | 02/03/2020 12:05 |
| | | 1251373 | 02/03/2020 12:13 |
| | | 1251376 | 02/03/2020 12:21 |
| | | 1251378 | 02/03/2020 12:36 |
| | | 1251380 | 02/03/2020 12:44 |
| | | 1251382 | 02/03/2020 12:52 |
| | | 1251384 | 02/03/2020 12:59 |
| | | 1251386 | 02/03/2020 13:07 |
| | | 1251388 UNSPK | 02/03/2020 11:27 |
| | | 1251389 MS | 02/03/2020 11:34 |
| | | 1251390 MSD | 02/03/2020 11:42 |
| | | 1251396 | 02/03/2020 13:15 |

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**Quality Control Summary**
**Method Blank**
**EPH/Miscellaneous GC**
**SDG: PUP93**
**Matrix: LIQUID**

**Fraction: CO2 by Headspace**

| 200340011A / PBLK11034<br>Analyte | Analysis Date | Blank Results | Units | MDL | LOQ |
|---|---|---|---|---|---|
| CO2 by Headspace | 02/03/20 | N.D. | ug/l | 2600 | 12000 |

## EPH/Miscellaneous GC
**Fraction: CO2 by Headspace**

| UNSPK: 1251388<br>MS: 1251389<br>MSD: 1251390<br>**Analyte** | Batch: **200340011A** (Sample number(s): 1251371, 1251373, 1251376, 1251378, 1251380, 1251382, 1251384, 1251386, 1251388-1251390, 1251396 ) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Spike Added ug/l** | **Unspiked Conc ug/l** | **MS Conc ug/l** | **MSD Conc ug/l** | **MS %Rec** | **MSD %Rec** | **%Rec Limits** | **%RPD** | **%RPD Limits** |
| CO2 by Headspace | 35820 | 5399.76 J | 29204.38 | 40620.22 | 66 * | 98 | 72-116 | 33 * | 20 |

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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**Quality Control Summary**
**Laboratory Control Standard (LCS)**
**Laboratory Control Standard Duplicate(LCSD)**

**SDG: PUP93**
**Matrix: LIQUID**

## EPH/Miscellaneous GC
**Fraction: CO2 by Headspace**

| LCS: LCS11034 | Batch: **200340011A** (Sample number(s): 1251371, 1251373, 1251376, 1251378, 1251380, 1251382, 1251384, 1251386, 1251388-1251390, 1251396 ) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Analyte** | **Spike Added ug/l** | **LCS Conc ug/l** | **LCSD Conc ug/l** | **LCS %Rec** | **LCSD %Rec** | **%Rec Limits** | **%RPD** | **%RPD Limits** |
| CO2 by Headspace | 35820 | 32508.94 | NA | 91 | NA | 72-116 | NA | NA |

**Fraction: CO2 by Headspace**

| 08097: CO2 by Headspace<br>Analyte Name | Default<br>MDL | Default<br>LOQ | Units |
|---|---|---|---|
| CO2 by Headspace | 2,600 | 12,000 | ug/l |

# 6D

## INITIAL CALIBRATION - RETENTION TIME SUMMARY

Lab Name: Lancaster Laboratories  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.:

Instrument: 19506B  Calibration File: 31CO2X1909301

GC Column (1) : ShinCarbon  ID: 0.53 (mm)

ICAL Date(s) Analyzed: 4/3/2019  4/3/2019

| COMPOUND | RT OF STANDARDS | | | | | | MIDPOINT | RT WINDOW | |
|---|---|---|---|---|---|---|---|---|---|
| | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 | RT | FROM | TO |
| CARBON DIOXIDE | 2.02 | 2.02 | 2.01 | 2.00 | 1.98 | 1.94 | 2.01 | 1.91 | 2.11 |

# 6E

## INITIAL CALIBRATION - CALIBRATION FACTOR SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: 19506B Calibration File: 31CO2X1909301

GC Column (1) : ShinCarbon ID: 0.53 (mm)

ICAL Date(s) Analyzed: 4/3/2019 4/3/2019

| COMPOUND | CALIBRATION FACTORS | | | | | | | %RSD |
|---|---|---|---|---|---|---|---|---|
| | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 | MEAN | |
| CARBON DIOXIDE | 2.47E+00 | 3.89E+00 | 3.53E+00 | 3.68E+00 | 3.42E+00 | 3.06E+00 | 3.34E+00 | 15 |

File Name: Y:\CP31\31CO2X1909301.CAL
Version: 27

Creator:
Description:
Reason for change:

External standard calibration
Standard injection volume: 1
Standard sample weight: 1
Area reject threshold: 0
Reference peak area reject threshold: 0
Amount units: PPB
No default component

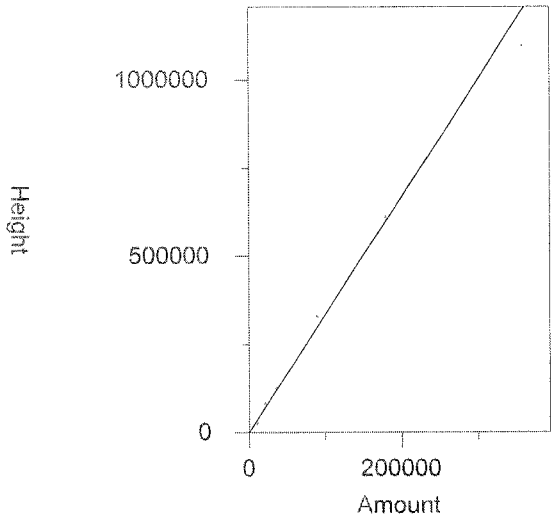
Jamie L. Brillhart
Senior Chemist

APR 0 5 2019

Method of calculating data point averages: Current update equal to cal data
No calibration update report

All levels are normal data points.

1 CARBON DIOXIDE




Expected retention time (frozen): 2.01 minutes
Search window: 0.1 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

Single peak quantification by height

Y = 3.339662 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9869398
Average error: 11.473%
Average CF: 3.339662
RSD: 15.238%

| Level | Amount | Response | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 10746 | 26491.48 | 2.465241 | -26.183 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.011.BND | 4/3/2019 11:30:09 AM |
| 2 | 21492 | 83524.82 | 3.886322 | 16.369 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.012.BND | 4/3/2019 11:30:27 AM |
| 3 | 35820 | 126345.3 | 3.527228 | 5.616 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.013.BND | 4/3/2019 11:30:52 AM |
| 4 | 89550 | 329395 | 3.678336 | 10.141 | Manual | 4/3/2019 11:38:26 AM |
| 5 | 179100 | 611842.4 | 3.416205 | 2.292 | Manual | 4/3/2019 11:38:09 AM |
| 6 | 358200 | 1097754 | 3.06464 | -8.235 | Manual | 4/3/2019 11:38:17 AM |

# 7E

## CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: 19506B Date Analyzed: 04/03/19

GC Column (1) : ShinCarbon ID: .53 (mm) Time Analyzed: 11:43

Lab File ID: 31CO2X19093001B.019.RAW Initial Calibration: 31CO2X1909301

Lab Standard ID: CO2CXAA Init. Calib Date(s): 04/03/19 04/03/19

Calibration: 31CO2X1909301

| COMPOUND | RT | RT WINDOW FROM | TO | CALC AMOUNT (ug/l) | NOM AMOUNT (ug/l) | %D |
|---|---|---|---|---|---|---|
| CARBON DIOXIDE | 2.01 | 1.91 | 2.11 | 9310.67 | 35008.00 | -73 |

Compounds 1

# 7E

## CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.:

Instrument: 19506B  Date Analyzed: 04/03/19

GC Column (1) : ShinCarbon  ID: .53 (mm)  Time Analyzed: 11:58

Lab File ID: 31CO2X19093001B.020.RAW  Initial Calibration: 31CO2X1909301

Lab Standard ID: CO2CXAA  Init. Calib Date(s): 04/03/19  04/03/19

Calibration: 31CO2X1909301

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALC AMOUNT (ug/l) | NOM AMOUNT (ug/l) | %D |
|---|---|---|---|---|---|---|
| CARBON DIOXIDE | 2.01 | 1.91 | 2.11 | 40807.03 | 35008.00 | 17 |

Compounds 1

# 7E

## CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: 19506B Date Analyzed: 04/03/19

GC Column (1) : ShinCarbon ID: .53 (mm) Time Analyzed: 12:16

Lab File ID: 31CO2X19093001B.021.RAW Initial Calibration: 31CO2X1909301

Lab Standard ID: CO2CXAA Init. Calib Date(s): 04/03/19 04/03/19

Calibration: 31CO2X1909301

| COMPOUND | RT | RT WINDOW FROM | TO | CALC AMOUNT (ug/l) | NOM AMOUNT (ug/l) | %D |
|---|---|---|---|---|---|---|
| CARBON DIOXIDE | 2.01 | 1.91 | 2.11 | 35358.17 | 35008.00 | 1 |

Compounds 1

# 7E

## CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: 19506B Date Analyzed: 02/03/20

GC Column (1) : ShinCarbon ID: .53 (mm) Time Analyzed: 10:33

Lab File ID: 31CO2X19093051B.004.RAW Initial Calibration: 31CO2X1909301

Lab Standard ID: CO2_3VF Init. Calib Date(s): 04/03/19 04/03/19

Calibration: 31CO2X1909301

| COMPOUND | RT | RT WINDOW FROM | TO | CALC AMOUNT (ug/l) | NOM AMOUNT (ug/l) | %D |
|---|---|---|---|---|---|---|
| CARBON DIOXIDE | 2.06 | 1.91 | 2.11 | 34390.29 | 35820.00 | -4 |

Compounds 1

# 7E

## CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: 19506B

GC Column (1) : ShinCarbon ID: .53 (mm)

Lab File ID: 31CO2X19093051B.015.RAW

Lab Standard ID: CO2_3VF

Calibration: 31CO2X1909301

Date Analyzed: 02/03/20

Time Analyzed: 12:29

Initial Calibration: 31CO2X1909301

Init. Calib Date(s): 04/03/19 04/03/19

| COMPOUND | RT | RT WINDOW FROM | TO | CALC AMOUNT (ug/l) | NOM AMOUNT (ug/l) | %D |
|---|---|---|---|---|---|---|
| CARBON DIOXIDE | 2.06 | 1.91 | 2.11 | 32183.52 | 35820.00 | -10 |

Compounds 1

# 7E

## CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: 19506B Date Analyzed: 02/03/20

GC Column (1) : ShinCarbon ID: .53 (mm) Time Analyzed: 13:23

Lab File ID: 31CO2X19093051B.022.RAW Initial Calibration: 31CO2X1909301

Lab Standard ID: CO2_3VF Init. Calib Date(s): 04/03/19 04/03/19

Calibration: 31CO2X1909301

| COMPOUND | RT | RT WINDOW FROM | TO | CALC AMOUNT (ug/l) | NOM AMOUNT (ug/l) | %D |
|---|---|---|---|---|---|---|
| CARBON DIOXIDE | 2.06 | 1.91 | 2.11 | 31801.74 | 35820.00 | -11 |

Compounds 1

# Sample Data

# CO2 by Headspace

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# Data Summary

**Sample Name: 1251371** PO24I Sample ID: AA **Batchnumber: 200340011A**

Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA

**Analyses:** 08097

## Analysis Report (A)

**Injected on** Feb 03, 2020 12:05:52
**Instrument** 19506B
**Result file** 31CO2X19093051B.012.RAW
**Calibration file** 31CO2X1909301
**Method file** CO2

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| CO2 by Headspace | 1.91 | 2.07 | 2.11 | 41511 | 12429.715 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| ☑ CO2 by Headspace | A | 12429.715 | 12000 | 2600 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brillhart
Senior Chemist

FEB 05 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/5/2020 11:16:13

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251371** PO24I ID: AA **Batchnumber: 200340011A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 08097

Analysis Report (A)

Injected on : Feb 03, 2020 12:05:52
Instrument : CP31--19506B
Result file : 31CO2X19093051B.012.RAW
Calibration file : 31CO2X1909301.CAL
Method file : CO2.MET

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **CARBON DIOXIDE** | 1.91 | 2.07 | 2.11 | 41511 | 12429.715000 |

**Summary Report**

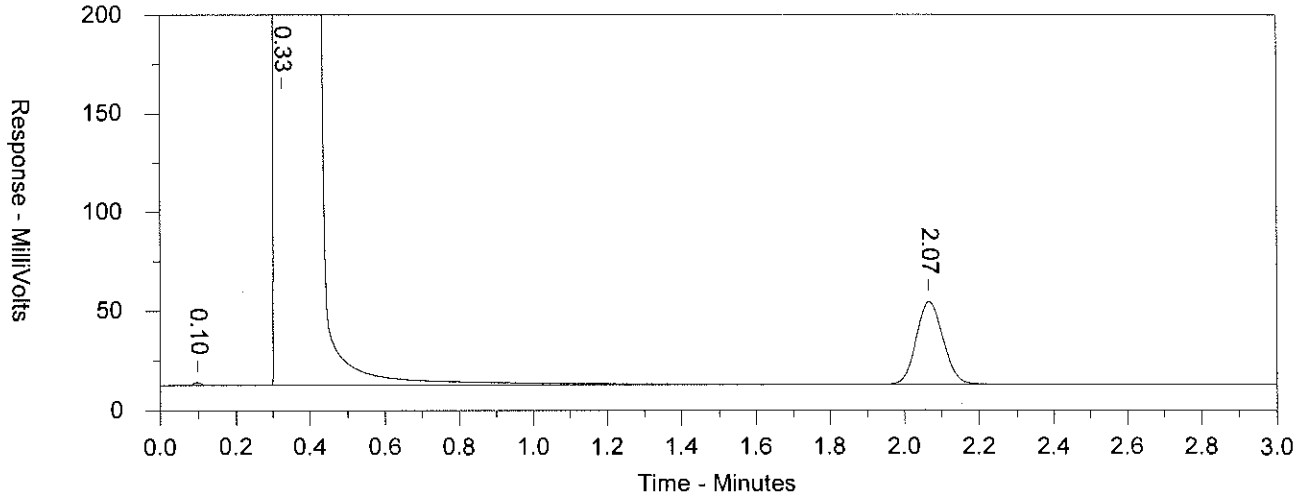
| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ CARBON DIOXIDE | B | 12429.715000 | 12000 | 2600 | | |

Units: ug/l

* Recovery outside QC Limits

1251371 AAPO24I T 200340011A 08097 SW-846 8015B modified

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.012.RAW




Sample Name = 1251371 AAPO24I T 200340011A 08097 SW-846 8015B modified

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.012.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/3/2020 12:05:52 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.066 | 12429.720 | 208939 | 41511.05 |

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# Data Summary

**Sample Name: 1251373** PO-23 Sample ID: AA **Batchnumber: 200340011A**

Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA

**Analyses:** 08097

## Analysis Report (A)

| | |
|---|---|
| **Injected on** | Feb 03, 2020 12:13:33 |
| **Instrument** | 19506B |
| **Result file** | 31CO2X19093051B.013.RAW |
| **Calibration file** | 31CO2X1909301 |
| **Method file** | CO2 |

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| CO2 by Headspace | 1.91 | 2.07 | 2.11 | 31098 | 9311.76 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| ☑ CO2 by Headspace | A | 9311.76 | <12000 | 2600 | J | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brillhart
Senior Chemist

FEB 05 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/5/2020 11:16:15

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251373** PO-23 ID: AA **Batchnumber: 200340011A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 08097

Analysis Report (A)

Injected on : Feb 03, 2020 12:13:33
Instrument : CP31--19506B
Result file : 31CO2X19093051B.013.RAW
Calibration file : 31CO2X1909301.CAL
Method file : CO2.MET

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **CARBON DIOXIDE** | 1.91 | 2.07 | 2.11 | 31098 | 9311.760000 |

**Summary Report**

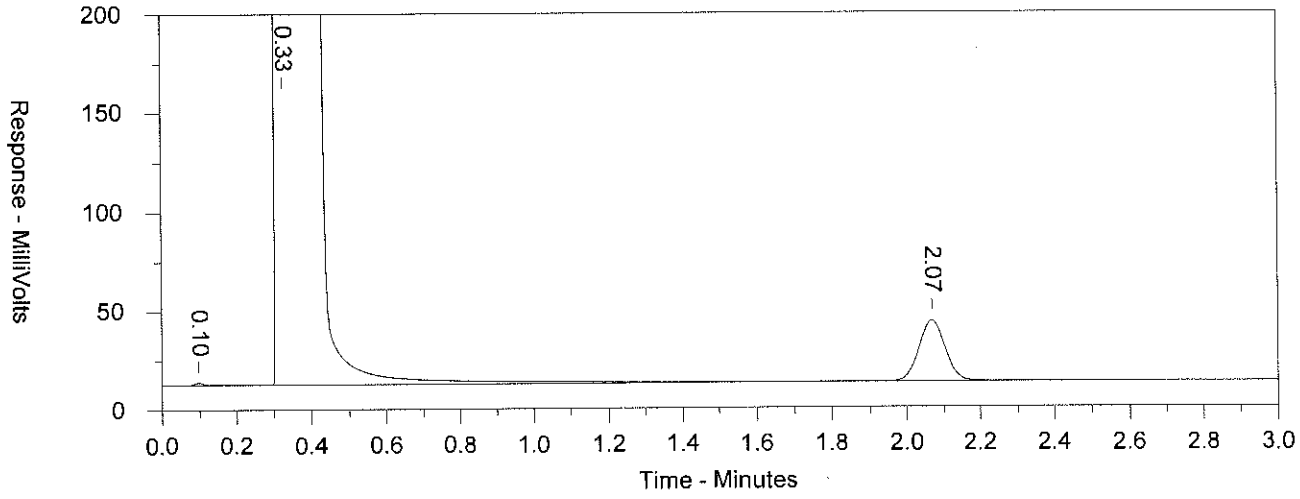
| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ CARBON DIOXIDE | B | 9311.760000 | <12000 | 2600 | J | |

Units: ug/l

* Recovery outside QC Limits

1251373 AAPO-23 T 200340011A 08097 SW-846 8015B modified

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.013.RAW




Sample Name = **1251373** AAPO-23 T **200340011A** **08097** **SW-846 8015B modified**

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.013.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

Time injected = 2/3/2020 12:13:33 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.067 | 9311.758 | 157020 | 31098.12 |

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# Data Summary

**Sample Name: 1251376** PO25I Sample ID: AA **Batchnumber: 200340011A**

Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA

**Analyses:** 08097

## Analysis Report (A)

| | |
|---|---|
| **Injected on** | Feb 03, 2020 12:21:18 |
| **Instrument** | 19506B |
| **Result file** | 31CO2X19093051B.014.RAW |
| **Calibration file** | 31CO2X1909301 |
| **Method file** | CO2 |

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| CO2 by Headspace | 1.91 | 2.07 | 2.11 | 17221 | 5156.485 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| ☑ CO2 by Headspace | A | 5156.485 | <12000 | 2600 | J | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Janice L. Goldman
Senior Chemist

FEB 05 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/5/2020 11:16:18

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251376** PO25I ID: AA **Batchnumber: 200340011A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 08097

## Analysis Report (A)

Injected on : Feb 03, 2020 12:21:18
Instrument : CP31--19506B
Result file : 31CO2X19093051B.014.RAW
Calibration file : 31CO2X1909301.CAL
Method file : CO2.MET

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| CARBON DIOXIDE | 1.91 | 2.07 | 2.11 | 17221 | 5156.485000 |

**Summary Report**

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ CARBON DIOXIDE | B | 5156.485000 | <12000 | 2600 | J | |

Units: ug/l

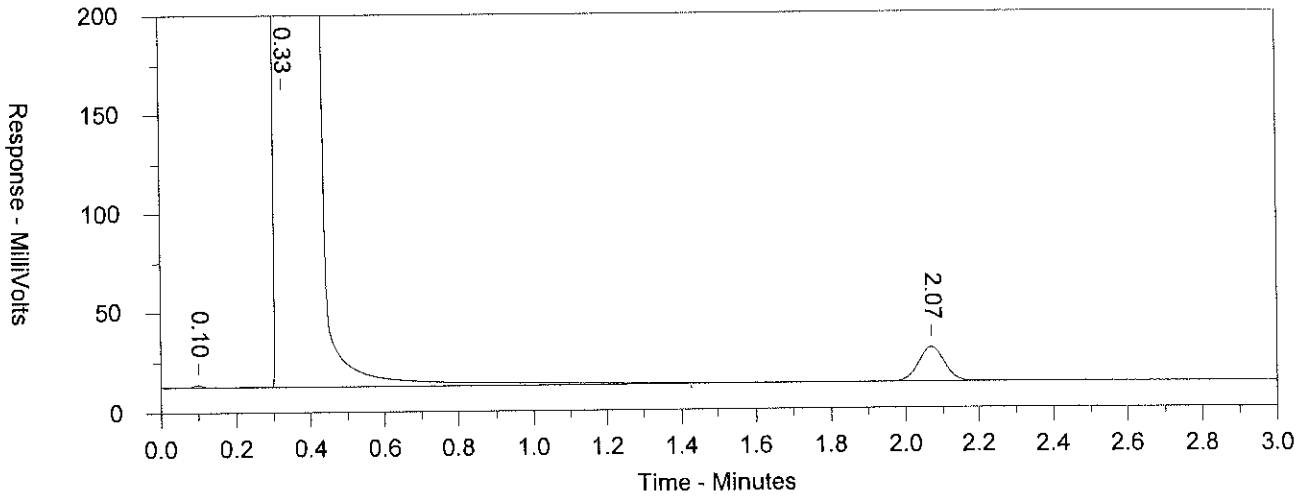
* Recovery outside QC Limits



Printed on: 2/3/2020 12:25:17

1251376 AAPO25I T 200340011A 08097 SW-846 8015B modified

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.014.RAW




Sample Name = **1251376** AAPO25I T 200340011A 08097 SW-846 8015B modified

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.014.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

Time injected = 2/3/2020 12:21:18 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.070 | 5156.485 | 87254 | 17220.92 |

eurofins | Lancaster Laboratories Environmental

# Data Summary

**Sample Name: 1251378** PO44I Sample ID: AA **Batchnumber: 200340011A**

Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA

**Analyses:** 08097

## Analysis Report (A)

**Injected on** Feb 03, 2020 12:36:46
**Instrument** 19506B
**Result file** 31CO2X19093051B.016.RAW
**Calibration file** 31CO2X1909301
**Method file** CO2

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| CO2 by Headspace | 1.91 | 2.07 | 2.11 | 12508 | 3745.357 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| ☑ CO2 by Headspace | A | 3745.357 | <12000 | 2600 | J | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brillhart
Senior Chemist

Reviewed and digitally signed by Esther Kathryn Lane on 2/5/2020 11:16:21

FEB 05 2020

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251378** PO44I ID: AA **Batchnumber: 200340011A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 08097

Analysis Report (A)

Injected on : Feb 03, 2020 12:36:46
Instrument : CP31--19506B
Result file : 31CO2X19093051B.016.RAW
Calibration file : 31CO2X1909301.CAL
Method file : CO2.MET

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| CARBON DIOXIDE | 1.91 | 2.07 | 2.11 | 12508 | 3745.357000 |

**Summary Report**

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ CARBON DIOXIDE | B | 3745.357000 | <12000 | 2600 | J | |

Units: ug/l

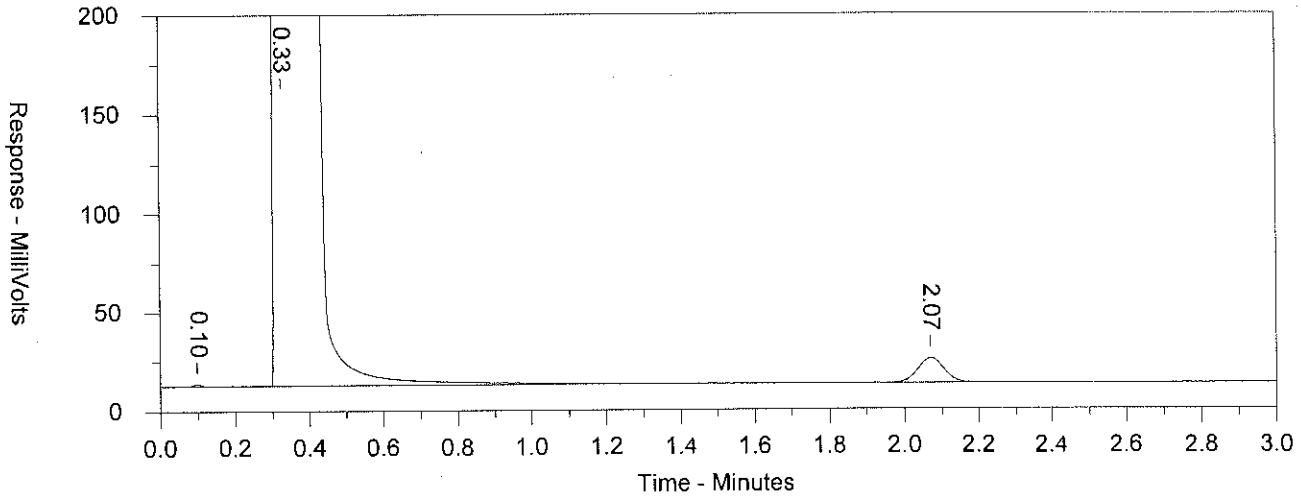
* Recovery outside QC Limits



Printed on: 2/3/2020 12:40:50

1251378 AAPO44I T 200340011A 08097 SW-846 8015B modified

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.016.RAW




Sample Name = 1251378 AAPO44I T 200340011A 08097 SW-846 8015B modified

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.016.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/3/2020 12:36:46 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.067 | 3745.357 | 62751 | 12508.22 |

eurofins | Lancaster Laboratories Environmental

# Data Summary

**Sample Name: 1251380** POFD1 Sample ID: AA **Batchnumber: 200340011A**

Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA

**Analyses:** 08097

## Analysis Report (A)

**Injected on** Feb 03, 2020 12:44:28
**Instrument** 19506B
**Result file** 31CO2X19093051B.017.RAW
**Calibration file** 31CO2X1909301
**Method file** CO2

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| CO2 by Headspace | 1.91 | 2.07 | 2.11 | 16216 | 4855.5525 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| ☑ CO2 by Headspace | A | 4855.5525 | <12000 | 2600 | J | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Billhart
Senior Chemist

FEB 05 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/5/2020 11:16:23

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251380** POFD1 ID: AA **Batchnumber: 200340011A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 08097

Analysis Report (A)

Injected on : Feb 03, 2020 12:44:28
Instrument : CP31--19506B
Result file : 31CO2X19093051B.017.RAW
Calibration file : 31CO2X1909301.CAL
Method file : CO2.MET

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **CARBON DIOXIDE** | 1.91 | 2.07 | 2.11 | 16216 | 4855.552500 |

**Summary Report**

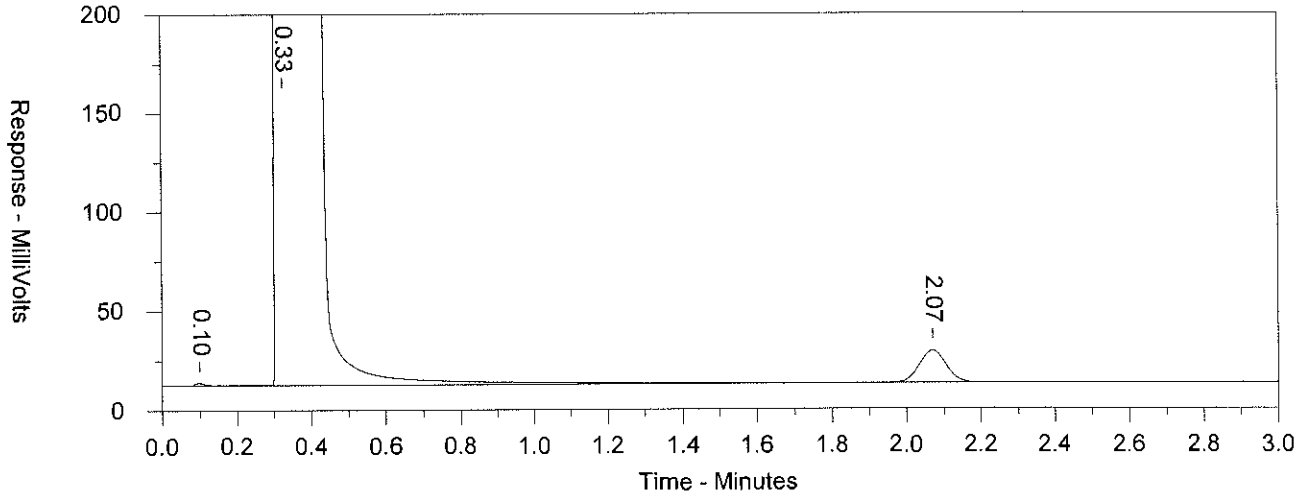
| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ CARBON DIOXIDE | B | 4855.552500 | <12000 | 2600 | J | |

Units: ug/l

* Recovery outside QC Limits

1251380 AAPOFD1 T 200340011A 08097 SW-846 8015B modified

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.017.RAW




Sample Name = 1251380 AAPOFD1 T 200340011A 08097 SW-846 8015B modified

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.017.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

Time injected = 2/3/2020 12:44:28 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.069 | 4855.552 | 81068 | 16215.9 |

eurofins | Lancaster Laboratories Environmental

# Data Summary

**Sample Name: 1251382** PO44D Sample ID: AA **Batchnumber: 200340011A**

Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA

**Analyses:** 08097

## Analysis Report (A)

**Injected on** Feb 03, 2020 12:52:15
**Instrument** 19506B
**Result file** 31CO2X19093051B.018.RAW
**Calibration file** 31CO2X1909301
**Method file** CO2

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| CO2 by Headspace | 1.91 | 2.07 | 2.11 | 6444 | 1929.394 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| ☑ CO2 by Headspace | | | <12000 | <2600 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Reviewed and digitally signed by Esther Kathryn Lane on 2/5/2020 11:16:26

FEB 05 2020

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251382** PO44D ID: AA **Batchnumber: 200340011A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 08097

## Analysis Report (A)

Injected on : Feb 03, 2020 12:52:15
Instrument : CP31--19506B
Result file : 31CO2X19093051B.018.RAW
Calibration file : 31CO2X1909301.CAL
Method file : CO2.MET

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **CARBON DIOXIDE** | 1.91 | 2.07 | 2.11 | 6444 | 1929.394000 |

**Summary Report**

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ CARBON DIOXIDE | B | 1929.394000 | <12000 | <2600 | | |

Units: ug/l

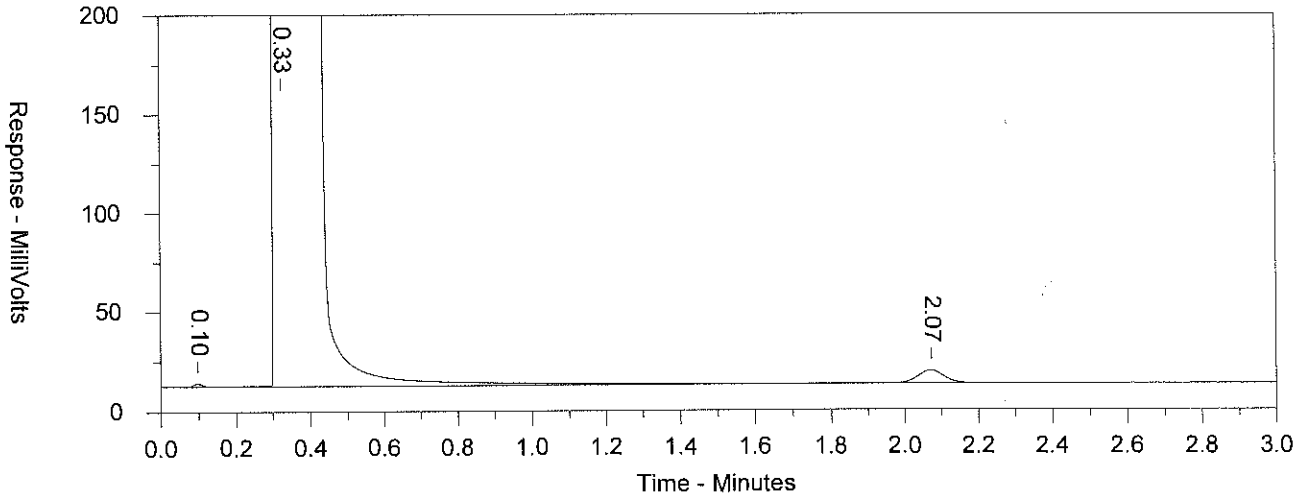
* Recovery outside QC Limits



Printed on: 2/3/2020 12:56:09

1251382 AAPO44D T 200340011A 08097 SW-846 8015B modified

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.018.RAW




Sample Name = **1251382** AAPO44D T 200340011A 08097 SW-846 8015B modified

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.018.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

Time injected = 2/3/2020 12:52:15 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.073 | 1929.394 | 33653 | 6443.523 |

eurofins | Lancaster Laboratories Environmental

# Data Summary

**Sample Name: 1251384** P11IP Sample ID: AA **Batchnumber: 200340011A**

Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA

**Analyses:** 08097

## Analysis Report (A)

| | |
|---|---|
| **Injected on** | Feb 03, 2020 12:59:57 |
| **Instrument** | 19506B |
| **Result file** | 31CO2X19093051B.019.RAW |
| **Calibration file** | 31CO2X1909301 |
| **Method file** | CO2 |

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| CO2 by Headspace | 1.91 | 2.07 | 2.11 | 28662 | 8582.38 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| ☑ CO2 by Headspace | A | 8582.38 | <12000 | 2600 | J | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Billhart
Senior Chemist

FEB 05 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/5/2020 11:16:28

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251384** P11IP ID: AA **Batchnumber: 200340011A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 08097

Analysis Report (A)

Injected on : Feb 03, 2020 12:59:57
Instrument : CP31--19506B
Result file : 31CO2X19093051B.019.RAW
Calibration file : 31CO2X1909301.CAL
Method file : CO2.MET

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **CARBON DIOXIDE** | 1.91 | 2.07 | 2.11 | 28662 | 8582.380000 |

**Summary Report**

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ CARBON DIOXIDE | B | 8582.380000 | <12000 | 2600 | J | |

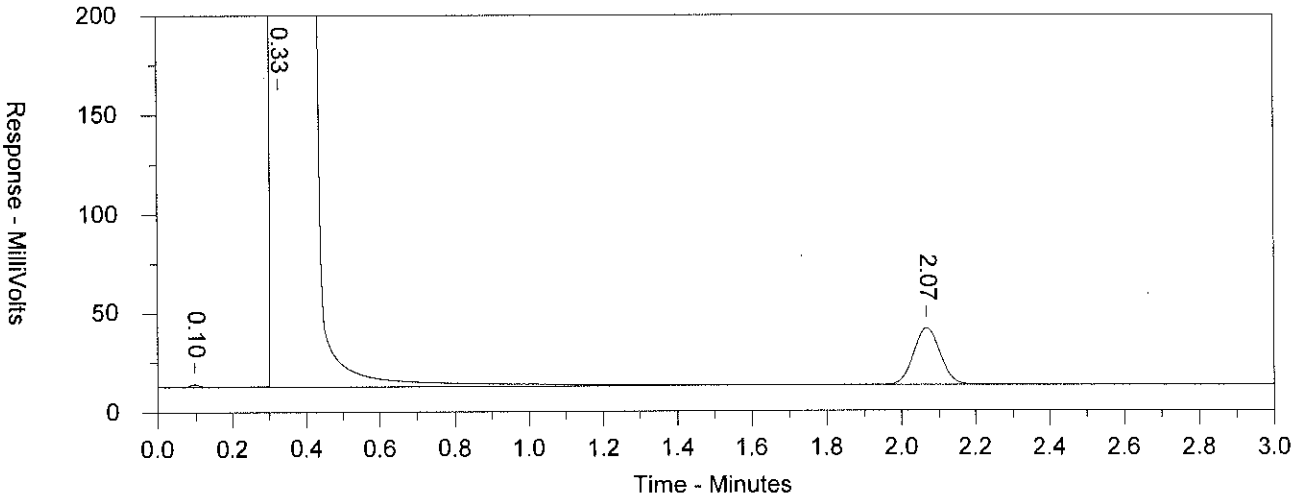
Units: ug/l

* Recovery outside QC Limits

Printed on: 2/3/2020 13:03:59

1251384 AAP11IP T 200340011A 08097 SW-846 8015B modified

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.019.RAW




Sample Name = 1251384 AAP11IP T 200340011A 08097 SW-846 8015B modified

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.019.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

Time injected = 2/3/2020 12:59:57 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.067 | 8582.382 | 144473 | 28662.25 |

eurofins | Lancaster Laboratories Environmental

# Data Summary

**Sample Name: 1251386** PO-2D Sample ID: AA **Batchnumber: 200340011A**

Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA

**Analyses:** 08097

## Analysis Report (A)

| | |
|---|---|
| **Injected on** | Feb 03, 2020 13:07:41 |
| **Instrument** | 19506B |
| **Result file** | 31CO2X19093051B.020.RAW |
| **Calibration file** | 31CO2X1909301 |
| **Method file** | CO2 |

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| CO2 by Headspace | 1.91 | 2.07 | 2.11 | 5342 | 1599.5445 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| ☑ CO2 by Headspace | | | <12000 | <2600 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Reviewed and digitally signed by Esther Kathryn Lane on 2/5/2020 11:16:31

Janice L. Skinner
Senior Chemist



FEB 05 2020

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251386** PO-2D ID: AA **Batchnumber: 200340011A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 08097

Analysis Report (A)

Injected on : Feb 03, 2020 13:07:41
Instrument : CP31--19506B
Result file : 31CO2X19093051B.020.RAW
Calibration file : 31CO2X1909301.CAL
Method file : CO2.MET

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **CARBON DIOXIDE** | 1.91 | 2.07 | 2.11 | 5342 | 1599.544500 |

**Summary Report**

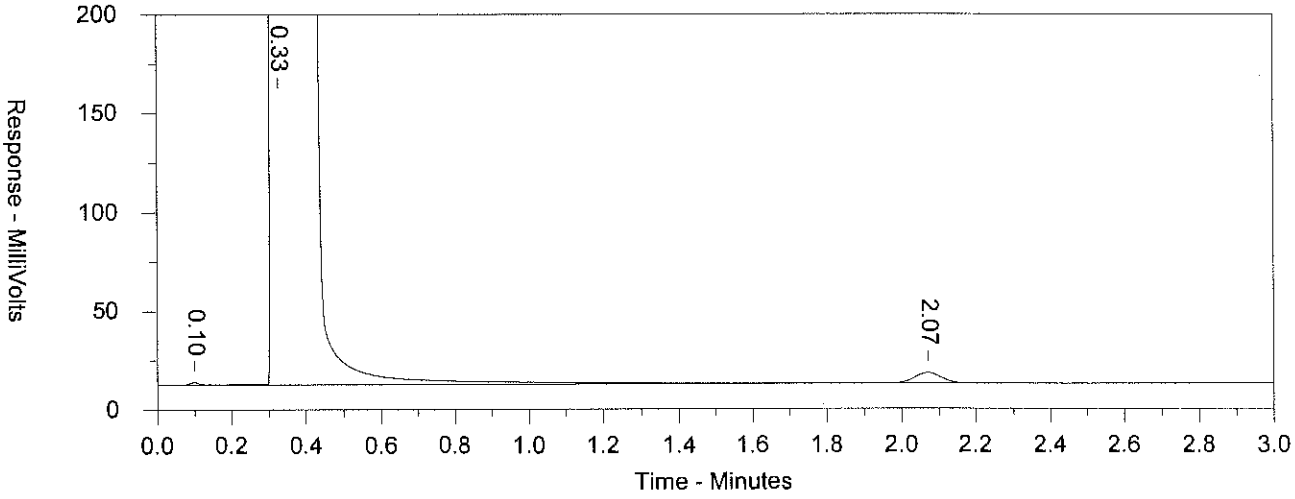
| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ CARBON DIOXIDE | B | 1599.544500 | <12000 | <2600 | | |

Units: ug/l

* Recovery outside QC Limits

1251386 AAPO-2D T 200340011A 08097 SW-846 8015B modified

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.020.RAW




Sample Name = **1251386** AAPO-2D T 200340011A 08097 SW-846 8015B modified

Instrument = CP31
Detector = 19506B

Raw File Name = **\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.020.RAW**
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

Time injected = 2/3/2020 1:07:41 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.070 | 1599.544 | 27693 | 5341.938 |

eurofins | Lancaster Laboratories Environmental

# Data Summary

**Sample Name: 1251388** PO48D Sample ID: AA **Batchnumber: 200340011A**

Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA

**Analyses:** 08097

## Analysis Report (A)

| | |
|---|---|
| **Injected on** | Feb 03, 2020 11:27:22 |
| **Instrument** | 19506B |
| **Result file** | 31CO2X19093051B.007.RAW |
| **Calibration file** | 31CO2X1909301 |
| **Method file** | CO2 |

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| CO2 by Headspace | 1.91 | 2.07 | 2.11 | 18033 | 5399.76 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| ☑ CO2 by Headspace | A | 5399.76 | <12000 | 2600 | J | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brillhart
Senior Chemist

Reviewed and digitally signed by Esther Kathryn Lane on 2/5/2020 11:15:59

FEB 05 2020

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251388** PO48D ID: AA **Batchnumber: 200340011A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 08097

Analysis Report (A)

Injected on : Feb 03, 2020 11:27:22
Instrument : CP31--19506B
Result file : 31CO2X19093051B.007.RAW
Calibration file : 31CO2X1909301.CAL
Method file : CO2.MET

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **CARBON DIOXIDE** | 1.91 | 2.07 | 2.11 | 18033 | 5399.760000 |

**Summary Report**

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ CARBON DIOXIDE | B | 5399.760000 | <12000 | 2600 | J | |

Units: ug/l

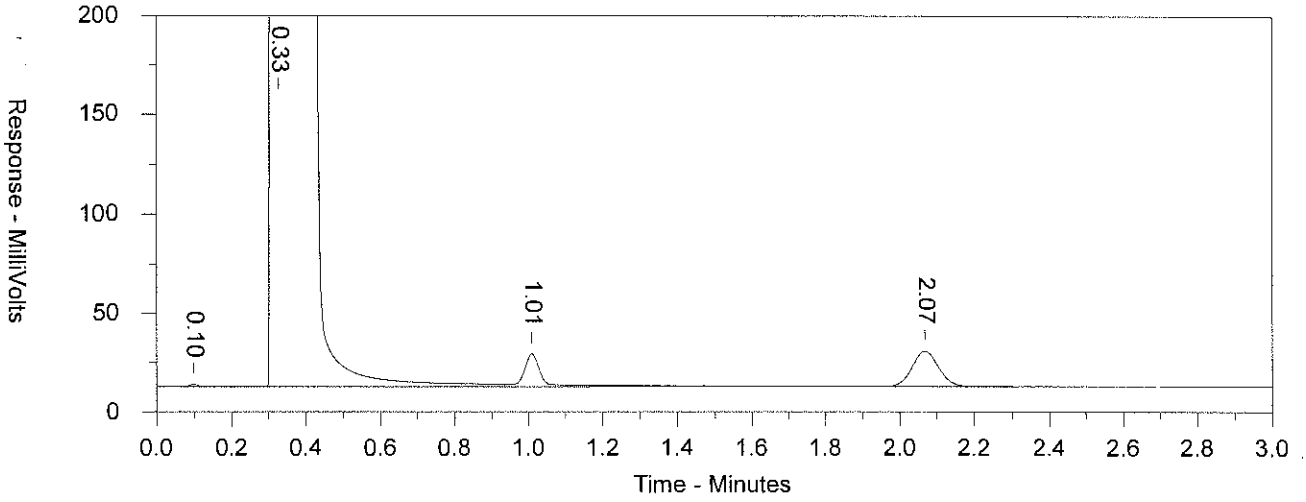
* Recovery outside QC Limits



Printed on: 2/3/2020 11:31:21

1251388 AAPO48D T 200340011A 08097 SW-846 8015B modified

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.007.RAW




Sample Name = **1251388** AAPO48D T 200340011A 08097 SW-846 8015B modified

Instrument = CP31
Detector = 19506B

Raw File Name = **\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.007.RAW**
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/3/2020 11:27:22 AM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.068 | 5399.759 | 91032 | 18033.37 |

eurofins | Lancaster Laboratories Environmental

# Data Summary

**Sample Name: 1251396** PO48I Sample ID: AA **Batchnumber: 200340011A**

Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA

**Analyses:** 08097

## Analysis Report (A)

**Injected on** Feb 03, 2020 13:15:22
**Instrument** 19506B
**Result file** 31CO2X19093051B.021.RAW
**Calibration file** 31CO2X1909301
**Method file** CO2

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| CO2 by Headspace | 1.91 | 2.07 | 2.11 | 17580 | 5263.875 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| ☑ CO2 by Headspace | A | 5263.875 | <12000 | 2600 | J | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Eshbach
Senior Chemist

Reviewed and digitally signed by Esther Kathryn Lane on 2/5/2020 11:16:33

FEB 05 2020

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251396** PO48I ID: AA **Batchnumber: 200340011A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 08097

Analysis Report (A)

Injected on : Feb 03, 2020 13:15:22
Instrument : CP31--19506B
Result file : 31CO2X19093051B.021.RAW
Calibration file : 31CO2X1909301.CAL
Method file : CO2.MET

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **CARBON DIOXIDE** | 1.91 | 2.07 | 2.11 | 17580 | 5263.875000 |

**Summary Report**

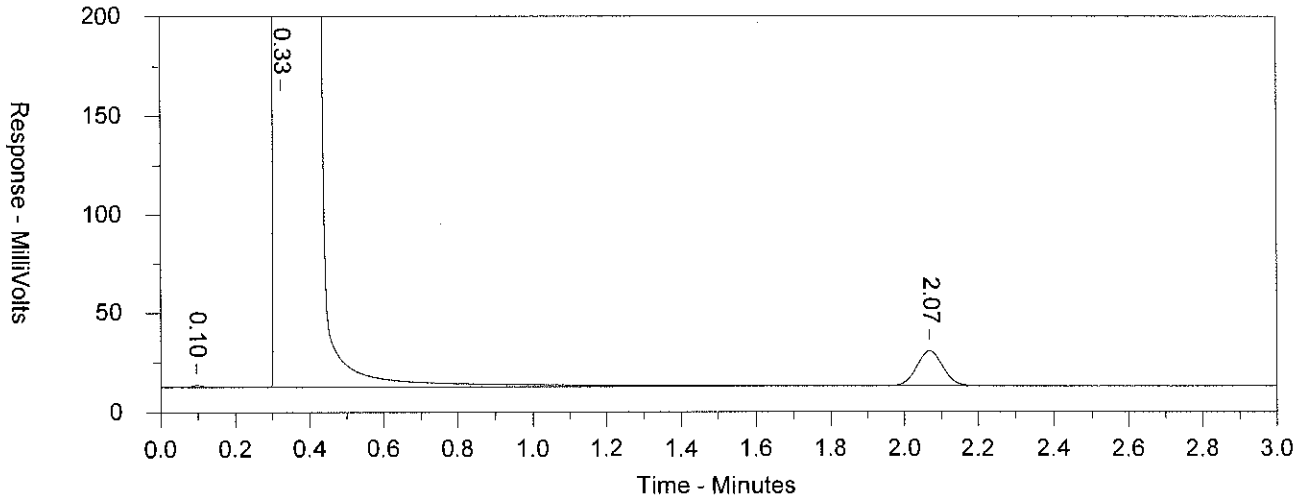
| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ CARBON DIOXIDE | B | 5263.875000 | <12000 | 2600 | J | |

Units: ug/l

* Recovery outside QC Limits

1251396 AAPO48I T 200340011A 08097 SW-846 8015B modified

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.021.RAW




Sample Name = 1251396 AAPO48I T 200340011A 08097 SW-846 8015B modified

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.021.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/3/2020 1:15:22 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.068 | 5263.876 | 89336 | 17579.56 |

# Standards Data

# CO2 by Headspace

Eurofins Lancaster Laboratories
EPH/Miscellaneous GC
Runlog for 31CO2X19093001B
Instrument CP31--19506B

Data Directory Path is - \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\

| Operator | File | LLI# | Client ID | Analysis Date | Batch | Dilution Factor |
|---|---|---|---|---|---|---|
| 9051 | 31CO2X19093001B.001 | CONDITIONER | | 4/3/19 8:43 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.002 | CONDITIONER | | 4/3/19 8:51 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.003 | CONDITIONER | | 4/3/19 8:59 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.004 | CONDITIONER | | 4/3/19 9:07 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.005 | CONDITIONER | | 4/3/19 9:16 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.006 | CONDITIONER | | 4/3/19 9:24 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.007 | CONDITIONER | | 4/3/19 9:32 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.008 | CONDITIONER | | 4/3/19 9:40 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.009 | CONDITIONER | | 4/3/19 9:48 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.010 | IBLK | AA | 4/3/19 10:34 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.011 | CO2_11932B | CO2_1AA | 4/3/19 10:42 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.012 | CO2_21932B | CO2_2AA | 4/3/19 10:49 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.013 | CO2_31932R | CO2_3AA | 4/3/19 10:57 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.014 | CO2_41932B | CO2_4AA | 4/3/19 11:05 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.015 | CO2_51932B | CO2_5AA | 4/3/19 11:12 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.016 | CO2_61932B | CO2_6AA | 4/3/19 11:20 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.017 | IBLK | IBLKAA | 4/3/19 11:28 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.018 | CO2MX1932B | CO2MXAA | 4/3/19 11:36 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.019 | CO2CX1932B | CO2CXAA | 4/3/19 11:43 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.020 | CO2CX1932B | CO2CXAA | 4/3/19 11:58 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.021 | CO2CX1932B | CO2CXAA | 4/3/19 12:16 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.022 | CO2_31932R | CO2_3ST | 4/3/19 12:24 | 199299999 | 1.00 |
| 9051 | 31CO2X19093001B.023 | BLANKA 4/2/19 J | PBLK03092 | 4/3/19 12:33 | 190920003A | 5.00 |
| 9051 | 31CO2X19093001B.024 | 1020322 J | 82815 | 4/3/19 12:41 | 190920003A | 5.00 |
| 9051 | 31CO2X19093001B.025 | CO2_31932R | CO2_3ST | 4/3/19 12:49 | 199299999 | 1.00 |

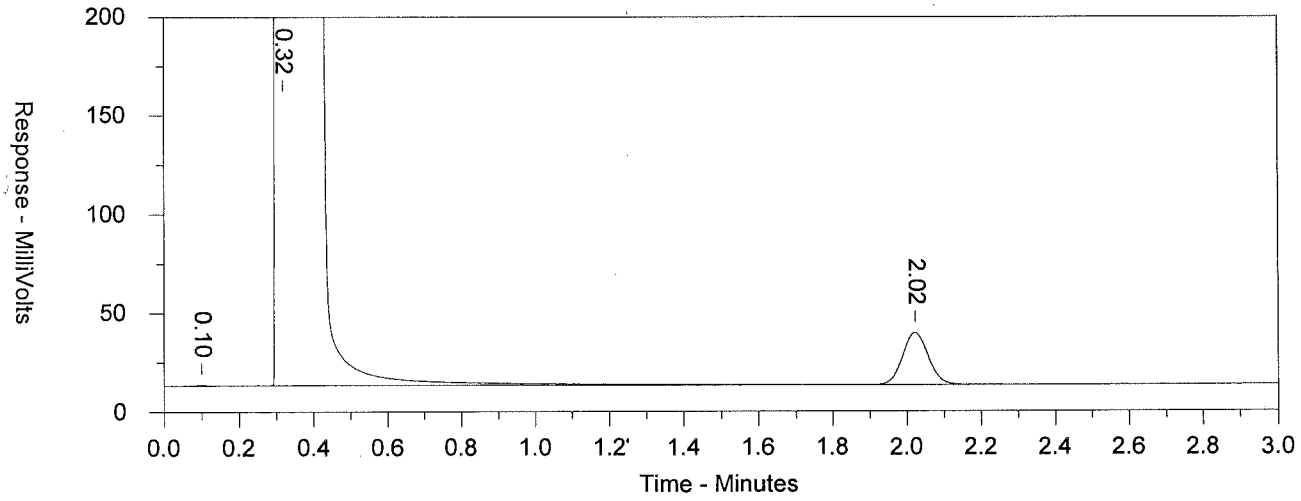
Eurofins Lancaster Laboratories
EPH/Miscellaneous GC
Runlog for 31CO2X19093051B
Instrument CP31--19506B

Data Directory Path is - \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\

| Operator | File | LLI# | Client ID | Analysis Date | Batch | Dilution Factor |
|---|---|---|---|---|---|---|
| 32136 | 31CO2X19093051B.001 | CONDITIONER | | 2/3/20 9:53 | 203399999 | 1.00 |
| 32136 | 31CO2X19093051B.002 | CONDITIONER | | 2/3/20 10:01 | 203399999 | 1.00 |
| 32136 | 31CO2X19093051B.003 | CONDITIONER | | 2/3/20 10:09 | 203399999 | 1.00 |
| 32136 | 31CO2X19093051B.004 | CO2_32032F | CO2_3VF | 2/3/20 10:33 | 203399999 | 1.00 |
| 32136 | 31CO2X19093051B.005 | BLANKA 2/3/20 | PBLK11034 | 2/3/20 10:40 | 200340011A | 5.00 |
| 32136 | 31CO2X19093051B.006 | LCSA 2/3/20 | LCS11034 | 2/3/20 11:20 | 200340011A | 5.00 |
| 32136 | 31CO2X19093051B.007 | 1251388 | PO48D | 2/3/20 11:27 | 200340011A | 5.00 |
| 32136 | 31CO2X19093051B.008 | 1251389MS | PO48D | 2/3/20 11:34 | 200340011A | 5.00 |
| 32136 | 31CO2X19093051B.009 | 1251390MSD | PO48D | 2/3/20 11:42 | 200340011A | 5.00 |
| 32136 | 31CO2X19093051B.010 | 1250421 | BV70D | 2/3/20 11:50 | 200340011A | 5.00 |
| 32136 | 31CO2X19093051B.011 | 1250423 | BV70A | 2/3/20 11:58 | 200340011A | 5.00 |
| 32136 | 31CO2X19093051B.012 | 1251371 | PO24I | 2/3/20 12:05 | 200340011A | 5.00 |
| 32136 | 31CO2X19093051B.013 | 1251373 | PO-23 | 2/3/20 12:13 | 200340011A | 5.00 |
| 32136 | 31CO2X19093051B.014 | 1251376 | PO25I | 2/3/20 12:21 | 200340011A | 5.00 |
| 32136 | 31CO2X19093051B.015 | CO2_32032F | CO2_3VF | 2/3/20 12:29 | 203399999 | 1.00 |
| 32136 | 31CO2X19093051B.016 | 1251378 | PO44I | 2/3/20 12:36 | 200340011A | 5.00 |
| 32136 | 31CO2X19093051B.017 | 1251380 | POFD1 | 2/3/20 12:44 | 200340011A | 5.00 |
| 32136 | 31CO2X19093051B.018 | 1251382 | PO44D | 2/3/20 12:52 | 200340011A | 5.00 |
| 32136 | 31CO2X19093051B.019 | 1251384 | P11IP | 2/3/20 12:59 | 200340011A | 5.00 |
| 32136 | 31CO2X19093051B.020 | 1251386 | PO-2D | 2/3/20 13:07 | 200340011A | 5.00 |
| 32136 | 31CO2X19093051B.021 | 1251396 | PO48I | 2/3/20 13:15 | 200340011A | 5.00 |
| 32136 | 31CO2X19093051B.022 | CO2_32032F | CO2_3VF | 2/3/20 13:23 | 203399999 | 1.00 |

CO2_11932B AACO2_1AA ICAL 199299999

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.011.RAW




Sample Name = CO2_11932B AACO2_1AA ICAL 199299999

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.011.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 9051

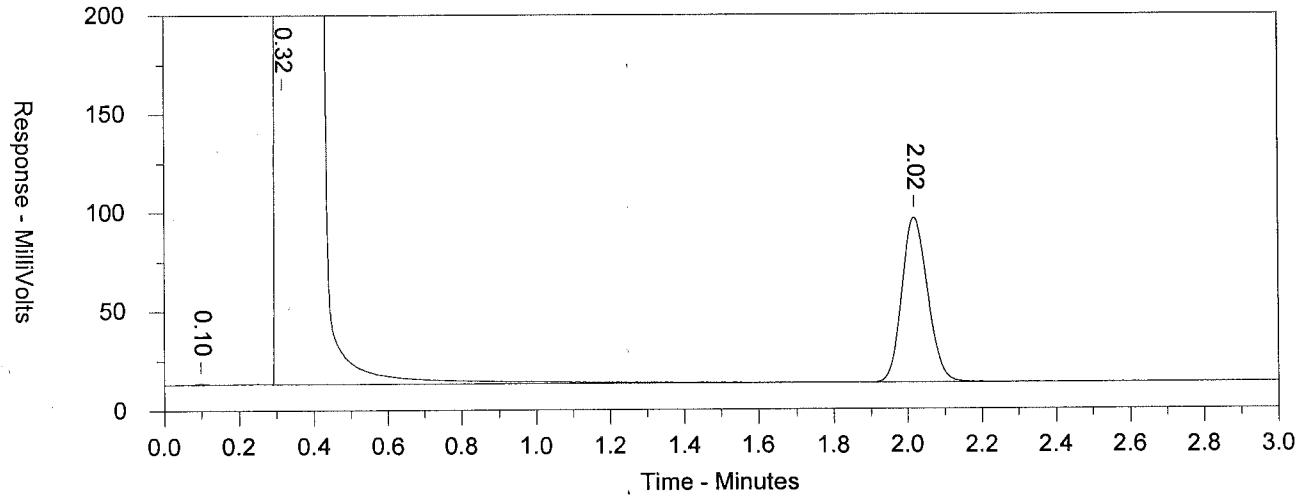
Time injected = 4/3/2019 10:42:07 AM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.022 | 7932.385 | 129588 | 26491.48 |

CO2_21932B AACO2_2AA ICAL 199299999

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.012.RAW




Sample Name = CO2_21932B AACO2_2AA ICAL 199299999

Instrument = CP31
Detector = 19506B

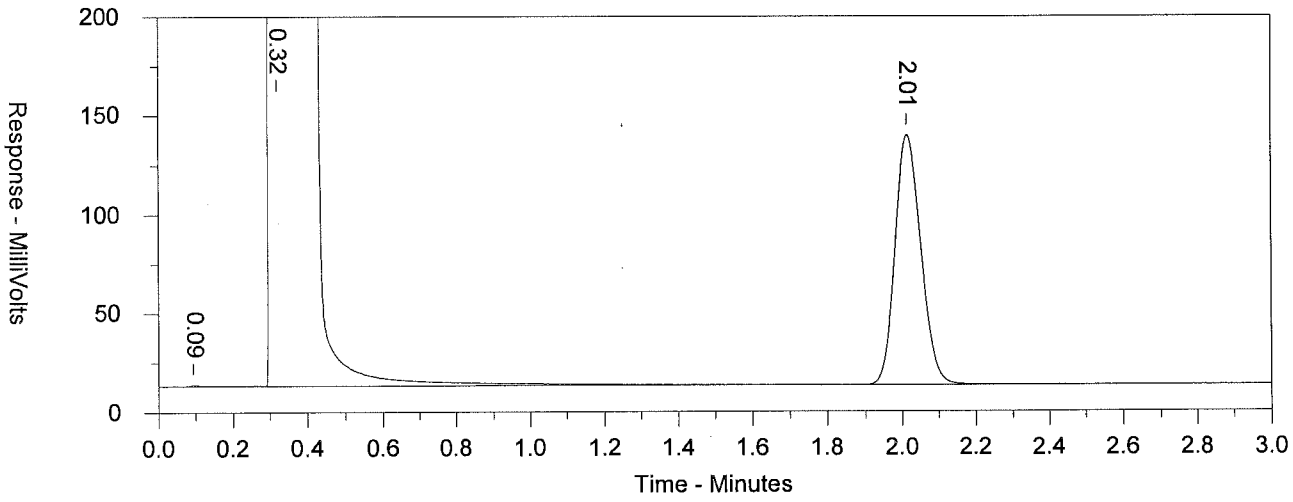
Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.012.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 9051

Time injected = 4/3/2019 10:49:25 AM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.019 | 25009.960 | 408277 | 83524.82 |

CO2_31932R AACO2_3AA ICAL 199299999
\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.013.RAW




Sample Name = CO2_31932R AACO2_3AA ICAL 199299999

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.013.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 9051

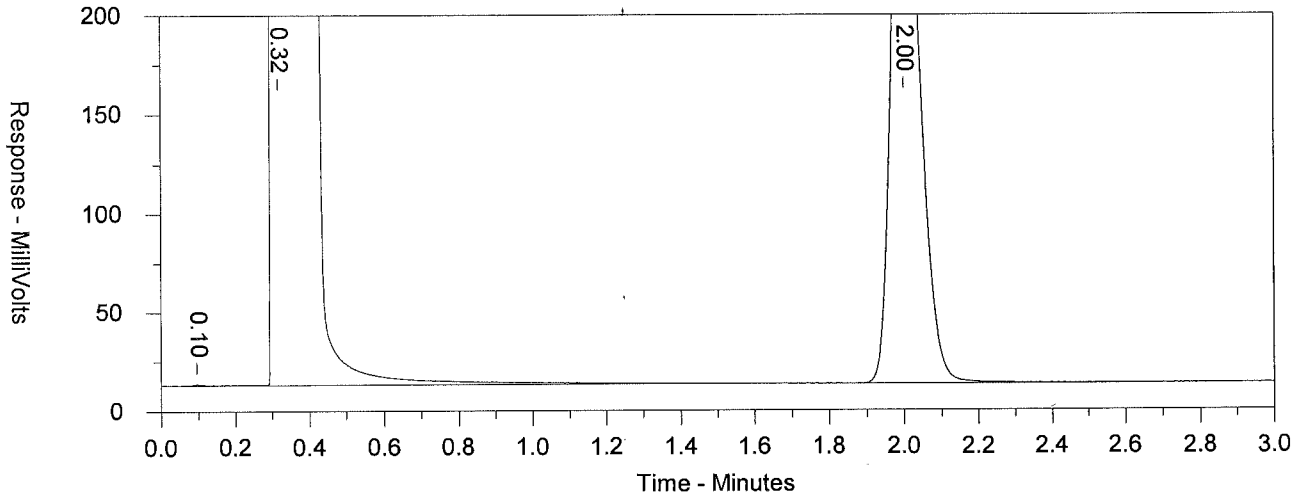
Time injected = 4/3/2019 10:57:43 AM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.013 | 37831.770 | 618641 | 126345.3 |

CO2_41932B AACO2_4AA ICAL 199299999

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.014.RAW




Sample Name = CO2_41932B AACO2_4AA ICAL 199299999

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.014.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 9051

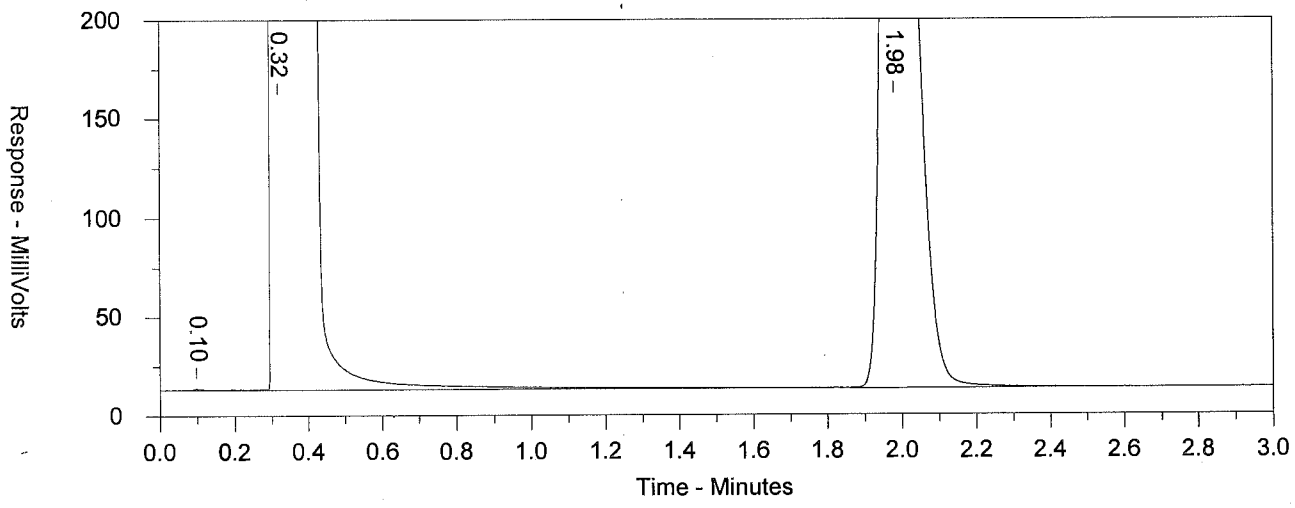
Time injected = 4/3/2019 11:05:11 AM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 1.999 | 98631.230 | 1642673 | 329395 |

CO2_51932B AACO2_5AA ICAL 199299999

—— \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.015.RAW




Sample Name = CO2_51932B AACO2_5AA ICAL 199299999

Instrument = CP31
Detector = 19506B

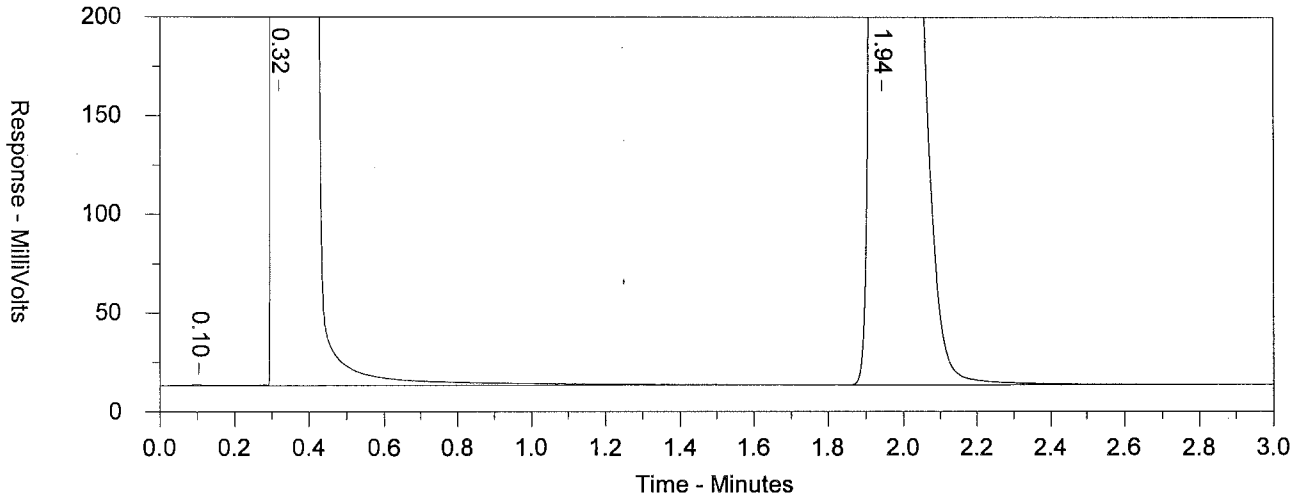
Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.015.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 9051

Time injected = 4/3/2019 11:12:52 AM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 1.978 | 183204.900 | 3192003 | 611842.4 |

CO2_61932B AACO2_6AA ICAL 199299999
—— \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.016.RAW




Sample Name = CO2_61932B AACO2_6AA ICAL 199299999

Instrument = CP31
Detector = 19506B

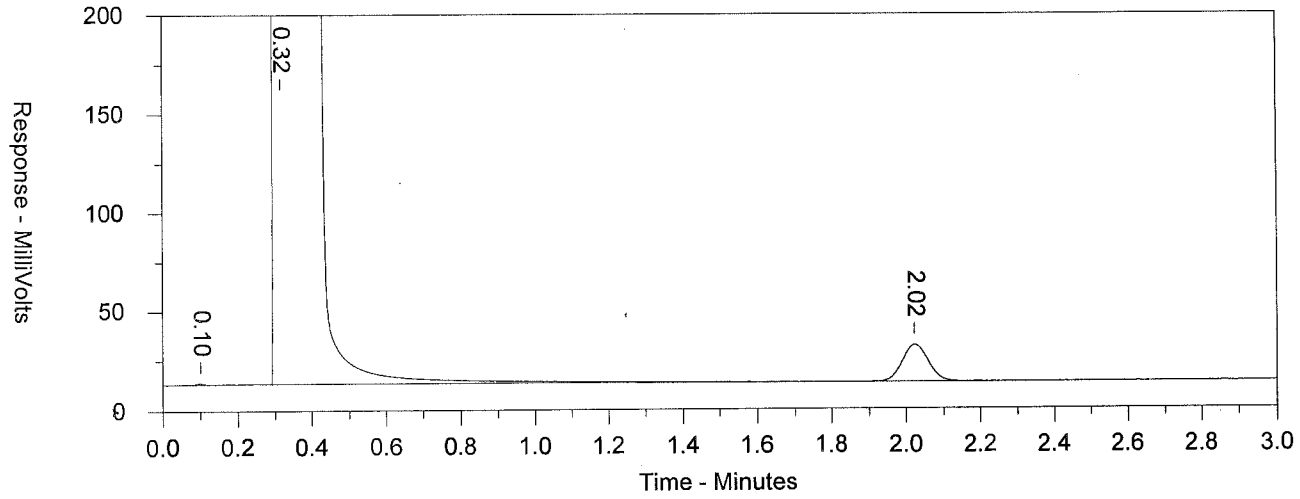
Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.016.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 9051
Time injected = 4/3/2019 11:20:36 AM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 1.943 | 328702.000 | 6370001 | 1097754 |

CO2MX1932B AACO2MXAA MISC 199299999

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.018.RAW




Sample Name = CO2MX1932B AACO2MXAA MISC 199299999

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.018.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 9051

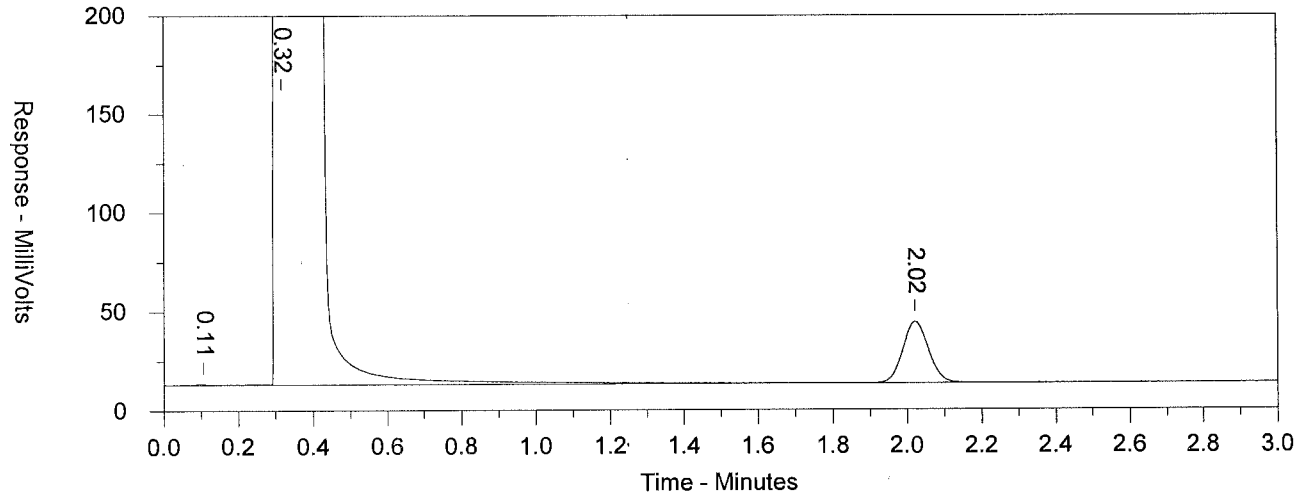
Time injected = 4/3/2019 11:36:09 AM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.022 | 5588.132 | 91107 | 18662.47 |

CO2CX1932B AACO2CXAA CCAL 199299999

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.019.RAW




Sample Name = CO2CX1932B AACO2CXAA CCAL 199299999

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.019.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 9051

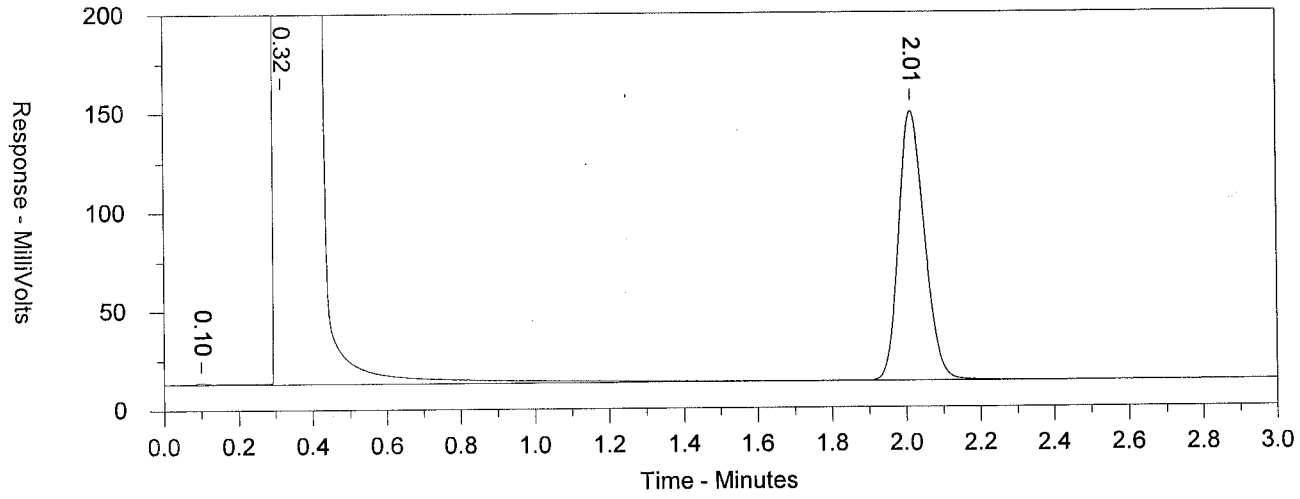
Time injected = 4/3/2019 11:43:50 AM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.021 | 9310.672 | 152450 | 31094.49 |

CO2CX1932B AACO2CXAA CCAL 199299999

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.020.RAW




Sample Name = CO2CX1932B AACO2CXAA CCAL 199299999

Instrument = CP31
Detector = 19506B

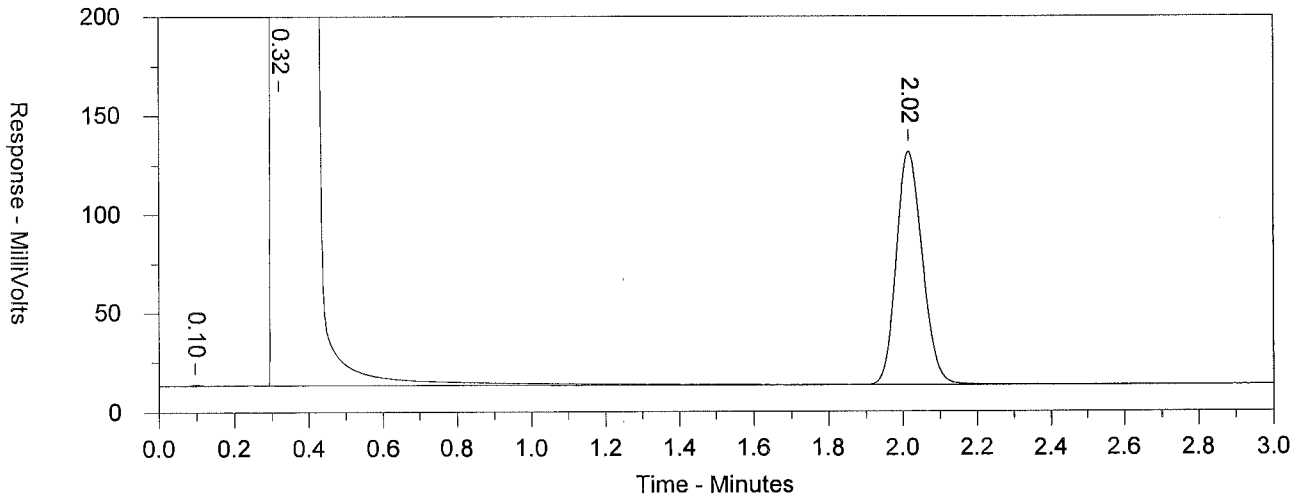
Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.020.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 9051

Time injected = 4/3/2019 11:58:53 AM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.013 | 40807.030 | 663351 | 136281.7 |

CO2CX1932B AACO2CXAA CCAL 199299999
\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.021.RAW




Sample Name = CO2CX1932B AACO2CXAA CCAL 199299999

Instrument = CP31
Detector = 19506B

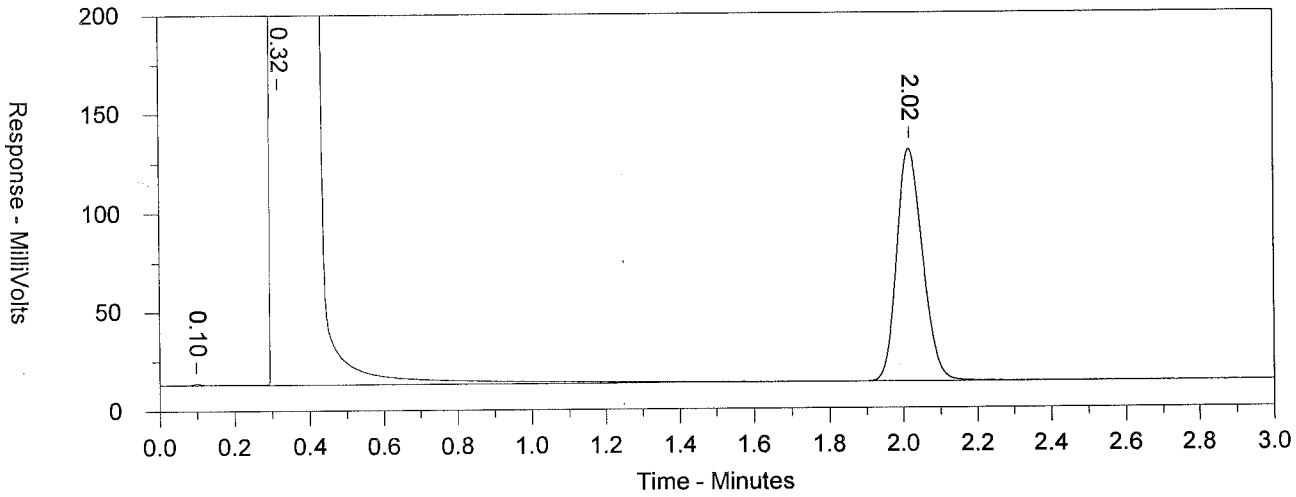
Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.021.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 9051

Time injected = 4/3/2019 12:16:57 PM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.016 | 35358.170 | 578405 | 118084.3 |

CO2_31932R STCO2_3ST CCAL 199299999
\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.022.RAW




Sample Name = CO2_31932R STCO2_3ST CCAL 199299999

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093001B.022.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 9051

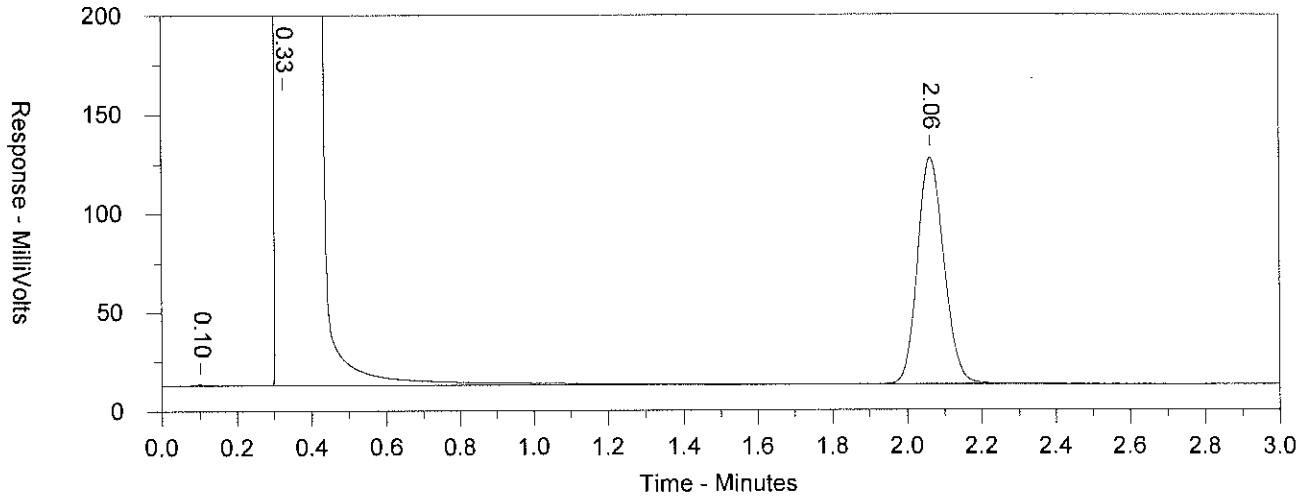
Time injected = 4/3/2019 12:24:54 PM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.017 | 35181.120 | 575452 | 117493 |

CO2_32032F VFCO2_3VF CCAL 203399999

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.004.RAW




Sample Name = CO2_32032F VFCO2_3VF CCAL 203399999

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.004.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

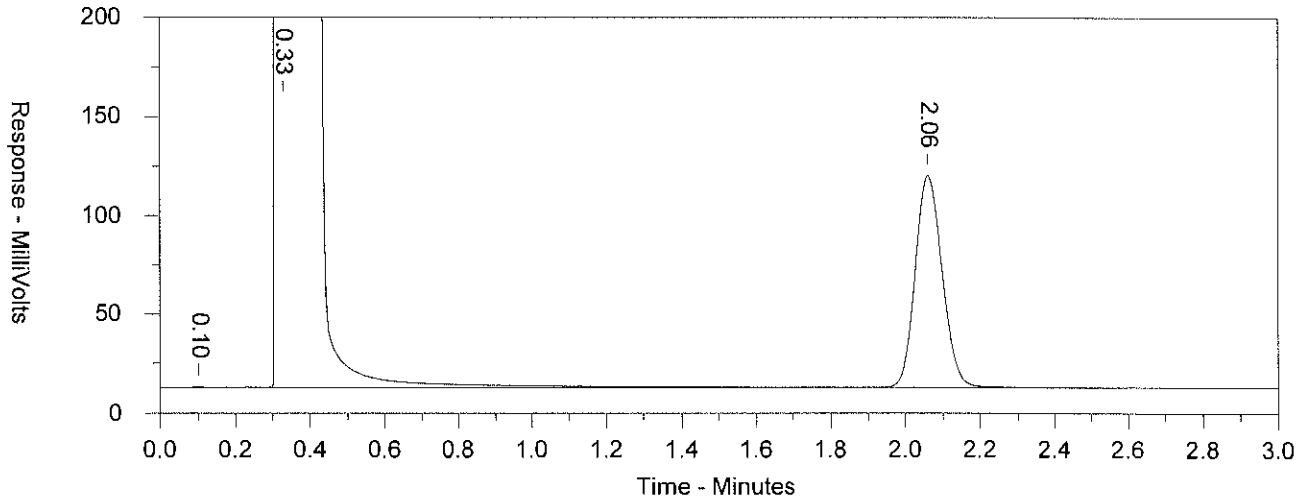
Time injected = 2/3/2020 10:33:32 AM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.062 | 34390.290 | 579559 | 114851.9 |

CO2_32032F VFCO2_3VF CCAL 203399999

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.015.RAW




Sample Name = CO2_32032F VFCO2_3VF CCAL 203399999

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.015.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

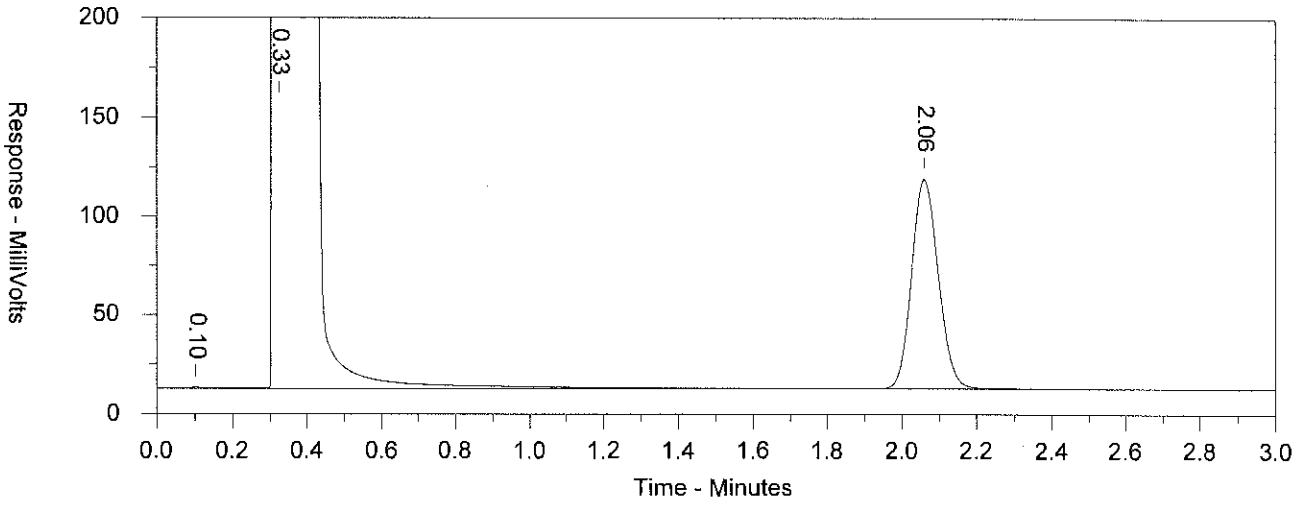
Time injected = 2/3/2020 12:29:02 PM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.060 | 32183.520 | 540277 | 107482.1 |

CO2_32032F VFCO2_3VF CCAL 203399999

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.022.RAW




Sample Name = CO2_32032F VFCO2_3VF CCAL 203399999

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.022.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

Time injected = 2/3/2020 1:23:08 PM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.059 | 31801.740 | 531542 | 106207.1 |

# Raw QC Data

# CO2 by Headspace

eurofins | Lancaster Laboratories Environmental

# Data Summary

**Sample Name: BLANKA** 2/3/20 PBLK11034 BLK Sample ID: AA **Batchnumber: 200340011A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: State:
**Analyses:** 08097

## Analysis Report (A)

| | |
|---|---|
| **Injected on** | Feb 03, 2020 10:40:49 |
| **Instrument** | 19506B |
| **Result file** | 31CO2X19093051B.005.RAW |
| **Calibration file** | 31CO2X1909301 |
| **Method file** | CO2 |

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| CO2 by Headspace | 1.91 | 2.06 | 2.11 | 433 | 129.78655 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| ☐ CO2 by Headspace | | | <12000 | <2600 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Bellhart
Senior Chemist

FEB 05 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/5/2020 11:15:55

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **BLANKA** 2/3/20 PBLK11034 ID: AA **Batchnumber: 200340011A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: State:
Analyses: 08097

Analysis Report (A)

Injected on : Feb 03, 2020 10:40:49
Instrument : CP31--19506B
Result file : 31CO2X19093051B.005.RAW
Calibration file : 31CO2X1909301.CAL
Method file : CO2.MET

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **CARBON DIOXIDE** | 1.91 | 2.06 | 2.11 | 433 | 129.786550 |

**Summary Report**

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ CARBON DIOXIDE | B | 129.786550 | <12000 | <2600 | | |

Units: ug/l

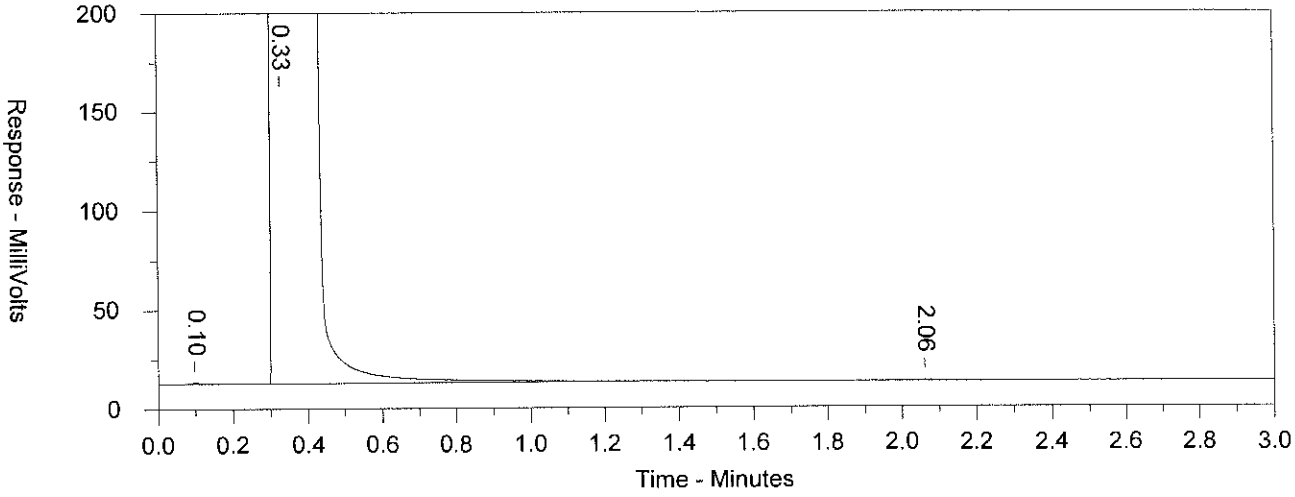
* Recovery outside QC Limits



Printed on: 2/3/2020 10:44:51

BLANKA 2/3/20 AAPBLK11034 BLK 200340011A 08097 SW-846 8015B modified

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.005.RAW




Sample Name = **BLANKA 2/3/20** AAPBLK11034 BLK 200340011A 08097 SW-846 8015B modified

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.005.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

Time injected = 2/3/2020 10:40:49 AM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.061 | 129.787 | 3582 | 433.4432 |

eurofins | Lancaster Laboratories Environmental

# Data Summary

**Sample Name: 1251389** MS PO48D MS Sample ID: AA **Batchnumber: 200340011A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
**Analyses:** 08097

## Analysis Report (A)

**Injected on** Feb 03, 2020 11:34:41
**Instrument** 19506B
**Result file** 31CO2X19093051B.008.RAW
**Calibration file** 31CO2X1909301
**Method file** CO2

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| CO2 by Headspace | 1.91 | 2.06 | 2.11 | 97533 | 29204.375 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| ☑ CO2 by Headspace | A | 29204.375 | 12000 | 2600 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

FEB 05 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/5/2020 11:16:02

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251389** MS PO48D ID: AA **Batchnumber: 200340011A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 08097

Analysis Report (A)

Injected on : Feb 03, 2020 11:34:41
Instrument : CP31--19506B
Result file : 31CO2X19093051B.008.RAW
Calibration file : 31CO2X1909301.CAL
Method file : CO2.MET

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **CARBON DIOXIDE** | 1.91 | 2.06 | 2.11 | 97533 | 29204.375000 |

**Summary Report**

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ CARBON DIOXIDE | B | 29204.375000 | 12000 | 2600 | | |

Units: ug/l

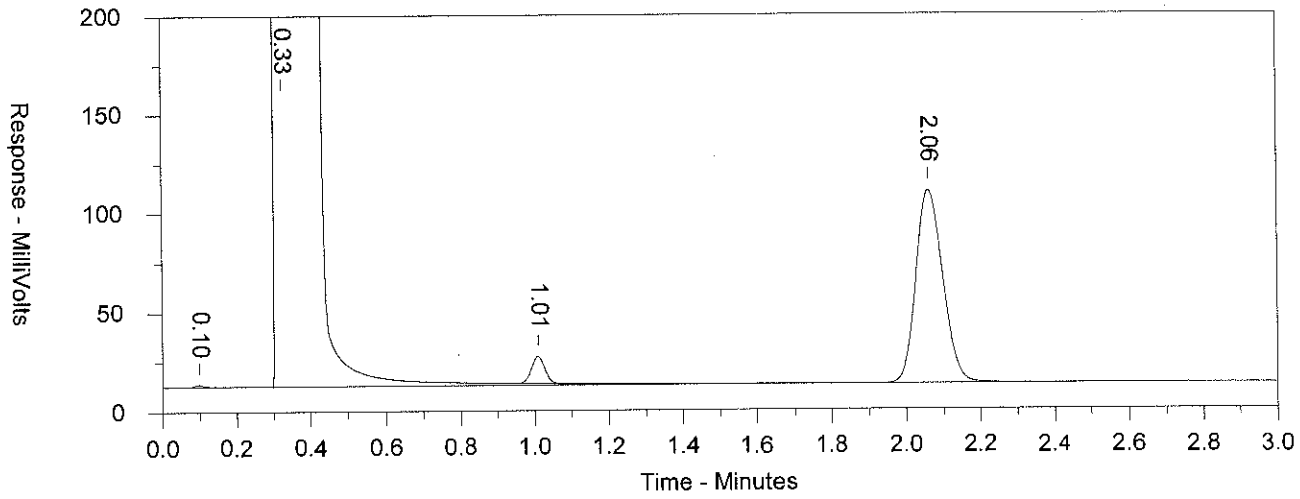
* Recovery outside QC Limits



Printed on: 2/3/2020 11:38:43

1251389MS AAPO48D MS 200340011A 08097 SW-846 8015B modified

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.008.RAW




Sample Name = 1251389MS AAPO48D MS 200340011A 08097 SW-846 8015B modified

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.008.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/3/2020 11:34:41 AM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.063 | 29204.380 | 490414 | 97532.73 |

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# Data Summary

**Sample Name: 1251390** MSD PO48D MSD Sample ID: AA **Batchnumber: 200340011A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
**Analyses:** 08097

## Analysis Report (A)

**Injected on** Feb 03, 2020 11:42:58
**Instrument** 19506B
**Result file** 31CO2X19093051B.009.RAW
**Calibration file** 31CO2X1909301
**Method file** CO2

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| CO2 by Headspace | 1.91 | 2.06 | 2.11 | 135658 | 40620.22 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| ☑ CO2 by Headspace | A | 40620.22 | 12000 | 2600 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brillhart
Senior Chemist

FEB 05 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/5/2020 11:16:05

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251390** MSD PO48D ID: AA **Batchnumber: 200340011A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 08097

Analysis Report (A)

Injected on : Feb 03, 2020 11:42:58
Instrument : CP31--19506B
Result file : 31CO2X19093051B.009.RAW
Calibration file : 31CO2X1909301.CAL
Method file : CO2.MET

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **CARBON DIOXIDE** | 1.91 | 2.06 | 2.11 | 135658 | 40620.220000 |

**Summary Report**

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ CARBON DIOXIDE | B | 40620.220000 | 12000 | 2600 | | |

Units: ug/l

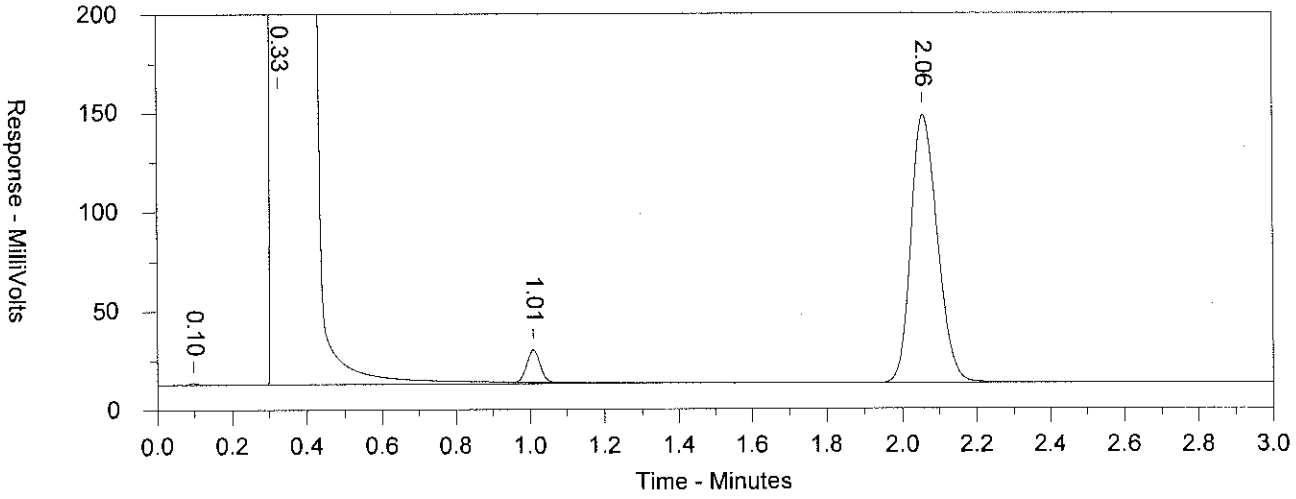
* Recovery outside QC Limits



Printed on: 2/3/2020 11:47:01

1251390MSD AAPO48D MSD 200340011A 08097 SW-846 8015B modified

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.009.RAW




Sample Name = 1251390MSD AAPO48D MSD 200340011A 08097 SW-846 8015B modified

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.009.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

Time injected = 2/3/2020 11:42:58 AM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.058 | 40620.220 | 681060 | 135657.8 |

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# Data Summary

**Sample Name: LCSA** 2/3/20 LCS11034 LCS Sample ID: AA **Batchnumber: 200340011A**

Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: State:

**Analyses:** 08097

## Analysis Report (A)

**Injected on** Feb 03, 2020 11:20:06
**Instrument** 19506B
**Result file** 31CO2X19093051B.006.RAW
**Calibration file** 31CO2X1909301
**Method file** CO2

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| CO2 by Headspace | 1.91 | 2.06 | 2.11 | 108569 | 32508.945 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| ☐ CO2 by Headspace | A | 32508.945 | 12000 | 2600 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Janie L. Brillhart
Senior Chemist

FEB 05 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/5/2020 11:15:57

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **LCSA** 2/3/20 LCS11034 ID: AA **Batchnumber: 200340011A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: State:
Analyses: 08097

Analysis Report (A)

Injected on : Feb 03, 2020 11:20:06
Instrument : CP31--19506B
Result file : 31CO2X19093051B.006.RAW
Calibration file : 31CO2X1909301.CAL
Method file : CO2.MET

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| CARBON DIOXIDE | 1.91 | 2.06 | 2.11 | 108569 | 32508.945000 |

**Summary Report**

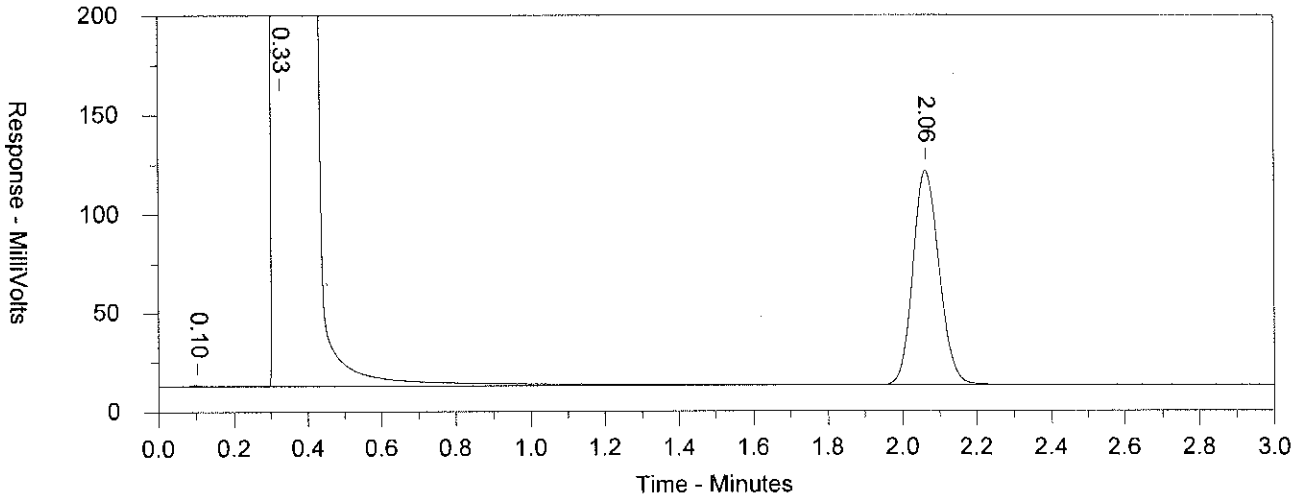
| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ CARBON DIOXIDE | B | 32508.945000 | 12000 | 2600 | | |

Units: ug/l

* Recovery outside QC Limits

LCSA 2/3/20 AALCS11034 LCS 200340011A 08097 SW-846 8015B modified

\\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.006.RAW




Sample Name = LCSA 2/3/20 AALCS11034 LCS 200340011A 08097 SW-846 8015B modified

Instrument = CP31
Detector = 19506B

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\31co2x19093051B.006.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP31\CO2.MET
Calibration File Name = Y:\CP31\31CO2X1909301.CAL
Run Time = 3.5
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

Time injected = 2/3/2020 11:20:06 AM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: Micropacked, ShinCarbon ST 100/120

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| CARBON DIOXIDE | 2.062 | 32508.950 | 545889 | 108568.9 |

# Extraction/Distillation/Digestion Logs

# CO2 by Headspace

**Organic Extraction Batchlog**

**200340011A**

Assigned to: 32136 Esther Kathryn Lane

Reviewed by: QLB 2/4/20 Start Date: 2/3/2020 Start time: 11:10

Tech 1: EKL32136 Tech 2:

Dept: 32 Prep Analysis: 00000 CO2 by Headspace

| QC | Sample Code | Amt (mL) | SS/IS Sol. | Amt (mL) | MS Sol. | Amt (mL) | FV (mL) | pH | pH | BC | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1251389MS | PO48D | 5 | | | MS1817932I | .10 | 5 | | | 065a | |
| 1251390MSD | PO48D | 5 | | | MS1817932I | .10 | 5 | | | 065a | |
| BLANKA | PBLK11034 | 5 | | | | | 5 | | | | |
| LCSA | LCS11034 | 5 | | | MS1817932I | .10 | 5 | | | | |

| Solvent Used | Lot No. |
|---|---|
| DI H2O | In House |
| | |

Spike Solutions: MS1817932I

Witness:

Carbon Dioxide Matrix Spike

| Sample # | Sample Code | Amt (mL) | SS/IS Sol. | Amt (mL) | FV (mL) | pH | pH | BC | Comments | Analyses | List | Due Date | Prio | H | A | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 1250421 | BV70D | 5 | | | 5 | | | 065a | | 08097 | | 02/11/2020 | Q | N | N | N |
| 2 1250423 | BV70A | 5 | | | 5 | | | 065a | | 08097 | | 02/11/2020 | Q | N | N | N |
| 3 1251371 | PO24I | 5 | | | 5 | | | 065a | | 08097 | | 02/12/2020 | N | N | N | N |
| 4 1251373 | PO-23 | 5 | | | 5 | | | 065a | | 08097 | | 02/12/2020 | N | N | N | N |
| 5 1251376 | PO25I | 5 | | | 5 | | | 065a | | 08097 | | 02/12/2020 | N | N | N | N |
| 6 1251378 | PO44I | 5 | | | 5 | | | 065a | | 08097 | | 02/12/2020 | N | N | N | N |
| 7 1251380 | POFD1 | 5 | | | 5 | | | 065a | | 08097 | | 02/12/2020 | N | N | N | N |
| 8 1251382 | PO44D | 5 | | | 5 | | | 065a | | 08097 | | 02/12/2020 | N | N | N | N |
| 9 1251384 | P11IP | 5 | | | 5 | | | 065a | | 08097 | | 02/12/2020 | N | N | N | N |
| 10 1251386 | PO-2D | 5 | | | 5 | | | 065a | | 08097 | | 02/12/2020 | N | N | N | N |
| 11 1251388BKG | PO48D | 5 | | | 5 | | | 065a | | 08097 | | 02/12/2020 | N | N | N | N |
| 12 1251396 | PO48I | 5 | | | 5 | | | 065a | | 08097 | | 02/12/2020 | N | N | N | N |



| Bench# | Bench# | Bench# | | |
|---|---|---|---|---|
| Rack ID: | | Work Station | | Micro Temp 100? |
| Internal Standard | | Balance # | | |

| R-VAP ID | C | R-VAP ID | C | R-VAP ID | C |
|---|---|---|---|---|---|
| S-bath ID | C | S-bath ID | C | N-Evap | C | M-vap | C |

200340011A

DF = Dilution Factor FV = Final Volume



Documented temps are NIST corrected.

# Volatile Headspace Hydrocarbons by GC Data

# Case Narrative/Conformance Summary

# Volatile Headspace Hydrocarbons by GC

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# Case Narrative/Conformance Summary

**CLIENT: Chevron Env Management Company**
**SDG: PUP93**

## EPH/Miscellaneous GC

**Fraction: Volatile Headspace Hydrocarbons by GC**

| Sample # | Client ID | Matrix Liquid | Matrix Solid | DF | Comments |
|---|---|---|---|---|---|
| 1251371 | MW-24I-W-200130 | X | | 1 | |
| 1251373 | MW-23-W-200130 | X | | 1 | |
| 1251376 | MW-25I-W-200130 | X | | 1 | |
| 1251378 | MW-44I-W-200130 | X | | 1 | |
| 1251380 | DUP1-WD-200130 | X | | 1 | Field Duplicate Sample |
| 1251382 | MW-44D-W-200130 | X | | 1 | |
| 1251384 | MW-11IP-W-200130 | X | | 1 | |
| 1251386 | MW-2D-W-200130 | X | | 1 | |
| 1251388 | MW-48D-W-200130 | X | | 1; 5 | Unspiked |
| 1251389 | MW-48DMS-W-200130 | X | | 1 | Matrix Spike |
| 1251390 | MW-48DMSD-W-200130 | X | | 1 | Matrix Spike Duplicate |
| 1251396 | MW-48I-W-200130 | X | | 1 | |

See QC Reference List for Associated Batch QC Samples

### SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

### HOLDING TIME:

All holding times were met.

### PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

### CALIBRATION/STANDARDIZATION:

All criteria were met.

### QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

**MS/MSD**

Batch#: 200340009A (Sample number(s): 1251371, 1251373, 1251376, 1251378, 1251380, 1251382, 1251384, 1251386, 1251388-1251390, 1251396, UNSPK: 1251388)
The recovery(ies) for the following analyte(s) in the MS and MSD were below the acceptance window: Ethane, Ethene, Methane

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# Case Narrative/Conformance Summary

**CLIENT: Chevron Env Management Company**
**SDG: PUP93**

## EPH/Miscellaneous GC

**Fraction: Volatile Headspace Hydrocarbons by GC**

### SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

**Abbreviation Key**

| | |
|---|---|
| UNSPK = Unspiked (for MS/MSD) | LOQ = Limit of Quantitation |
| +MS = Matrix Spike | MDL = Method Detection Limit |
| MSD = Matrix Spike Duplicate | ND = Not Detected |
| BKG = Background (for Duplicate) | J = Estimated Value |
| D = Duplicate (DUP) | E= out of calibration range |
| LCS = Lab Control Sample | RE = Repreparation/Reanalysis |
| LCSD = Lab Control Sample Duplicate | * = Out of Specification |

# Quality Control and Calibration Summary Forms

# Volatile Headspace Hydrocarbons by GC

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# Quality Control Reference List
## EPH/Miscellaneous GC

**CLIENT: Chevron Env Management Company**
**SDG: PUP93**

**Fraction: Volatile Headspace Hydrocarbons by GC**

| Analysis | Batch Number | Sample Number | Analysis Date |
|---|---|---|---|
| Volatile Headspace Hydrocarbon | 200340009A | PBLK09034 | 02/03/2020 11:38 |
| | | LCS09034 | 02/03/2020 11:56 |
| | | 1251371 | 02/03/2020 15:09 |
| | | 1251373 | 02/03/2020 15:27 |
| | | 1251376 | 02/03/2020 15:45 |
| | | 1251378 | 02/03/2020 16:03 |
| | | 1251380 | 02/03/2020 16:21 |
| | | 1251382 | 02/03/2020 16:40 |
| | | 1251384 | 02/03/2020 16:57 |
| | | 1251386 | 02/03/2020 17:15 |
| | | 1251388 UNSPK | 02/03/2020 12:13 |
| | | 1251388 UNSPK | 02/04/2020 16:39 |
| | | 1251389 MS | 02/03/2020 12:31 |
| | | 1251390 MSD | 02/03/2020 12:49 |
| | | 1251396 | 02/03/2020 17:34 |

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**Quality Control Summary**
**Method Blank**
**EPH/Miscellaneous GC**
**SDG: PUP93**
**Matrix: LIQUID**

**Fraction: Volatile Headspace Hydrocarbons by GC**

| 200340009A / PBLK09034<br>Analyte | Analysis Date | Blank Results | Units | MDL | LOQ |
|---|---|---|---|---|---|
| Methane | 02/03/20 | N.D. | ug/l | 3.0 | 5.0 |
| Ethane | 02/03/20 | N.D. | ug/l | 1.0 | 5.0 |
| Ethene | 02/03/20 | N.D. | ug/l | 1.0 | 5.0 |

**Quality Control Summary**
**Surrogates**
**EPH/Miscellaneous GC**
**SDG: PUP93**
**Matrix: LIQUID**

**Fraction: Volatile Headspace Hydrocarbons by GC**

| 200340009A | Propene | |
|---|---|---|
| | Spike Added | 20.94189 ug/l |
| Sample | % Recovery | Limits |
| PBLK09034 | 87 | 46 - 135 |
| LCS09034 | 85 | 46 - 135 |
| 1251371 | 51 | 46 - 135 |
| 1251373 | 51 | 46 - 135 |
| 1251376 | 59 | 46 - 135 |
| 1251378 | 74 | 46 - 135 |
| 1251380 | 79 | 46 - 135 |
| 1251382 | 71 | 46 - 135 |
| 1251384 | 52 | 46 - 135 |
| 1251386 | 55 | 46 - 135 |
| 1251388 UNSPK | 68 | 46 - 135 |
| 1251389 MS | 49 | 46 - 135 |
| 1251390 MSD | 52 | 46 - 135 |
| 1251396 | 50 | 46 - 135 |

## EPH/Miscellaneous GC

**Fraction: Volatile Headspace Hydrocarbons by GC**

| UNSPK: 1251388<br>MS: 1251389<br>MSD: 1251390<br>**Analyte** | Batch: **200340009A** (Sample number(s): 1251371, 1251373, 1251376, 1251378, 1251380, 1251382, 1251384, 1251386, 1251388-1251390, 1251396 ) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Spike Added ug/l** | **Unspiked Conc ug/l** | **MS Conc ug/l** | **MSD Conc ug/l** | **MS %Rec** | **MSD %Rec** | **%Rec Limits** | **%RPD** | **%RPD Limits** |
| Methane | 59.42 | 1042.61 | 791.43 | 748.34 | -422 (2) | -494 (2) | 73-125 | 6 | 30 |
| Ethane | 59.39 | N.D. | 34. | 36.16 | 57 * | 61 * | 74-131 | 6 | 30 |
| Ethene | 60.4 | N.D. | 36.44 | 38.36 | 60 * | 64 * | 72-133 | 5 | 30 |

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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**Quality Control Summary**
**Laboratory Control Standard (LCS)**
**Laboratory Control Standard Duplicate(LCSD)**

**SDG: PUP93**
**Matrix: LIQUID**

## EPH/Miscellaneous GC

**Fraction: Volatile Headspace Hydrocarbons by GC**

| LCS: LCS09034 | Batch: **200340009A** (Sample number(s): 1251371, 1251373, 1251376, 1251378, 1251380, 1251382, 1251384, 1251386, 1251388-1251390, 1251396 ) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Analyte** | **Spike Added ug/l** | **LCS Conc ug/l** | **LCSD Conc ug/l** | **LCS %Rec** | **LCSD %Rec** | **%Rec Limits** | **%RPD** | **%RPD Limits** |
| Methane | 59.42 | 61.75 | NA | 104 | NA | 85-115 | NA | NA |
| Ethane | 59.39 | 58.74 | NA | 99 | NA | 85-115 | NA | NA |
| Ethene | 60.4 | 60.21 | NA | 100 | NA | 83-115 | NA | NA |

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**LOQ/MDL Summary**
**EPH/Miscellaneous GC**

**SDG: PUP93**

**Fraction: Volatile Headspace Hydrocarbons by GC**

| 07105: Volatile Headspace Hydrocarbon Analyte Name | Default MDL | Default LOQ | Units |
|---|---|---|---|
| Methane | 3.0 | 5.0 | ug/l |
| Ethane | 1.0 | 5.0 | ug/l |
| Ethene | 1.0 | 5.0 | ug/l |

# 6D

## INITIAL CALIBRATION - RETENTION TIME SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: H4132A Calibration File: 1971052003101

GC Column (1) : GS-ALUMINA ID: 0.53 (mm) ICAL 1971052003101

ICAL Date(s) Analyzed: 1/31/2020 1/31/2020

| COMPOUND | RT OF STANDARDS | | | | | | MIDPOINT | RT WINDOW | |
|---|---|---|---|---|---|---|---|---|---|
| | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 | RT | FROM | TO |
| METHANE | .93 | .93 | .93 | .93 | .93 | .93 | .93 | .90 | .96 |
| ETHANE | 1.13 | 1.13 | 1.13 | 1.13 | 1.13 | 1.13 | 1.13 | 1.10 | 1.16 |
| ETHENE | 1.49 | 1.49 | 1.49 | 1.49 | 1.49 | 1.49 | 1.49 | 1.46 | 1.52 |
| PROPANE | 2.06 | 2.06 | 2.06 | 2.06 | 2.06 | 2.06 | 2.06 | 2.03 | 2.09 |
| PROPENE | 3.15 | 3.15 | 3.15 | 3.15 | 3.14 | 3.14 | 3.15 | 3.12 | 3.18 |
| Isobutane | 3.60 | 3.59 | 3.59 | 3.59 | 3.59 | 3.57 | 3.59 | 3.56 | 3.62 |
| n-Butane | 3.78 | 3.78 | 3.78 | 3.78 | 3.78 | 3.77 | 3.78 | 3.75 | 3.81 |
| Acetylene | 4.18 | 4.17 | 4.15 | 4.14 | 4.13 | 4.10 | 4.15 | 4.12 | 4.18 |

Retention time update only using file(s) 19710520031001.014.RAW analyzed on 1/31/2020 14:53:33

# 6E

## INITIAL CALIBRATION - CALIBRATION FACTOR SUMMARY

Lab Name: Lancaster Laboratories  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.:

Instrument: H4132A  Calibration File: 1971052003101

GC Column (1) : GS-ALUMINA  ID: 0.53 (mm)  ICAL 1971052003101

ICAL Date(s) Analyzed: 1/31/2020  1/31/2020

| COMPOUND | CALIBRATION FACTORS | | | | | | | %RSD |
|---|---|---|---|---|---|---|---|---|
| | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 | MEAN | |
| METHANE | 2.37E+03 | 1.70E+03 | 1.48E+03 | 1.39E+03 | 1.34E+03 | 1.21E+03 | 1.58E+03 | 27 |
| ETHANE | 1.52E+03 | 1.52E+03 | 1.54E+03 | 1.50E+03 | 1.46E+03 | 1.34E+03 | 1.48E+03 | 5 |
| ETHENE | 1.64E+03 | 1.65E+03 | 1.67E+03 | 1.61E+03 | 1.58E+03 | 1.46E+03 | 1.60E+03 | 5 |
| PROPANE | 1.72E+03 | 1.74E+03 | 1.72E+03 | 1.71E+03 | 1.66E+03 | 1.54E+03 | 1.68E+03 | 5 |
| PROPENE | 1.75E+03 | 2.13E+03 | 1.99E+03 | 1.97E+03 | 1.97E+03 | 1.77E+03 | 1.93E+03 | 8 |
| Isobutane | 1.47E+03 | 1.56E+03 | 1.57E+03 | 1.54E+03 | 1.51E+03 | 1.33E+03 | 1.49E+03 | 6 |
| n-Butane | 1.31E+03 | 1.42E+03 | 1.42E+03 | 1.42E+03 | 1.38E+03 | 1.24E+03 | 1.36E+03 | 6 |
| Acetylene | 1.19E+03 | 1.12E+03 | 1.01E+03 | 8.95E+02 | 8.13E+02 | | 1.00E+03 | 15 |

— linear

TMH 2-4-2020

Retention time update only using file(s) 19710520031001.014.RAW analyzed on 1/31/2020 14:53:33

File Name: Y:\CP19\1971052003101.cal
Version: 17

Creator:
Description:
Reason for change:

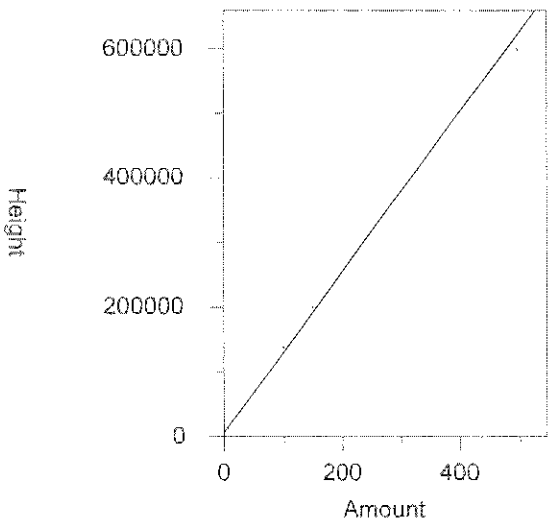
EKL32136
2/3/2020

External standard calibration
Standard injection volume: 1
Standard sample weight: 1
Area reject threshold: 0
Reference peak area reject threshold: 0
Amount units:
No default component

Method of calculating data point averages: Current update equal to cal data
No calibration update report

All levels are normal data points.

1 Methane




Expected retention time (frozen): 0.93 minutes
Search window: 0.03 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

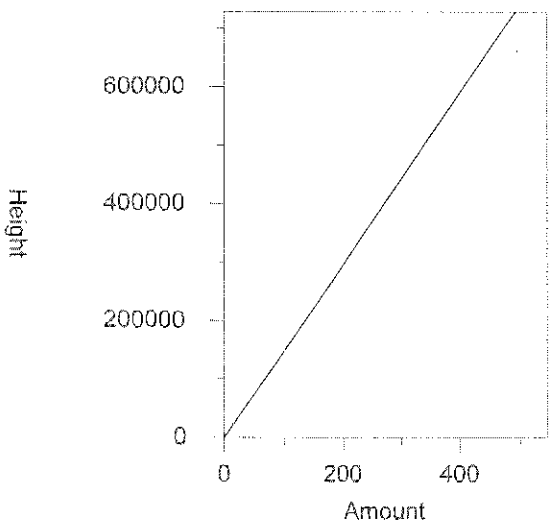
Single peak quantification by height

Y = 1241.861 X + 6762.064

Linear fit with 1/X weighting
Coefficient of determination: 0.9972454
Average error: 5.311%
Average CF: 1582.724
RSD: 26.574%

| Level | Amount | Response | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 5 | 11867.51 | 2373.502 | -8.510 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.005.BND | 2/3/2020 9:58:24 AM |
| 2 | 15 | 25524.78 | 1701.652 | 0.531 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.006.BND | 2/3/2020 9:58:40 AM |
| 3 | 59 | 87350.31 | 1480.514 | 9.144 | Manual | 2/3/2020 1:26:24 PM |
| 4 | 99 | 137799.8 | 1391.917 | 6.240 | Manual | 2/3/2020 1:26:28 PM |
| 5 | 149 | 199296.5 | 1337.56 | 3.909 | Manual | 2/3/2020 1:26:33 PM |
| 6 | 495 | 599543.6 | 1211.199 | -3.530 | Manual | 2/3/2020 1:26:43 PM |

2 Ethane




Expected retention time (frozen): 1.13 minutes
Search window: 0.03 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

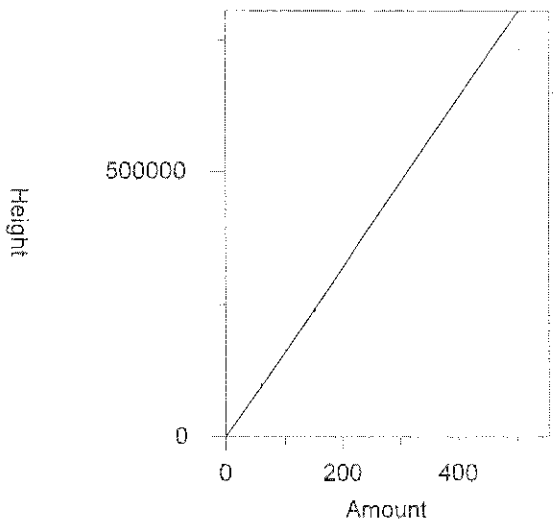
Single peak quantification by height

Y = 1479.373 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9831846
Average error: 3.555%
Average CF: 1479.373
RSD: 5.019%

| Level | Amount | Response | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 5 | 7593.238 | 1518.648 | 2.655 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.005.BND | 2/3/2020 9:58:24 AM |
| 2 | 15 | 22737.31 | 1515.821 | 2.464 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.006.BND | 2/3/2020 9:58:40 AM |
| 3 | 59 | 90924.45 | 1541.092 | 4.172 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.007.BND | 2/3/2020 9:58:55 AM |
| 4 | 99 | 148469.6 | 1499.693 | 1.374 | Manual | 2/3/2020 1:27:20 PM |
| 5 | 148 | 216649.2 | 1463.846 | -1.050 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.009.BND | 2/3/2020 9:59:35 AM |
| 6 | 495 | 661882.4 | 1337.136 | -9.615 | Manual | 2/3/2020 1:27:27 PM |

3 Ethene




Expected retention time (frozen): 1.49 minutes
Search window: 0.03 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

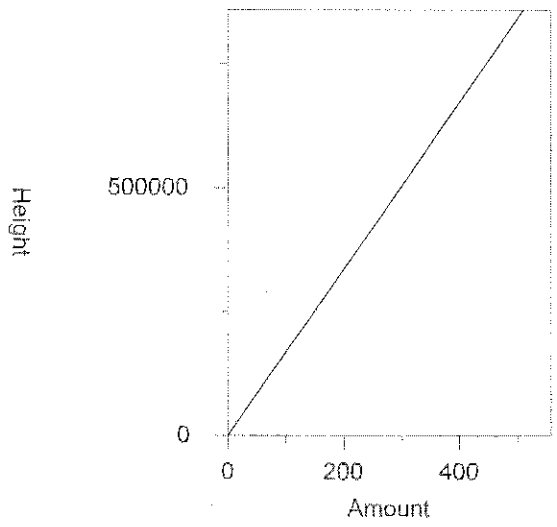
Single peak quantification by height

Y = 1602.178 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9848412
Average error: 3.538%
Average CF: 1602.178
RSD: 4.914%

| Level | Amount | Response | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 5 | 8221.171 | 1644.234 | 2.625 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.005.BND | 2/3/2020 9:58:24 AM |
| 2 | 15 | 24804.77 | 1653.651 | 3.213 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.006.BND | 2/3/2020 9:58:40 AM |
| 3 | 60 | 100071.4 | 1667.857 | 4.099 | Manual | 2/3/2020 1:27:34 PM |
| 4 | 101 | 162915.7 | 1613.027 | 0.677 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.008.BND | 2/3/2020 9:59:13 AM |
| 5 | 151 | 238446 | 1579.113 | -1.440 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.009.BND | 2/3/2020 9:59:35 AM |
| 6 | 503 | 731960.4 | 1455.19 | -9.174 | Manual | 2/3/2020 1:27:42 PM |

4 Propane




Expected retention time (frozen): 2.06 minutes
Search window: 0.03 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

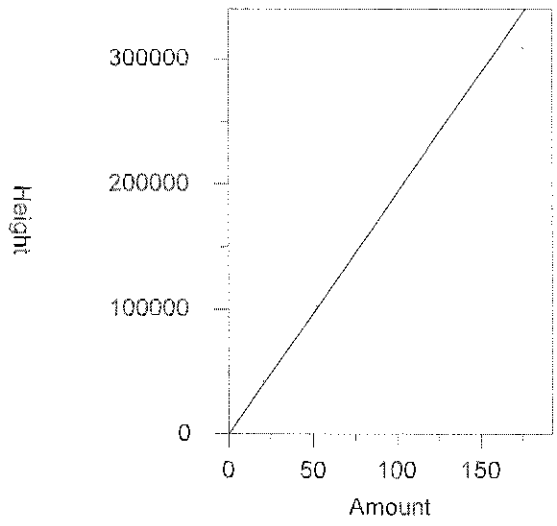
Single peak quantification by height

Y = 1681.275 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9868751
Average error: 3.285%
Average CF: 1681.275
RSD: 4.525%

| Level | Amount | Response | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 5 | 8592.695 | 1718.539 | 2.216 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.005.BND | 2/3/2020 9:58:24 AM |
| 2 | 15 | 26148.77 | 1743.251 | 3.686 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.006.BND | 2/3/2020 9:58:40 AM |
| 3 | 61 | 105102.3 | 1722.989 | 2.481 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.007.BND | 2/3/2020 9:58:55 AM |
| 4 | 101 | 172306.3 | 1706.003 | 1.471 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.008.BND | 2/3/2020 9:59:13 AM |
| 5 | 152 | 252348.4 | 1660.187 | -1.254 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.009.BND | 2/3/2020 9:59:35 AM |
| 6 | 507 | 779096.9 | 1536.68 | -8.600 | Manual | 2/3/2020 1:27:51 PM |

5 Propene




Expected retention time (frozen): 3.15 minutes
Search window: 0.03 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

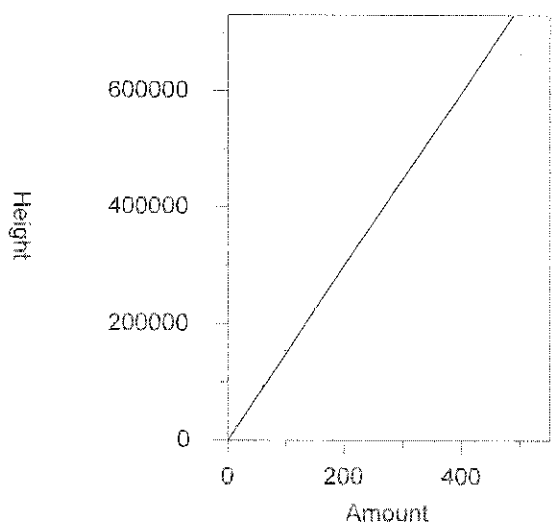
Single peak quantification by height

Y = 1928.96 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9875768
Average error: 5.934%
Average CF: 1928.96
RSD: 7.578%

| Level | Amount | Response | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 2 | 3493.567 | 1746.783 | -9.444 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.005.BND | 2/3/2020 9:58:24 AM |
| 2 | 5 | 10652.58 | 2130.516 | 10.449 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.006.BND | 2/3/2020 9:58:40 AM |
| 3 | 21 | 41807.21 | 1990.82 | 3.207 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.007.BND | 2/3/2020 9:58:55 AM |
| 4 | 35 | 68808.18 | 1965.948 | 1.918 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.008.BND | 2/3/2020 9:59:13 AM |
| 5 | 52 | 102540.5 | 1971.933 | 2.228 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.009.BND | 2/3/2020 9:59:35 AM |
| 6 | 175 | 309357.7 | 1767.758 | -8.357 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.010.BND | 2/3/2020 9:59:55 AM |

6 Isobutane




Expected retention time (frozen): 3.59 minutes
Search window: 0.03 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

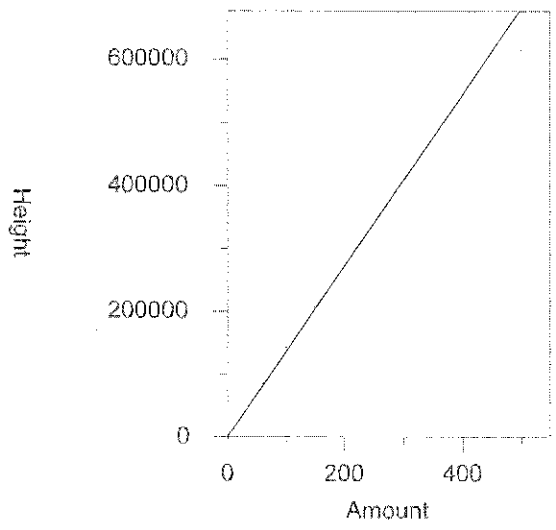
Single peak quantification by height

Y = 1494.138 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9758203
Average error: 4.387%
Average CF: 1494.138
RSD: 6.080%

| Level | Amount | Response | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 5 | 7331.223 | 1466.245 | -1.867 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.005.BND | 2/3/2020 9:58:24 AM |
| 2 | 15 | 23401.25 | 1560.083 | 4.414 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.006.BND | 2/3/2020 9:58:40 AM |
| 3 | 60 | 94064 | 1567.733 | 4.926 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.007.BND | 2/3/2020 9:58:55 AM |
| 4 | 100 | 154018.9 | 1540.189 | 3.082 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.008.BND | 2/3/2020 9:59:13 AM |
| 5 | 150 | 225778.8 | 1505.192 | 0.740 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.009.BND | 2/3/2020 9:59:35 AM |
| 6 | 501 | 664017.3 | 1325.384 | -11.294 | Manual | 2/3/2020 1:28:13 PM |

7 N-butane




Expected retention time (frozen): 3.78 minutes
Search window: 0.03 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

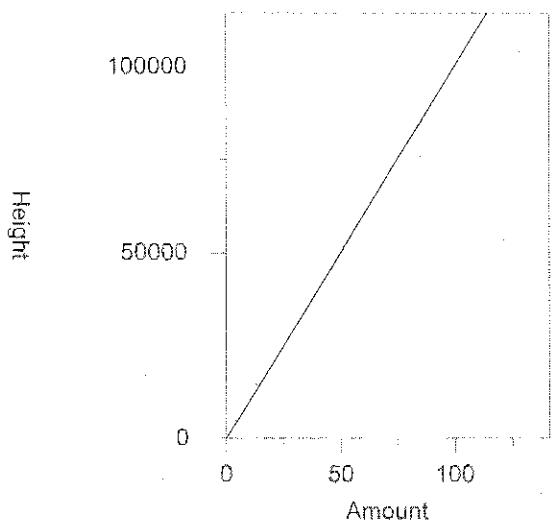
Single peak quantification by height

Y = 1364.695 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9837472
Average error: 4.559%
Average CF: 1364.695
RSD: 5.648%

| Level | Amount | Response | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 5 | 6533.937 | 1306.787 | -4.243 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.005.BND | 2/3/2020 9:58:24 AM |
| 2 | 15 | 21309.43 | 1420.629 | 4.099 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.006.BND | 2/3/2020 9:58:40 AM |
| 3 | 60 | 85296.62 | 1421.61 | 4.171 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.007.BND | 2/3/2020 9:58:55 AM |
| 4 | 100 | 142018.3 | 1420.183 | 4.066 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.008.BND | 2/3/2020 9:59:13 AM |
| 5 | 149 | 206068.3 | 1383.009 | 1.342 | Manual | 2/3/2020 1:28:26 PM |
| 6 | 498 | 615505.3 | 1235.954 | -9.434 | Manual | 2/3/2020 1:28:31 PM |

8 Acetylene




| | |
|---|---|
| Expected retention time (frozen): | 4.15 minutes |
| Search window: | 0.03 minutes |
| No retention time reference component | |
| No response proxy component | |
| Group number: | 0 |
| High alarm limit: | 0 |
| Low alarm limit: | 0 |
| Component constant: | 0 |

Single peak quantification by height

$Y = 1004.911\ X + 0$

Average CF fit with equal weighting, forced to origin

| | |
|---|---|
| Coefficient of determination: | 0.8998427 |
| Average error: | 12.019% |
| Average CF: | 1004.911 |
| RSD: | 15.347% |

| Level | Amount | Response | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 4 | 4749.432 | 1187.358 | 18.156 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.005.BND | 2/3/2020 9:58:24 AM |
| 2 | 13 | 14541.83 | 1118.602 | 11.314 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.006.BND | 2/3/2020 9:58:40 AM |
| 3 | 51 | 51546.94 | 1010.724 | 0.578 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.007.BND | 2/3/2020 9:58:55 AM |
| 4 | 85 | 76038.55 | 894.5712 | -10.980 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.008.BND | 2/3/2020 9:59:13 AM |
| 5 | 128 | 104102.4 | 813.3 | -19.067 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.009.BND | 2/3/2020 9:59:35 AM |
| 6 | (427) | (254150) | -- | -- | Manual | 2/3/2020 10:03:08 AM |

# 6D
# INITIAL CALIBRATION - RETENTION TIME SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: H4132A Calibration File: 1971052003102

GC Column (1) : GS-ALUMINA ID: 0.53 (mm) ICAL 1971052003101

ICAL Date(s) Analyzed: 1/31/2020 1/31/2020

| COMPOUND | RT OF STANDARDS | | | | | | MIDPOINT | RT WINDOW | |
|---|---|---|---|---|---|---|---|---|---|
| | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 | RT | FROM | TO |
| METHANE | | | .93 | | | | .93 | .90 | .96 |
| ETHANE | | | 1.13 | | | | 1.13 | 1.10 | 1.16 |
| ETHENE | | | 1.48 | | | | 1.48 | 1.45 | 1.51 |
| PROPANE | | | 2.05 | | | | 2.05 | 2.02 | 2.08 |
| PROPENE | | | 3.12 | | | | 3.12 | 3.09 | 3.15 |
| Isobutane | | | 3.57 | | | | 3.57 | 3.54 | 3.60 |
| n-Butane | | | 3.76 | | | | 3.76 | 3.73 | 3.79 |
| Acetylene | | | 4.09 | | | | 4.09 | 4.06 | 4.12 |

Retention time update only using file(s) 19710520031002.014.RAW analyzed on 2/3/2020 14:34:43

# 6E

## INITIAL CALIBRATION - CALIBRATION FACTOR SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: H4132A Calibration File: 1971052003102

GC Column (1) : GS-ALUMINA ID: 0.53 (mm) ICAL 1971052003101

ICAL Date(s) Analyzed: 1/31/2020 1/31/2020

| COMPOUND | CALIBRATION FACTORS | | | | | | | %RSD |
|---|---|---|---|---|---|---|---|---|
| | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 | MEAN | |
| METHANE | 2.37E+03 | 1.70E+03 | 1.48E+03 | 1.39E+03 | 1.34E+03 | 1.21E+03 | 1.58E+03 | 27 |
| ETHANE | 1.52E+03 | 1.52E+03 | 1.54E+03 | 1.50E+03 | 1.46E+03 | 1.34E+03 | 1.48E+03 | 5 |
| ETHENE | 1.64E+03 | 1.65E+03 | 1.67E+03 | 1.61E+03 | 1.58E+03 | 1.46E+03 | 1.60E+03 | 5 |
| PROPANE | 1.72E+03 | 1.74E+03 | 1.72E+03 | 1.71E+03 | 1.66E+03 | 1.54E+03 | 1.68E+03 | 5 |
| PROPENE | 1.75E+03 | 2.13E+03 | 1.99E+03 | 1.97E+03 | 1.97E+03 | 1.77E+03 | 1.93E+03 | 8 |
| Isobutane | 1.47E+03 | 1.56E+03 | 1.57E+03 | 1.54E+03 | 1.51E+03 | 1.33E+03 | 1.49E+03 | 6 |
| n-Butane | 1.31E+03 | 1.42E+03 | 1.42E+03 | 1.42E+03 | 1.38E+03 | 1.24E+03 | 1.36E+03 | 6 |
| Acetylene | 1.19E+03 | 1.12E+03 | 1.01E+03 | 8.95E+02 | 8.13E+02 | | 1.00E+03 | 15 |

2/4/2020

Retention time update only using file(s) 19710520031002.014.RAW analyzed on 2/3/2020 14:34:43

File Name: Y:\CP19\1971052003102.cal
Version: 2

Creator:
Description:
Reason for change:

EKL32136
2/4/2020

Jamie L. Brillhart
Senior Chemist

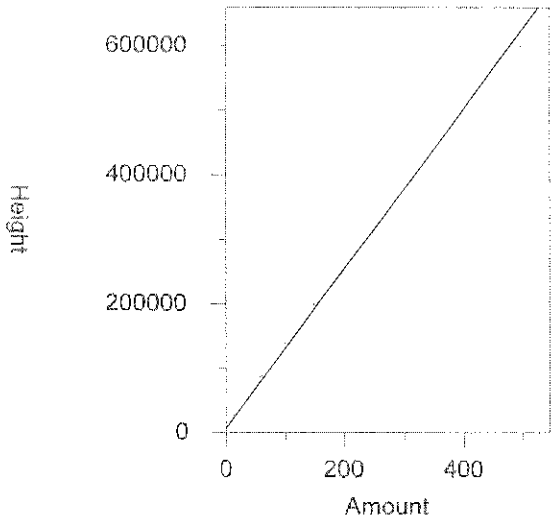
FEB 04 2020

External standard calibration
Standard injection volume: 1
Standard sample weight: 1
Area reject threshold: 0
Reference peak area reject threshold: 0
Amount units:
No default component

Method of calculating data point averages: Current update equal to cal data
No calibration update report

All levels are normal data points.

1 Methane




Expected retention time (frozen): 0.93 minutes
Search window: 0.03 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

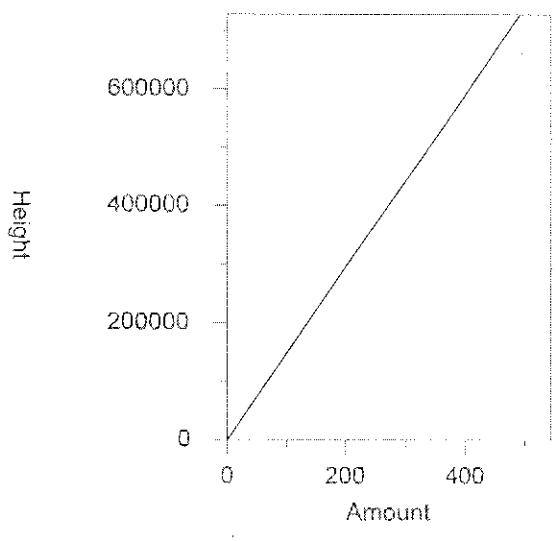
Single peak quantification by height

Y = 1241.861 X + 6762.064

Linear fit with 1/X weighting
Coefficient of determination: 0.9972454
Average error: 5.311%
Average CF: 1582.724
RSD: 26.574%

| Level | Amount | Response | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 5 | 11867.51 | 2373.502 | -8.510 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.005.BND | 2/3/2020 9:58:24 AM |
| 2 | 15 | 25524.78 | 1701.652 | 0.531 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.006.BND | 2/3/2020 9:58:40 AM |
| 3 | 59 | 87350.31 | 1480.514 | 9.144 | Manual | 2/3/2020 1:26:24 PM |
| 4 | 99 | 137799.8 | 1391.917 | 6.240 | Mauual | 2/3/2020 1:26:28 PM |
| 5 | 149 | 199296.5 | 1337.56 | 3.909 | Manual | 2/3/2020 1:26:33 PM |
| 6 | 495 | 599543.6 | 1211.199 | -3.530 | Manual | 2/3/2020 1:26:43 PM |

2 Ethane




Expected retention time (frozen): 1.13 minutes
Search window: 0.03 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

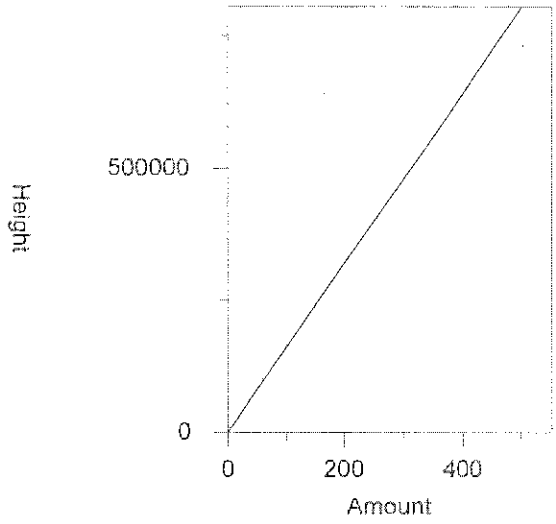
Single peak quantification by height

Y = 1479.373 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9831846
Average error: 3.555%
Average CF: 1479.373
RSD: 5.019%

| Level | Amount | Respouse | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 5 | 7593.238 | 1518.648 | 2.655 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.005.BND | 2/3/2020 9:58:24 AM |
| 2 | 15 | 22737.31 | 1515.821 | 2.464 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.006.BND | 2/3/2020 9:58:40 AM |
| 3 | 59 | 90924.45 | 1541.092 | 4.172 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.007.BND | 2/3/2020 9:58:55 AM |
| 4 | 99 | 148469.6 | 1499.693 | 1.374 | Manual | 2/3/2020 1:27:20 PM |
| 5 | 148 | 216649.2 | 1463.846 | -1.050 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.009.BND | 2/3/2020 9:59:35 AM |
| 6 | 495 | 661882.4 | 1337.136 | -9.615 | Manual | 2/3/2020 1:27:27 PM |

3 Ethene




Expected retention time (frozen): 1.48 minutes
Search window: 0.03 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

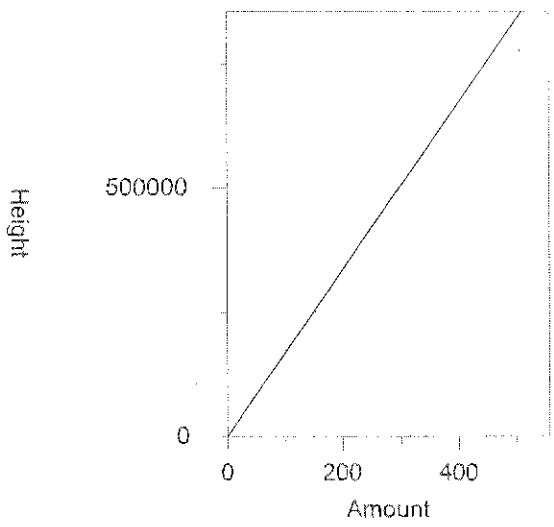
Single peak quantification by height

Y = 1602.178 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9848412
Average error: 3.538%
Average CF: 1602.178
RSD: 4.914%

| Level | Amount | Respouse | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 5 | 8221.171 | 1644.234 | 2.625 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.005.BND | 2/3/2020 9:58:24 AM |
| 2 | 15 | 24804.77 | 1653.651 | 3.213 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.006.BND | 2/3/2020 9:58:40 AM |
| 3 | 60 | 100071.4 | 1667.857 | 4.099 | Manual | 2/3/2020 1:27:34 PM |
| 4 | 101 | 162915.7 | 1613.027 | 0.677 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.008.BND | 2/3/2020 9:59:13 AM |
| 5 | 151 | 238446 | 1579.113 | -1.440 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.009.BND | 2/3/2020 9:59:35 AM |
| 6 | 503 | 731960.4 | 1455.19 | -9.174 | Manual | 2/3/2020 1:27:42 PM |

4 Propane




Expected retention time (frozen): 2.05 minutes
Search window: 0.03 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

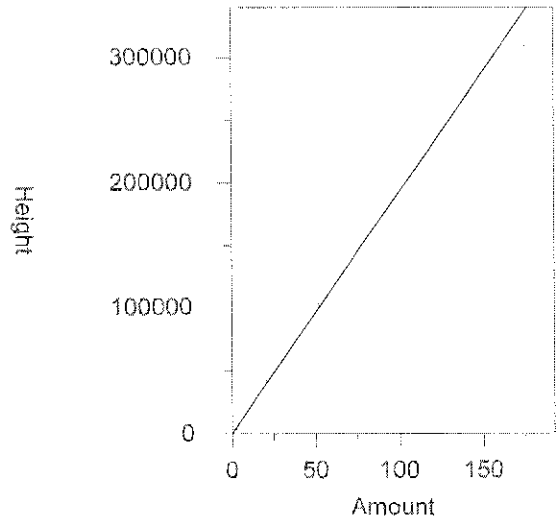
Single peak quantification by height

Y = 1681.275 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9868751
Average error: 3.285%
Average CF: 1681.275
RSD: 4.525%

| Level | Amount | Response | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 5 | 8592.695 | 1718.539 | 2.216 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.005.BND | 2/3/2020 9:58:24 AM |
| 2 | 15 | 26148.77 | 1743.251 | 3.686 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.006.BND | 2/3/2020 9:58:40 AM |
| 3 | 61 | 105102.3 | 1722.989 | 2.481 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.007.BND | 2/3/2020 9:58:55 AM |
| 4 | 101 | 172306.3 | 1706.003 | 1.471 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.008.BND | 2/3/2020 9:59:13 AM |
| 5 | 152 | 252348.4 | 1660.187 | -1.254 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.009.BND | 2/3/2020 9:59:35 AM |
| 6 | 507 | 779096.9 | 1536.68 | -8.600 | Manual | 2/3/2020 1:27:51 PM |

5 Propene




Expected retention time (frozen): 3.12 minutes
Search window: 0.03 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

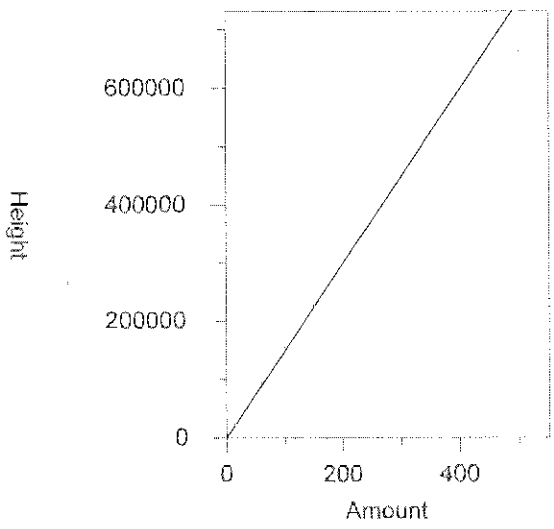
Single peak quantification by height

Y = 1928.96 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9875768
Average error: 5.934%
Average CF: 1928.96
RSD: 7.578%

| Level | Amount | Response | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 2 | 3493.567 | 1746.783 | -9.444 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.005.BND | 2/3/2020 9:58:24 AM |
| 2 | 5 | 10652.58 | 2130.516 | 10.449 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.006.BND | 2/3/2020 9:58:40 AM |
| 3 | 21 | 41807.21 | 1990.82 | 3.207 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.007.BND | 2/3/2020 9:58:55 AM |
| 4 | 35 | 68808.18 | 1965.948 | 1.918 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.008.BND | 2/3/2020 9:59:13 AM |
| 5 | 52 | 102540.5 | 1971.933 | 2.228 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.009.BND | 2/3/2020 9:59:35 AM |
| 6 | 175 | 309357.7 | 1767.758 | -8.357 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.010.BND | 2/3/2020 9:59:55 AM |

6 Isobutane




Expected retention time (frozen): 3.57 minutes
Search window: 0.03 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

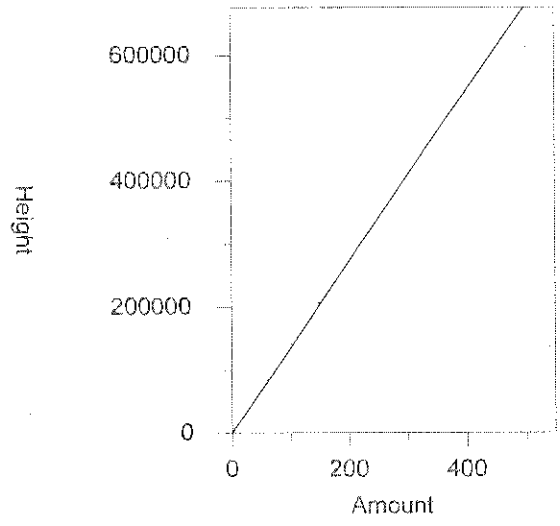
Single peak quantification by height

Y = 1494.138 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9758203
Average error: 4.387%
Average CF: 1494.138
RSD: 6.080%

| Level | Amount | Response | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 5 | 7331.223 | 1466.245 | -1.867 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.005.BND | 2/3/2020 9:58:24 AM |
| 2 | 15 | 23401.25 | 1560.083 | 4.414 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.006.BND | 2/3/2020 9:58:40 AM |
| 3 | 60 | 94064 | 1567.733 | 4.926 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.007.BND | 2/3/2020 9:58:55 AM |
| 4 | 100 | 154018.9 | 1540.189 | 3.082 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.008.BND | 2/3/2020 9:59:13 AM |
| 5 | 150 | 225778.8 | 1505.192 | 0.740 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.009.BND | 2/3/2020 9:59:35 AM |
| 6 | 501 | 664017.3 | 1325.384 | -11.294 | Manual | 2/3/2020 1:28:13 PM |

7 N-butane




Expected retention time (frozen): 3.76 minutes
Search window: 0.03 minutes
No retention time reference component
No response proxy component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

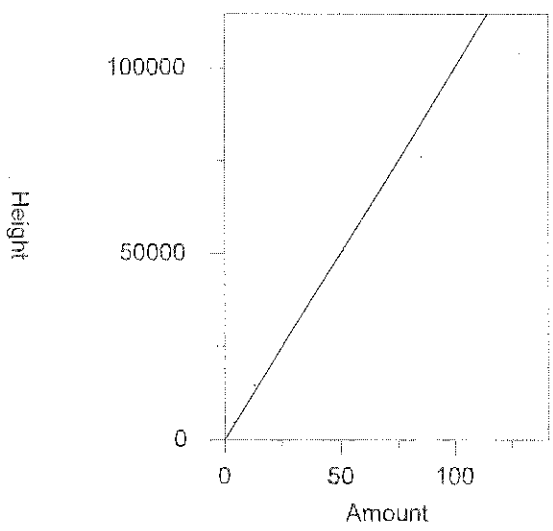
Single peak quantification by height

Y = 1364.695 X + 0

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9837472
Average error: 4.559%
Average CF: 1364.695
RSD: 5.648%

| Level | Amuunt | Response | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 5 | 6533.937 | 1306.787 | -4.243 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.005.BND | 2/3/2020 9:58:24 AM |
| 2 | 15 | 21309.43 | 1420.629 | 4.099 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.006.BND | 2/3/2020 9:58:40 AM |
| 3 | 60 | 85296.62 | 1421.61 | 4.171 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.007.BND | 2/3/2020 9:58:55 AM |
| 4 | 100 | 142018.3 | 1420.183 | 4.066 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.008.BND | 2/3/2020 9:59:13 AM |
| 5 | 149 | 206068.3 | 1383.009 | 1.342 | Manual | 2/3/2020 1:28:26 PM |
| 6 | 498 | 615505.3 | 1235.954 | -9.434 | Manual | 2/3/2020 1:28:31 PM |

8 Acetylene




| | |
|---|---|
| Expected retention time (frozen): | 4.09 minutes |
| Search window: | 0.03 minutes |
| No retention time reference component | |
| No response proxy component | |
| Group number: | 0 |
| High alarm limit: | 0 |
| Low alarm limit: | 0 |
| Component constant: | 0 |

Single peak quantification by height

$Y = 1004.911\ X + 0$

Average CF fit with equal weighting, forced to origin

| | |
|---|---|
| Coefficient of determination: | 0.8998427 |
| Average error: | 12.019% |
| Average CF: | 1004.911 |
| RSD: | 15.347% |

| Level | Amount | Response | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 4 | 4749.432 | 1187.358 | 18.156 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.005.BND | 2/3/2020 9:58:24 AM |
| 2 | 13 | 14541.83 | 1118.602 | 11.314 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.006.BND | 2/3/2020 9:58:40 AM |
| 3 | 51 | 51546.94 | 1010.724 | 0.578 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.007.BND | 2/3/2020 9:58:55 AM |
| 4 | 85 | 76038.55 | 894.5712 | -10.980 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.008.BND | 2/3/2020 9:59:13 AM |
| 5 | 128 | 104102.4 | 813.3 | -19.067 | \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.009.BND | 2/3/2020 9:59:35 AM |
| 6 | (427) | (254150) | -- | -- | Manual | 2/3/2020 10:03:08 AM |

# 7E

## CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: H4132A Date Analyzed: 01/31/20

GC Column (1) : GS-ALUMINA ID: .53 (mm) Time Analyzed: 14:53

Lab File ID: 19710520031001.014.RAW Initial Calibration: 1971052003101

Lab Standard ID: HICVXAA Init. Calib Date(s): 01/31/20 01/31/20

Calibration: 1971052003101

| COMPOUND | RT | RT WINDOW FROM | TO | CALC AMOUNT (ug/l) | NOM AMOUNT (ug/l) | %D |
|---|---|---|---|---|---|---|
| METHANE | 0.93 | 0.90 | 0.96 | 63.08 | 59.83 | 5 |
| ETHANE | 1.13 | 1.10 | 1.16 | 57.23 | 59.03 | -3 |
| ETHENE | 1.49 | 1.46 | 1.52 | 59.91 | 60.57 | -1 |
| PROPANE | 2.06 | 2.03 | 2.09 | 57.48 | 60.60 | -5 |
| PROPENE | 3.14 | 3.12 | 3.18 | 21.90 | 20.94 | 5 |
| Isobutane | 3.59 | 3.56 | 3.62 | 55.24 | 59.90 | -8 |
| n-Butane | 3.78 | 3.75 | 3.81 | 51.99 | 59.90 | -13 |
| Acetylene | 4.14 | 4.12 | 4.18 | 49.37 | 51.12 | -3 |

Compounds 8

Retention time update only using file(s) 19710520031001.014.RAW analyzed on 1/31/2020 14:53:33

# 7E
## CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.:

Instrument: H4132A  Date Analyzed: 02/03/20

GC Column (1) : GS-ALUMINA  ID: .53 (mm)  Time Analyzed: 10:59

Lab File ID: 19710520031002.003.RAW  Initial Calibration: 1971052003101

Lab Standard ID: 71053YY  Init. Calib Date(s): 01/31/20  01/31/20

Calibration: 1971052003101

| COMPOUND | RT | RT WINDOW FROM | TO | CALC AMOUNT (ug/l) | NOM AMOUNT (ug/l) | %D |
|---|---|---|---|---|---|---|
| METHANE | 0.93 | 0.90 | 0.96 | 62.07 | 59.42 | 4 |
| ETHANE | 1.13 | 1.10 | 1.16 | 57.95 | 59.39 | -2 |
| ETHENE | 1.49 | 1.46 | 1.52 | 59.35 | 60.40 | -2 |
| PROPANE | 2.06 | 2.03 | 2.09 | 57.91 | 60.86 | -5 |
| PROPENE | 3.12 | 3.12 | 3.18 | 21.94 | 20.94 | 5 |
| Isobutane | 3.58 | 3.56 | 3.62 | 58.10 | 60.16 | -3 |
| n-Butane | 3.77 | 3.75 | 3.81 | 56.75 | 59.70 | -5 |
| Acetylene | 4.11 | 4.12 | 4.18 | 50.49 | 51.25 | -1 |

Compounds 8

# 7E

## CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: H4132A Date Analyzed: 02/03/20

GC Column (1) : GS-ALUMINA ID: .53 (mm) Time Analyzed: 14:34

Lab File ID: 19710520031002.014.RAW Initial Calibration: 1971052003101

Lab Standard ID: 71053YY Init. Calib Date(s): 01/31/20 01/31/20

Calibration: 1971052003102

| COMPOUND | RT | RT WINDOW FROM | TO | CALC AMOUNT (ug/l) | NOM AMOUNT (ug/l) | %D |
|---|---|---|---|---|---|---|
| METHANE | 0.93 | 0.90 | 0.96 | 63.28 | 59.42 | 6 |
| ETHANE | 1.13 | 1.10 | 1.16 | 59.62 | 59.39 | 0 |
| ETHENE | 1.48 | 1.45 | 1.51 | 62.39 | 60.40 | 3 |
| PROPANE | 2.05 | 2.02 | 2.08 | 63.27 | 60.86 | 4 |
| PROPENE | 3.12 | 3.09 | 3.15 | 22.58 | 20.94 | 8 |
| Isobutane | 3.57 | 3.54 | 3.60 | 64.51 | 60.16 | 7 |
| n-Butane | 3.76 | 3.73 | 3.79 | 63.60 | 59.70 | 7 |
| Acetylene | 4.09 | 4.06 | 4.12 | 54.97 | 51.25 | 7 |

Compounds 8

# 7E
# CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.:

Instrument: H4132A  Date Analyzed: 02/03/20

GC Column (1) : GS-ALUMINA  ID: .53 (mm)  Time Analyzed: 17:52

Lab File ID: 19710520031002.025.RAW  Initial Calibration: 1971052003101

Lab Standard ID: 71053YY  Init. Calib Date(s): 01/31/20  01/31/20

Calibration: 1971052003102

| COMPOUND | RT | RT WINDOW FROM | TO | CALC AMOUNT (ug/l) | NOM AMOUNT (ug/l) | %D |
|---|---|---|---|---|---|---|
| METHANE | 0.93 | 0.90 | 0.96 | 61.85 | 59.42 | 4 |
| ETHANE | 1.13 | 1.10 | 1.16 | 59.36 | 59.39 | 0 |
| ETHENE | 1.48 | 1.45 | 1.51 | 60.43 | 60.40 | 0 |
| PROPANE | 2.05 | 2.02 | 2.08 | 61.60 | 60.86 | 1 |
| PROPENE | 3.12 | 3.09 | 3.15 | 20.99 | 20.94 | 0 |
| Isobutane | 3.57 | 3.54 | 3.60 | 63.11 | 60.16 | 5 |
| n-Butane | 3.76 | 3.73 | 3.79 | 63.79 | 59.70 | 7 |
| Acetylene | 4.09 | 4.06 | 4.12 | 52.88 | 51.25 | 3 |

Compounds 8

# 7E
## CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.:

Instrument: H4132A  Date Analyzed: 02/04/20

GC Column (1) : GS-ALUMINA  ID: .53 (mm)  Time Analyzed: 16:02

Lab File ID: 19710520031003.019.RAW  Initial Calibration: 1971052003101

Lab Standard ID: 71053ZA  Init. Calib Date(s): 01/31/20  01/31/20

Calibration: 1971052003102

| COMPOUND | RT | RT WINDOW FROM | TO | CALC AMOUNT (ug/l) | NOM AMOUNT (ug/l) | %D |
|---|---|---|---|---|---|---|
| METHANE | 0.93 | 0.90 | 0.96 | 62.05 | 59.42 | 4 |
| ETHANE | 1.13 | 1.10 | 1.16 | 59.61 | 59.39 | 0 |
| ETHENE | 1.48 | 1.45 | 1.51 | 61.41 | 60.40 | 2 |
| PROPANE | 2.05 | 2.02 | 2.08 | 61.71 | 60.86 | 1 |
| PROPENE | 3.12 | 3.09 | 3.15 | 21.49 | 20.94 | 3 |
| Isobutane | 3.57 | 3.54 | 3.60 | 62.06 | 60.16 | 3 |
| n-Butane | 3.76 | 3.73 | 3.79 | 62.19 | 59.70 | 4 |
| Acetylene | 4.08 | 4.06 | 4.12 | 53.29 | 51.25 | 4 |

Compounds 8

Retention time update only using file(s) 19710520031002.014.RAW analyzed on 2/3/2020 14:34:43

# 7E

## CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.:

Instrument: H4132A  Date Analyzed: 02/04/20

GC Column (1) : GS-ALUMINA  ID: .53 (mm)  Time Analyzed: 16:58

Lab File ID: 19710520031003.022.RAW  Initial Calibration: 1971052003101

Lab Standard ID: 71053ZA  Init. Calib Date(s): 01/31/20  01/31/20

Calibration: 1971052003102

| COMPOUND | RT | RT WINDOW FROM | TO | CALC AMOUNT (ug/l) | NOM AMOUNT (ug/l) | %D |
|---|---|---|---|---|---|---|
| METHANE | 0.93 | 0.90 | 0.96 | 62.34 | 59.42 | 5 |
| ETHANE | 1.13 | 1.10 | 1.16 | 59.35 | 59.39 | 0 |
| ETHENE | 1.48 | 1.45 | 1.51 | 60.25 | 60.40 | 0 |
| PROPANE | 2.05 | 2.02 | 2.08 | 61.09 | 60.86 | 0 |
| PROPENE | 3.12 | 3.09 | 3.15 | 21.64 | 20.94 | 3 |
| Isobutane | 3.57 | 3.54 | 3.60 | 62.03 | 60.16 | 3 |
| n-Butane | 3.76 | 3.73 | 3.79 | 62.64 | 59.70 | 5 |
| Acetylene | 4.09 | 4.06 | 4.12 | 53.24 | 51.25 | 4 |

Compounds 8

Retention time update only using file(s) 19710520031002.014.RAW analyzed on 2/3/2020 14:34:43

# Sample Data

# Volatile Headspace Hydrocarbons by GC

# Data Summary

**Sample Name: 1251371** PO24I Sample ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
**Analyses:** 07105

## Analysis Report (A)

**Injected on** Feb 03, 2020 15:09:54
**Instrument** H4132A
**Result file** 19710520031002.016.RAW
**Calibration file** 1971052003102
**Method file** HSS

%SSR(PROP) 51% ( 46 - 135 ) Conc: 10.771605

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| Methane | 0.90 | 0.93 | 0.96 | 5746 | 0 |
| PROPENE | 3.09 | 3.12 | 3.15 | 20778 | 10.771605 |

## Single Component Summary

| | Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|---|
| ☑ | Methane | | | <5 | <3 | | | |
| ☑ | Ethane | | | <5 | <1 | | | |
| ☑ | Ethene | | | <5 | <1 | | | |
| ☐ | Propane | | | <5 | <1 | | | |
| ☑ | PROPENE | A | 10.771605 | | | | | |
| ☐ | Isobutane | | | <5 | <1 | | | |
| ☐ | n-butane | | | <5 | <1 | | | |
| ☐ | Acetylene | | | <5 | <1 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brillhart
Senior Chemist

Reviewed and digitally signed by Esther Kathryn Lane on 2/7/2020 12:20:58

FEB 07 2020

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251371** PO24I ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 07105

## Analysis Report (A)

Injected on : Feb 03, 2020 15:09:54
Instrument : CP19--H4132A
Result file : 19710520031002.016.RAW
Calibration file : 1971052003102.CAL
Method file : HSS.MET

%SSR(Propene) : 51% (46-135) Conc.: 10.771605

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **Methane** | 0.90 | 0.93 | 0.96 | 5746 | -0.818524 |
| **Propene** | 3.09 | 3.12 | 3.15 | 20778 | 10.771605 |

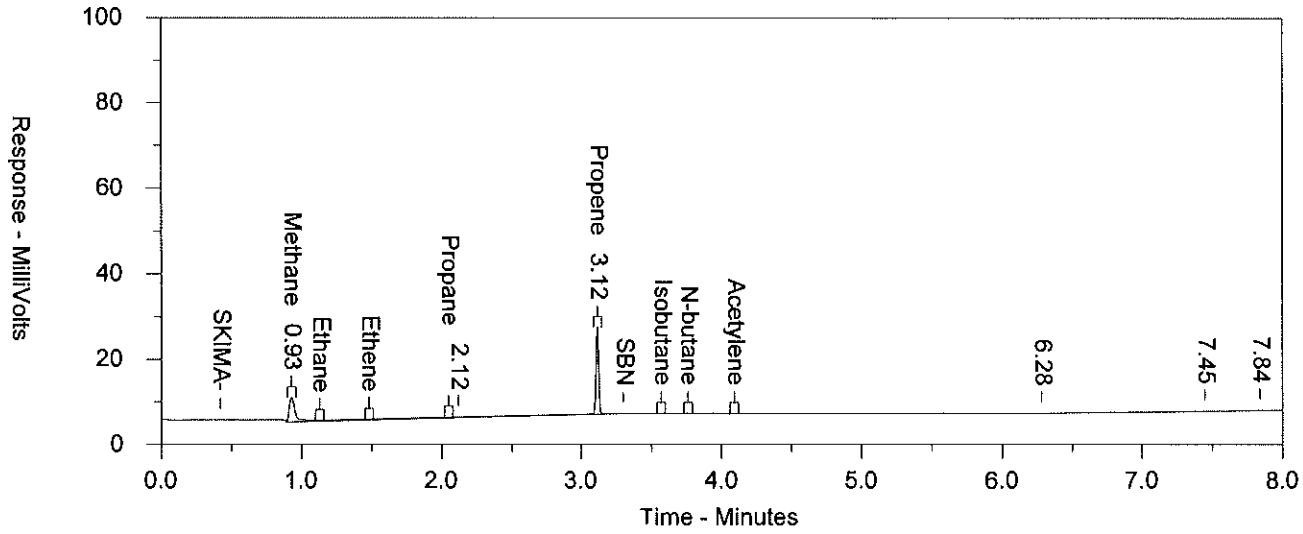
## Summary Report

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ Methane | A | -0.818524 | <5 | <3 | | < MDL |
| ☑ Ethane | | | <5 | <1 | | |
| ☑ Ethene | | | <5 | <1 | | |
| ☐ Propane | | | <5 | <1 | | |
| ☐ Propene | A | 10.771605 | | | | |
| ☐ Isobutane | | | <5 | <1 | | |
| ☐ N-butane | | | <5 | <1 | | |
| ☐ Acetylene | | | <5 | <1 | | |

Units: ug/l

* Recovery outside QC Limits

1251371 AAPO24I T 200340009A 07105 SW-846 8015B modified
19710520031002.016.RAW




Sample Name = 1251371 AAPO24I T 200340009A 07105 SW-846 8015B modified

Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031002.016.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003102.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/3/2020 3:09:54 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.928 | -0.819 | 17642 | 5746 |
| Propene | 3.118 | 10.772 | 33895 | 20778 |

# Data Summary

**Sample Name: 1251373** PO-23 Sample ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
**Analyses:** 07105

## Analysis Report (A)

**Injected on** Feb 03, 2020 15:27:36
**Instrument** H4132A
**Result file** 19710520031002.017.RAW
**Calibration file** 1971052003102
**Method file** HSS

%SSR(PROP) 51% ( 46 - 135 ) Conc: 10.57729

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| Methane | 0.90 | 0.93 | 0.96 | 12188 | 4.369026 |
| Ethane | 1.10 | 1.14 | 1.16 | 318 | 0.214881 |
| Propane | 2.02 | 2.05 | 2.08 | 268 | 0.159621 |
| PROPENE | 3.09 | 3.12 | 3.15 | 20403 | 10.57729 |

## Single Component Summary

| | Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|---|
| ✓ | Methane | A | 4.369026 | <5 | 3 | J | | |
| ✓ | Ethane | | | <5 | <1 | | | |
| ✓ | Ethene | | | <5 | <1 | | | |
| ☐ | Propane | | | <5 | <1 | | | |
| ✓ | PROPENE | A | 10.57729 | | | | | |
| ☐ | Isobutane | | | <5 | <1 | | | |
| ☐ | n-butane | | | <5 | <1 | | | |
| ☐ | Acetylene | | | <5 | <1 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brillhart
Senior Chemist

FEB 07 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/7/2020 12:21:00

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251373** PQ-23 ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 07105

## Analysis Report (A)

Injected on : Feb 03, 2020 15:27:36
Instrument : CP19--H4132A
Result file : 19710520031002.017.RAW
Calibration file : 1971052003102.CAL
Method file : HSS.MET

%SSR(Propene) : 51% (46-135) Conc.: 10.57729

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **Methane** | 0.90 | 0.93 | 0.96 | 12188 | 4.369026 |
| **Ethane** | 1.10 | 1.14 | 1.16 | 318 | 0.214881 |
| **Propane** | 2.02 | 2.05 | 2.08 | 268 | 0.159621 |
| **Propene** | 3.09 | 3.12 | 3.15 | 20403 | 10.577290 |

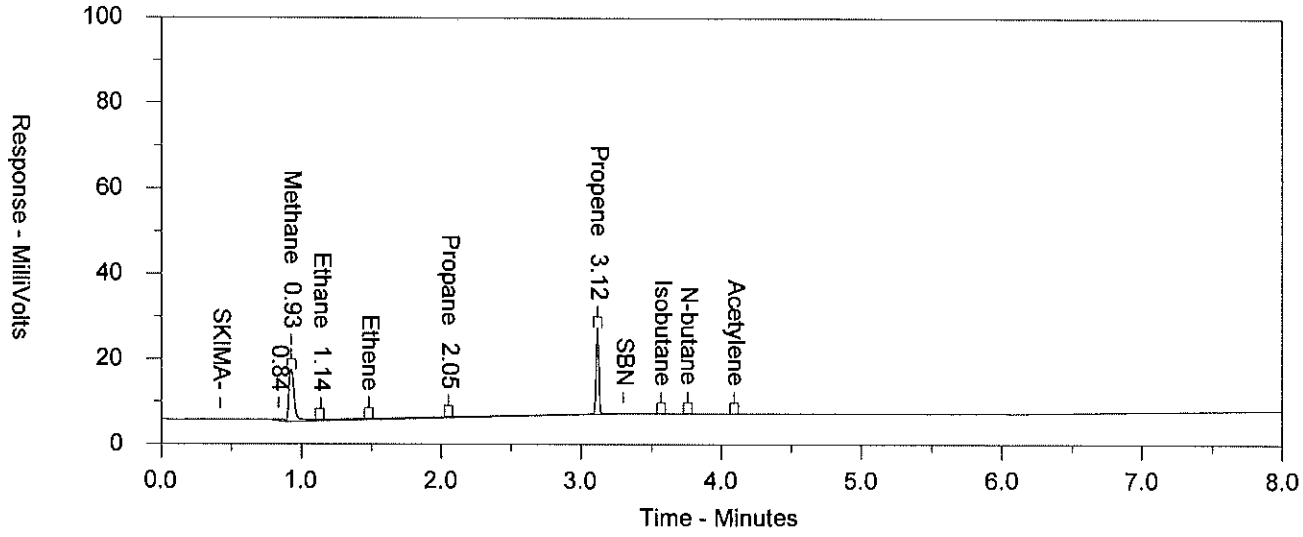
**Summary Report**

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ Methane | A | 4.369026 | <5 | 3 | J | |
| ☑ Ethane | A | 0.214881 | <5 | <1 | | |
| ☑ Ethene | | | <5 | <1 | | |
| ☐ Propane | A | 0.159621 | <5 | <1 | | |
| ☐ Propene | A | 10.577290 | | | | |
| ☐ Isobutane | | | <5 | <1 | | |
| ☐ N-butane | | | <5 | <1 | | |
| ☐ Acetylene | | | <5 | <1 | | |

Units: ug/l

* Recovery outside QC Limits

1251373 AAPO-23 T 200340009A 07105 SW-846 8015B modified
19710520031002.017.RAW




Sample Name = 1251373 AAPO-23 T 200340009A 07105 SW-846 8015B modified

Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031002.017.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003102.cal
Time injected = 2/3/2020 3:27:36 PM
Run Time = 8
Dilution Factor = 5
Amount Injected = 1
Peak Threshold = 0
Peak Width = 0.05
Operator = 32136

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.928 | 4.369 | 32549 | 12188 |
| Ethane | 1.136 | 0.215 | 1919 | 318 |
| Propane | 2.049 | 0.160 | 11365 | 268 |
| Propene | 3.119 | 10.577 | 34369 | 20403 |

eurofins | Lancaster Laboratories Environmental

# Data Summary

**Sample Name: 1251376** PO25I Sample ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
**Analyses:** 07105

## Analysis Report (A)

**Injected on** Feb 03, 2020 15:45:24
**Instrument** H4132A
**Result file** 19710520031002.018.RAW
**Calibration file** 1971052003102
**Method file** HSS

%SSR(PROP) 59% ( 46 - 135 ) Conc: 12.42563

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| Methane | 0.90 | 0.93 | 0.96 | 5142 | 0 |
| Propane | 2.02 | 2.06 | 2.08 | 227 | 0.134984 |
| PROPENE | 3.09 | 3.12 | 3.15 | 23969 | 12.42563 |

## Single Component Summary

| | Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|---|
| ☑ | Methane | | | <5 | <3 | | | |
| ☑ | Ethane | | | <5 | <1 | | | |
| ☑ | Ethene | | | <5 | <1 | | | |
| ☐ | Propane | | | <5 | <1 | | | |
| ☑ | PROPENE | A | 12.42563 | | | | | |
| ☐ | Isobutane | | | <5 | <1 | | | |
| ☐ | n-butane | | | <5 | <1 | | | |
| ☐ | Acetylene | | | <5 | <1 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brillhart
Senior Chemist

Reviewed and digitally signed by Esther Kathryn Lane on 2/7/2020 12:21:01

FEB 07 2020

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251376** PO25I ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 07105

Analysis Report (A)

Injected on : Feb 03, 2020 15:45:24
Instrument : CP19--H4132A
Result file : 19710520031002.018.RAW
Calibration file : 1971052003102.CAL
Method file : HSS.MET

%SSR(Propene) : 59% (46-135) Conc.: 12.42563

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **Methane** | 0.90 | 0.93 | 0.96 | 5142 | -1.304904 |
| **Propane** | 2.02 | 2.06 | 2.08 | 227 | 0.134984 |
| **Propene** | 3.09 | 3.12 | 3.15 | 23969 | 12.425630 |

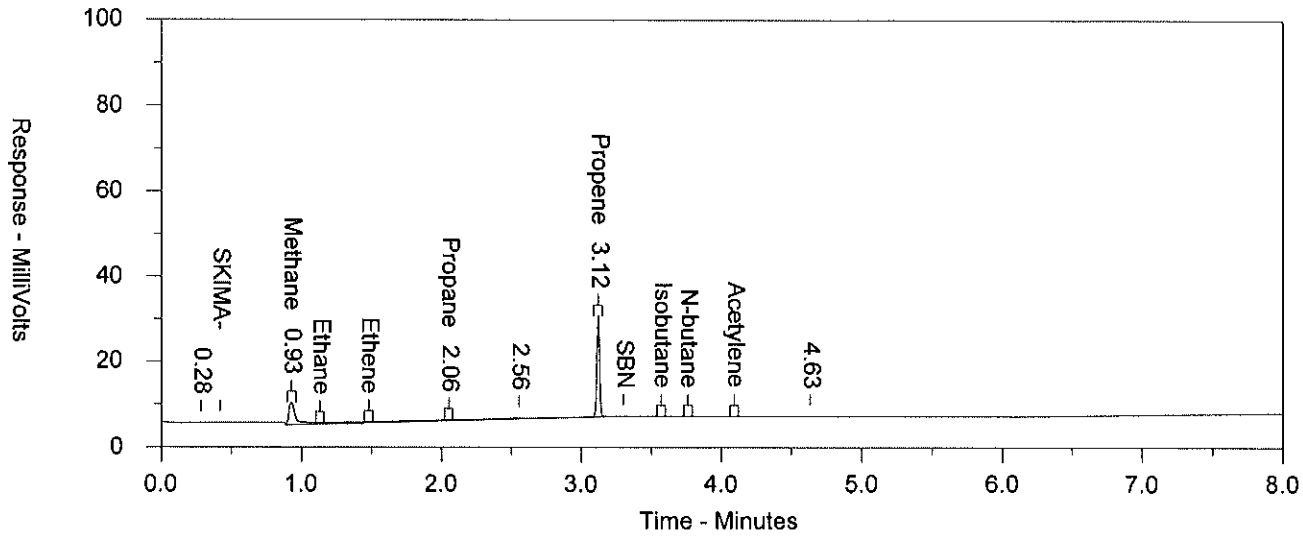
**Summary Report**

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ Methane | A | -1.304904 | <5 | <3 | | < MQL |
| ☑ Ethane | | | <5 | <1 | | |
| ☑ Ethene | | | <5 | <1 | | |
| ☐ Propane | A | 0.134984 | <5 | <1 | | |
| ☐ Propene | A | 12.425630 | | | | |
| ☐ Isobutane | | | <5 | <1 | | |
| ☐ N-butane | | | <5 | <1 | | |
| ☐ Acetylene | | | <5 | <1 | | |

Units: ug/l

* Recovery outside QC Limits

1251376 AAPO25I T 200340009A 07105 SW-846 8015B modified
19710520031002.018.RAW




Sample Name = 1251376 AAPO25I T 200340009A 07105 SW-846 8015B modified

Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031002.018.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003102.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/3/2020 3:45:24 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.927 | -1.305 | 17394 | 5142 |
| Propane | 2.056 | 0.135 | 10299 | 227 |
| Propene | 3.122 | 12.426 | 32812 | 23969 |

# Data Summary

**Sample Name: 1251378** PO44I Sample ID: AA **Batchnumber: 200340009A**

Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA

**Analyses:** 07105

## Analysis Report (A)

**Injected on** Feb 03, 2020 16:03:16
**Instrument** H4132A
**Result file** 19710520031002.019.RAW
**Calibration file** 1971052003102
**Method file** HSS

%SSR(PROP) 74% ( 46 - 135 ) Conc: 15.439585

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| Methane | 0.90 | 0.93 | 0.96 | 5894 | 0 |
| Propane | 2.02 | 2.05 | 2.08 | 215 | 0.128157 |
| PROPENE | 3.09 | 3.12 | 3.15 | 29782 | 15.439585 |

## Single Component Summary

| | Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|---|
| ☑ | Methane | | | <5 | <3 | | | |
| ☑ | Ethane | | | <5 | <1 | | | |
| ☑ | Ethene | | | <5 | <1 | | | |
| ☐ | Propane | | | <5 | <1 | | | |
| ☑ | PROPENE | A | 15.439585 | | | | | |
| ☐ | Isobutane | | | <5 | <1 | | | |
| ☐ | n-butane | | | <5 | <1 | | | |
| ☐ | Acetylene | | | <5 | <1 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brillhart
Senior Chemist

Reviewed and digitally signed by Esther Kathryn Lane on 2/7/2020 12:21:03

FEB 07 2020

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251378** PO44I ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 07105

## Analysis Report (A)

Injected on : Feb 03, 2020 16:03:16
Instrument : CP19--H4132A
Result file : 19710520031002.019.RAW
Calibration file : 1971052003102.CAL
Method file : HSS.MET

%SSR(Propene) : 74% (46-135) Conc.: 15.439585

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **Methane** | 0.90 | 0.93 | 0.96 | 5894 | -0.698803 |
| **Propane** | 2.02 | 2.05 | 2.08 | 215 | 0.128157 |
| **Propene** | 3.09 | 3.12 | 3.15 | 29782 | 15.439585 |

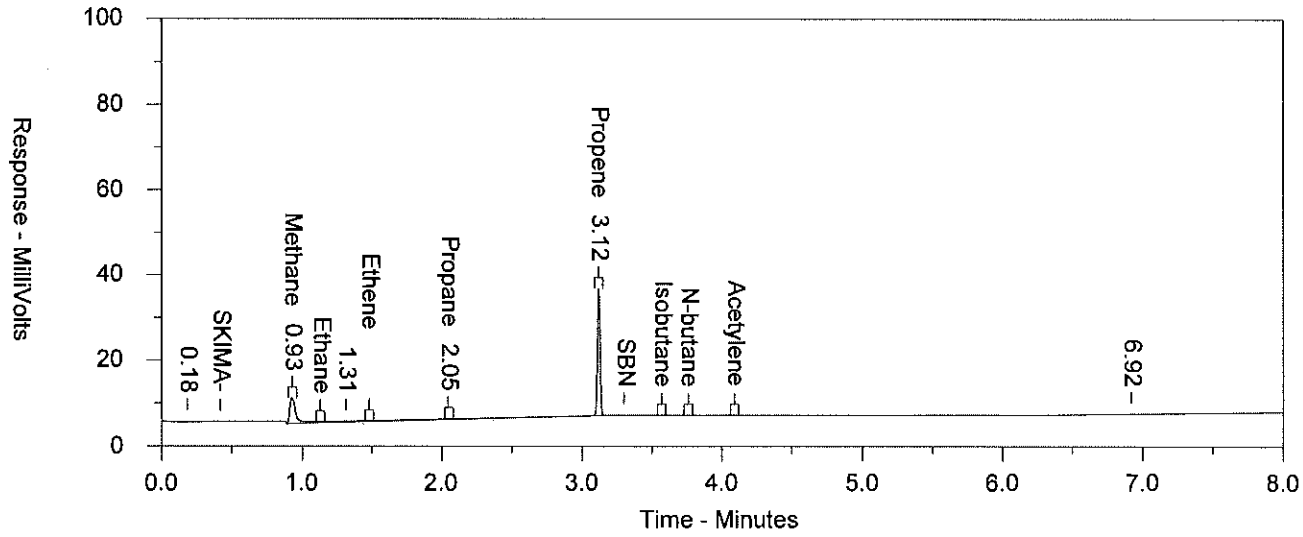
## Summary Report

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ Methane | A | -0.698803 | <5 | <3 | | < MDL |
| ☑ Ethane | | | <5 | <1 | | |
| ☑ Ethene | | | <5 | <1 | | |
| ☐ Propane | A | 0.128157 | <5 | <1 | | |
| ☐ Propene | A | 15.439585 | | | | |
| ☐ Isobutane | | | <5 | <1 | | |
| ☐ N-butane | | | <5 | <1 | | |
| ☐ Acetylene | | | <5 | <1 | | |

Units: ug/l

* Recovery outside QC Limits

1251378 AAPO44I T 200340009A 07105 SW-846 8015B modified
19710520031002.019.RAW




Sample Name = 1251378 AAPO44I T 200340009A 07105 SW-846 8015B modified

Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031002.019.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003102.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time Injected = 2/3/2020 4:03:16 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.928 | -0.699 | 19266 | 5894 |
| Propane | 2.045 | 0.128 | 6251 | 215 |
| Propene | 3.120 | 15.440 | 44732 | 29782 |

# Data Summary

**Sample Name: 1251380** POFD1 Sample ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
**Analyses:** 07105

## Analysis Report (A)

**Injected on** Feb 03, 2020 16:21:55
**Instrument** H4132A
**Result file** 19710520031002.020.RAW
**Calibration file** 1971052003102
**Method file** HSS

%SSR(PROP) 79% ( 46 - 135 ) Conc: 16.63078

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| Methane | 0.90 | 0.93 | 0.96 | 5690 | 0 |
| Propane | 2.02 | 2.05 | 2.08 | 272 | 0.161616 |
| PROPENE | 3.09 | 3.12 | 3.15 | 32080 | 16.63078 |

## Single Component Summary

| | Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|---|
| ☑ | Methane | | | <5 | <3 | | | |
| ☑ | Ethane | | | <5 | <1 | | | |
| ☑ | Ethene | | | <5 | <1 | | | |
| ☐ | Propane | | | <5 | <1 | | | |
| ☑ | PROPENE | A | 16.63078 | | | | | |
| ☐ | Isobutane | | | <5 | <1 | | | |
| ☐ | n-butane | | | <5 | <1 | | | |
| ☐ | Acetylene | | | <5 | <1 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brillhart
Jamie L. Brillhart
Senior Chemist

Reviewed and digitally signed by Esther Kathryn Lane on 2/7/2020 12:21:05

FEB 07 2020

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251380** POFD1 ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 07105

Analysis Report (A)

Injected on : Feb 03, 2020 16:21:55
Instrument : CP19--H4132A
Result file : 19710520031002.020.RAW
Calibration file : 1971052003102.CAL
Method file : HSS.MET

%SSR(Propene) : 79% (46-135) Conc.: 16.63078

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **Methane** | 0.90 | 0.93 | 0.96 | 5690 | -0.863136 |
| **Propane** | 2.02 | 2.05 | 2.08 | 272 | 0.161616 |
| **Propene** | 3.09 | 3.12 | 3.15 | 32080 | 16.630780 |

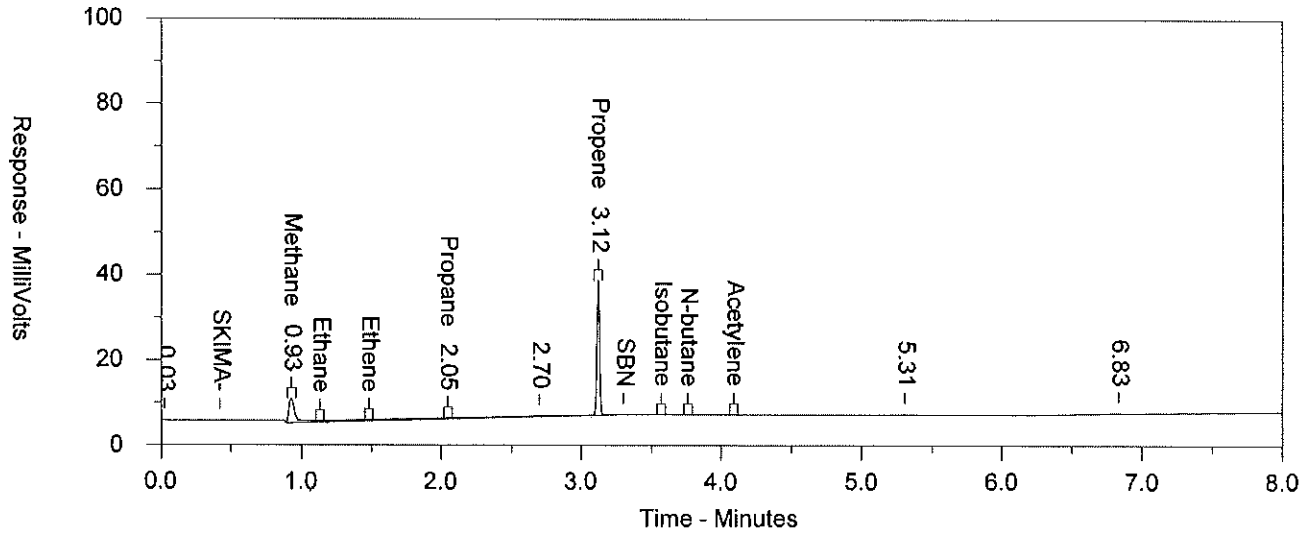
**Summary Report**

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ Methane | A | -0.863136 | <5 | <3 | | EMDL |
| ☑ Ethane | | | <5 | <1 | | |
| ☑ Ethene | | | <5 | <1 | | |
| ☐ Propane | A | 0.161616 | <5 | <1 | | |
| ☐ Propene | A | 16.630780 | | | | |
| ☐ Isobutane | | | <5 | <1 | | |
| ☐ N-butane | | | <5 | <1 | | |
| ☐ Acetylene | | | <5 | <1 | | |

Units: ug/l

* Recovery outside QC Limits

1251380 AAPOFD1 T 200340009A 07105 SW-846 8015B modified
19710520031002.020.RAW




Sample Name = 1251380 AAPOFD1 T 200340009A 07105 SW-846 8015B modified

Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031002.020.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003102.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/3/2020 4:21:55 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.926 | -0.863 | 17799 | 5690 |
| Propane | 2.046 | 0.162 | 11807 | 272 |
| Propene | 3.121 | 16.631 | 44280 | 32080 |

# Data Summary

**Sample Name: 1251382** PO44D Sample ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
**Analyses:** 07105

## Analysis Report (A)

**Injected on** Feb 03, 2020 16:40:13
**Instrument** H4132A
**Result file** 19710520031002.021.RAW
**Calibration file** 1971052003102
**Method file** HSS

%SSR(PROP) 71% ( 46 - 135 ) Conc: 14.89341

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| Methane | 0.90 | 0.93 | 0.96 | 5301 | 0 |
| PROPENE | 3.09 | 3.12 | 3.15 | 28729 | 14.89341 |

## Single Component Summary

| | Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|---|
| ☑ | Methane | | | <5 | <3 | | | |
| ☑ | Ethane | | | <5 | <1 | | | |
| ☑ | Ethene | | | <5 | <1 | | | |
| ☐ | Propane | | | <5 | <1 | | | |
| ☑ | PROPENE | A | 14.89341 | | | | | |
| ☐ | Isobutane | | | <5 | <1 | | | |
| ☐ | n-butane | | | <5 | <1 | | | |
| ☐ | Acetylene | | | <5 | <1 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brillhart
Senior Chemist

FEB 07 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/7/2020 12:21:07

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251382** PO44D ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 07105

## Analysis Report (A)

Injected on : Feb 03, 2020 16:40:13
Instrument : CP19--H4132A
Result file : 19710520031002.021.RAW
Calibration file : 1971052003102.CAL
Method file : HSS.MET

%SSR(Propene) : 71% (46-135) Conc.: 14.89341

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **Methane** | 0.90 | 0.93 | 0.96 | 5301 | -1.176469 |
| **Propene** | 3.09 | 3.12 | 3.15 | 28729 | 14.893410 |

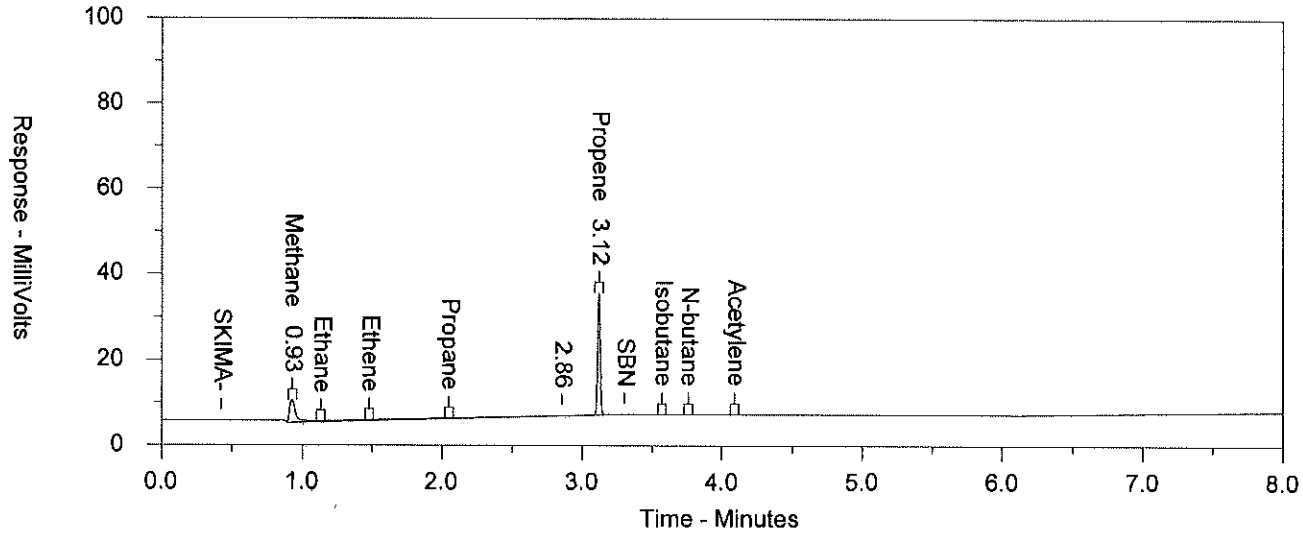
## Summary Report

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ Methane | A | -1.176469 | <5 | <3 | | <MDL |
| ☑ Ethane | | | <5 | <1 | | |
| ☑ Ethene | | | <5 | <1 | | |
| ☐ Propane | | | <5 | <1 | | |
| ☐ Propene | A | 14.893410 | | | | |
| ☐ Isobutane | | | <5 | <1 | | |
| ☐ N-butane | | | <5 | <1 | | |
| ☐ Acetylene | | | <5 | <1 | | |

Units: ug/l

* Recovery outside QC Limits

1251382 AAPO44D T 200340009A 07105 SW-846 8015B modified
19710520031002.021.RAW




Sample Name = 1251382 AAPO44D T 200340009A 07105 SW-846 8015B modified

Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031002.021.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003102.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/3/2020 4:40:13 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.926 | -1.176 | 17010 | 5301 |
| Propene | 3.119 | 14.893 | 38447 | 28729 |

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# Data Summary

**Sample Name: 1251384** P11IP Sample ID: AA **Batchnumber: 200340009A**

Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA

**Analyses:** 07105

## Analysis Report (A)

**Injected on** Feb 03, 2020 16:57:56
**Instrument** H4132A
**Result file** 19710520031002.022.RAW
**Calibration file** 1971052003102
**Method file** HSS

%SSR(PROP) 52% ( 46 - 135 ) Conc: 10.97283

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| Methane | 0.90 | 0.93 | 0.96 | 5029 | 0 |
| Propane | 2.02 | 2.06 | 2.08 | 190 | 0.113265 |
| PROPENE | 3.09 | 3.12 | 3.15 | 21166 | 10.97283 |
| n-butane | 3.73 | 3.77 | 3.79 | 74 | 0.054544 |

## Single Component Summary

| | Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|---|
| ☑ | Methane | | | <5 | <3 | | | |
| ☑ | Ethane | | | <5 | <1 | | | |
| ☑ | Ethene | | | <5 | <1 | | | |
| ☐ | Propane | | | <5 | <1 | | | |
| ☑ | PROPENE | A | 10.97283 | | | | | |
| ☐ | Isobutane | | | <5 | <1 | | | |
| ☐ | n-butane | | | <5 | <1 | | | |
| ☐ | Acetylene | | | <5 | <1 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brilhart
Senior Chemist

Reviewed and digitally signed by Esther Kathryn Lane on 2/7/2020 12:21:09

FEB 07 2020

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251384** P11IP ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 07105

Analysis Report (A)

Injected on : Feb 03, 2020 16:57:56
Instrument : CP19--H4132A
Result file : 19710520031002.022.RAW
Calibration file : 1971052003102.CAL
Method file : HSS.MET

%SSR(Propene) : 52% (46-135) Conc.: 10.97283

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **Methane** | 0.90 | 0.93 | 0.96 | 5029 | -1.395183 |
| **Propane** | 2.02 | 2.06 | 2.08 | 190 | 0.113265 |
| **Propene** | 3.09 | 3.12 | 3.15 | 21166 | 10.972830 |
| **N-butane** | 3.73 | 3.77 | 3.79 | 74 | 0.054544 |

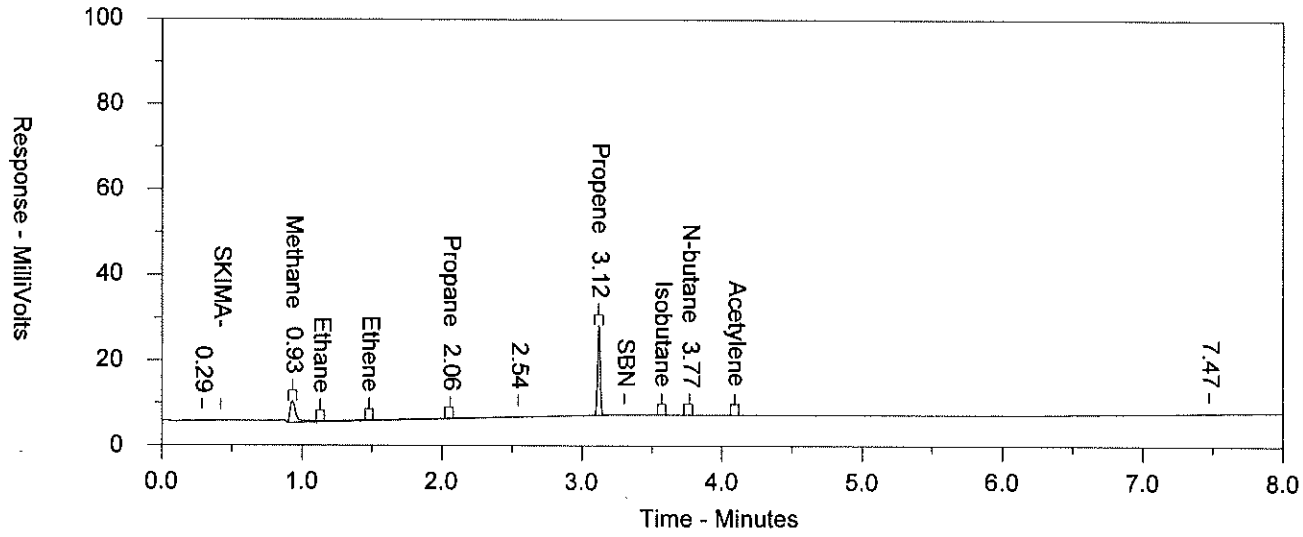
**Summary Report**

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ Methane | A | -1.395183 | <5 | <3 | | cmol |
| ☑ Ethane | | | <5 | <1 | | |
| ☑ Ethene | | | <5 | <1 | | |
| ☐ Propane | A | 0.113265 | <5 | <1 | | |
| ☐ Propene | A | 10.972830 | | | | |
| ☐ Isobutane | | | <5 | <1 | | |
| ☐ N-butane | A | 0.054544 | <5 | <1 | | |
| ☐ Acetylene | | | <5 | <1 | | |

Units: ug/l

* Recovery outside QC Limits

1251384 AAP11IP T 200340009A 07105 SW-846 8015B modified
19710520031002.022.RAW




Sample Name = 1251384 AAP11IP T 200340009A 07105 SW-846 8015B modified

Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031002.022.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003102.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/3/2020 4:57:56 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.929 | -1.395 | 16439 | 5029 |
| Propane | 2.060 | 0.113 | 9926 | 190 |
| Propene | 3.121 | 10.973 | 29138 | 21166 |
| N-butane | 3.767 | 0.055 | 381 | 74 |

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# Data Summary

**Sample Name: 1251386** PO-2D Sample ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
**Analyses:** 07105

## Analysis Report (A)

**Injected on** Feb 03, 2020 17:15:49
**Instrument** H4132A
**Result file** 19710520031002.023.RAW
**Calibration file** 1971052003102
**Method file** HSS

%SSR(PROP) 55% ( 46 - 135 ) Conc: 11.560465

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| Methane | 0.90 | 0.93 | 0.96 | 5385 | 0 |
| Propane | 2.02 | 2.05 | 2.08 | 189 | 0.112297 |
| PROPENE | 3.09 | 3.12 | 3.15 | 22300 | 11.560465 |

## Single Component Summary

| | Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|---|
| ☑ | Methane | | | <5 | <3 | | | |
| ☑ | Ethane | | | <5 | <1 | | | |
| ☑ | Ethene | | | <5 | <1 | | | |
| ☐ | Propane | | | <5 | <1 | | | |
| ☑ | PROPENE | A | 11.560465 | | | | | |
| ☐ | Isobutane | | | <5 | <1 | | | |
| ☐ | n-butane | | | <5 | <1 | | | |
| ☐ | Acetylene | | | <5 | <1 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brilhart
Senior Chemist

FEB 07 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/7/2020 12:21:11

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251386** PO-2D ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 07105

## Analysis Report (A)

Injected on : Feb 03, 2020 17:15:49
Instrument : CP19--H4132A
Result file : 19710520031002.023.RAW
Calibration file : 1971052003102.CAL
Method file : HSS.MET

%SSR(Propene) : 55% (46-135) Conc.: 11.560465

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **Methane** | 0.90 | 0.93 | 0.96 | 5385 | -1.109122 |
| **Propane** | 2.02 | 2.05 | 2.08 | 189 | 0.112297 |
| **Propene** | 3.09 | 3.12 | 3.15 | 22300 | 11.560465 |

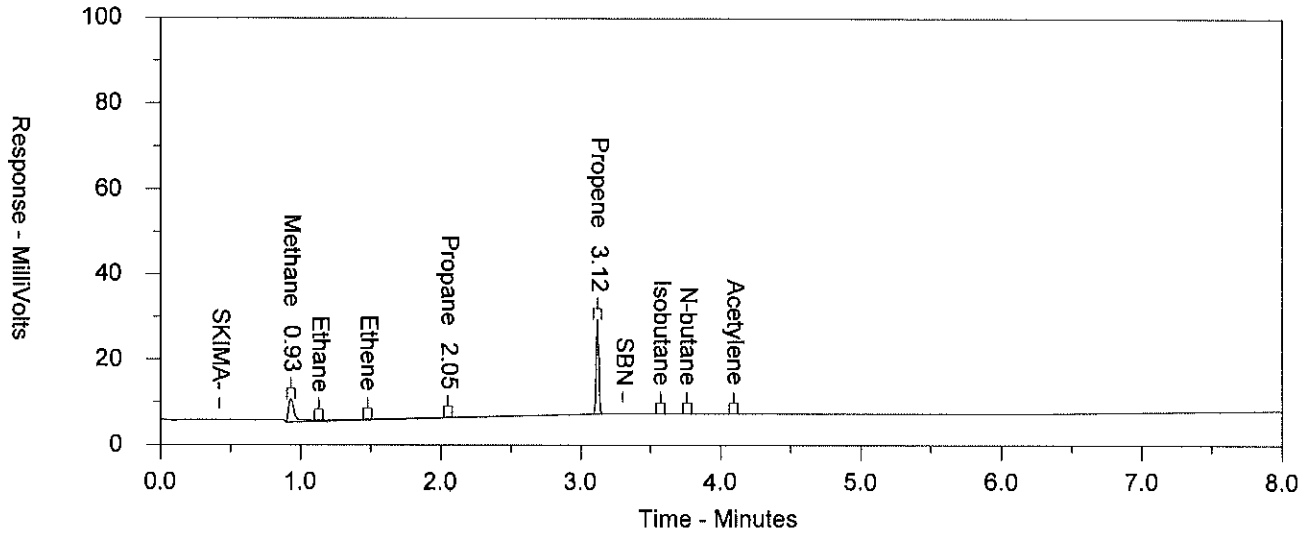
## Summary Report

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ Methane | A | -1.109122 | <5 | <3 | | < MDL |
| ☑ Ethane | | | <5 | <1 | | |
| ☑ Ethene | | | <5 | <1 | | |
| ☐ Propane | A | 0.112297 | <5 | <1 | | |
| ☐ Propene | A | 11.560465 | | | | |
| ☐ Isobutane | | | <5 | <1 | | |
| ☐ N-butane | | | <5 | <1 | | |
| ☐ Acetylene | | | <5 | <1 | | |

Units: ug/l

* Recovery outside QC Limits

1251386 AAPO-2D T 200340009A 07105 SW-846 8015B modified
19710520031002.023.RAW




Sample Name = 1251386 AAPO-2D T 200340009A 07105 SW-846 8015B modified

Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031002.023.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003102.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/3/2020 5:15:49 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.928 | -1.109 | 17102 | 5385 |
| Propane | 2.048 | 0.112 | 9509 | 189 |
| Propene | 3.121 | 11.560 | 30463 | 22300 |

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# Data Summary

**Sample Name: 1251388** PO48D Sample ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
**Analyses:** 07105

## Analysis Report (A)

**Injected on** Feb 03, 2020 12:13:34
**Instrument** H4132A
**Result file** 19710520031002.007.RAW
**Calibration file** 1971052003101
**Method file** HSS

%SSR(PROP) 68% ( 46 - 135 ) Conc: 14.30107

## Single Component Data

| Compound | Min | RT | Max | Height | | Amount |
|---|---|---|---|---|---|---|
| Methane | 0.90 | 0.93 | 0.96 | 1002598 | E | 801.8895 |
| Ethene | 1.46 | 1.49 | 1.52 | 544 | | 0.339353 |
| Propane | 2.03 | 2.05 | 2.09 | 239 | | 0.14221 |
| PROPENE | 3.12 | 3.12 | 3.18 | 27586 | | 14.30107 |
| Isobutane | 3.56 | 3.57 | 3.62 | 171 | | 0.114453 |

## Single Component Summary

| | Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|---|
| ☐ | Methane | A | 801.8895 | 5 | 3 | E | | Reported from DF |
| ☑ | Ethane | | | <5 | <1 | | | |
| ☑ | Ethene | | | <5 | <1 | | | |
| ☐ | Propane | | | <5 | <1 | | | |
| ☑ | PROPENE | A | 14.30107 | | | | | |
| ☐ | Isobutane | | | <5 | <1 | | | |
| ☐ | n-butane | | | <5 | <1 | | | |
| ☐ | Acetylene | | | <5 | <1 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Janie L. Brillhart
Janie L. Brillhart
Senior Chemist

FEB 07 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/7/2020 12:57:32

# Data Summary

**Sample Name: 1251388** PO48D Sample ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
**Analyses:** 07105

## Analysis Report (A)

**Injected on** Feb 03, 2020 12:13:34
**Instrument** H4132A
**Result file** 19710520031002.007.RAW
**Calibration file** 1971052003101
**Method file** HSS

%SSR(PROP) 68% ( 46 - 135 ) Conc: 14.30107

## Single Component Data

| Compound | Min | RT | Max | Height | | Amount |
|---|---|---|---|---|---|---|
| Methane | 0.90 | 0.93 | 0.96 | 1002598 | E | 801.8895 |
| Ethene | 1.46 | 1.49 | 1.52 | 544 | | 0.339353 |
| Propane | 2.03 | 2.05 | 2.09 | 239 | | 0.14221 |
| PROPENE | 3.12 | 3.12 | 3.18 | 27586 | | 14.30107 |
| Isobutane | 3.56 | 3.57 | 3.62 | 171 | | 0.114453 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| Methane | A | 801.8895 | 5 | 3 | E | | Reported from DF |
| Ethane | | | <5 | <1 | | | |
| Ethene | | | <5 | <1 | | | |
| Propane | | | <5 | <1 | | | |
| PROPENE | A | 14.30107 | | | | | |
| Isobutane | | | <5 | <1 | | | |
| n-butane | | | <5 | <1 | | | |
| Acetylene | | | <5 | <1 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

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Senior Chemist

FEB 07 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/7/2020 12:57:30

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251388** PO48D ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 07105

Analysis Report (A)

Injected on : Feb 03, 2020 12:13:34
Instrument : CP19--H4132A
Result file : 19710520031002.007.RAW
Calibration file : 1971052003101.CAL
Method file : HSS.MET

%SSR(Propene) : 68% (46-135) Conc.: 14.30107

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **Methane** | 0.90 | 0.93 | 0.96 | 1002598 E | 801.889500 |
| **Ethene** | 1.46 | 1.49 | 1.52 | 544 | 0.339353 |
| **Propane** | 2.03 | 2.05 | 2.09 | 239 | 0.142210 |
| **Propene** | 3.12 | 3.12 | 3.18 | 27586 | 14.301070 |
| **Isobutane** | 3.56 | 3.57 | 3.62 | 171 | 0.114453 |

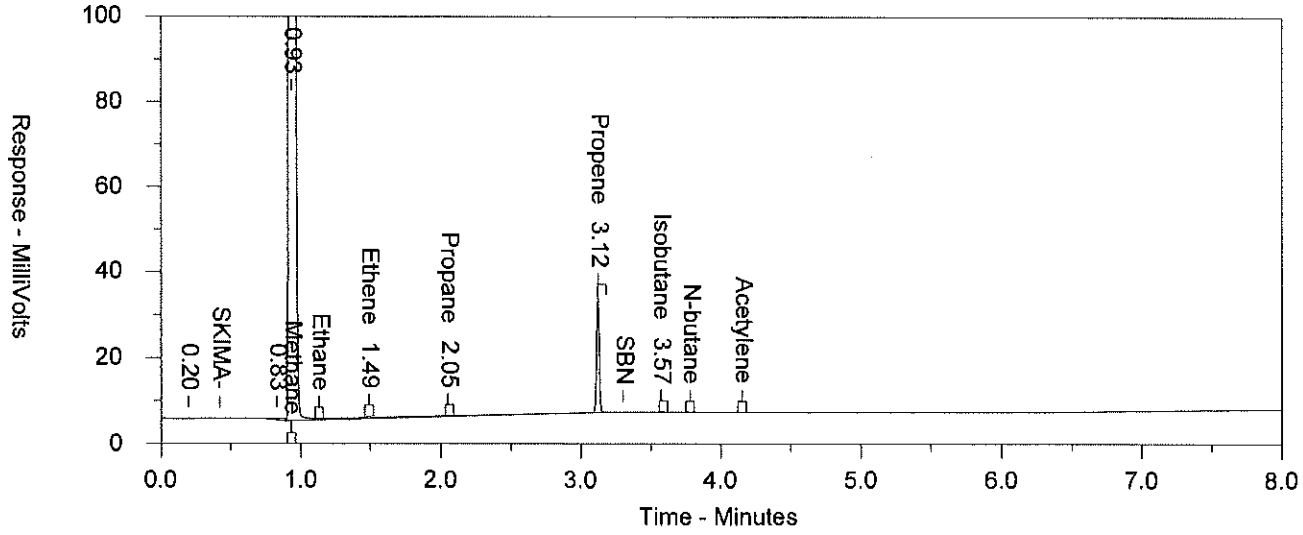
**Summary Report**

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ Methane | A | 801.889500 | 5 | 3 | E | See DF |
| ☑ Ethane | | | <5 | <1 | | |
| ☑ Ethene | A | 0.339353 | <5 | <1 | | |
| ☐ Propane | A | 0.142210 | <5 | <1 | | |
| ☐ Propene | A | 14.301070 | | | | |
| ☐ Isobutane | A | 0.114453 | <5 | <1 | | |
| ☐ N-butane | | | <5 | <1 | | |
| ☐ Acetylene | | | <5 | <1 | | |

Units: ug/l

* Recovery outside QC Limits

1251388 AAPO48D T 200340009A 07105 SW-846 8015B modified
19710520031002.007.RAW




Sample Name = 1251388 AAPO48D T 200340009A 07105 SW-846 8015B modified

Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031002.007.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/3/2020 12:13:34 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.930 | 801.890 | 2217526 | 1002598 |
| Ethene | 1.488 | 0.339 | 5683 | 544 |
| Propane | 2.048 | 0.142 | 6377 | 239 |
| Propene | 3.121 | 14.301 | 39292 | 27586 |
| Isobutane | 3.572 | 0.114 | 1399 | 171 |

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# Data Summary

**Sample Name: 1251388** DF5 PO48D Sample ID: AB **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 25 ml Analyst: 32136 SDG: PUP93 State: CA
**Analyses:** 07105

## Analysis Report (A)

**Injected on** Feb 04, 2020 16:39:46
**Instrument** H4132A
**Result file** 19710520031003.021.RAW
**Calibration file** 1971052003102
**Method file** HSS

%SSR(PROP) 89% ( 46 - 135 ) Conc: 93.0545

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| Methane | 0.90 | 0.93 | 0.96 | 265718 | 1042.611 |
| Ethene | 1.45 | 1.48 | 1.51 | 109 | 0.339144 |
| Propane | 2.02 | 2.05 | 2.08 | 179 | 0.533111 |
| PROPENE | 3.09 | 3.12 | 3.15 | 35900 | 93.0545 |
| Isobutane | 3.54 | 3.57 | 3.60 | 84 | 0.280321 |

## Single Component Summary

| | Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|---|
| ✓ | Methane | A | 1042.611 | 25 | 15 | | | |
| | Ethane | | | <25 | <5 | | | |
| | Ethene | | | <25 | <5 | | | |
| | Propane | | | <25 | <5 | | | |
| | PROPENE | A | 93.0545 | | | | | |
| | Isobutane | | | <25 | <5 | | | |
| | n-butane | | | <25 | <5 | | | |
| | Acetylene | | | <25 | <5 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brillhart
Senior Chemist

FEB 07 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/7/2020 12:57:38

# Data Summary

**Sample Name: 1251388** DF5 PO48D Sample ID: AB **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 25 ml Analyst: 32136 SDG: PUP93 State: CA
**Analyses:** 07105

## Analysis Report (A)

**Injected on** Feb 04, 2020 16:39:46
**Instrument** H4132A
**Result file** 19710520031003.021.RAW
**Calibration file** 1971052003102
**Method file** HSS

%SSR(PROP) 89% ( 46 - 135 ) Conc: 93.0545

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| Methane | 0.90 | 0.93 | 0.96 | 265718 | 1042.611 |
| Ethene | 1.45 | 1.48 | 1.51 | 109 | 0.339144 |
| Propane | 2.02 | 2.05 | 2.08 | 179 | 0.533111 |
| PROPENE | 3.09 | 3.12 | 3.15 | 35900 | 93.0545 |
| Isobutane | 3.54 | 3.57 | 3.60 | 84 | 0.280321 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| Methane | A | 1042.611 | 25 | 15 | | | |
| Ethane | | | <25 | <5 | | | |
| Ethene | | | <25 | <5 | | | |
| Propane | | | <25 | <5 | | | |
| PROPENE | A | 93.0545 | | | | | |
| Isobutane | | | <25 | <5 | | | |
| n-butane | | | <25 | <5 | | | |
| Acetylene | | | <25 | <5 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brillhart
Senior Chemist

FEB 07 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/7/2020 12:57:36

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251388** DF5 PO48D ID: AB **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 25 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 07105

## Analysis Report (A)

Injected on : Feb 04, 2020 16:39:46
Instrument : CP19--H4132A
Result file : 19710520031003.021.RAW
Calibration file : 1971052003102.CAL
Method file : HSS.MET

%SSR(Propene) : 89% (46-135) Conc.: 93.0545

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **Methane** | 0.90 | 0.93 | 0.96 | 265718 | 1042.611000 |
| **Ethene** | 1.45 | 1.48 | 1.51 | 109 | 0.339144 |
| **Propane** | 2.02 | 2.05 | 2.08 | 179 | 0.533112 |
| **Propene** | 3.09 | 3.12 | 3.15 | 35900 | 93.054500 |
| **Isobutane** | 3.54 | 3.57 | 3.60 | 84 | 0.280321 |

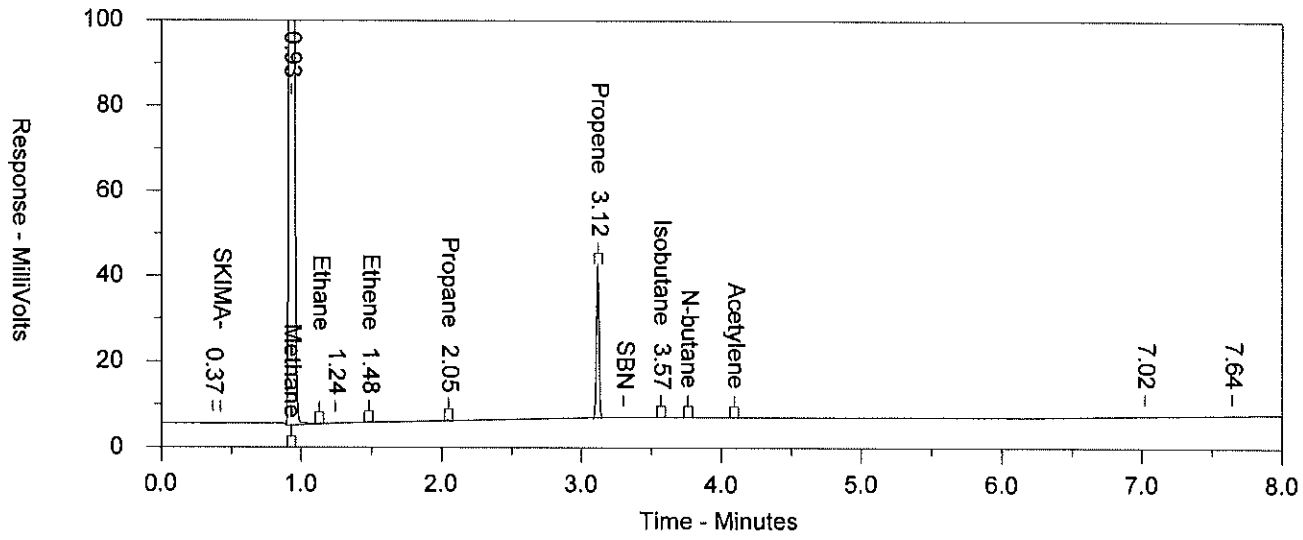
## Summary Report

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ Methane | A | 1042.611000 | 25 | 15 | | |
| ☑ Ethane | | | <25 | <5 | | |
| ☑ Ethene | A | 0.339144 | <25 | <5 | | |
| ☐ Propane | A | 0.533112 | <25 | <5 | | |
| ☐ Propene | A | 93.054500 | | | | |
| ☐ Isobutane | A | 0.280321 | <25 | <5 | | |
| ☐ N-butane | | | <25 | <5 | | |
| ☐ Acetylene | | | <25 | <5 | | |

Units: ug/l

* Recovery outside QC Limits

1251388 DF5 ABPO48D T 200340009A 07105 SW-846 8015B modified
19710520031003.021.RAW




Sample Name = 1251388 DF5 ABPO48D T 200340009A 07105 SW-846 8015B modified

Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031003.021.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003102.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

Time Injected = 2/4/2020 4:39:46 PM
Dilution Factor = 25
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.927 | 1042.611 | 601802 | 265718 |
| Ethene | 1.483 | 0.339 | 220 | 109 |
| Propane | 2.048 | 0.533 | 1171 | 179 |
| Propene | 3.117 | 93.054 | 45869 | 35900 |
| Isobutane | 3.567 | 0.280 | 326 | 84 |

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# Data Summary

**Sample Name: 1251396** PO48I Sample ID: AA **Batchnumber: 200340009A**

Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA

**Analyses:** 07105

## Analysis Report (A)

**Injected on** Feb 03, 2020 17:34:18
**Instrument** H4132A
**Result file** 19710520031002.024.RAW
**Calibration file** 1971052003102
**Method file** HSS

%SSR(PROP) 50% ( 46 - 135 ) Conc: 10.538465

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| Methane | 0.90 | 0.93 | 0.96 | 5303 | 0 |
| PROPENE | 3.09 | 3.12 | 3.15 | 20328 | 10.538465 |

## Single Component Summary

| | Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|---|
| ☑ | Methane | | | <5 | <3 | | | |
| ☑ | Ethane | | | <5 | <1 | | | |
| ☑ | Ethene | | | <5 | <1 | | | |
| ☐ | Propane | | | <5 | <1 | | | |
| ☑ | PROPENE | A | 10.538465 | | | | | |
| ☐ | Isobutane | | | <5 | <1 | | | |
| ☐ | n-butane | | | <5 | <1 | | | |
| ☐ | Acetylene | | | <5 | <1 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brillhart
Senior Chemist

FEB 07 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/7/2020 12:21:12

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251396** PO48I ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 07105

## Analysis Report (A)

Injected on : Feb 03, 2020 17:34:18
Instrument : CP19--H4132A
Result file : 19710520031002.024.RAW
Calibration file : 1971052003102.CAL
Method file : HSS.MET
%SSR(Propene) : 50% (46-135) Conc.: 10.538465

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **Methane** | 0.90 | 0.93 | 0.96 | 5303 | -1.175272 |
| **Propene** | 3.09 | 3.12 | 3.15 | 20328 | 10.538465 |

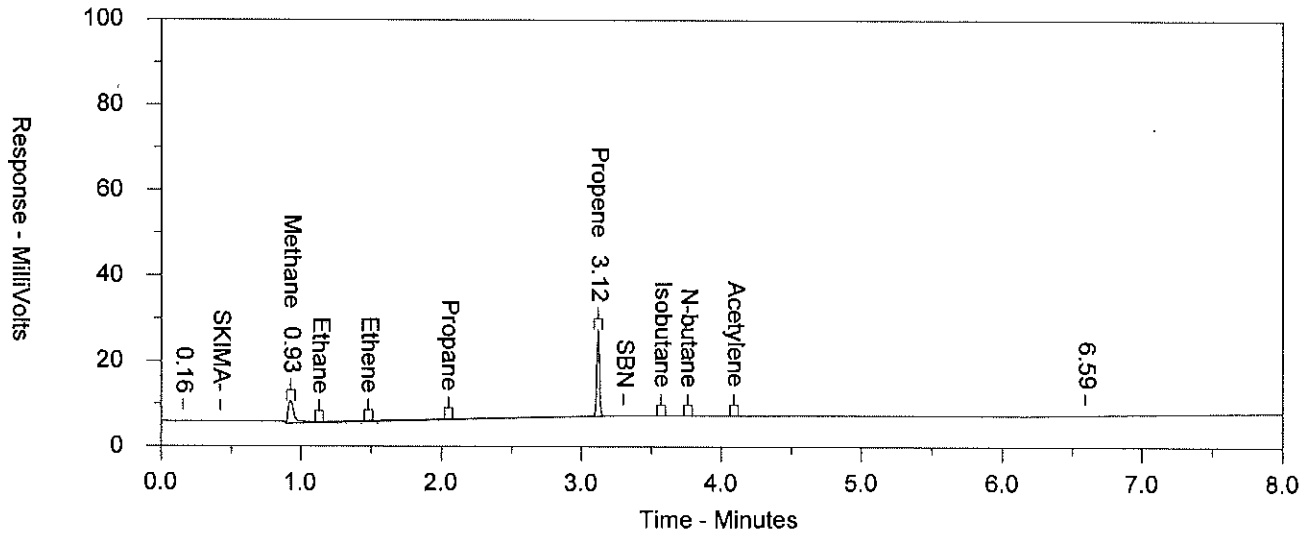
## Summary Report

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ Methane | A | -1.175272 | <5 | <3 | | < MDL |
| ☑ Ethane | | | <5 | <1 | | |
| ☑ Ethene | | | <5 | <1 | | |
| ☐ Propane | | | <5 | <1 | | |
| ☐ Propene | A | 10.538465 | | | | |
| ☐ Isobutane | | | <5 | <1 | | |
| ☐ N-butane | | | <5 | <1 | | |
| ☐ Acetylene | | | <5 | <1 | | |

Units: ug/l

* Recovery outside QC Limits

1251396 AAPO48I T 200340009A 07105 SW-846 8015B modified
19710520031002.024.RAW




Sample Name = 1251396 AAPO48I T 200340009A 07105 SW-846 8015B modified

Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031002.024.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003102.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/3/2020 5:34:18 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.926 | -1.175 | 16893 | 5303 |
| Propene | 3.120 | 10.538 | 47160 | 20328 |

# Standards Data

# Volatile Headspace Hydrocarbons by GC

Eurofins Lancaster Laboratories
EPH/Miscellaneous GC
Runlog for 19710520031001
Instrument CP19--H4132A

Data Directory Path is - \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\

| Operator | File | LLI# | Client ID | Analysis Date | Batch | Dilution Factor |
|---|---|---|---|---|---|---|
| 32136 | 19710520031001.001 | CONDITIONER | | 1/31/20 11:00 | 203099999 | 1.00 |
| 32136 | 19710520031001.002 | CONDITIONER | | 1/31/20 11:18 | 203099999 | 1.00 |
| 32136 | 19710520031001.003 | CONDITIONER | | 1/31/20 11:36 | 203099999 | 1.00 |
| 32136 | 19710520031001.004 | IBLKX2032G | PIBLKAA | 1/31/20 11:54 | 203099999 | 1.00 |
| 32136 | 19710520031001.005 | 710512032C | 71051AA | 1/31/20 12:12 | 203099999 | 1.00 |
| 32136 | 19710520031001.006 | 710522032C | 71052AA | 1/31/20 12:29 | 203099999 | 1.00 |
| 32136 | 19710520031001.007 | 710532032W | 71053AA | 1/31/20 12:47 | 203099999 | 1.00 |
| 32136 | 19710520031001.008 | 710542032C | 71054AA | 1/31/20 13:05 | 203099999 | 1.00 |
| 32136 | 19710520031001.009 | 710552032C | 71055AA | 1/31/20 13:23 | 203099999 | 1.00 |
| 32136 | 19710520031001.010 | 710562032C | 71056AA | 1/31/20 13:41 | 203099999 | 1.00 |
| 32136 | 19710520031001.011 | IBLKX2032G | PIBLKAA | 1/31/20 13:59 | 203099999 | 1.00 |
| 32136 | 19710520031001.012 | HSMDX2032Y | HSMDXAA | 1/31/20 14:17 | 203099999 | 1.00 |
| 32136 | 19710520031001.013 | HSMDX2032X | HSMDXAA | 1/31/20 14:35 | 203099999 | 1.00 |
| 32136 | 19710520031001.014 | HICVX2032E | HICVXAA | 1/31/20 14:53 | 203099999 | 1.00 |

Eurofins Lancaster Laboratories
EPH/Miscellaneous GC
Runlog for 19710520031002
Instrument CP19--H4132A

Data Directory Path is - \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\

| Operator | File | LLI# | Client ID | Analysis Date | Batch | Dilution Factor |
|---|---|---|---|---|---|---|
| 32136 | 19710520031002.001 | CONDITIONER | | 2/3/20 10:23 | 203399999 | 1.00 |
| 32136 | 19710520031002.002 | CONDITIONER | | 2/3/20 10:41 | 203399999 | 1.00 |
| 32136 | 19710520031002.003 | 710532032X | 71053YY | 2/3/20 10:59 | 203399999 | 1.00 |
| 32136 | 19710520031002.004 | HSMDX2032Z | HSMDXQD | 2/3/20 11:16 | 203399999 | 1.00 |
| 32136 | 19710520031002.005 | BLANKA 2/3/20 | PBLK09034 | 2/3/20 11:38 | 200340009A | 5.00 |
| 32136 | 19710520031002.006 | LCSA 2/3/20 | LCS09034 | 2/3/20 11:56 | 200340009A | 5.00 |
| 32136 | 19710520031002.007 | 1251388 | PO48D | 2/3/20 12:13 | 200340009A | 5.00 |
| 32136 | 19710520031002.008 | 1251389MS | PO48D | 2/3/20 12:31 | 200340009A | 5.00 |
| 32136 | 19710520031002.009 | 1251390MSD | PO48D | 2/3/20 12:49 | 200340009A | 5.00 |
| 32136 | 19710520031002.010 | 1251258 | BAU04 | 2/3/20 13:24 | 200340009A | 5.00 |
| 32136 | 19710520031002.011 | 1251259 | BAU05 | 2/3/20 13:41 | 200340009A | 5.00 |
| 32136 | 19710520031002.012 | 1251260 | BAU06 | 2/3/20 13:59 | 200340009A | 5.00 |
| 32136 | 19710520031002.013 | 1251261 | BAU07 | 2/3/20 14:17 | 200340009A | 5.00 |
| 32136 | 19710520031002.014 | 710532032X | 71053YY | 2/3/20 14:34 | 203399999 | 1.00 |
| 32136 | 19710520031002.015 | 1251262 | BAU08 | 2/3/20 14:52 | 200340009A | 5.00 |
| 32136 | 19710520031002.016 | 1251371 | PO24I | 2/3/20 15:09 | 200340009A | 5.00 |
| 32136 | 19710520031002.017 | 1251373 | PO-23 | 2/3/20 15:27 | 200340009A | 5.00 |
| 32136 | 19710520031002.018 | 1251376 | PO25I | 2/3/20 15:45 | 200340009A | 5.00 |
| 32136 | 19710520031002.019 | 1251378 | PO44I | 2/3/20 16:03 | 200340009A | 5.00 |
| 32136 | 19710520031002.020 | 1251380 | POFD1 | 2/3/20 16:21 | 200340009A | 5.00 |
| 32136 | 19710520031002.021 | 1251382 | PO44D | 2/3/20 16:40 | 200340009A | 5.00 |
| 32136 | 19710520031002.022 | 1251384 | P11IP | 2/3/20 16:57 | 200340009A | 5.00 |
| 32136 | 19710520031002.023 | 1251386 | PO-2D | 2/3/20 17:15 | 200340009A | 5.00 |
| 32136 | 19710520031002.024 | 1251396 | PO48I | 2/3/20 17:34 | 200340009A | 5.00 |
| 32136 | 19710520031002.025 | 710532032X | 71053YY | 2/3/20 17:52 | 203399999 | 1.00 |

Eurofins Lancaster Laboratories
EPH/Miscellaneous GC
Runlog for 19710520031002
Instrument CP19--H4132A

Data Directory Path is - \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\

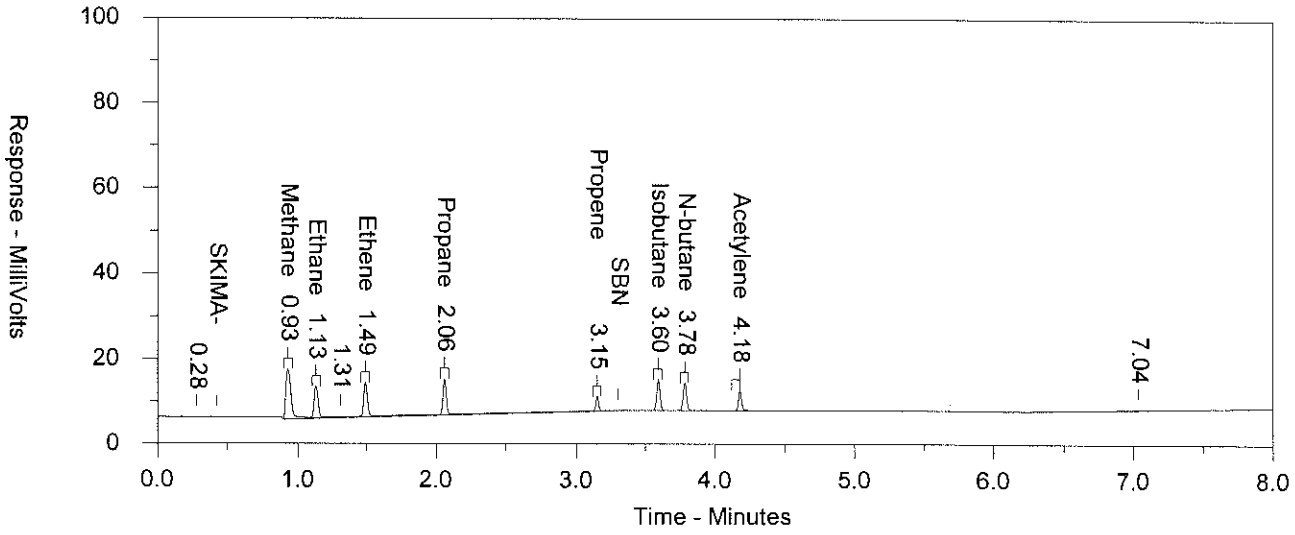
| Operator | File | LLI# | Client ID | Analysis Date | Batch | Dilution Factor |
|---|---|---|---|---|---|---|
| 32136 | 19710520031002.001 | CONDITIONER | | 2/3/20 10:23 | 203399999 | 1.00 |
| 32136 | 19710520031002.002 | CONDITIONER | | 2/3/20 10:41 | 203399999 | 1.00 |
| 32136 | 19710520031002.003 | 710532032X | 71053YY | 2/3/20 10:59 | 203399999 | 1.00 |
| 32136 | 19710520031002.004 | HSMDX2032Z | HSMDXQD | 2/3/20 11:16 | 203399999 | 1.00 |
| 32136 | 19710520031002.005 | BLANKA 2/3/20 | PBLK09034 | 2/3/20 11:38 | 200340009A | 5.00 |
| 32136 | 19710520031002.006 | LCSA 2/3/20 | LCS09034 | 2/3/20 11:56 | 200340009A | 5.00 |
| 32136 | 19710520031002.007 | 1251388 | PO48D | 2/3/20 12:13 | 200340009A | 5.00 |
| 32136 | 19710520031002.008 | 1251389MS | PO48D | 2/3/20 12:31 | 200340009A | 5.00 |
| 32136 | 19710520031002.009 | 1251390MSD | PO48D | 2/3/20 12:49 | 200340009A | 5.00 |
| 32136 | 19710520031002.010 | 1251258 | BAU04 | 2/3/20 13:24 | 200340009A | 5.00 |
| 32136 | 19710520031002.011 | 1251259 | BAU05 | 2/3/20 13:41 | 200340009A | 5.00 |
| 32136 | 19710520031002.012 | 1251260 | BAU06 | 2/3/20 13:59 | 200340009A | 5.00 |
| 32136 | 19710520031002.013 | 1251261 | BAU07 | 2/3/20 14:17 | 200340009A | 5.00 |
| 32136 | 19710520031002.014 | 710532032X | 71053YY | 2/3/20 14:34 | 203399999 | 1.00 |
| 32136 | 19710520031002.015 | 1251262 | BAU08 | 2/3/20 14:52 | 200340009A | 5.00 |
| 32136 | 19710520031002.016 | 1251371 | PO24I | 2/3/20 15:09 | 200340009A | 5.00 |
| 32136 | 19710520031002.017 | 1251373 | PO-23 | 2/3/20 15:27 | 200340009A | 5.00 |
| 32136 | 19710520031002.018 | 1251376 | PO25I | 2/3/20 15:45 | 200340009A | 5.00 |
| 32136 | 19710520031002.019 | 1251378 | PO44I | 2/3/20 16:03 | 200340009A | 5.00 |
| 32136 | 19710520031002.020 | 1251380 | POFD1 | 2/3/20 16:21 | 200340009A | 5.00 |
| 32136 | 19710520031002.021 | 1251382 | PO44D | 2/3/20 16:40 | 200340009A | 5.00 |
| 32136 | 19710520031002.022 | 1251384 | P11IP | 2/3/20 16:57 | 200340009A | 5.00 |
| 32136 | 19710520031002.023 | 1251386 | PO-2D | 2/3/20 17:15 | 200340009A | 5.00 |
| 32136 | 19710520031002.024 | 1251396 | PO48I | 2/3/20 17:34 | 200340009A | 5.00 |
| 32136 | 19710520031002.025 | 710532032X | 71053YY | 2/3/20 17:52 | 203399999 | 1.00 |

Eurofins Lancaster Laboratories
EPH/Miscellaneous GC
Runlog for 19710520031003
Instrument CP19--H4132A

Data Directory Path is - \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\

| Operator | File | LLI# | Client ID | Analysis Date | Batch | Dilution Factor |
|---|---|---|---|---|---|---|
| 32136 | 19710520031003.001 | 710532032Y | 71053ZA | 2/4/20 9:13 | 203499999 | 1.00 |
| 32136 | 19710520031003.002 | HSMDX2032Z | HSMDXQF | 2/4/20 9:30 | 203499999 | 1.00 |
| 32136 | 19710520031003.003 | BLANKA 2/4/20 | PBLK01035 | 2/4/20 9:48 | 200350001A | 5.00 |
| 32136 | 19710520031003.004 | LCSA 2/4/20 | LCS01035 | 2/4/20 10:05 | 200350001A | 5.00 |
| 32136 | 19710520031003.005 | LCSDA 2/4/20 | LCSD01035 | 2/4/20 10:22 | 200350001A | 5.00 |
| 32136 | 19710520031003.006 | 1251923 DF100 | KIMRY | 2/4/20 10:40 | 200350001A | 500.00 |
| 32136 | 19710520031003.007 | 1251923 | KIMRY | 2/4/20 11:26 | 200350001A | 5.00 |
| 32136 | 19710520031003.008 | 710532032Y | 71053ZA | 2/4/20 11:43 | 203499999 | 1.00 |
| 32136 | 19710520031003.009 | 1251919 | MYERR | 2/4/20 13:00 | 200350001A | 5.00 |
| 32136 | 19710520031003.010 | 1251921 | ZIMMR | 2/4/20 13:18 | 200350001A | 5.00 |
| 32136 | 19710520031003.011 | BLANKA 2/3/20 J | PBLK09034 | 2/4/20 13:36 | 200340009A | 5.00 |
| 32136 | 19710520031003.012 | 1251259 J | BAU05 | 2/4/20 13:54 | 200340009A | 5.00 |
| 32136 | 19710520031003.013 | 1251260 J | BAU06 | 2/4/20 14:12 | 200340009A | 5.00 |
| 32136 | 19710520031003.014 | 1251261 J | BAU07 | 2/4/20 14:31 | 200340009A | 5.00 |
| 32136 | 19710520031003.015 | 1251258 DF10 | BAU04 | 2/4/20 14:49 | 200340009A | 50.00 |
| 32136 | 19710520031003.016 | 1251259 DF10 | BAU05 | 2/4/20 15:07 | 200340009A | 50.00 |
| 32136 | 19710520031003.017 | 1251260 DF10 | BAU06 | 2/4/20 15:26 | 200340009A | 50.00 |
| 32136 | 19710520031003.018 | 1251261 DF10 | BAU07 | 2/4/20 15:44 | 200340009A | 50.00 |
| 32136 | 19710520031003.019 | 710532032Y | 71053ZA | 2/4/20 16:02 | 203499999 | 1.00 |
| 32136 | 19710520031003.020 | 1251262 DF10 | BAU08 | 2/4/20 16:21 | 200340009A | 50.00 |
| 32136 | 19710520031003.021 | 1251388 DF5 | PO48D | 2/4/20 16:39 | 200340009A | 25.00 |
| 32136 | 19710520031003.022 | 710532032Y | 71053ZA | 2/4/20 16:58 | 203499999 | 1.00 |

710512032C AA71051AA ICAL 203099999
19710520031001.005.RAW




Sample Name = 710512032C AA71051AA ICAL 203099999

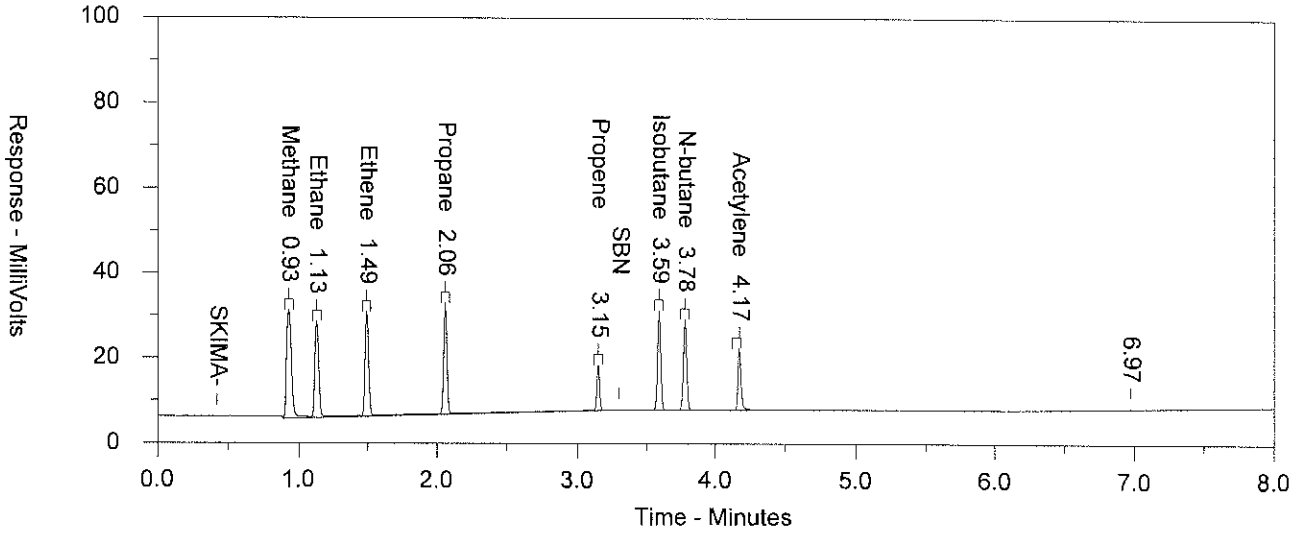
Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.005.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 1/31/2020 12:12:16 PM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.927 | 4.120 | 31840 | 11868 |
| Ethane | 1.128 | 5.119 | 16137 | 7593 |
| Ethene | 1.492 | 5.149 | 17768 | 8221 |
| Propane | 2.060 | 5.108 | 20822 | 8593 |
| Propene | 3.152 | 1.811 | 14093 | 3494 |
| Isobutane | 3.595 | 4.904 | 12258 | 7331 |
| N-butane | 3.784 | 4.795 | 11347 | 6534 |
| Acetylene | 4.180 | 4.726 | 8097 | 4749 |

710522032C AA71052AA ICAL 203099999
19710520031001.006.RAW




Sample Name = 710522032C AA71052AA ICAL 203099999

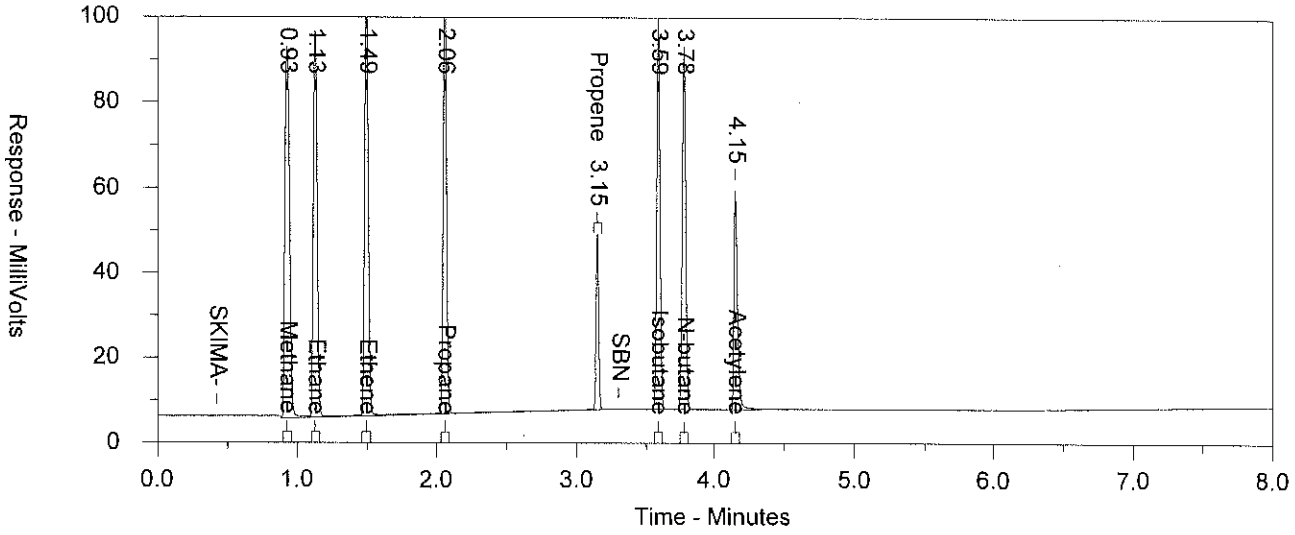
Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.006.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 1/31/2020 12:29:57 PM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.927 | 15.213 | 63033 | 25525 |
| Ethane | 1.128 | 15.329 | 45895 | 22737 |
| Ethene | 1.492 | 15.535 | 49331 | 24805 |
| Propane | 2.060 | 15.544 | 47744 | 26149 |
| Propene | 3.150 | 5.522 | 21108 | 10653 |
| Isobutane | 3.593 | 15.653 | 38683 | 23401 |
| N-butane | 3.783 | 15.637 | 36886 | 21309 |
| Acetylene | 4.169 | 14.471 | 23394 | 14542 |

710532032W AA71053AA ICAL 203099999
19710520031001.007.RAW




Sample Name = 710532032W AA71053AA ICAL 203099999

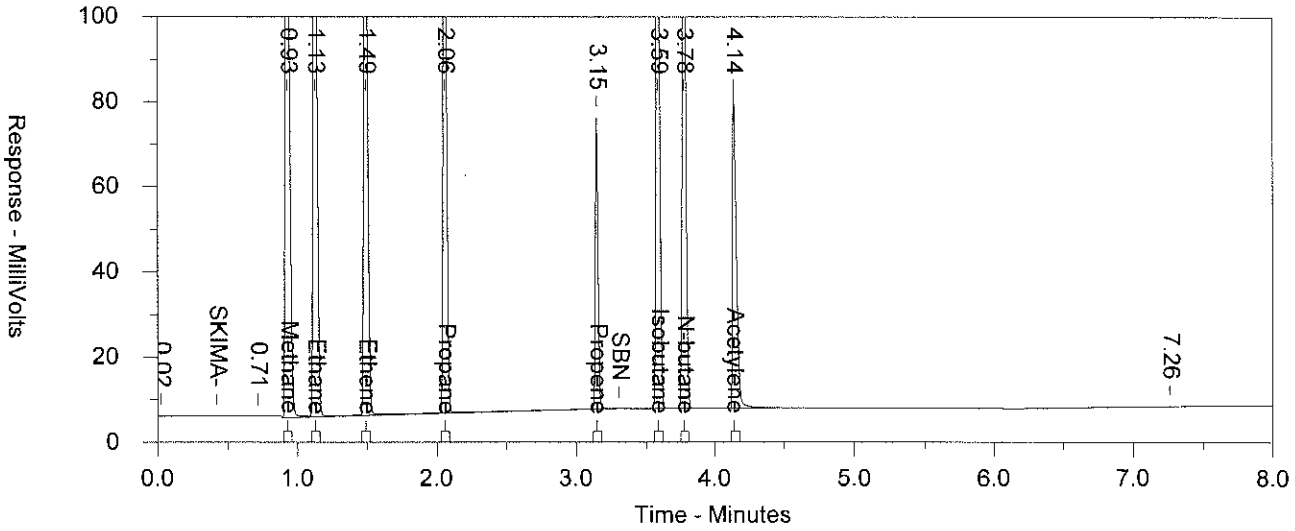
Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.007.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 1/31/2020 12:47:54 PM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.926 | 65.431 | 202976 | 87350 |
| Ethane | 1.127 | 61.300 | 179982 | 90924 |
| Ethene | 1.490 | 62.675 | 186148 | 100071 |
| Propane | 2.059 | 62.476 | 176164 | 105102 |
| Propene | 3.148 | 21.673 | 59949 | 41807 |
| Isobutane | 3.590 | 62.918 | 156337 | 94064 |
| N-butane | 3.781 | 62.592 | 148880 | 85297 |
| Acetylene | 4.150 | 51.295 | 92558 | 51547 |

710542032C AA71054AA ICAL 203099999
19710520031001.008.RAW




Sample Name = 710542032C AA71054AA ICAL 203099999

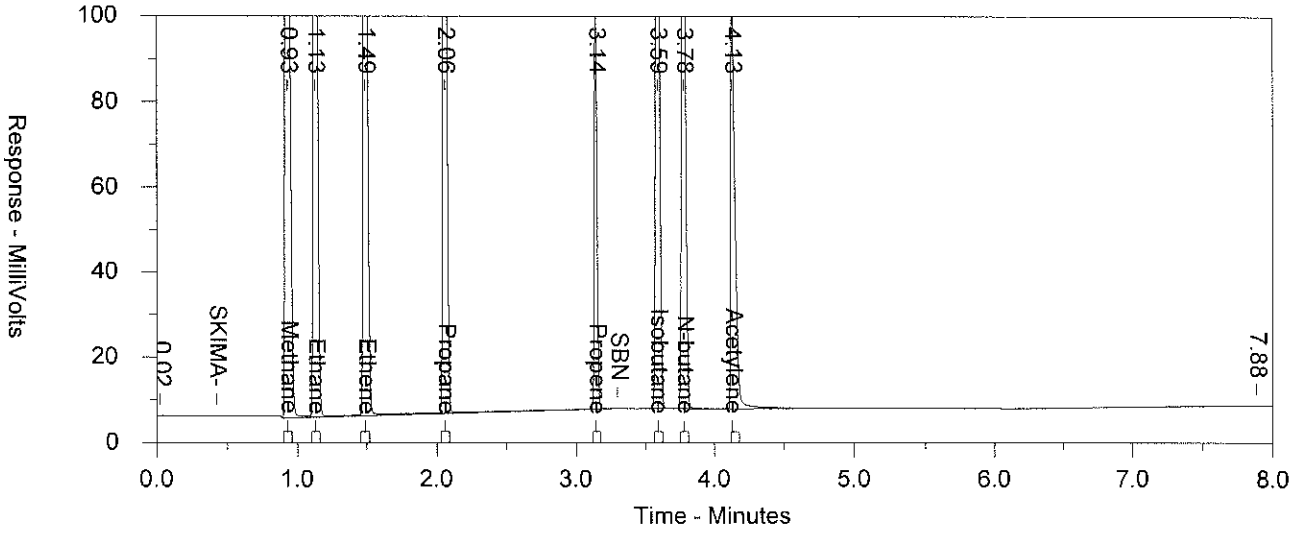
Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.008.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 1/31/2020 1:05:33 PM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.929 | 106.409 | 310848 | 137800 |
| Ethane | 1.129 | 100.095 | 286108 | 148470 |
| Ethene | 1.492 | 102.035 | 293775 | 162916 |
| Propane | 2.060 | 102.424 | 281372 | 172306 |
| Propene | 3.146 | 35.671 | 94022 | 68808 |
| Isobutane | 3.588 | 103.021 | 255566 | 154019 |
| N-butane | 3.778 | 104.215 | 248833 | 142018 |
| Acetylene | 4.138 | 75.667 | 145736 | 76039 |

710552032C AA71055AA ICAL 203099999
19710520031001.009.RAW




Sample Name = 710552032C AA71055AA ICAL 203099999

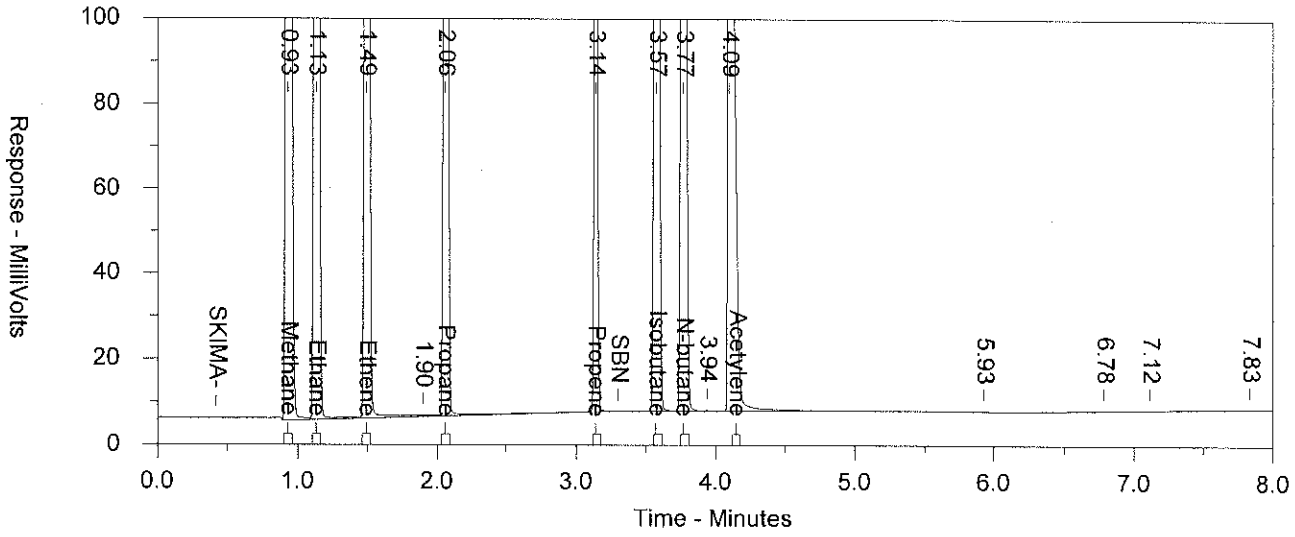
Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.009.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 1/31/2020 1:23:44 PM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.929 | 156.361 | 451496 | 199297 |
| Ethane | 1.129 | 146.061 | 420891 | 216649 |
| Ethene | 1.492 | 149.340 | 432941 | 238446 |
| Propane | 2.060 | 150.003 | 406797 | 252348 |
| Propene | 3.144 | 53.158 | 137626 | 102541 |
| Isobutane | 3.586 | 151.020 | 374831 | 225779 |
| N-butane | 3.776 | 151.216 | 363271 | 206068 |
| Acetylene | 4.128 | 103.594 | 217745 | 104102 |

710562032C AA71056AA ICAL 203099999
19710520031001.010.RAW




Sample Name = 710562032C AA71056AA ICAL 203099999

Instrument = CP19
Detector = H4132A

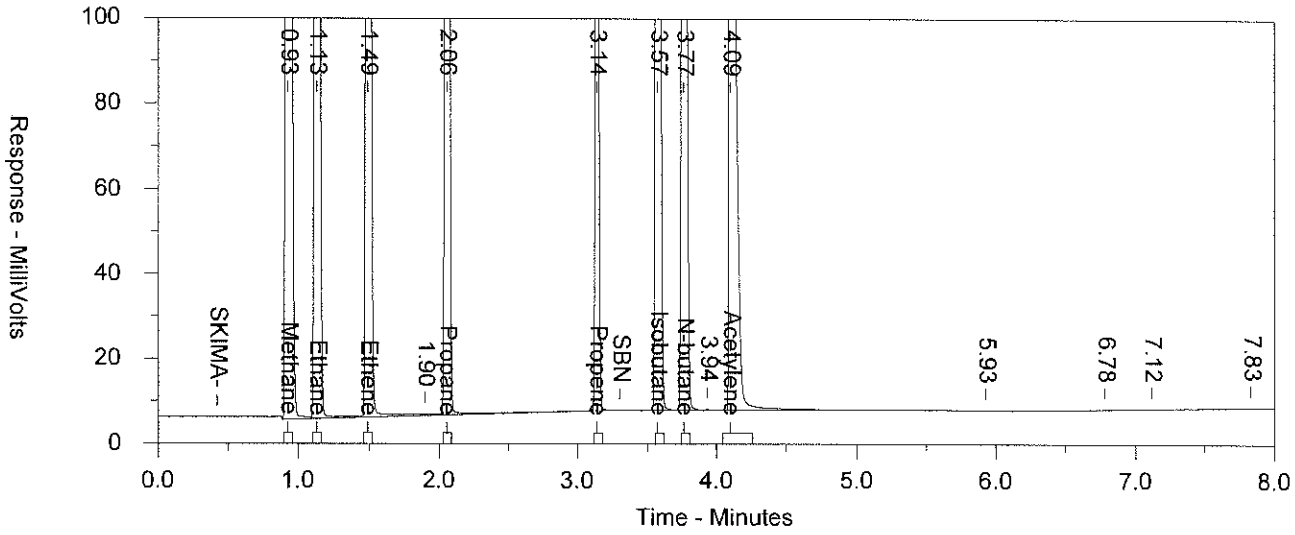
Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.010.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 1/31/2020 1:41:41 PM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.928 | 481.466 | 1357706 | 599544 |
| Ethane | 1.128 | 446.228 | 1290551 | 661882 |
| Ethene | 1.489 | 458.432 | 1323582 | 731960 |
| Propane | 2.056 | 463.117 | 1255052 | 779097 |
| Propene | 3.137 | 160.375 | 403930 | 309358 |
| Isobutane | 3.573 | 444.152 | 1163322 | 664017 |
| N-butane | 3.765 | 451.666 | 1138683 | 615505 |

Not Used
See Reintegration

710562032C AA71056AA ICAL 203099999
19710520031001.010.bnd




Sample Name = 710562032C AA71056AA ICAL 203099999

Instrument = CP19
Detector = H4132A

Raw File Name = Y:\CP19\19710520031001.010.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

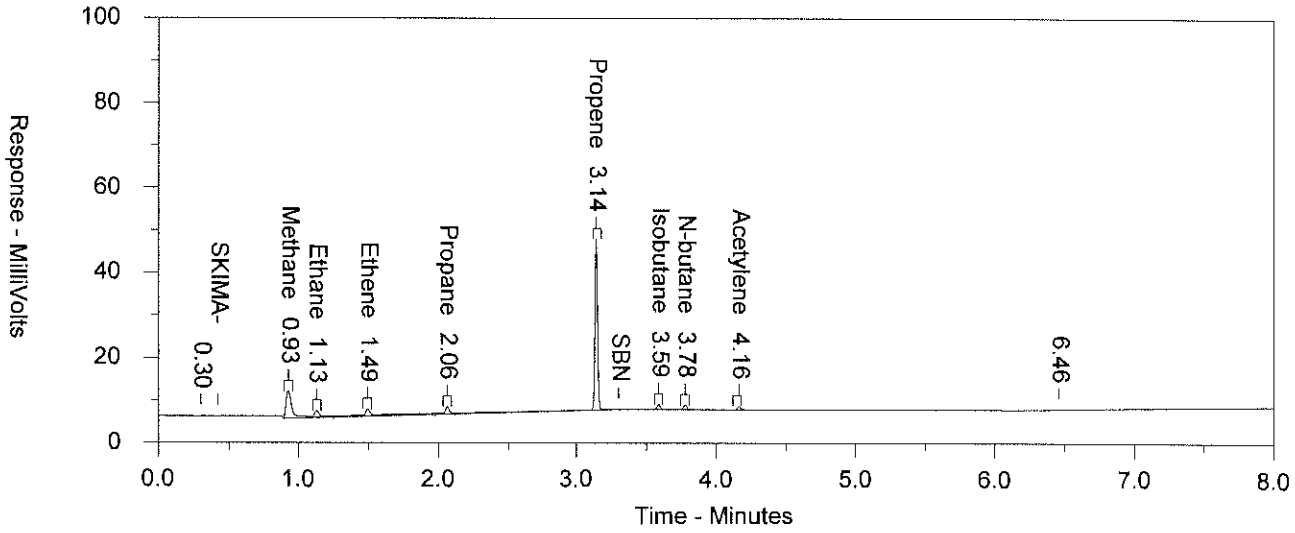
Time injected = 1/31/2020 1:41:41 PM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.928 | 481.466 | 1357706 | 599544 |
| Ethane | 1.128 | 446.228 | 1290551 | 661882 |
| Ethene | 1.489 | 458.432 | 1323582 | 731960 |
| Propane | 2.056 | 463.117 | 1255052 | 779097 |
| Propene | 3.137 | 160.375 | 403930 | 309358 |
| Isobutane | 3.573 | 444.152 | 1163322 | 664017 |
| N-butane | 3.765 | 451.666 | 1138683 | 615505 |
| Acetylene | 4.095 | 252.908 | 681427 | 254150 M |

M = Manually Integrated
Analyst EKL32136 2/3/2020
Approved by [illegible] 2-3-2020 [illegible] 2-3-2020
Chrom Reason 1 2 3 4 5 [illegible] 2-3-2020
1 = Missed Peak
2 = Improper Baseline
3 = RT Update
4 = Other

HSMDX2032Y AAHSMDXAA MISC 203099999
19710520031001.012.RAW




Sample Name = HSMDX2032Y AAHSMDXAA MISC 203099999

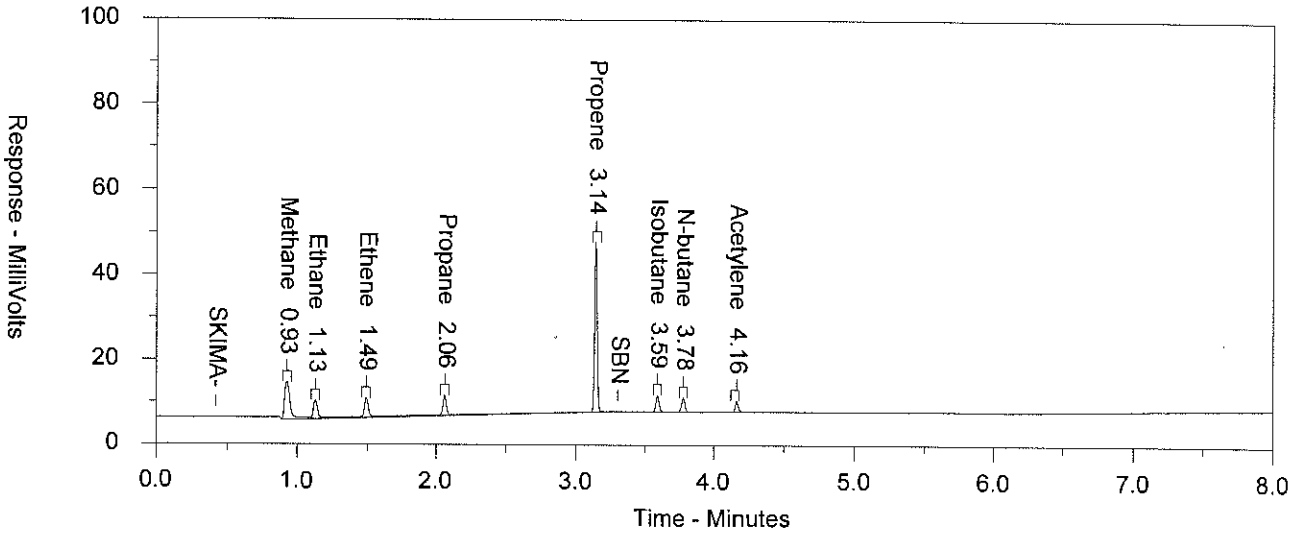
Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.012.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 1/31/2020 2:17:36 PM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.928 | -0.288 | 19281 | 6404 |
| Ethane | 1.129 | 1.092 | 4054 | 1616 |
| Ethene | 1.493 | 1.066 | 7974 | 1707 |
| Propane | 2.061 | 1.027 | 10942 | 1726 |
| Propene | 3.143 | 20.903 | 57734 | 40321 |
| Isobutane | 3.592 | 0.841 | 2483 | 1257 |
| N-butane | 3.780 | 0.807 | 2433 | 1102 |
| Acetylene | 4.165 | 0.835 | 1787 | 839 |

HSMDX2032X AAHSMDXAA MISC 203099999
19710520031001.013.RAW




Sample Name = HSMDX2032X AAHSMDXAA MISC 203099999

Instrument = CP19
Detector = H4132A

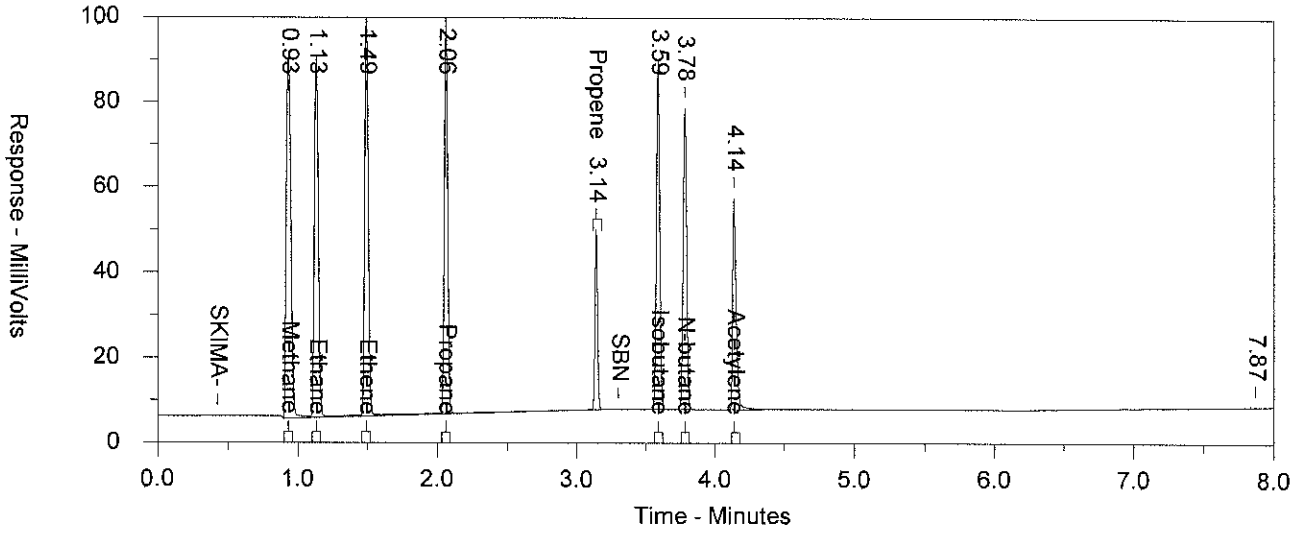
Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.013.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

Time injected = 1/31/2020 2:35:33 PM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.929 | 1.727 | 24634 | 8907 |
| Ethane | 1.130 | 2.945 | 10536 | 4357 |
| Ethene | 1.493 | 2.922 | 12097 | 4681 |
| Propane | 2.061 | 2.861 | 14988 | 4810 |
| Propene | 3.142 | 21.060 | 58356 | 40624 |
| Isobutane | 3.591 | 2.627 | 6499 | 3925 |
| N-butane | 3.780 | 2.426 | 5919 | 3311 |
| Acetylene | 4.161 | 2.628 | 4552 | 2641 |

HICVX2032E AAHICVXAA CCAL 203099999
19710520031001.014.RAW




Sample Name = HICVX2032E AAHICVXAA CCAL 203099999

Instrument = CP19
Detector = H4132A

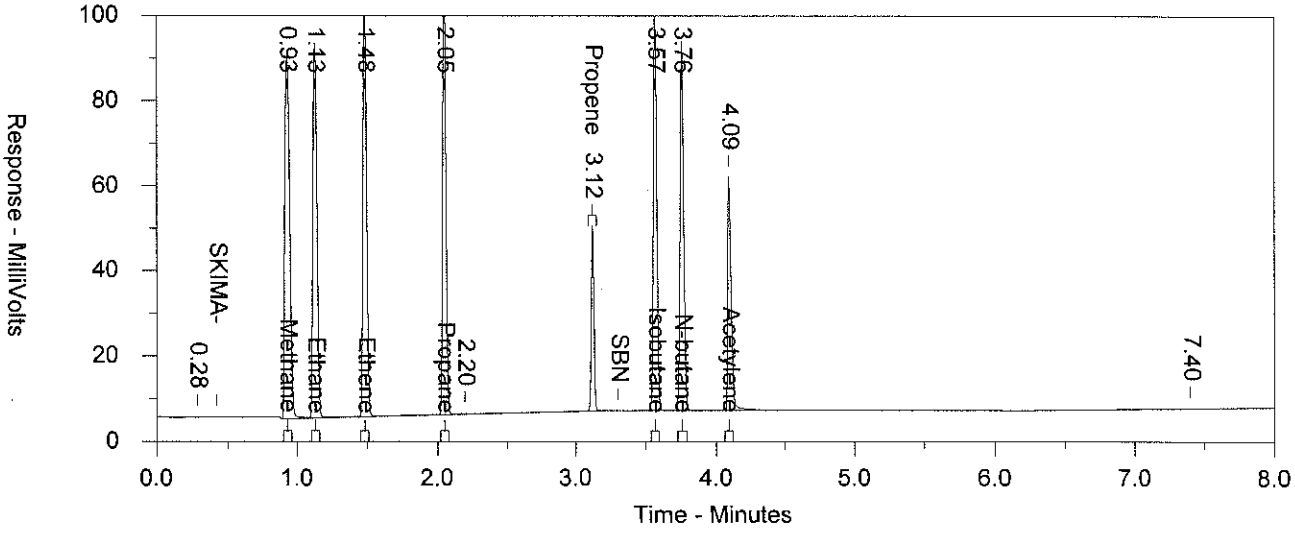
Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031001.014.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

Time injected = 1/31/2020 2:53:33 PM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.929 | 63.080 | 197922 | 85099 |
| Ethane | 1.130 | 57.231 | 168704 | 84665 |
| Ethene | 1.492 | 59.914 | 176181 | 95993 |
| Propane | 2.060 | 57.481 | 159539 | 96641 |
| Propene | 3.141 | 21.900 | 58574 | 42244 |
| Isobutane | 3.588 | 55.241 | 136183 | 82538 |
| N-butane | 3.777 | 51.994 | 123752 | 70955 |
| Acetylene | 4.136 | 49.373 | 86969 | 49615 |

710532032X YY71053YY CCAL 203399999
19710520031002.014.RAW




Sample Name = 710532032X YY71053YY CCAL 203399999

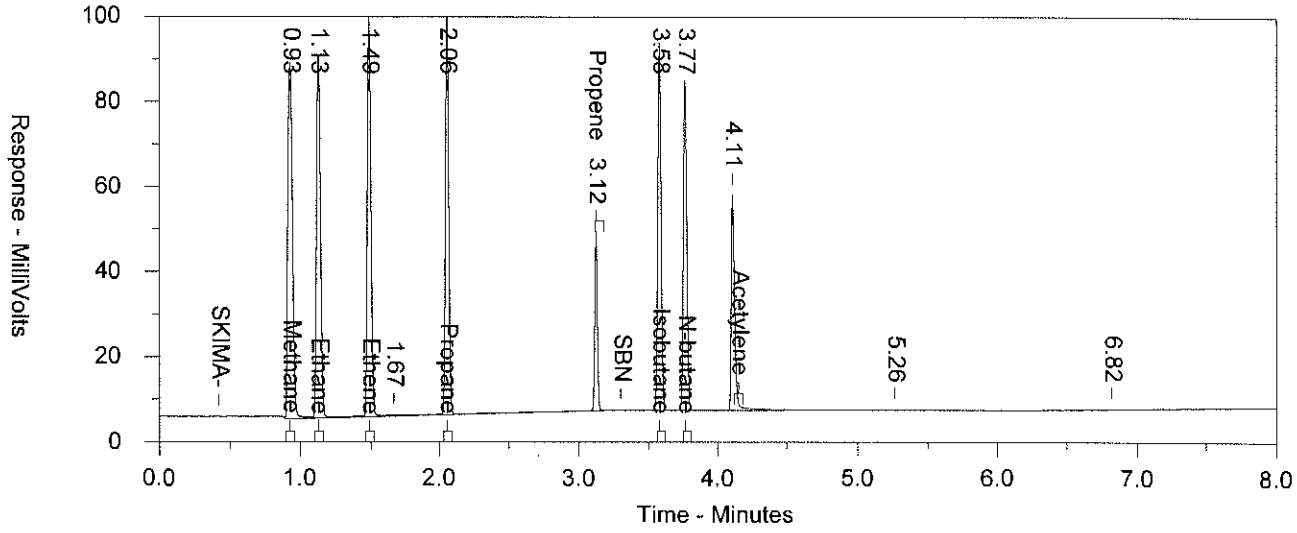
Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031002.014.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003102.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/3/2020 2:34:43 PM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.927 | 63.277 | 206821 | 85344 |
| Ethane | 1.127 | 59.617 | 181297 | 88196 |
| Ethene | 1.482 | 62.393 | 187318 | 99964 |
| Propane | 2.050 | 63.275 | 174958 | 106382 |
| Propene | 3.121 | 22.581 | 57287 | 43558 |
| Isobutane | 3.571 | 64.508 | 158137 | 96384 |
| N-butane | 3.760 | 63.599 | 149475 | 86794 |
| Acetylene | 4.091 | 54.971 | 98385 | 55241 |

710532032X YY71053YY CCAL 203399999
19710520031002.003.RAW




Sample Name = **710532032X** **YY71053YY** **CCAL 203399999**

Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031002.003.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

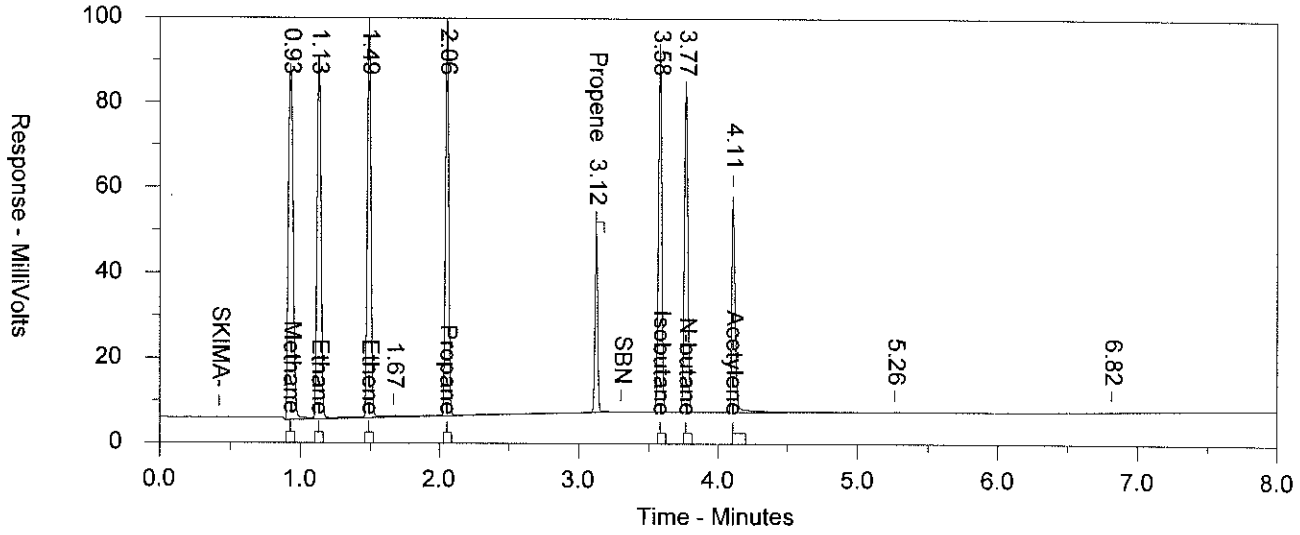
Time injected = 2/3/2020 10:59:05 AM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.929 | 62.075 | 193380 | 83850 |
| Ethane | 1.128 | 57.953 | 168316 | 85735 |
| Ethene | 1.487 | 59.346 | 174613 | 95083 |
| Propane | 2.055 | 57.914 | 159751 | 97370 |
| Propene | 3.124 | 21.943 | 58934 | 42327 |
| Isobutane | 3.578 | 58.102 | 142052 | 86812 |
| N-butane | 3.766 | 56.748 | 134361 | 77443 |

Not Used
See Reintegration

710532032X YY71053YY CCAL 203399999
19710520031002.003.bnd




Sample Name = 710532032X YY71053YY CCAL 203399999

Instrument = CP19
Detector = H4132A

Raw File Name = Y:\CP19\19710520031002.003.raw
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

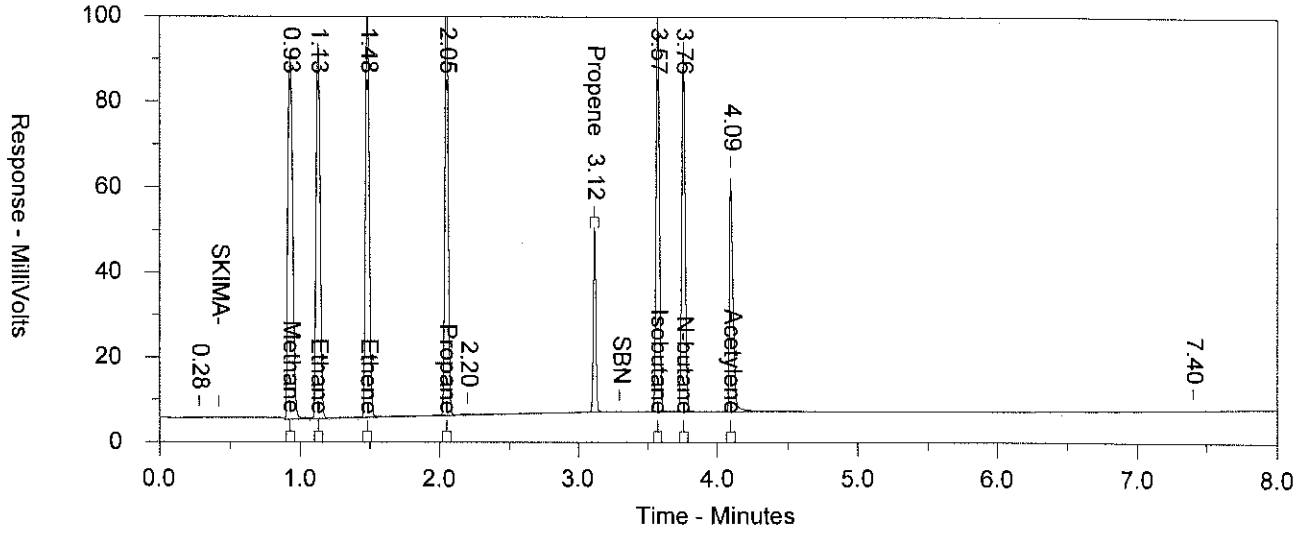
Time injected = 2/3/2020 10:59:05 AM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.929 | 62.075 | 193380 | 83850 |
| Ethane | 1.128 | 57.953 | 168316 | 85735 |
| Ethene | 1.487 | 59.346 | 174613 | 95083 |
| Propane | 2.055 | 57.914 | 159751 | 97370 |
| Propene | 3.124 | 21.943 | 58934 | 42327 |
| Isobutane | 3.578 | 58.102 | 142052 | 86812 |
| N-butane | 3.766 | 56.748 | 134361 | 77443 |
| Acetylene | 4.106 | 50.492 | 90354 | 50740 |

M = Manually Integrated
Analyst [signature] 2/4/2020
Approved by [signature] 2-5-2020
Circle Reason 1 2 3 4
1 = Missed Peak
2 = Improper Baseline
3 = RT Update
4 = Other
[signature] 2/4/2020

710532032X YY71053YY CCAL 203399999
19710520031002.014.RAW




Sample Name = 710532032X YY71053YY CCAL 203399999

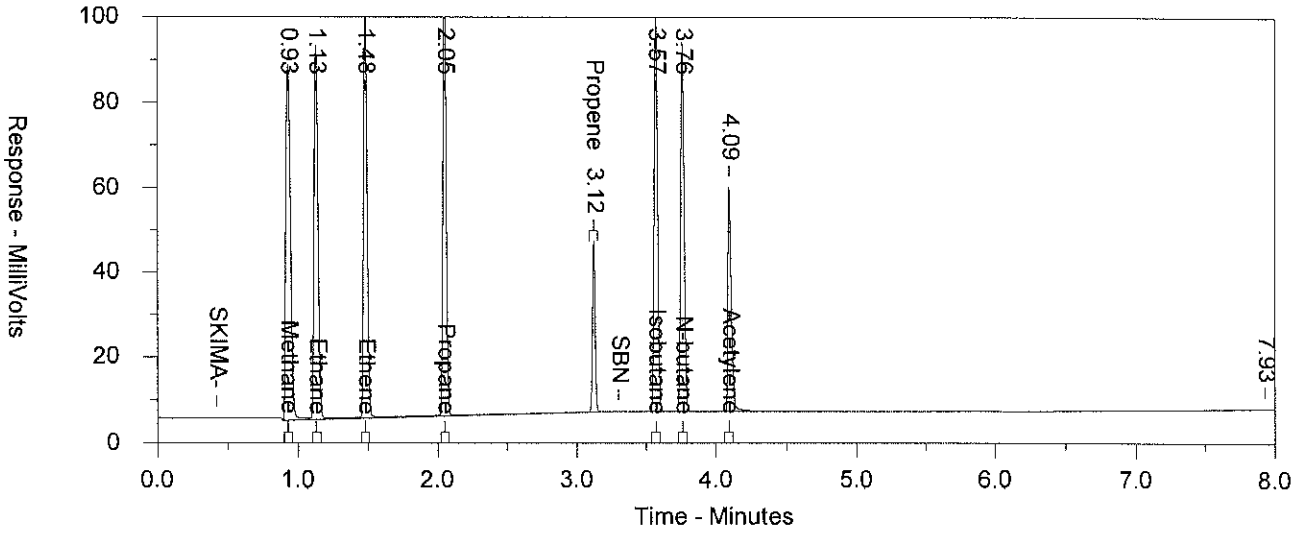
Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031002.014.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003102.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/3/2020 2:34:43 PM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.927 | 63.277 | 206821 | 85344 |
| Ethane | 1.127 | 59.617 | 181297 | 88196 |
| Ethene | 1.482 | 62.393 | 187318 | 99964 |
| Propane | 2.050 | 63.275 | 174958 | 106382 |
| Propene | 3.121 | 22.581 | 57287 | 43558 |
| Isobutane | 3.571 | 64.508 | 158137 | 96384 |
| N-butane | 3.760 | 63.599 | 149475 | 86794 |
| Acetylene | 4.091 | 54.971 | 98385 | 55241 |

710532032X YY71053YY CCAL 203399999
19710520031002.025.RAW




Sample Name = 710532032X YY71053YY CCAL 203399999

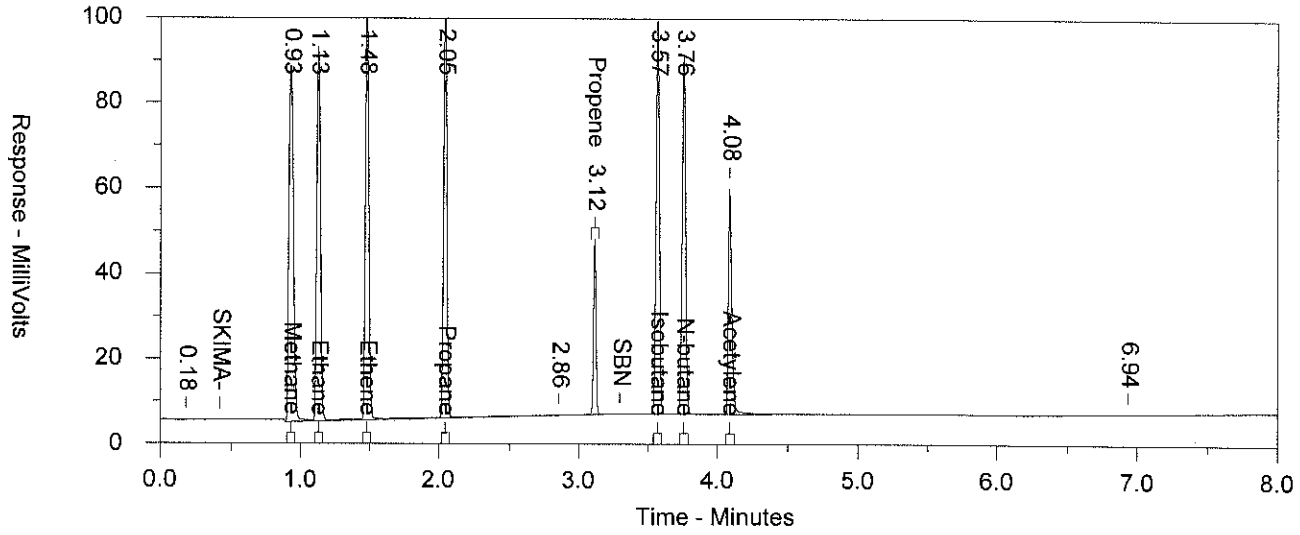
Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031002.025.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003102.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/3/2020 5:52:44 PM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.927 | 61.849 | 194444 | 83570 |
| Ethane | 1.126 | 59.365 | 175103 | 87823 |
| Ethene | 1.481 | 60.425 | 178357 | 96812 |
| Propane | 2.049 | 61.599 | 172618 | 103565 |
| Propene | 3.122 | 20.990 | 56975 | 40489 |
| Isobutane | 3.572 | 63.106 | 155720 | 94289 |
| N-butane | 3.761 | 63.787 | 151029 | 87049 |
| Acetylene | 4.095 | 52.883 | 93602 | 53143 |

710532032Y ZA71053ZA CCAL 203499999
19710520031003.019.RAW




Sample Name = 710532032Y ZA71053ZA CCAL 203499999

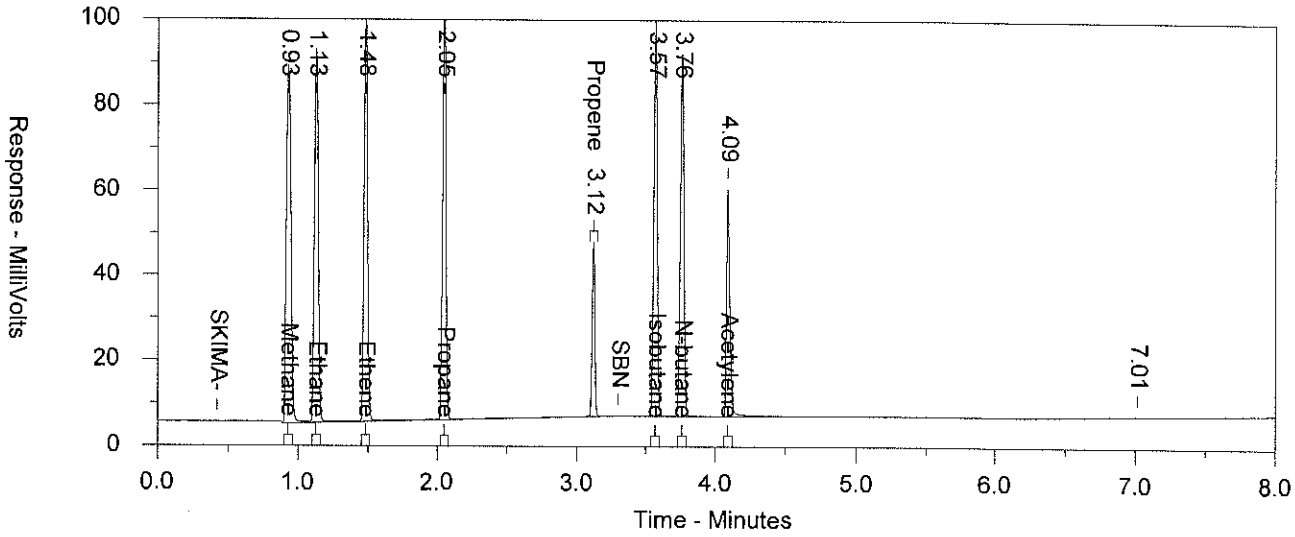
Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031003.019.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003102.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/4/2020 4:02:43 PM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.929 | 62.053 | 193073 | 83823 |
| Ethane | 1.128 | 59.607 | 170969 | 88181 |
| Ethene | 1.480 | 61.410 | 177157 | 98390 |
| Propane | 2.048 | 61.715 | 167554 | 103760 |
| Propene | 3.117 | 21.489 | 52458 | 41452 |
| Isobutane | 3.569 | 62.057 | 151598 | 92722 |
| N-butane | 3.758 | 62.188 | 145594 | 84867 |
| Acetylene | 4.085 | 53.292 | 92185 | 53553 |

710532032Y ZA71053ZA CCAL 203499999
19710520031003.022.RAW




Sample Name = 710532032Y ZA71053ZA CCAL 203499999

Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031003.022.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003102.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

Time injected = 2/4/2020 4:58:11 PM
Dilution Factor = 1
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.928 | 62.344 | 193409 | 84185 |
| Ethane | 1.127 | 59.346 | 171465 | 87795 |
| Ethene | 1.480 | 60.248 | 176976 | 96529 |
| Propane | 2.048 | 61.093 | 169350 | 102714 |
| Propene | 3.118 | 21.640 | 57623 | 41743 |
| Isobutane | 3.570 | 62.028 | 152797 | 92678 |
| N-butane | 3.759 | 62.639 | 147147 | 85483 |
| Acetylene | 4.087 | 53.238 | 91884 | 53500 |

# Raw QC Data

# Volatile Headspace Hydrocarbons by GC

# Data Summary

**Sample Name: BLANKA** 2/3/20 PBLK09034 BLK Sample ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: State:
**Analyses:** 07105

## Analysis Report (A)

**Injected on** Feb 03, 2020 11:38:05
**Instrument** H4132A
**Result file** 19710520031002.005.RAW
**Calibration file** 1971052003101
**Method file** HSS

%SSR(PROP) 87% ( 46 - 135 ) Conc: 18.22549

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| Methane | 0.90 | 0.93 | 0.96 | 5000 | 0 |
| Ethane | 1.10 | 1.14 | 1.16 | 279 | 0.188374 |
| Ethene | 1.46 | 1.51 | 1.52 | 345 | 0.215599 |
| Propane | 2.03 | 2.06 | 2.09 | 248 | 0.147363 |
| PROPENE | 3.12 | 3.12 | 3.18 | 35156 | 18.22549 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| Methane | | | <5 | <3 | | | |
| Ethane | | | <5 | <1 | | | |
| Ethene | | | <5 | <1 | | | |
| Propane | | | <5 | <1 | | | |
| PROPENE | A | 18.22549 | | | | | |
| Isobutane | | | <5 | <1 | | | |
| n-butane | | | <5 | <1 | | | |
| Acetylene | | | <5 | <1 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brillhart
Senior Chemist

FEB 07 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/7/2020 12:20:34

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **BLANKA** 2/3/20 PBLK09034 ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: State:
Analyses: 07105

Analysis Report (A)

Injected on : Feb 03, 2020 11:38:05
Instrument : CP19--H4132A
Result file : 19710520031002.005.RAW
Calibration file : 1971052003101.CAL
Method file : HSS.MET

%SSR(Propene) : 87% (46-135) Conc.: 18.22549

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **Methane** | 0.90 | 0.93 | 0.96 | 5000 | -1.419185 |
| **Ethane** | 1.10 | 1.14 | 1.16 | 279 | 0.188374 |
| **Ethene** | 1.46 | 1.51 | 1.52 | 345 | 0.215599 |
| **Propane** | 2.03 | 2.06 | 2.09 | 248 | 0.147363 |
| **Propene** | 3.12 | 3.12 | 3.18 | 35156 | 18.225490 |

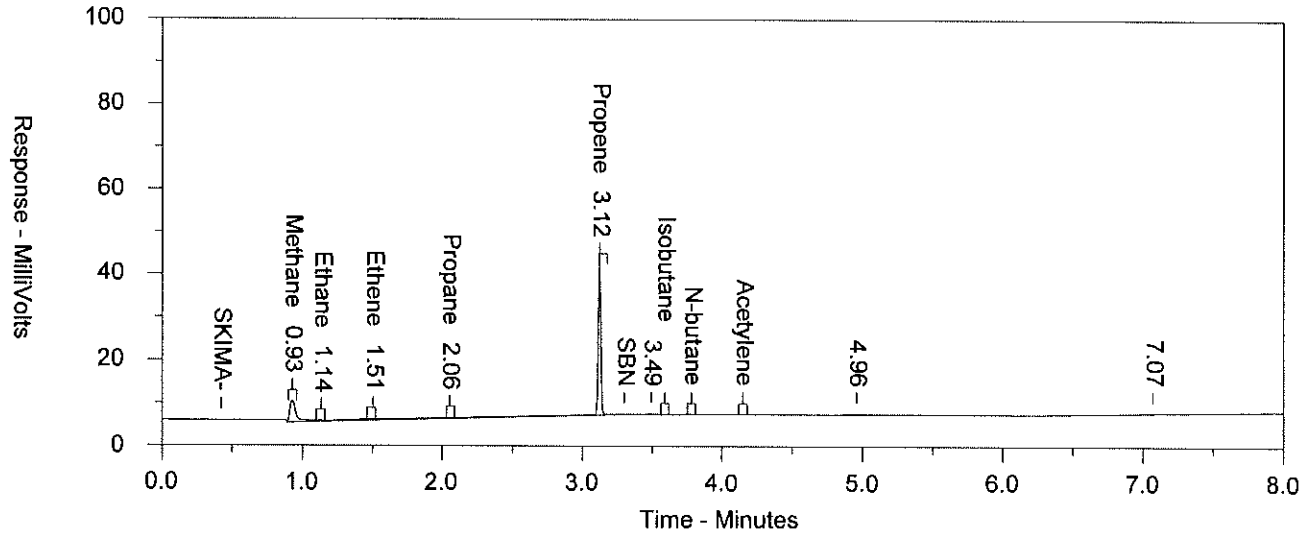
**Summary Report**

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ Methane | A | -1.419185 | <5 | <3 | | EMPC |
| ☑ Ethane | A | 0.188374 | <5 | <1 | | |
| ☑ Ethene | A | 0.215599 | <5 | <1 | | |
| ☑ Propane | A | 0.147363 | <5 | <1 | | |
| ☐ Propene | A | 18.225490 | | | | |
| ☑ Isobutane | | | <5 | <1 | | |
| ☑ N-butane | | | <5 | <1 | | |
| ☑ Acetylene | | | <5 | <1 | | |

Units: ug/l

* Recovery outside QC Limits

BLANKA 2/3/20 AAPBLK09034 BLK 200340009A 07105 SW-846 8015B modified
19710520031002.005.RAW




Sample Name = BLANKA 2/3/20 AAPBLK09034 BLK 200340009A 07105 SW-846 8015B modified

Instrument = CP19
Detector = H4132A

Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031002.005.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/3/2020 11:38:05 AM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.928 | -1.419 | 15920 | 5000 |
| Ethane | 1.135 | 0.188 | 1674 | 279 |
| Ethene | 1.505 | 0.216 | 4769 | 345 |
| Propane | 2.056 | 0.147 | 4481 | 248 |
| Propene | 3.124 | 18.225 | 53021 | 35156 |

# Data Summary

**Sample Name: 1251389** MS PO48D MS Sample ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
**Analyses:** 07105

## Analysis Report (A)

**Injected on** Feb 03, 2020 12:31:24
**Instrument** H4132A
**Result file** 19710520031002.008.RAW
**Calibration file** 1971052003101
**Method file** HSS

%SSR(PROP) 49% ( 46 - 135 ) Conc: 10.319175

## Single Component Data

| Compound | Min | RT | Max | Height | | Amount |
|---|---|---|---|---|---|---|
| Methane | 0.90 | 0.93 | 0.96 | 989610 | E | 791.431 |
| Ethane | 1.10 | 1.13 | 1.16 | 50303 | | 34.00317 |
| Ethene | 1.46 | 1.48 | 1.52 | 58383 | | 36.43952 |
| Propane | 2.03 | 2.05 | 2.09 | 54498 | | 32.414705 |
| PROPENE | 3.12 | 3.12 | 3.18 | 19905 | | 10.319175 |
| Isobutane | 3.56 | 3.57 | 3.62 | 42761 | | 28.6191 |
| n-butane | 3.75 | 3.76 | 3.81 | 34516 | | 25.291935 |
| Acetylene | 4.12 | 4.09 | 4.18 | 33796 | | 33.63092 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| Methane | A | 791.431 | 5 | 3 | E | | |
| Ethane | A | 34.00317 | 5 | 1 | | | |
| Ethene | A | 36.43952 | 5 | 1 | | | |
| Propane | A | 32.414705 | 5 | 1 | | | |
| PROPENE | A | 10.319175 | | | | | |
| Isobutane | A | 28.6191 | 5 | 1 | | | |
| n-butane | A | 25.291935 | 5 | 1 | | | |
| Acetylene | A | 33.63092 | 5 | 1 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brillhart
Senior Chemist

FEB 07 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/7/2020 12:57:40

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251389** MS PO48D ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 07105

## Analysis Report (A)

Injected on : Feb 03, 2020 12:31:24
Instrument : CP19--H4132A
Result file : 19710520031002.008.RAW
Calibration file : 1971052003102.CAL
Method file : HSS.MET

%SSR(Propene) : 49% (46-135) Conc.: 10.319175

| Peak name | Min | R.T. | Max | | Height | Amount |
|---|---|---|---|---|---|---|
| **Methane** | 0.90 | 0.93 | 0.96 | | 989610 | E 791.431000 |
| **Ethane** | 1.10 | 1.13 | 1.16 | | 50303 | 34.003170 |
| **Ethene** | 1.45 | 1.48 | 1.51 | | 58383 | 36.439520 |
| **Propane** | 2.02 | 2.05 | 2.08 | | 54498 | 32.414705 |
| **Propene** | 3.09 | 3.12 | 3.15 | | 19905 | 10.319175 |
| **Isobutane** | 3.54 | 3.57 | 3.60 | | 42761 | 28.619100 |
| **N-butane** | 3.73 | 3.76 | 3.79 | | 34516 | 25.291935 |
| **Acetylene** | 4.06 | 4.09 | 4.12 | M | 33796 | 33.630920 |

## Summary Report

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☐ Methane | A | 791.431000 | 5 | 3 | E | |
| ☐ Ethane | A | 34.003170 | 5 | 1 | | |
| ☐ Ethene | A | 36.439520 | 5 | 1 | | |
| ☐ Propane | A | 32.414705 | 5 | 1 | | |
| ☐ Propene | A | 10.319175 | | | | |
| ☐ Isobutane | A | 28.619100 | 5 | 1 | | |
| ☐ N-butane | A | 25.291935 | 5 | 1 | | |
| ☐ Acetylene | A | 33.630920 | 5 | 1 | | |

Units: ug/l

James R. Gallhart
Senior Chemist

* Recovery outside QC Limits

FEB 07 2020

# Data Summary

**Sample Name: 1251389** MS PO48D MS Sample ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
**Analyses:** 07105

## Analysis Report (A)

**Injected on** Feb 03, 2020 12:31:24
**Instrument** H4132A
**Result file** 19710520031002.008.RAW
**Calibration file** 1971052003101
**Method file** HSS

%SSR(PROP) 49% ( 46 - 135 ) Conc: 10.319175

## Single Component Data

| Compound | Min | RT | Max | Height | | Amount |
|---|---|---|---|---|---|---|
| Methane | 0.90 | 0.93 | 0.96 | 989610 | E | 791.431 |
| Ethane | 1.10 | 1.13 | 1.16 | 50303 | | 34.00317 |
| Ethene | 1.46 | 1.48 | 1.52 | 58383 | | 36.43952 |
| Propane | 2.03 | 2.05 | 2.09 | 54498 | | 32.414705 |
| PROPENE | 3.12 | 3.12 | 3.18 | 19905 | | 10.319175 |
| Isobutane | 3.56 | 3.57 | 3.62 | 42761 | | 28.6191 |
| n-butane | 3.75 | 3.76 | 3.81 | 34516 | | 25.291935 |
| Acetylene | 4.12 | 4.09 | 4.18 | 33796 | | 33.63092 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| Methane | A | 791.431 | 5 | 3 | E | | |
| Ethane | A | 34.00317 | 5 | 1 | | | |
| Ethene | A | 36.43952 | 5 | 1 | | | |
| Propane | A | 32.414705 | 5 | 1 | | | |
| PROPENE | A | 10.319175 | | | | | |
| Isobutane | A | 28.6191 | 5 | 1 | | | |
| n-butane | A | 25.291935 | 5 | 1 | | | |
| Acetylene | A | 33.63092 | 5 | 1 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Reviewed and digitally signed by Esther Kathryn Lane on 2/7/2020 14:05:56

Jamie L. Brillhart
Senior Chemist



FEB 07 2020

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251389** MS PO48D ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 07105

Analysis Report (A)

Injected on : Feb 03, 2020 12:31:24
Instrument : CP19--H4132A
Result file : 19710520031002.008.RAW
Calibration file : 1971052003101.CAL
Method file : HSS.MET

%SSR(Propene) : 49% (46-135) Conc.: 10.319175

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **Methane** | 0.90 | 0.93 | 0.96 | 989610E | 791.431000 |
| **Ethane** | 1.10 | 1.13 | 1.16 | 50303 | 34.003170 |
| **Ethene** | 1.46 | 1.48 | 1.52 | 58383 | 36.439520 |
| **Propane** | 2.03 | 2.05 | 2.09 | 54498 | 32.414705 |
| **Propene** | 3.12 | 3.12 | 3.18 | 19905 | 10.319175 |
| **Isobutane** | 3.56 | 3.57 | 3.62 | 42761 | 28.619100 |
| **N-butane** | 3.75 | 3.76 | 3.81 | 34516 | 25.291935 |
| **Acetylene** | 4.12 | 4.09 | 4.18 | 33796 | 33.630920 |

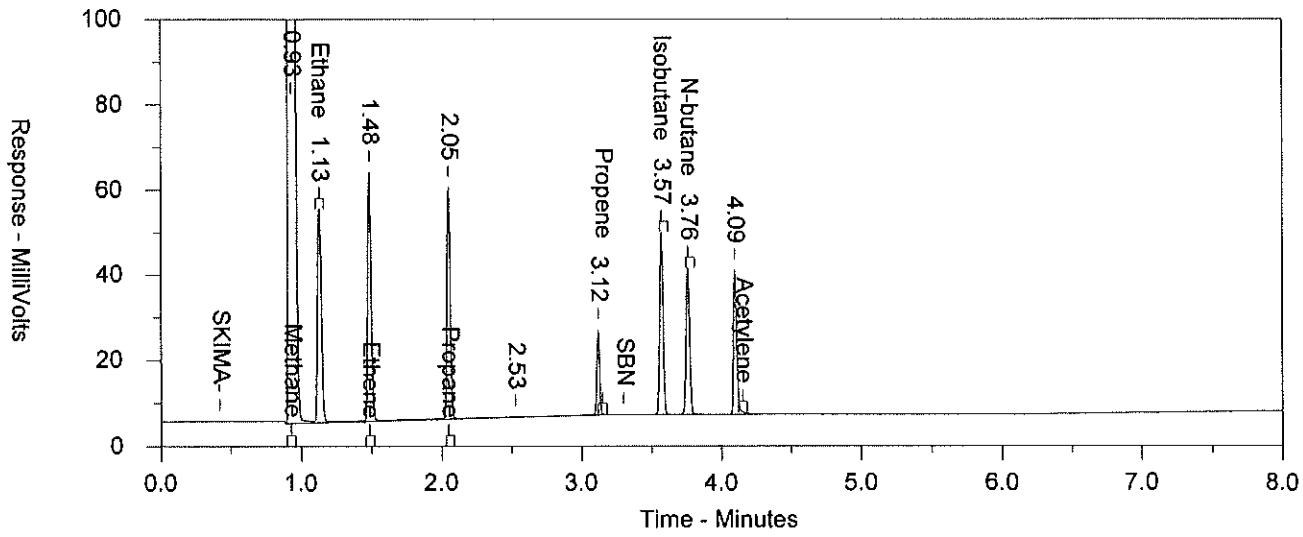
**Summary Report**

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☐ Methane | A | 791.431000 | 5 | 3 | E | |
| ☐ Ethane | A | 34.003170 | 5 | 1 | | |
| ☐ Ethene | A | 36.439520 | 5 | 1 | | |
| ☐ Propane | A | 32.414705 | 5 | 1 | | |
| ☐ Propene | A | 10.319175 | | | | |
| ☐ Isobutane | A | 28.619100 | 5 | 1 | | |
| ☐ N-butane | A | 25.291935 | 5 | 1 | | |
| ☐ Acetylene | A | 33.630920 | 5 | 1 | | |

Units: ug/l

* Recovery outside QC Limits

1251389MS AAPO48D MS 200340009A 07105 SW-846 8015B modified
19710520031002.008.RAW




Sample Name = 1251389MS AAPO48D MS 200340009A 07105 SW-846 8015B modified

Instrument = CP19
Detector = H4132A

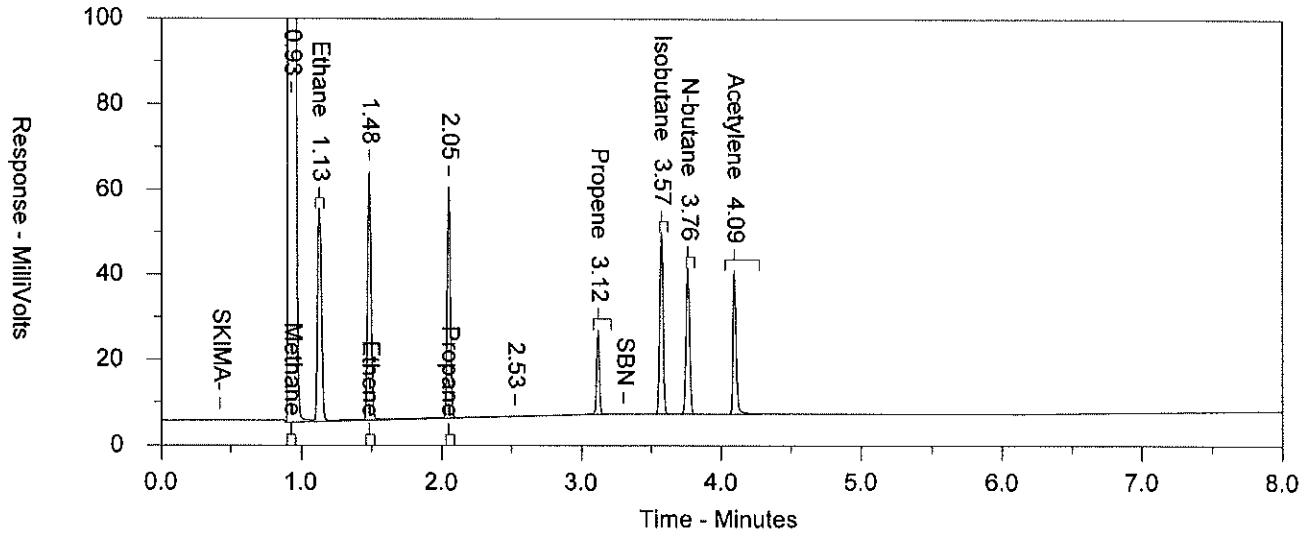
Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031002.008.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/3/2020 12:31:24 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.930 | 791.431 | 2238658 | 989610 |
| Ethane | 1.128 | 34.003 | 98680 | 50303 |
| Ethene | 1.483 | 36.440 | 105550 | 58383 |
| Propane | 2.049 | 32.415 | 89955 | 54498 |
| Isobutane | 3.573 | 28.619 | 71081 | 42761 |
| N-butane | 3.761 | 25.292 | 60101 | 34516 |

Not Used
See Reintegration

1251389MS AAPO48D MS 200340009A 07105 SW-846 8015B modified
19710520031002.008.bnd




Sample Name = 1251389MS AAPO48D MS 200340009A 07105 SW-846 8015B modified

Instrument = CP19
Detector = H4132A

Raw File Name = Y:\CP19\19710520031002.008.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

Time injected = 2/3/2020 12:31:24 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height | |
|---|---|---|---|---|---|
| Methane | 0.930 | 791.431 | 2238658 | 989610 | |
| Ethane | 1.128 | 34.003 | 98680 | 50303 | |
| Ethene | 1.483 | 36.440 | 105550 | 58383 | |
| Propane | 2.049 | 32.415 | 89955 | 54498 | |
| Propene | 3.119 | 10.319 | 28325 | 19905 | M |
| Isobutane | 3.573 | 28.619 | 71081 | 42761 | |
| N-butane | 3.761 | 25.292 | 60101 | 34516 | |
| Acetylene | 4.093 | 33.631 | 54083 | 33796 | M |

M = Manually Integrated
Analyst EWL32136 2/7/2020
Approved by [illegible] 2-7-2020
Circle Reason 1 2 3 4
1 = Missed Peak
2 = Improper Baseline
3 = RT Update
4 = Other

# Data Summary

**Sample Name: 1251390** MSD PO48D MSD Sample ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
**Analyses:** 07105

## Analysis Report (A)

**Injected on** Feb 03, 2020 12:49:59
**Instrument** H4132A
**Result file** 19710520031002.009.RAW
**Calibration file** 1971052003101
**Method file** HSS

%SSR(PROP) 51% ( 46 - 135 ) Conc: 10.78479

## Single Component Data

| Compound | Min | RT | Max | Height | | Amount |
|---|---|---|---|---|---|---|
| Methane | 0.90 | 0.93 | 0.96 | 936097 | E | 748.34 |
| Ethane | 1.10 | 1.12 | 1.16 | 53494 | | 36.15972 |
| Ethene | 1.46 | 1.48 | 1.52 | 61464 | | 38.362535 |
| Propane | 2.03 | 2.05 | 2.09 | 60421 | | 35.937495 |
| PROPENE | 3.12 | 3.12 | 3.18 | 20803 | | 10.78479 |
| Isobutane | 3.56 | 3.57 | 3.62 | 49853 | | 33.36593 |
| n-butane | 3.75 | 3.76 | 3.81 | 43505 | | 31.87889 |
| Acetylene | 4.12 | 4.09 | 4.18 | 34661 | | 34.491905 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| Methane | A | 748.34 | 5 | 3 | E | | |
| Ethane | A | 36.15972 | 5 | 1 | | | |
| Ethene | A | 38.362535 | 5 | 1 | | | |
| Propane | A | 35.937495 | 5 | 1 | | | |
| PROPENE | A | 10.78479 | | | | | |
| Isobutane | A | 33.36593 | 5 | 1 | | | |
| n-butane | A | 31.87889 | 5 | 1 | | | |
| Acetylene | A | 34.491905 | 5 | 1 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brillhart
Senior Chemist

FEB 07 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/7/2020 12:57:42

eurofins | Lancaster Laboratories Environmental

# Data Summary

**Sample Name: 1251390** MSD PO48D MSD Sample ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
**Analyses:** 07105

## Analysis Report (A)

**Injected on** Feb 03, 2020 12:49:59
**Instrument** H4132A
**Result file** 19710520031002.009.RAW
**Calibration file** 1971052003101
**Method file** HSS

%SSR(PROP) 51% ( 46 - 135 ) Conc: 10.78479

## Single Component Data

| Compound | Min | RT | Max | Height | | Amount |
|---|---|---|---|---|---|---|
| Methane | 0.90 | 0.93 | 0.96 | 936097 | E | 748.34 |
| Ethane | 1.10 | 1.12 | 1.16 | 53494 | | 36.15972 |
| Ethene | 1.46 | 1.48 | 1.52 | 61464 | | 38.362535 |
| Propane | 2.03 | 2.05 | 2.09 | 60421 | | 35.937495 |
| PROPENE | 3.12 | 3.12 | 3.18 | 20803 | | 10.78479 |
| Isobutane | 3.56 | 3.57 | 3.62 | 49853 | | 33.36593 |
| n-butane | 3.75 | 3.76 | 3.81 | 43505 | | 31.87889 |
| Acetylene | 4.12 | 4.09 | 4.18 | 34661 | | 34.491905 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| Methane | A | 748.34 | 5 | 3 | E | | |
| Ethane | A | 36.15972 | 5 | 1 | | | |
| Ethene | A | 38.362535 | 5 | 1 | | | |
| Propane | A | 35.937495 | 5 | 1 | | | |
| PROPENE | A | 10.78479 | | | | | |
| Isobutane | A | 33.36593 | 5 | 1 | | | |
| n-butane | A | 31.87889 | 5 | 1 | | | |
| Acetylene | A | 34.491905 | 5 | 1 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brillhart
Senior Chemist

Reviewed and digitally signed by Esther Kathryn Lane on 2/7/2020 14:05:59

FEB 07 2020

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **1251390** MSD PO48D ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: PUP93 State: CA
Analyses: 07105

Analysis Report (A)

Injected on : Feb 03, 2020 12:49:59
Instrument : CP19--H4132A
Result file : 19710520031002.009.RAW
Calibration file : 1971052003101.CAL
Method file : HSS.MET

%SSR(Propene) : 51% (46-135) Conc.: 10.78479

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **Methane** | 0.90 | 0.93 | 0.96 | 936097 E | 748.340000 |
| **Ethane** | 1.10 | 1.12 | 1.16 | 53494 | 36.159720 |
| **Ethene** | 1.46 | 1.48 | 1.52 | 61464 | 38.362535 |
| **Propane** | 2.03 | 2.05 | 2.09 | 60421 | 35.937495 |
| **Propene** | 3.12 | 3.12 | 3.18 | 20803 | 10.784790 |
| **Isobutane** | 3.56 | 3.57 | 3.62 | 49853 | 33.365930 |
| **N-butane** | 3.75 | 3.76 | 3.81 | 43505 | 31.878890 |
| **Acetylene** | 4.12 | 4.09 | 4.18 | 34661 | 34.491905 |

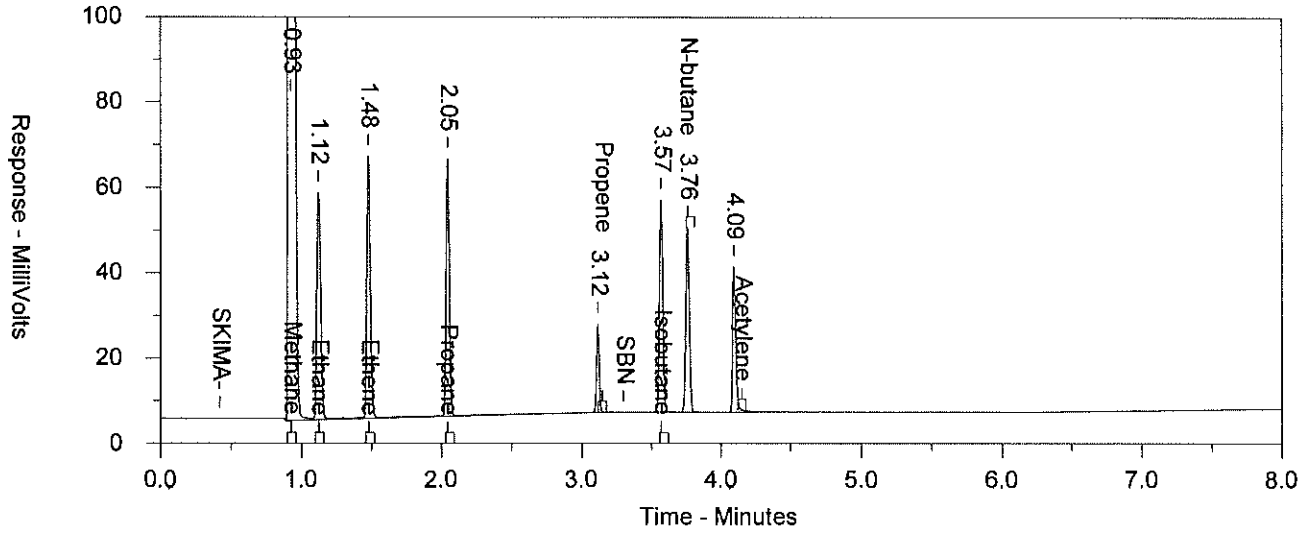
**Summary Report**

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☐ Methane | A | 748.340000 | 5 | 3 | E | |
| ☐ Ethane | A | 36.159720 | 5 | 1 | | |
| ☐ Ethene | A | 38.362535 | 5 | 1 | | |
| ☐ Propane | A | 35.937495 | 5 | 1 | | |
| ☐ Propene | A | 10.784790 | | | | |
| ☐ Isobutane | A | 33.365930 | 5 | 1 | | |
| ☐ N-butane | A | 31.878890 | 5 | 1 | | |
| ☐ Acetylene | A | 34.491905 | 5 | 1 | | |

Units: ug/l

* Recovery outside QC Limits

1251390MSD AAPO48D MSD 200340009A 07105 SW-846 8015B modified
19710520031002.009.RAW




Sample Name = 1251390MSD AAPO48D MSD 200340009A 07105 SW-846 8015B modified

Instrument = CP19
Detector = H4132A

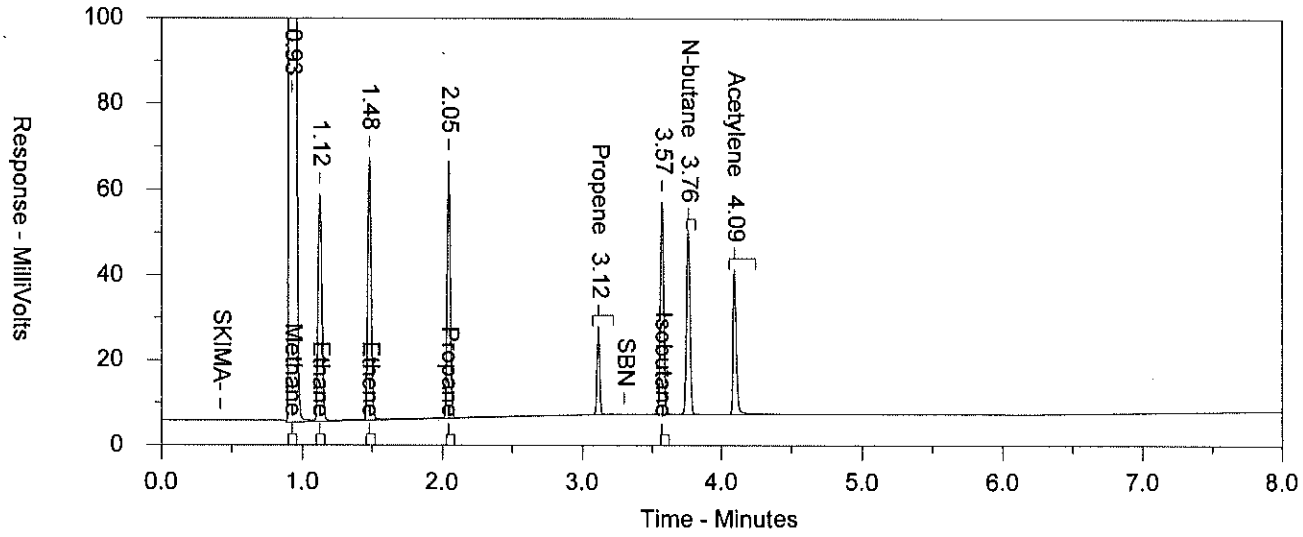
Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031002.009.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136
Time injected = 2/3/2020 12:49:59 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.926 | 748.340 | 2102999 | 936097 |
| Ethane | 1.125 | 36.160 | 105233 | 53494 |
| Ethene | 1.480 | 38.363 | 108943 | 61464 |
| Propane | 2.046 | 35.938 | 97399 | 60421 |
| Isobutane | 3.570 | 33.366 | 83355 | 49853 |
| N-butane | 3.759 | 31.879 | 75535 | 43505 |

Not Used
See Reintegration

1251390MSD AAPO48D MSD 200340009A 07105 SW-846 8015B modified
19710520031002.009.bnd




Sample Name = 1251390MSD AAPO48D MSD 200340009A 07105 SW-846 8015B modified

Instrument = CP19
Detector = H4132A

Raw File Name = Y:\CP19\19710520031002.009.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

Time injected = 2/3/2020 12:49:59 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height | |
|---|---|---|---|---|---|
| Methane | 0.926 | 748.340 | 2102999 | 936097 | |
| Ethane | 1.125 | 36.160 | 105233 | 53494 | |
| Ethene | 1.480 | 38.363 | 108943 | 61464 | |
| Propane | 2.046 | 35.938 | 97399 | 60421 | |
| Propene | 3.117 | 10.785 | 30956 | 20803 | M |
| Isobutane | 3.570 | 33.366 | 83355 | 49853 | |
| N-butane | 3.759 | 31.879 | 75535 | 43505 | |
| Acetylene | 4.092 | 34.492 | 55545 | 34661 | M |

M = Manually Integrated
Analyst EKL32136 2/7/2020
Approved by [signature] 2-7-20 20
Circle Reason 1 2 3 4
1 = Missed Peak
2 = Improper Baseline
3 = RT Update
4 = Other

# Data Summary

**Sample Name: LCSA** 2/3/20 LCS09034 LCS Sample ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: State:
**Analyses:** 07105

## Analysis Report (A)

**Injected on** Feb 03, 2020 11:56:03
**Instrument** H4132A
**Result file** 19710520031002.006.RAW
**Calibration file** 1971052003101
**Method file** HSS

%SSR(PROP) 85% ( 46 - 135 ) Conc: 17.854105

## Single Component Data

| Compound | Min | RT | Max | Height | Amount |
|---|---|---|---|---|---|
| Methane | 0.90 | 0.93 | 0.96 | 83446 | 61.74945 |
| Ethane | 1.10 | 1.13 | 1.16 | 86891 | 58.7352 |
| Ethene | 1.46 | 1.48 | 1.52 | 96463 | 60.2073 |
| Propane | 2.03 | 2.05 | 2.09 | 100317 | 59.66715 |
| PROPENE | 3.12 | 3.12 | 3.18 | 34440 | 17.854105 |
| Isobutane | 3.56 | 3.57 | 3.62 | 89246 | 59.73055 |
| n-butane | 3.75 | 3.76 | 3.81 | 80046 | 58.6547 |
| Acetylene | 4.12 | 4.10 | 4.18 | 52196 | 51.9405 |

## Single Component Summary

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %RPD | Comments |
|---|---|---|---|---|---|---|---|
| Methane | A | 61.74945 | 5 | 3 | | | |
| Ethane | A | 58.7352 | 5 | 1 | | | |
| Ethene | A | 60.2073 | 5 | 1 | | | |
| Propane | A | 59.66715 | 5 | 1 | | | |
| PROPENE | A | 17.854105 | | | | | |
| Isobutane | A | 59.73055 | 5 | 1 | | | |
| n-butane | A | 58.6547 | 5 | 1 | | | |
| Acetylene | A | 51.9405 | 5 | 1 | | | |

Units: ug/l

%RPD = High - Low Amount divided by the Average times 100

Jamie L. Brillhart
Senior Chemist

FEB 07 2020

FEB 07 2020

Reviewed and digitally signed by Esther Kathryn Lane on 2/7/2020 12:57:34

# Eurofins Lancaster Laboratories-Single Component Data Summary

**Sample Name:** **LCSA** 2/3/20 LCS09034 ID: AA **Batchnumber: 200340009A**
Sample Amount: 5 ml Total Volume: 5 ml Analyst: 32136 SDG: State:
Analyses: 07105

Analysis Report (A)

Injected on : Feb 03, 2020 11:56:03
Instrument : CP19--H4132A
Result file : 19710520031002.006.RAW
Calibration file : 1971052003101.CAL
Method file : HSS.MET

%SSR(Propene) : 85% (46-135) Conc.: 17.854105

| Peak name | Min | R.T. | Max | Height | Amount |
|---|---|---|---|---|---|
| **Methane** | 0.90 | 0.93 | 0.96 | 83446 | 61.749450 |
| **Ethane** | 1.10 | 1.13 | 1.16 | 86891 | 58.735200 |
| **Ethene** | 1.46 | 1.48 | 1.52 | 96463 | 60.207300 |
| **Propane** | 2.03 | 2.05 | 2.09 | 100317 | 59.667150 |
| **Propene** | 3.12 | 3.12 | 3.18 | 34440 | 17.854105 |
| **Isobutane** | 3.56 | 3.57 | 3.62 | 89246 | 59.730550 |
| **N-butane** | 3.75 | 3.76 | 3.81 | 80046 | 58.654700 |
| **Acetylene** | 4.12 | 4.10 | 4.18 | 52196 | 51.940500 |

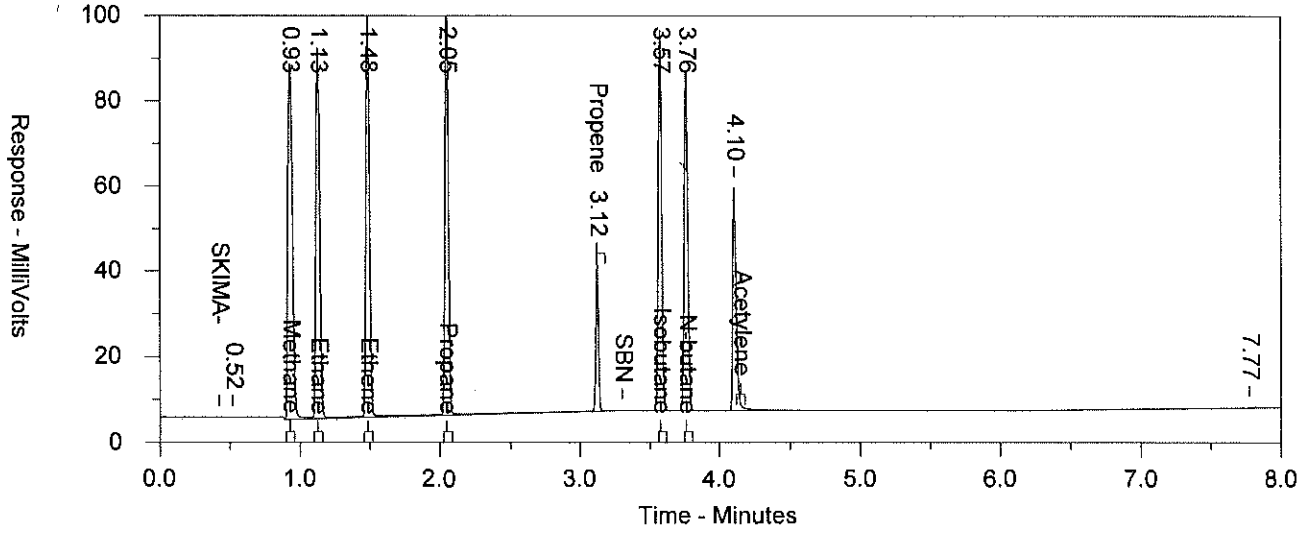
**Summary Report**

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | Comments |
|---|---|---|---|---|---|---|
| ☑ Methane | A | 61.749450 | 5 | 3 | | |
| ☑ Ethane | A | 58.735200 | 5 | 1 | | |
| ☑ Ethene | A | 60.207300 | 5 | 1 | | |
| ☑ Propane | A | 59.667150 | 5 | 1 | | |
| ☐ Propene | A | 17.854105 | | | | |
| ☑ Isobutane | A | 59.730550 | 5 | 1 | | |
| ☑ N-butane | A | 58.654700 | 5 | 1 | | |
| ☑ Acetylene | A | 51.940500 | 5 | 1 | | |

Units: ug/l

* Recovery outside QC Limits

LCSA 2/3/20 AALCS09034 LCS 200340009A 07105 SW-846 8015B modified
19710520031002.006.RAW




Sample Name = LCSA 2/3/20 AALCS09034 LCS 200340009A 07105 SW-846 8015B modified

Instrument = CP19
Detector = H4132A

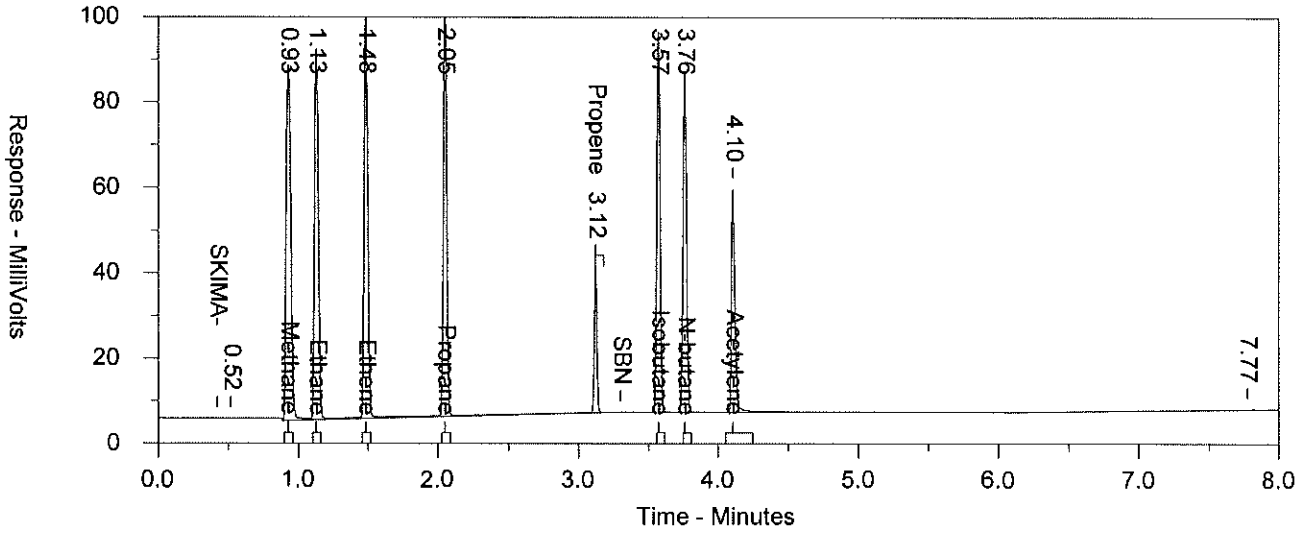
Raw File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\19710520031002.006.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Time injected = 2/3/2020 11:56:03 AM
Run Time = 8
Dilution Factor = 5
Amount Injected = 1
Peak Threshold = 0
Peak Width = 0.05
Operator = 32136

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.928 | 61.749 | 192901 | 83446 |
| Ethane | 1.127 | 58.735 | 171081 | 86891 |
| Ethene | 1.484 | 60.207 | 177675 | 96463 |
| Propane | 2.051 | 59.667 | 165451 | 100317 |
| Propene | 3.123 | 17.854 | 51564 | 34440 |
| Isobutane | 3.573 | 59.731 | 146906 | 89246 |
| N-butane | 3.762 | 58.655 | 139134 | 80046 |

Not Used
See Reintegration

LCSA 2/3/20 AALCS09034 LCS 200340009A 07105 SW-846 8015B modified
19710520031002.006.bnd




Sample Name = LCSA 2/3/20 AALCS09034 LCS 200340009A 07105 SW-846 8015B modified

Instrument = CP19
Detector = H4132A

Raw File Name = Y:\CP19\19710520031002.006.RAW
Method File Name = \\USLAN-CHROMPERFECT\ACTIVE-DATA\CP19\HSS.MET
Calibration File Name = Y:\CP19\1971052003101.cal
Run Time = 8
Amount Injected = 1
Peak Width = 0.05
Operator = 32136

Time injected = 2/3/2020 11:56:03 AM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for 1 minute; 30C/min to 100C; Hold 3 min; 20C/min to 190; hold 1 min
Column: HP-AL/S 50MX.530mm I.D. 15 um film

| | Ret. Time | Amount | Area | Height |
|---|---|---|---|---|
| Methane | 0.928 | 61.749 | 192901 | 83446 |
| Ethane | 1.127 | 58.735 | 171081 | 86891 |
| Ethene | 1.484 | 60.207 | 177675 | 96463 |
| Propane | 2.051 | 59.667 | 165451 | 100317 |
| Propene | 3.123 | 17.854 | 51564 | 34440 |
| Isobutane | 3.573 | 59.731 | 146906 | 89246 |
| N-butane | 3.762 | 58.655 | 139134 | 80046 |
| Acetylene | 4.103 | 51.940 | 90511 | 52196M |

M = Manually Integrated
Analyst EKL32136 2/7/2020
Approved by [illegible] 2-7-2020
Circle Percent 0 2 3 4
1 = Missed Peak
2 = Improper Baseline
3 = RT Update
4 = Other

# Extraction/Distillation/Digestion Logs

# Volatile Headspace Hydrocarbons by GC

**Organic Extraction Batchlog**

**200340009A**

Assigned to: 32136 Esther Kathryn Lane

Reviewed by: QLB 2?, Start Date: 2/3/2020 Start time: 11:10

Tech1: EKL32136 Tech2:

Dept: 32 Prep Analysis: 00000 Volatile Headspace Hydrocarbon

| QC | Sample Code | Amt mL | SS/IS Sol. | Amt (mL) | MS Sol. | Amt (mL) | FV (mL) | pH | pH | BC | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1251389MS | PO48D | 5 | SS1935532A | .06 | MS1935532A | .06 | 5 | — | <2 | 057a | |
| 1251390MSD | PO48D | 5 | SS1935532A | .06 | MS1935532A | .06 | 5 | — | <2 | 057a | |
| BLANKA | PBLK09034 | 5 | SS1935532A | .06 | | | 5 | | | | |
| LCSA | LCS09034 | 5 | SS1935532A | .06 | MS1935532A | .06 | 5 | | | | |

| Solvent Used | Lot No. |
|---|---|
| DI $H_2O$ | In House |
| | |

Spike Solutions: Witness:

MS1935532A 7105 Matrix Spike

SS1935532A 7105 Surrogate

| Sample # | Sample Code | Amt mL | SS/IS Sol. | Amt (mL) | FV (mL) | pH | pH | BC | Comments | Analyses | List | Due Date | Prio | H | A | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 1251258 | BAU04 | 5 | SS1935532A | .06 | 5 | — | <2 | 057a | DF 57B pH<2 | 07105 | 7447 | 02/11/2020 | N | N | N | N |
| 2 1251259 | BAU05 | 5 | SS1935532A | .06 | 5 | | <2 | 057a | DF + RI 57B pH<2 | 07105 | 7447 | 02/11/2020 | N | N | N | N |
| 3 1251260 | BAU06 | 5 | SS1935532A | .06 | 5 | | <2 | 057a | DF + RI 57B pH<2 | 07105 | 7447 | 02/11/2020 | N | N | N | N |
| 4 1251261 | BAU07 | 5 | SS1935532A | .06 | 5 | | <2 | 057a | DF + RI 57B pH<2 | 07105 | 7447 | 02/11/2020 | N | N | N | N |
| 5 1251262 | BAU08 | 5 | SS1935532A | .06 | 5 | | <2 | 057a | DF 57B pH<2 | 07105 | 7447 | 02/11/2020 | N | N | N | N |
| 6 1251371 | PO24I | 5 | SS1935532A | .06 | 5 | | <2 | 057a | | 07105 | 830 | 02/12/2020 | N | N | N | N |
| 7 1251373 | PO-23 | 5 | SS1935532A | .06 | 5 | | <2 | 057a | | 07105 | 830 | 02/12/2020 | N | N | N | N |
| 8 1251376 | PO25I | 5 | SS1935532A | .06 | 5 | | <2 | 057a | | 07105 | 830 | 02/12/2020 | N | N | N | N |
| 9 1251378 | PO44I | 5 | SS1935532A | .06 | 5 | | <2 | 057a | | 07105 | 830 | 02/12/2020 | N | N | N | N |
| 10 1251380 | POFD1 | 5 | SS1935532A | .06 | 5 | | <2 | 057a | | 07105 | 830 | 02/12/2020 | N | N | N | N |
| 11 1251382 | PO44D | 5 | SS1935532A | .06 | 5 | | <2 | 057a | | 07105 | 830 | 02/12/2020 | N | N | N | N |
| 12 1251384 | P11IP | 5 | SS1935532A | .06 | 5 | | <2 | 057a | | 07105 | 830 | 02/12/2020 | N | N | N | N |
| 13 1251386 | PO-2D | 5 | SS1935532A | .06 | 5 | | <2 | 057a | | 07105 | 830 | 02/12/2020 | N | N | N | N |
| 14 1251388BKG | PO48D | 5 | SS1935532A | .06 | 5 | | <2 | 057a | DF 57B pH<2 | 07105 | 830 | 02/12/2020 | N | N | N | N |
| 15 1251396 | PO48I | 5 | SS1935532A | .06 | 5 | | <2 | 057a | | 07105 | 830 | 02/12/2020 | N | N | N | N |



| Bench# | Bench# | Bench# | |
|---|---|---|---|
| Rack ID: | | Work Station | Micro Temp 100? |
| Internal Standard | | Balance # | |

| R-VAP ID | C | R-VAP ID | C | R-VAP ID | C | | | |
|---|---|---|---|---|---|---|---|---|
| S-bath ID | C | S-bath ID | C | N-Evap | C | M-vap | C | 200340009A |

DF = Dilution Factor FV = Final Volume



Documented temps are NIST corrected.

# Prep-Process Worksheet

## Dilution

**Prep Analysis #** 00000

**Prep Group #**

**Verified:** [signature]

**Start Date:** 02/04/2020

**Start Time:**

**Tech 1:** EKL3213C

**Tech 2:**

**BATCH NO.** 200340009A

| | Sample # | Aliquot (ml) | Parent ID | Final Volume (ml) | Dilution Factor | Comments | Analyses |
|---|---|---|---|---|---|---|---|
| 1 | 1251258 (AB) | 0.5 | AB | 5 | 10 | | 7105 |
| 2 | 1251259 (AB) | 0.5 | AB | 5 | 10 | | 7105 |
| 3 | 1251260 (AB) | 0.5 | AB | 5 | 10 | | 7105 |
| 4 | 1251261 (AB) | 0.5 | AB | 5 | 10 | | 7105 |
| 5 | 1251262 (AB) | 0.5 | AB | 5 | 10 | | 7105 |
| 6 | 1251388 (AB) | 1 | AB | 5 | 5 | | 7105 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Additional Comment:**



| Solvent Used | Lot No. | Solvent Used | Lot No. |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

# Metals in Liquid Data

# Case Narrative/Conformance Summary

# Metals in Liquid

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# Case Narrative/Conformance Summary

**CLIENT: Chevron Env Management Company**
**SDG: PUP93**

## ICP Metals

**Fraction: Metals in Liquid**

| Sample # | Client ID | Matrix Liquid | Matrix Solid | DF | Comments |
|---|---|---|---|---|---|
| 1251372 | MW-24I-W-200130 | X | | 1 | |
| 1251374 | MW-23-W-200130 | X | | 1 | |
| 1251377 | MW-25I-W-200130 | X | | 1 | |
| 1251379 | MW-44I-W-200130 | X | | 1 | |
| 1251381 | DUP1-WD-200130 | X | | 1 | Field Duplicate Sample |
| 1251383 | MW-44D-W-200130 | X | | 1 | |
| 1251385 | MW-11IP-W-200130 | X | | 1 | |
| 1251387 | MW-2D-W-200130 | X | | 1 | |
| 1251392 | MW-48D-W-200130 | X | | 1 | Background/Unspiked |
| 1251393 | MW-48DMS-W-200130 | X | | 1 | Matrix Spike |
| 1251394 | MW-48DMSD-W-200130 | X | | 1 | Matrix Spike Duplicate |
| 1251395 | MW-48DDUP-W-200130 | X | | 1 | Duplicate |
| 1251397 | MW-48I-W-200130 | X | | 1 | |

See QC Reference List for Associated Batch QC Samples

### SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

### HOLDING TIME:

All holding times were met.

### PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

### CALIBRATION/STANDARDIZATION:

All criteria were met.

### QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

**MS/MSD**

Method defined actions are taken for any failed matrix QC.

Batch#: 200341486603 (Sample number(s): 1251372, 1251374, 1251377, 1251379, 1251381, 1251383, 1251385, 1251387, 1251392-1251395, 1251397, UNSPK: 1251392, BKG: 1251392)

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# Case Narrative/Conformance Summary

**CLIENT: Chevron Env Management Company**
**SDG: PUP93**

## ICP Metals

**Fraction: Metals in Liquid**

The recovery(ies) for the following analyte(s) in the MS and MSD exceeded the acceptance window indicating a positive bias: Manganese

## SAMPLE ANALYSIS:

The instrument detection limits (IDLs) are used for determining the U flags on the initial and continuing calibration blanks. The highest IDL is selected when multiple instruments are used for an analysis. The method detection limits (MDLs) are used for determining all other U flags.

No problems were encountered with the analysis of the samples.

**Abbreviation Key**

| | |
|---|---|
| BKG – Background | AF - Cold Vapor Atomic Fluorescence |
| DUP – Duplicate | U - Below MDL |
| MS - Matrix Spike | B - Below LOQ |
| MSD - Matrix Spike Dup | N - Matrix Spike out of specifications |
| B – Blank | * - Duplicate out of specifications |
| Q - Laboratory Control Sample | E - Matrix Effects exist as proven by Serial Dilution or Spiked Dilution |
| Y - Laboratory Control Sample Duplicate | A - Post Digestion Spike |
| P - ICP Atomic Emission Spectrometer | L - Serial Dilution |
| MS - ICP Mass Spectrometry | R - Internal Standard Relative Intensity OOS |
| CV - Cold Vapor | NR - Not Required |

# Sample Data

# Metals in Liquid

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1251372 % Solids: 0.0
Concentration Units: UG/L Date Received: 02/01/2020

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 1.4 | B | | MS |
| 7439-89-6 | Iron | 41.2 | U | | P |
| 7439-96-5 | Manganese | 39.9 | | | P |

Comments:

_____
_____
_____
_____

| METHODS: | CONCENTRATION QUALIFIERS: |
|---|---|
| P = ICP Atomic Emission Spectrometer<br>MS = ICP Mass Spectrometry<br>CV = Cold Vapor<br>AF = Cold Vapor Atomic Fluorescence<br>NR = Not Required | U = Below MDL,<br>B = Below LOQ |

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1251374 % Solids: 0.0
Concentration Units: UG/L Date Received: 02/01/2020

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 2.3 | | | MS |
| 7439-89-6 | Iron | 41.2 | U | | P |
| 7439-96-5 | Manganese | 3.1 | U | | P |

Comments:

_____
_____
_____
_____

| METHODS: | CONCENTRATION QUALIFIERS: |
|---|---|
| P = ICP Atomic Emission Spectrometer<br>MS = ICP Mass Spectrometry<br>CV = Cold Vapor<br>AF = Cold Vapor Atomic Fluorescence<br>NR = Not Required | U = Below MDL,<br>B = Below LOQ |

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1251377 % Solids: 0.0
Concentration Units: UG/L Date Received: 02/01/2020

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 2.6 | | | MS |
| 7439-89-6 | Iron | 41.2 | U | | P |
| 7439-96-5 | Manganese | 3.1 | U | | P |

Comments:

_____
_____
_____
_____

| METHODS: | CONCENTRATION QUALIFIERS: |
|---|---|
| P = ICP Atomic Emission Spectrometer<br>MS = ICP Mass Spectrometry<br>CV = Cold Vapor<br>AF = Cold Vapor Atomic Fluorescence<br>NR = Not Required | U = Below MDL,<br>B = Below LOQ |

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1251379 % Solids: 0.0
Concentration Units: UG/L Date Received: 02/01/2020

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 2.5 | | | MS |
| 7439-89-6 | Iron | 41.2 | U | | P |
| 7439-96-5 | Manganese | 10.6 | | | P |

Comments:

_____
_____
_____
_____

| METHODS: | CONCENTRATION QUALIFIERS: |
|---|---|
| P = ICP Atomic Emission Spectrometer<br>MS = ICP Mass Spectrometry<br>CV = Cold Vapor<br>AF = Cold Vapor Atomic Fluorescence<br>NR = Not Required | U = Below MDL,<br>B = Below LOQ |

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1251381 % Solids: 0.0
Concentration Units: UG/L Date Received: 02/01/2020

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 2.5 | | | MS |
| 7439-89-6 | Iron | 41.2 | U | | P |
| 7439-96-5 | Manganese | 13.1 | | | P |

Comments:

_____
_____
_____
_____

| METHODS: | CONCENTRATION QUALIFIERS: |
|---|---|
| P = ICP Atomic Emission Spectrometer<br>MS = ICP Mass Spectrometry<br>CV = Cold Vapor<br>AF = Cold Vapor Atomic Fluorescence<br>NR = Not Required | U = Below MDL,<br>B = Below LOQ |

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1251383 % Solids: 0.0
Concentration Units: UG/L Date Received: 02/01/2020

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 9.6 | | | MS |
| 7439-89-6 | Iron | 41.2 | U | | P |
| 7439-96-5 | Manganese | 3.1 | U | | P |

Comments:

_____
_____
_____
_____

| METHODS: | CONCENTRATION QUALIFIERS: |
|---|---|
| P = ICP Atomic Emission Spectrometer<br>MS = ICP Mass Spectrometry<br>CV = Cold Vapor<br>AF = Cold Vapor Atomic Fluorescence<br>NR = Not Required | U = Below MDL,<br>B = Below LOQ |

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1251385 % Solids: 0.0
Concentration Units: UG/L Date Received: 02/01/2020

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 2.0 | B | | MS |
| 7439-89-6 | Iron | 41.2 | U | | P |
| 7439-96-5 | Manganese | 3.1 | U | | P |

Comments:

_____
_____
_____
_____

| METHODS: | CONCENTRATION QUALIFIERS: |
|---|---|
| P = ICP Atomic Emission Spectrometer<br>MS = ICP Mass Spectrometry<br>CV = Cold Vapor<br>AF = Cold Vapor Atomic Fluorescence<br>NR = Not Required | U = Below MDL,<br>B = Below LOQ |

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1251387 % Solids: 0.0
Concentration Units: UG/L Date Received: 02/01/2020

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 3.5 | | | MS |
| 7439-89-6 | Iron | 41.2 | U | | P |
| 7439-96-5 | Manganese | 5.3 | B | | P |

Comments:

_____
_____
_____
_____

| METHODS: | CONCENTRATION QUALIFIERS: |
|---|---|
| P = ICP Atomic Emission Spectrometer<br>MS = ICP Mass Spectrometry<br>CV = Cold Vapor<br>AF = Cold Vapor Atomic Fluorescence<br>NR = Not Required | U = Below MDL,<br>B = Below LOQ |

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1251392BKG % Solids: 0.0
Concentration Units: UG/L Date Received: 02/01/2020

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 7.9 | | | MS |
| 7439-89-6 | Iron | 58.4 | B | | P |
| 7439-96-5 | Manganese | 539 | | | P |

Comments:

_____
_____
_____
_____

| METHODS: | CONCENTRATION QUALIFIERS: |
|---|---|
| P = ICP Atomic Emission Spectrometer<br>MS = ICP Mass Spectrometry<br>CV = Cold Vapor<br>AF = Cold Vapor Atomic Fluorescence<br>NR = Not Required | U = Below MDL,<br>B = Below LOQ |

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1251393MS % Solids: 0.0
Concentration Units: UG/L Date Received: 02/01/2020

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 19.1 | | | MS |
| 7439-89-6 | Iron | 379 | | | P |
| 7439-96-5 | Manganese | 589 | | | P |

Comments:

_____
_____
_____
_____

| METHODS: | CONCENTRATION QUALIFIERS: |
|---|---|
| P = ICP Atomic Emission Spectrometer<br>MS = ICP Mass Spectrometry<br>CV = Cold Vapor<br>AF = Cold Vapor Atomic Fluorescence<br>NR = Not Required | U = Below MDL,<br>B = Below LOQ |

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1251394MSD % Solids: 0.0
Concentration Units: UG/L Date Received: 02/01/2020

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 19.1 | | | MS |
| 7439-89-6 | Iron | 381 | | | P |
| 7439-96-5 | Manganese | 577 | | | P |

Comments:

_____
_____
_____
_____

| METHODS: | CONCENTRATION QUALIFIERS: |
|---|---|
| P = ICP Atomic Emission Spectrometer<br>MS = ICP Mass Spectrometry<br>CV = Cold Vapor<br>AF = Cold Vapor Atomic Fluorescence<br>NR = Not Required | U = Below MDL,<br>B = Below LOQ |

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1251395DUP % Solids: 0.0
Concentration Units: UG/L Date Received: 02/01/2020

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 7.8 | | | MS |
| 7439-89-6 | Iron | 62.7 | B | | P |
| 7439-96-5 | Manganese | 542 | | | P |

Comments:

_____
_____
_____
_____

| METHODS: | CONCENTRATION QUALIFIERS: |
|---|---|
| P = ICP Atomic Emission Spectrometer<br>MS = ICP Mass Spectrometry<br>CV = Cold Vapor<br>AF = Cold Vapor Atomic Fluorescence<br>NR = Not Required | U = Below MDL,<br>B = Below LOQ |

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 1251397, 1251397BKG % Solids: 0.0
Concentration Units: UG/L Date Received: 02/01/2020

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 2.3 | | | MS |
| 7439-89-6 | Iron | 41.2 | U | | P |
| 7439-96-5 | Manganese | 3.1 | U | | P |

Comments:

_____
_____
_____
_____

| METHODS: | CONCENTRATION QUALIFIERS: |
|---|---|
| P = ICP Atomic Emission Spectrometer<br>MS = ICP Mass Spectrometry<br>CV = Cold Vapor<br>AF = Cold Vapor Atomic Fluorescence<br>NR = Not Required | U = Below MDL,<br>B = Below LOQ |

# Quality Control and Calibration Summary Forms

# Metals in Liquid

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QUALITY CONTROL REFERENCE LIST

SDG No.: PUP93
Matrix: WATER

| Analyte | Batch Number | Lab Sample ID |
|---|---|---|
| Iron | 200341486603 | 1251372 |
| Manganese | | 1251374 |
| | | 1251377 |
| | | 1251379 |
| | | 1251381 |
| | | 1251383 |
| | | 1251385 |
| | | 1251387 |
| | | 1251392BKG |
| | | 1251393MS |
| | | 1251394MSD |
| | | 1251395DUP |
| | | 1251397 |
| | | P03486CB |
| | | P03486CQ |

LEGEND:

| | |
|---|---|
| BKG = Background | B = Blank |
| DUP = Duplicate | Q = Laboratory Control Sample |
| MS = Matrix Spike | Y = Laboratory Control Sample Duplicate |
| MSD = Matrix Spike Duplicate | |

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QUALITY CONTROL REFERENCE LIST

SDG No.: PUP93
Matrix: WATER

| Analyte | Batch Number | Lab Sample ID |
|---|---|---|
| Arsenic | 200341511401 | 1251392BKG |
| | | 1251393MS |
| | | 1251394MSD |
| | | 1251395DUP |
| | | P03411AB |
| | | P03411AQ |

LEGEND:

| | |
|---|---|
| BKG = Background | B = Blank |
| DUP = Duplicate | Q = Laboratory Control Sample |
| MS = Matrix Spike | Y = Laboratory Control Sample Duplicate |
| MSD = Matrix Spike Duplicate | |

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QUALITY CONTROL REFERENCE LIST

SDG No.: PUP93
Matrix: WATER

| Analyte | Batch Number | Lab Sample ID |
|---|---|---|
| Arsenic | 200351511401 | 1251372 |
| | | 1251374 |
| | | 1251379 |
| | | 1251381 |
| | | 1251383 |
| | | 1251387 |
| | | *51892BKG |
| | | P03511AB |
| | | P03511AQ |

LEGEND:

| | |
|---|---|
| BKG = Background | B = Blank |
| DUP = Duplicate | Q = Laboratory Control Sample |
| MS = Matrix Spike | Y = Laboratory Control Sample Duplicate |
| MSD = Matrix Spike Duplicate | |

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QUALITY CONTROL REFERENCE LIST

SDG No.: PUP93
Matrix: WATER

| Analyte | Batch Number | Lab Sample ID |
|---|---|---|
| Arsenic | 200371511402 | 1251377 |
| | | 1251385 |
| | | 1251397BKG |
| | | 1251397MS |
| | | 1251397MSD |
| | | 1251397DUP |
| | | P03711BB |
| | | P03711BQ |

LEGEND:

| | |
|---|---|
| BKG = Background | B = Blank |
| DUP = Duplicate | Q = Laboratory Control Sample |
| MS = Matrix Spike | Y = Laboratory Control Sample Duplicate |
| MSD = Matrix Spike Duplicate | |

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: PUP93

Method: P
Run Name: 2003404T74
Calibration Date(s): 02/03/2020
Concentration Units: UG/L

| Analyte | Mass | Initial Calibration | | | Continuing Calibration | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | True | Found | %R(1) | True | Found | %R(2) | True | Found | %R(2) |
| Iron | | 30000.0 | 28971.80 | 96.6 | 25000.0 | 24890.17 | 99.6 | 25000.0 | 24574.20 | 98.3 |
| Manganese | | 600.0 | 595.79 | 99.3 | 500.0 | 500.85 | 100.2 | 500.0 | 498.75 | 99.8 |

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: PUP93

Method: P
Run Name: 2003404T74
Calibration Date(s): 02/03/2020
Concentration Units: UG/L

| Analyte | Mass | Initial Calibration True | Found | %R(1) | Continuing Calibration True | Found | %R(2) | True | Found | %R(2) |
|---|---|---|---|---|---|---|---|---|---|---|
| Iron | | | | | 25000.0 | 24385.34 | 97.5 | | | |
| Manganese | | | | | 500.0 | 501.32 | 100.3 | | | |

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: PUP93

Method: MS
Run Name: 2003506E07
Calibration Date(s): 02/04/2020
Concentration Units: UG/L

| | | Initial Calibration | | | Continuing Calibration | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | Mass | True | Found | %R(1) | True | Found | %R(2) | True | Found | %R(2) |
| Arsenic | 75 | 300.0 | 301.24 | 100.4 | 300.0 | 308.57 | 102.9 | 300.0 | 307.58 | 102.5 |

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: PUP93

Method: MS
Run Name: 2003507E07
Calibration Date(s): 02/04/2020
Concentration Units: UG/L

| | | Initial Calibration | | | Continuing Calibration | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | Mass | True | Found | %R(1) | True | Found | %R(2) | True | Found | %R(2) |
| Arsenic | 75 | 300.0 | 301.24 | 100.4 | 300.0 | 308.57 | 102.9 | 300.0 | 309.13 | 103.0 |

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: PUP93

Method: MS
Run Name: 2003507E07
Calibration Date(s): 02/04/2020
Concentration Units: UG/L

| Analyte | Mass | Initial Calibration True | Found | %R(1) | Continuing Calibration True | Found | %R(2) | True | Found | %R(2) |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 75 | | | | 300.0 | 308.73 | 102.9 | 300.0 | 311.39 | 103.8 |

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: PUP93

Method: MS
Run Name: 2003507E07
Calibration Date(s): 02/04/2020
Concentration Units: UG/L

| | | Initial Calibration | | | Continuing Calibration | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | Mass | True | Found | %R(1) | True | Found | %R(2) | True | Found | %R(2) |
| Arsenic | 75 | | | | 300.0 | 305.05 | 101.7 | | | |

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: PUP93

Method: MS
Run Name: 2004203E07
Calibration Date(s): 02/11/2020
Concentration Units: UG/L

| | | Initial Calibration | | | Continuing Calibration | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | Mass | True | Found | %R(1) | True | Found | %R(2) | True | Found | %R(2) |
| Arsenic | 75 | 300.0 | 304.54 | 101.5 | 300.0 | 302.05 | 100.7 | 300.0 | 306.36 | 102.1 |

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: PUP93

Method: MS
Run Name: 2004203E07
Calibration Date(s): 02/11/2020
Concentration Units: UG/L

| | | Initial Calibration | | | Continuing Calibration | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | Mass | True | Found | %R(1) | True | Found | %R(2) | True | Found | %R(2) |
| Arsenic | 75 | | | | 300.0 | 302.52 | 100.8 | | | |

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

Method: P
Run Name: 2003404T74
Calibration Date(s): 02/03/2020
Concentration Units: UG/L

| Analyte | Mass | Initial True | Initial Found | Initial %R | Final Found | Final %R |
|---|---|---|---|---|---|---|
| Iron | | 200.0 | 227.74 | 113.9 | | |
| Manganese | | 10.0 | 10.48 | 104.8 | | |

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: PUP93

Method: MS
Run Name: 2003506E07
Calibration Date(s): 02/04/2020
Concentration Units: UG/L

| | | | Initial | | Final | |
|---|---|---|---|---|---|---|
| Analyte | Mass | True | Found | %R | Found | %R |
| Arsenic | 75 | 2.0 | 2.00 | 100.0 | | |

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: PUP93

Method: MS
Run Name: 2003507E07
Calibration Date(s): 02/04/2020
Concentration Units: UG/L

| | | | Initial | | Final | |
|---|---|---|---|---|---|---|
| Analyte | Mass | True | Found | %R | Found | %R |
| Arsenic | 75 | 2.0 | 2.00 | 100.0 | | |

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: PUP93

Method: MS
Run Name: 2004203E07
Calibration Date(s): 02/11/2020
Concentration Units: UG/L

| | | | Initial | | Final | |
|---|---|---|---|---|---|---|
| Analyte | Mass | True | Found | %R | Found | %R |
| Arsenic | 75 | 2.0 | 2.16 | 108.0 | | |

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: PUP93

Method: P
Run Name: 2003404T74
Calibration Date(s): 02/03/2020
Preparation Blank Matrix: WATER

| | | Initial Calibration Blank (ug/L) | | Continuing Calibration Blank (ug/L) | | | | | | | | Preparation Blank (UG/L) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | Mass | | C | 1 | C | 2 | C | 3 | C | Mass | | C | Batch Number |
| Iron | | 33.4 | U | 33.4 | U | 33.4 | U | 33.4 | U | | 41.200 | U | 200341486603 |
| Manganese | | 0.83 | U | 0.83 | U | 0.83 | U | 0.83 | U | | 3.100 | U | 200341486603 |

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below IDL/MDL
B= Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: PUP93

Method: MS
Run Name: 2003506E07
Calibration Date(s): 02/04/2020
Preparation Blank Matrix: WATER

| | | Initial Calibration Blank (ug/L) | | Continuing Calibration Blank (ug/L) | | | | | | Preparation Blank (UG/L) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | Mass | | C | 1 | C | 2 | C | 3 | C | Mass | | C | Batch Number |
| Arsenic | 75 | 0.34 | U | 0.34 | U | 0.34 | U | | | 75 | 0.700 | U | 200341511401A |

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below IDL/MDL
B= Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: PUP93

Method: MS
Run Name: 2003507E07
Calibration Date(s): 02/04/2020
Preparation Blank Matrix: WATER

| | | Initial Calibration Blank (ug/L) | | Continuing Calibration Blank (ug/L) | | | | | | Preparation Blank (UG/L) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | Mass | | C | 1 | C | 2 | C | 3 | C | Mass | | C | Batch Number |
| Arsenic | 75 | 0.34 | U | 0.34 | U | 0.34 | U | 0.34 | U | 75 | 0.700 | U | 200351511401A |

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below IDL/MDL
B= Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: PUP93

Method: MS
Run Name: 2003507E07
Calibration Date(s): 02/04/2020

| | | Initial Calibration Blank (ug/L) | | Continuing Calibration Blank (ug/L) | | | | | | Preparation Blank (UG/L) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | Mass | | C | 1 | C | 2 | C | 3 | C | Mass | | C | Batch Number |
| Arsenic | 75 | | | 0.34 | U | 0.34 | U | | | | | | |

| METHODS: | CONCENTRATION QUALIFIERS: |
|---|---|
| P = ICP Atomic Emission Spectrometer<br>MS = ICP Mass Spectrometry<br>CV = Cold Vapor<br>AF = Cold Vapor Atomic Fluorescence | U= Below IDL/MDL<br>B= Below LOQ |

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: PUP93

Method: MS
Run Name: 2004203E07
Calibration Date(s): 02/11/2020
Preparation Blank Matrix: WATER

| | | Initial Calibration Blank (ug/L) | | Continuing Calibration Blank (ug/L) | | | | | | Preparation Blank (UG/L) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | Mass | | C | 1 | C | 2 | C | 3 | C | Mass | | C | Batch Number |
| Arsenic | 75 | 0.34 | U | 0.34 | U | 0.34 | U | 0.34 | U | 75 | 0.700 | U | 200371511402A |

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below IDL/MDL
B= Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: PUP93

Instrument ID: 23745
Run Name: 2003404T74
Concentration Units: ug/L

| Analyte | True | | Initial Found | | | | Final Found | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Sol. A | Sol. AB | Sol. A | %R | Sol. AB | %R | Sol. A | %R | Sol. AB | %R |
| Aluminum | 500000 | 500000 | 506915 | 101.4 | 511159.3 | 102.2 | | | | |
| Calcium | 500000 | 500000 | 499552 | 99.9 | 502858.2 | 100.6 | | | | |
| Iron | 200000 | 200000 | 204036 | 102.0 | 206029.6 | 103.0 | | | | |
| Magnesium | 500000 | 500000 | 534799 | 107.0 | 520237.0 | 104.0 | | | | |
| Manganese | 0 | 500 | 5 | | 503.1 | 100.6 | | | | |

Control Limits: All Metals 80%-120%

QUALITY ASSURANCE SUMMARY
FORM 4B
ICP-MS INTERFERENCE CHECK SAMPLE
SDG No.: PUP93

Instrument ID: 27813
Run Name: 2003506E07
Concentration Units: ug/L

| Analyte | Mass | True | | Found | | | |
|---|---|---|---|---|---|---|---|
| | | Sol. A | Sol. AB | Sol. A | %R | Sol. AB | %R |
| Aluminum | 27 | 100000 | 100000 | 100646 | 100.6 | 102333.7 | 102.3 |
| Arsenic | 75 | 0 | 100 | 1 | | 102.1 | 102.1 |
| Calcium | 44 | 300000 | 300000 | 287988 | 96.0 | 292685.1 | 97.6 |
| Carbon | 13 | 20000 | 20000 | NA | | NA | |
| Chloride | 37 | 100000 | 100000 | NA | | NA | |
| Iron | 57 | 250000 | 250000 | 240493 | 96.2 | 244226.6 | 97.7 |
| Magnesium | 24 | 100000 | 100000 | 96476 | 96.5 | 98347.6 | 98.3 |
| Molybdenum | 98 | 2000 | 2000 | 2162 | 108.1 | 2170.3 | 108.5 |
| Phosphorus | 31 | 10000 | 10000 | NA | | NA | |
| Potassium | 39 | 100000 | 100000 | 98290 | 98.3 | 99671.6 | 99.7 |
| Sodium | 23 | 250000 | 250000 | 222782 | 89.1 | 226090.1 | 90.4 |
| Sulfur | 34 | 10000 | 10000 | NA | | NA | |
| Titanium | 47 | 2000 | 2000 | 1960 | 98.0 | 1991.6 | 99.6 |

Control Limits: All Metals 80%-120%

QUALITY ASSURANCE SUMMARY
FORM 4B
ICP-MS INTERFERENCE CHECK SAMPLE
SDG No.: PUP93

Instrument ID: 27813
Run Name: 2003507E07
Concentration Units: ug/L

| Analyte | Mass | True | | Found | | | |
|---|---|---|---|---|---|---|---|
| | | Sol. A | Sol. AB | Sol. A | %R | Sol. AB | %R |
| Aluminum | 27 | 100000 | 100000 | 100646 | 100.6 | 102333.7 | 102.3 |
| Arsenic | 75 | 0 | 100 | 1 | | 102.1 | 102.1 |
| Calcium | 44 | 300000 | 300000 | 287988 | 96.0 | 292685.1 | 97.6 |
| Carbon | 13 | 20000 | 20000 | NA | | NA | |
| Chloride | 37 | 100000 | 100000 | NA | | NA | |
| Iron | 57 | 250000 | 250000 | 240493 | 96.2 | 244226.6 | 97.7 |
| Magnesium | 24 | 100000 | 100000 | 96476 | 96.5 | 98347.6 | 98.3 |
| Molybdenum | 98 | 2000 | 2000 | 2162 | 108.1 | 2170.3 | 108.5 |
| Phosphorus | 31 | 10000 | 10000 | NA | | NA | |
| Potassium | 39 | 100000 | 100000 | 98290 | 98.3 | 99671.6 | 99.7 |
| Sodium | 23 | 250000 | 250000 | 222782 | 89.1 | 226090.1 | 90.4 |
| Sulfur | 34 | 10000 | 10000 | NA | | NA | |
| Titanium | 47 | 2000 | 2000 | 1960 | 98.0 | 1991.6 | 99.6 |

Control Limits: All Metals 80%-120%

QUALITY ASSURANCE SUMMARY
FORM 4B
ICP-MS INTERFERENCE CHECK SAMPLE
SDG No.: PUP93

Instrument ID: 27813
Run Name: 2004203E07
Concentration Units: ug/L

| Analyte | Mass | True | | Found | | | |
|---|---|---|---|---|---|---|---|
| | | Sol. A | Sol. AB | Sol. A | %R | Sol. AB | %R |
| Aluminum | 27 | 100000 | 100000 | 97750 | 97.8 | 97780.3 | 97.8 |
| Arsenic | 75 | 0 | 100 | 0 | | 104.5 | 104.5 |
| Calcium | 44 | 300000 | 300000 | 298167 | 99.4 | 296758.6 | 98.9 |
| Carbon | 13 | 20000 | 20000 | NA | | NA | |
| Chloride | 37 | 100000 | 100000 | NA | | NA | |
| Iron | 57 | 250000 | 250000 | 244535 | 97.8 | 248929.9 | 99.6 |
| Magnesium | 24 | 100000 | 100000 | 90928 | 90.9 | 90753.8 | 90.8 |
| Molybdenum | 98 | 2000 | 2000 | 2120 | 106.0 | 2162.1 | 108.1 |
| Phosphorus | 31 | 10000 | 10000 | NA | | NA | |
| Potassium | 39 | 100000 | 100000 | 93425 | 93.4 | 94559.6 | 94.6 |
| Sodium | 23 | 250000 | 250000 | 228445 | 91.4 | 228771.8 | 91.5 |
| Sulfur | 34 | 10000 | 10000 | NA | | NA | |
| Titanium | 47 | 2000 | 2000 | 1964 | 98.2 | 1995.3 | 99.8 |

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 5A(MS/MSD)
MATRIX SPIKE/MATRIX SPIKE DUPLICATE
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Background Lab Sample ID: 1251392BKG Matrix Spike Lab Sample ID: 1251393MS Matrix Spike Duplicate Lab Sample ID: 1251394MSD
Batch Number(s): 200341511401, 200341486603

| | | BKG Sample | | MS Sample | | MSD Sample | | MS Spike | MSD Spike | | MS | | MSD | | | | Control Limit | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | Mass | Result | C | Result | C | Result | C | Added | Added | Units | %R | Q | %R | Q | RPD | Q | %R | RPD | M |
| Arsenic | 75 | 7.9294 | | 19.1120 | | 19.1434 | | 10.4000 | 10.4000 | UG/L | 108 | | 108 | | 0 | | 75 - 125 | 20 | MS |
| Iron | | 58.4422 | B | 379.1704 | | 380.5276 | | 417.6000 | 417.6000 | UG/L | 77 | | 77 | | 0 | | 75 - 125 | 20 | P |
| Manganese | | 539.3492 | | 589.4528 | | 576.9353 | | 20.8800 | 20.8800 | UG/L | 240 | | 180 | | 2 | | | 20 | P |

Note: Results shown are reported on an as-received basis.
If Matrix Spike/ Matrix Spike Duplicate were out of specification, see Post Digestion Spike form.

METHODS:
P = ICP Atomic Emission Spectrometer CV = Cold Vapor
MS = ICP Mass Spectrometry AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL, B= Below LOQ
FLAGS:
N = Matrix Spike OOS, * = Duplicate OOS

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QUALITY ASSURANCE SUMMARY
FORM 5A(MS/MSD)
MATRIX SPIKE/MATRIX SPIKE DUPLICATE
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Background Lab Sample ID: 1251397BKG Matrix Spike Lab Sample ID: 1251397MS Matrix Spike Duplicate Lab Sample ID: 1251397MSD
Batch Number(s): 200371511402

| | | BKG Sample | | MS Sample | | MSD Sample | | MS Spike | MSD Spike | | MS | | MSD | | | | Control Limit | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | Mass | Result | C | Result | C | Result | C | Added | Added | Units | %R | Q | %R | Q | RPD | Q | %R | RPD | M |
| Arsenic | 75 | 2.3207 | | 13.6894 | | 13.1232 | | 10.4000 | 10.4000 | UG/L | 109 | | 104 | | 4 | | 75 - 125 | 20 | MS |

Note: Results shown are reported on an as-received basis.
If Matrix Spike/ Matrix Spike Duplicate were out of specification, see Post Digestion Spike form.

METHODS:
P = ICP Atomic Emission Spectrometer CV = Cold Vapor
MS = ICP Mass Spectrometry AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL, B= Below LOQ
FLAGS:
N = Matrix Spike OOS, * = Duplicate OOS

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QUALITY ASSURANCE SUMMARY
FORM 6
DUPLICATES
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Background Lab Sample ID: 1251392BKG 1251395DUP
Batch Number(s): 2003415114 01, 2003414866 03
Concentration Units: UG/L

| Analyte | Mass | Control Limit | Samples (S) | C | Duplicate (D) | C | RPD | Max RPD | Q | M |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 75 | 2.1 | 7.9294 | | 7.8301 | | 1 | 20 | | MS |
| Iron | | | 58.4422 | B | 62.7476 | B | 7 | 20 | | P |
| Manganese | | | 539.3492 | | 542.3156 | | 1 | 20 | | P |

NOTE: An asterisk (*) in column "Q" indicates poor duplicate precision (RPD > Max OR |(S) - (D)| > LOQ for values < 5x LOQ).
The data are considered to be valid because the laboratory control sample is within the control limits. See the Laboratory Control Sample.

Note: Results shown are reported on an as-received basis.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ

FLAGS:
* = Duplicate Out of Spec

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QUALITY ASSURANCE SUMMARY
FORM 6
DUPLICATES
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Background Lab Sample ID: 1251397BKG 1251397DUP
Batch Number(s): 2003715114
02
Concentration Units: UG/L

| Analyte | Mass | Control Limit | Samples (S) | C | Duplicate (D) | C | RPD | Max RPD | Q | M |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 75 | 2.1 | 2.3207 | | 2.4218 | | 4 | 20 | | MS |

NOTE: An asterisk (*) in column "Q" indicates poor duplicate precision (RPD > Max OR |(S) - (D)| > LOQ for values < 5x LOQ).
The data are considered to be valid because the laboratory control sample is within the control limits. See the Laboratory Control Sample.

Note: Results shown are reported on an as-received basis.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ
FLAGS:
* = Duplicate Out of Spec

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QUALITY ASSURANCE SUMMARY
FORM 7
LABORATORY CONTROL SAMPLE
SDG No.: PUP93
Matrix: WATER

| Analyte | Mass | Batch Number | Units | True | Found | C | Control Limits (%) | %R | M | In Spec |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 75 | 200341511401 | UG/L | 10.000 | 10.755 | | 85 - 120 | 108 | MS | Yes |
| Iron | | 200341486603 | UG/L | 400.000 | 338.790 | | 80 - 120 | 85 | P | Yes |
| Manganese | | 200341486603 | UG/L | 20.000 | 17.010 | | 80 - 120 | 85 | P | Yes |

| METHODS: | CONCENTRATION QUALIFIERS: |
|---|---|
| P = ICP Atomic Emission Spectrometer | U= Below MDL |
| MS = ICP Mass Spectrometry | B= Below LOQ |
| CV = Cold Vapor | |
| AF = Cold Vapor Atomic Fluorescence | |

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QUALITY ASSURANCE SUMMARY
FORM 7
LABORATORY CONTROL SAMPLE
SDG No.: PUP93
Matrix: WATER

| Analyte | Mass | Batch Number | Units | True | Found | C | Control Limits (%) | %R | M | In Spec |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 75 | 200351511401 | UG/L | 10.000 | 10.721 | | 85 - 120 | 107 | MS | Yes |

| METHODS: | CONCENTRATION QUALIFIERS: |
|---|---|
| P = ICP Atomic Emission Spectrometer | U= Below MDL |
| MS = ICP Mass Spectrometry | B= Below LOQ |
| CV = Cold Vapor | |
| AF = Cold Vapor Atomic Fluorescence | |

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QUALITY ASSURANCE SUMMARY
FORM 7
LABORATORY CONTROL SAMPLE
SDG No.: PUP93
Matrix: WATER

| Analyte | Mass | Batch Number | Units | True | Found | C | Control Limits (%) | %R | M | In Spec |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 75 | 200371511402 | UG/L | 10.000 | 10.182 | | 85 - 120 | 102 | MS | Yes |

| METHODS: | CONCENTRATION QUALIFIERS: |
|---|---|
| P = ICP Atomic Emission Spectrometer<br>MS = ICP Mass Spectrometry<br>CV = Cold Vapor<br>AF = Cold Vapor Atomic Fluorescence | U= Below MDL<br>B= Below LOQ |

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QUALITY ASSURANCE SUMMARY
FORM 9
SERIAL DILUTIONS
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Background Lab Sample ID: *51892BKG Serial Dilution Lab Sample ID: *51892L
Batch Number(s): 200351511401
Concentration Units: UG/L

| Analyte | Mass | Initial Sample Result (I) | C | Serial Dilution Result (S) | C | % Diff. | Q | M |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 75 | 0.7004 | U | 3.5020 | U | | | MS |

NOTE: An E in column Q indicates the presence of a chemical or physical interference in the matrix when the % difference is greater than 10%. This applies only when (I) is greater than or equal to 50x MDL for ICP, 100x MDL for ICP-MS (6020), 50x MDL for ICP-MS (200.8), or 25x MDL for GFAA.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ
FLAGS:
E = Matrix Effects exist as proven by Serial Dilution or Spiked Dilution

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QUALITY ASSURANCE SUMMARY
FORM 9
SERIAL DILUTIONS
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Background Lab Sample ID: 1251392BKG Serial Dilution Lab Sample ID: 1251392L
Batch Number(s): 200341511401, 200341486603
Concentration Units: UG/L

| Analyte | Mass | Initial Sample Result (I) | C | Serial Dilution Result (S) | C | % Diff. | Q | M |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 75 | 7.9294 | | 8.4916 | B | 7 | | MS |
| Iron | | 58.4422 | B | 206.0000 | U | 100 | | P |
| Manganese | | 539.3492 | | 557.0240 | | 3 | | P |

NOTE: An E in column Q indicates the presence of a chemical or physical interference in the matrix when the % difference is greater than 10%. This applies only when (I) is greater than or equal to 50x MDL for ICP, 100x MDL for ICP-MS (6020), 50x MDL for ICP-MS (200.8), or 25x MDL for GFAA.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ
FLAGS:
E = Matrix Effects exist as proven by Serial Dilution or Spiked Dilution

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QUALITY ASSURANCE SUMMARY
FORM 9
SERIAL DILUTIONS
SDG No.: PUP93
Matrix: WATER Level (low/med): LOW

Background Lab Sample ID: 1251397BKG Serial Dilution Lab Sample ID: 1251397L
Batch Number(s): 200371511402
Concentration Units: UG/L

| Analyte | Mass | Initial Sample Result (I) | C | Serial Dilution Result (S) | C | % Diff. | Q | M |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 75 | 2.3207 | | 3.5020 | U | 100 | | MS |

NOTE: An E in column Q indicates the presence of a chemical or physical interference in the matrix when the % difference is greater than 10%. This applies only when (I) is greater than or equal to 50x MDL for ICP, 100x MDL for ICP-MS (6020), 50x MDL for ICP-MS (200.8), or 25x MDL for GFAA.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ
FLAGS:
E = Matrix Effects exist as proven by Serial Dilution or Spiked Dilution

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS
SDG No.: PUP93

Method: P
Instrument ID: 23745
Date: 07/2018

| Analyte | Wavelength (nm) | Background | IDL (UG/L) |
|---|---|---|---|
| Iron | 261.19 | | 33.4 |
| Manganese | 257.61 | | 0.83 |

Comments:
_____
_____
_____
_____

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS
SDG No.: PUP93

Method: MS
Instrument ID: 27813
Date: 11/2019

| Analyte | MASS (amu) | Background | IDL (UG/L) |
|---|---|---|---|
| Arsenic | 75 | | 0.34 |

Comments:

_____
_____
_____
_____

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: PUP93
Matrix: WATER

Method: P
Date: 09/2019

| Analyte | Wavelength (nm) | Background | LOQ (UG/L) | MDL (UG/L) |
|---|---|---|---|---|
| Iron | 261.19 | | 200 | 40.0 |
| Manganese | 257.61 | | 10.0 | 3.0 |

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:
_____
_____
_____
_____

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: PUP93
Matrix: WATER

Method: MS
Date: 09/2018

| Analyte | Mass | Background | LOQ (UG/L) | MDL (UG/L) |
|---|---|---|---|---|
| Arsenic | 75 | | 2.0 | 0.68 |

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

_____
_____
_____
_____

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: PUP93

Instrument ID: 23745
Date: 01/2020

| Analyte | Wavelength (nm) | Interelement Correction Factor for: AL | CA | FE | MG | TH |
|---|---|---|---|---|---|---|
| Manganese | 257.61 | 0.0000000 | 0.0000000 | 0.0000130 | 0.0000000 | 0.0003030 |

Comments:
_____
_____
_____
_____

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: PUP93

Instrument ID: 23745
Date: 01/2020

| Analyte | Wavelength (nm) | Interelement Correction Factor for: W | -- | -- | -- | -- |
|---|---|---|---|---|---|---|
| Manganese | 257.61 | -0.0004830 | | | | |

Comments:
_____
_____
_____
_____

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QUALITY ASSURANCE SUMMARY
FORM 12
LINEAR RANGES
SDG No.: PUP93

Method: P
Instrument ID: 23745
Date: 01/2020

| Analyte | Wavelength (nm) | Integration Time (Sec.) | Concentration (ug/L) |
|---|---|---|---|
| Iron | 261.19 | 10.00 | 300000.0 |
| Manganese | 257.61 | 10.00 | 20000.0 |

Comments:
_____
_____
_____
_____

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

Method: P
Batch Number: 200341486603

| Lab Sample ID | Date | Initial Volume(ml) | Final Volume(ml) |
|---|---|---|---|
| 1251372 | 02/03/2020 | 50.00 | 51.5 |
| 1251374 | 02/03/2020 | 50.00 | 51.5 |
| 1251377 | 02/03/2020 | 50.00 | 51.5 |
| 1251379 | 02/03/2020 | 50.00 | 51.5 |
| 1251381 | 02/03/2020 | 50.00 | 51.5 |
| 1251383 | 02/03/2020 | 50.00 | 51.5 |
| 1251385 | 02/03/2020 | 50.00 | 51.5 |
| 1251387 | 02/03/2020 | 50.00 | 51.5 |
| 1251397 | 02/03/2020 | 50.00 | 51.5 |
| 1251392BKG | 02/03/2020 | 50.00 | 51.5 |
| 1251395DUP | 02/03/2020 | 50.00 | 51.5 |
| 1251394MSD | 02/03/2020 | 50.00 | 52.2000000000000003 |
| 1251393MS | 02/03/2020 | 50.00 | 52.2000000000000003 |
| P03486CB | 02/03/2020 | 50.00 | 51.5 |
| P03486CQ | 02/03/2020 | 50.00 | 50 |

| METHODS: | LEGEND: |
|---|---|
| P = ICP Atomic Emission Spectrometer<br>MS = ICP Mass Spectrometry<br>CV = Cold Vapor<br>AF = Cold Vapor Atomic Fluorescence | BKG = Background<br>DUP = Duplicate<br>MS = Matrix Spike<br>MSD = Matrix Spike Duplicate<br>B = Blank<br>Q = Laboratory Control Sample<br>Y = Laboratory Control Sample Duplicate |

Method: MS
Batch Number: 200341511401

| Lab Sample ID | Date | Initial Volume(ml) | Final Volume(ml) |
|---|---|---|---|
| 1251392BKG | 02/03/2020 | 50.00 | 51.5 |
| 1251395DUP | 02/03/2020 | 50.00 | 51.5 |
| 1251394MSD | 02/03/2020 | 50.00 | 52 |
| 1251393MS | 02/03/2020 | 50.00 | 52 |
| P03411AB | 02/03/2020 | 50.00 | 51.5 |
| P03411AQ | 02/03/2020 | 50.00 | 50 |

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

Method: MS
Batch Number: 200351511401

| Lab Sample ID | Date | Initial Volume(ml) | Final Volume(ml) |
|---|---|---|---|
| 1251372 | 02/04/2020 | 50.00 | 51.5 |
| 1251374 | 02/04/2020 | 50.00 | 51.5 |
| 1251379 | 02/04/2020 | 50.00 | 51.5 |
| 1251381 | 02/04/2020 | 50.00 | 51.5 |
| 1251383 | 02/04/2020 | 50.00 | 51.5 |
| 1251387 | 02/04/2020 | 50.00 | 51.5 |
| *51892BKG | 02/04/2020 | 50.00 | 51.5 |
| P03511AB | 02/04/2020 | 50.00 | 51.5 |
| P03511AQ | 02/04/2020 | 50.00 | 50 |

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

Method: MS
Batch Number: 200371511402

| Lab Sample ID | Date | Initial Volume(ml) | Final Volume(ml) |
|---|---|---|---|
| 1251377 | 02/06/2020 | 50.00 | 51.5 |
| 1251385 | 02/06/2020 | 50.00 | 51.5 |
| 1251397BKG | 02/06/2020 | 50.00 | 51.5 |
| 1251397DUP | 02/06/2020 | 50.00 | 51.5 |
| 1251397MSD | 02/06/2020 | 50.00 | 52 |
| 1251397MS | 02/06/2020 | 50.00 | 52 |
| P03711BB | 02/06/2020 | 50.00 | 51.5 |
| P03711BQ | 02/06/2020 | 50.00 | 50 |

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: PUP93

Method: P
Instrument ID: 23745
Run Name: 2003404T74

Run Start Date: 02/03/2020
Run End Date: 02/03/2020

| Lab Sample ID | D/F | Time | Analytes AS | FE | MN |
|---|---|---|---|---|---|
| S0 | 1.00 | 21:11 | | X | X |
| S | 1.00 | 21:14 | | X | |
| S | 1.00 | 21:17 | | | X |
| S | 1.00 | 21:21 | | | |
| ICV | 1.00 | 21:24 | | X | X |
| ICB | 1.00 | 21:27 | | X | X |
| LLC | 1.00 | 21:30 | | X | X |
| ICSA | 1.00 | 21:33 | | X | X |
| ICSAB | 1.00 | 21:37 | | X | X |
| CCV | 1.00 | 21:40 | | X | X |
| CCB | 1.00 | 21:43 | | X | X |
| P03486CB | 1.00 | 21:46 | | X | X |
| P03486CQ | 1.00 | 21:49 | | X | X |
| 1251392BKG | 1.00 | 21:52 | | X | X |
| 1251392A | 1.00 | 21:56 | | | |
| 1251395DUP | 1.00 | 21:59 | | X | X |
| 1251393MS | 1.00 | 22:02 | | X | X |
| 1251394MSD | 1.00 | 22:05 | | X | X |
| 1251392L | 5.00 | 22:08 | | X | X |
| ZZZZZZ | 1.00 | 22:11 | | | |
| ZZZZZZ | 1.00 | 22:14 | | | |
| CCV | 1.00 | 22:18 | | X | X |
| CCB | 1.00 | 22:21 | | X | X |
| ZZZZZZ | 1.00 | 22:24 | | | |
| 1251372 | 1.00 | 22:27 | | X | X |
| 1251374 | 1.00 | 22:30 | | X | X |
| 1251377 | 1.00 | 22:33 | | X | X |
| 1251379 | 1.00 | 22:37 | | X | X |
| 1251381 | 1.00 | 22:40 | | X | X |
| 1251383 | 1.00 | 22:43 | | X | X |
| 1251385 | 1.00 | 22:46 | | X | X |
| 1251387 | 1.00 | 22:49 | | X | X |
| 1251397 | 1.00 | 22:52 | | X | X |
| CCV | 1.00 | 22:55 | | X | X |
| CCB | 1.00 | 22:59 | | X | X |

| METHODS: | LEGEND: |
|---|---|
| P = ICP Atomic Emission Spectrometer | BKG = Background |
| MS = ICP Mass Spectrometry | DUP = Duplicate |
| CV = Cold Vapor | MS = Matrix Spike |
| AF = Cold Vapor Atomic Fluorescence | MSD = Matrix Spike Duplicate |
| | A = Post Digest Spike |
| | L = Serial Dilution |
| | B = Blank |
| | Q = Laboratory Control Sample |
| | Y = Laboratory Control Sample Duplicate |

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: PUP93

Method: MS
Instrument ID: 27813
Run Name: 2003506E07

Run Start Date: 02/04/2020
Run End Date: 02/04/2020

| Lab Sample ID | D/F | Time | Analytes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AS | FE | MN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S0 | 1.00 | 16:06 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S | 1.00 | 16:09 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ICV | 1.00 | 16:11 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ICB | 1.00 | 16:13 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LLC | 1.00 | 16:15 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ICSA | 1.00 | 16:17 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ICSAB | 1.00 | 16:19 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LRS3 | 1.00 | 16:21 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCS | 1.00 | 16:22 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCS | 1.00 | 16:24 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 16:26 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCB | 1.00 | 16:28 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P03411AB | 1.00 | 16:30 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P03411AQ | 1.00 | 16:32 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251392BKG | 1.00 | 16:34 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251392A | 1.00 | 16:36 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251395DUP | 1.00 | 16:38 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251393MS | 1.00 | 16:40 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251394MSD | 1.00 | 16:41 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251392L | 5.00 | 16:43 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 16:45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 16:47 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 16:49 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCB | 1.00 | 16:51 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: PUP93

Method: MS
Instrument ID: 27813
Run Name: 2003507E07

Run Start Date: 02/04/2020
Run End Date: 02/04/2020

| Lab Sample ID | D/F | Time | Analytes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AS | FE | MN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S0 | 1.00 | 16:06 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S | 1.00 | 16:09 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ICV | 1.00 | 16:11 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ICB | 1.00 | 16:13 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LLC | 1.00 | 16:15 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ICSA | 1.00 | 16:17 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ICSAB | 1.00 | 16:19 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LRS3 | 1.00 | 16:21 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCS | 1.00 | 16:22 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCS | 1.00 | 16:24 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 16:26 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCB | 1.00 | 16:28 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 17:28 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCB | 1.00 | 17:30 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P03511AB | 1.00 | 17:32 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P03511AQ | 1.00 | 17:33 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *51892BKG | 1.00 | 17:35 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 17:37 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 17:39 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 17:41 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 17:43 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *51892L | 5.00 | 17:45 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 17:47 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 17:49 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 17:51 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCB | 1.00 | 17:52 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 17:54 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 17:56 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251387 | 1.00 | 17:58 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 18:00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251379 | 1.00 | 18:02 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251383 | 1.00 | 18:04 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 18:06 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251374 | 1.00 | 18:08 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 18:10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251381 | 1.00 | 18:12 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 18:14 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCB | 1.00 | 18:15 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
A = Post Digest Spike
L = Serial Dilution
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: PUP93

Method: MS
Instrument ID: 27813
Run Name: 2003507E07

Run Start Date: 02/04/2020
Run End Date: 02/04/2020

| Lab Sample ID | D/F | Time | Analytes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AS | FE | MN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 18:17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251372 | 1.00 | 18:19 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 18:21 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCB | 1.00 | 18:23 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

METHODS:
P = ICP Atomic Emission Spectrometer
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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: PUP93

Method: MS
Instrument ID: 27813
Run Name: 2004203E07

Run Start Date: 02/11/2020
Run End Date: 02/11/2020

| Lab Sample ID | D/F | Time | Analytes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AS | FE | MN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S0 | 1.00 | 09:45 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S | 1.00 | 09:47 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ICV | 1.00 | 09:49 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ICB | 1.00 | 09:51 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LLC | 1.00 | 09:53 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ICSA | 1.00 | 09:55 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ICSAB | 1.00 | 09:57 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LRS3 | 1.00 | 09:59 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCS | 1.00 | 10:01 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCS | 1.00 | 10:03 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 10:05 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCB | 1.00 | 10:07 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 10:16 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCB | 1.00 | 10:18 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P03711BB | 1.00 | 10:20 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P03711BQ | 1.00 | 10:22 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251397BKG | 1.00 | 10:24 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251397A | 1.00 | 10:26 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251397DUP | 1.00 | 10:28 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251397MS | 1.00 | 10:29 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251397MSD | 1.00 | 10:31 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251397L | 5.00 | 10:33 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251377 | 1.00 | 10:35 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1251385 | 1.00 | 10:37 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 10:39 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCB | 1.00 | 10:41 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

METHODS:
- P = ICP Atomic Emission Spectrometer
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- CV = Cold Vapor
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LEGEND:
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- A = Post Digest Spike
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- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 16
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
SDG No.: PUP93

Instrument ID: 27813
Run Name: 2003506E07

Start Date: 02/04/2020
End Date: 02/04/2020

| Standard | Elements Applies to | Standard | Elements Applies to |
|---|---|---|---|
| IN-3-115 | AS | | |

| Lab Sample ID | Time | Internal Standards %RI For: Element IN-3-115 | Q | Element | Q | Element | Q | Element | Q | Element | Q | Element | Q | Element | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S0 | 16:06 | 100 | | | | | | | | | | | | | |
| S | 16:09 | 101 | | | | | | | | | | | | | |
| ICV | 16:11 | 99 | | | | | | | | | | | | | |
| ICB | 16:13 | 99 | | | | | | | | | | | | | |
| LLC | 16:15 | 101 | | | | | | | | | | | | | |
| ICSA | 16:17 | 93 | | | | | | | | | | | | | |
| ICSAB | 16:19 | 93 | | | | | | | | | | | | | |
| LRS3 | 16:21 | 103 | | | | | | | | | | | | | |
| CCS | 16:22 | 101 | | | | | | | | | | | | | |
| CCS | 16:24 | 100 | | | | | | | | | | | | | |
| CCV | 16:26 | 100 | | | | | | | | | | | | | |
| CCB | 16:28 | 100 | | | | | | | | | | | | | |
| P03411AB | 16:30 | 101 | | | | | | | | | | | | | |
| P03411AQ | 16:32 | 103 | | | | | | | | | | | | | |
| 1251392BKG | 16:34 | 101 | | | | | | | | | | | | | |
| 1251392A | 16:36 | 100 | | | | | | | | | | | | | |
| 1251395DUP | 16:38 | 101 | | | | | | | | | | | | | |
| 1251393MS | 16:40 | 100 | | | | | | | | | | | | | |
| 1251394MSD | 16:41 | 99 | | | | | | | | | | | | | |
| 1251392L | 16:43 | 101 | | | | | | | | | | | | | |
| ZZZZZZ | 16:45 | | | | | | | | | | | | | | |
| ZZZZZZ | 16:47 | | | | | | | | | | | | | | |
| CCV | 16:49 | 98 | | | | | | | | | | | | | |
| CCB | 16:51 | 98 | | | | | | | | | | | | | |

LEGEND:
BKG = Background
DUP = Duplicate
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Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
A = Post Digest Spike

FLAG:
R = Internal Standard Relative Intensity OOS

INTERNAL STANDARD ELEMENTS:
BE = Beryllium
BI = Bismuth
GE = Germanium
HO = Holmium
IN = Indium
LI = Lithium
SC = Scandium
TB = Terbium
Y = Yttrium

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QUALITY ASSURANCE SUMMARY
FORM 16
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
SDG No.: PUP93

Instrument ID: 27813
Run Name: 2003507E07

Start Date: 02/04/2020
End Date: 02/04/2020

| Standard | Elements Applies to | Standard | Elements Applies to |
|---|---|---|---|
| IN-3-115 | AS | | |

| Lab Sample ID | Time | Internal Standards %RI For: Element IN-3-115 | Q | Element | Q | Element | Q | Element | Q | Element | Q | Element | Q | Element | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S0 | 16:06 | 100 | | | | | | | | | | | | | |
| S | 16:09 | 101 | | | | | | | | | | | | | |
| ICV | 16:11 | 99 | | | | | | | | | | | | | |
| ICB | 16:13 | 99 | | | | | | | | | | | | | |
| LLC | 16:15 | 101 | | | | | | | | | | | | | |
| ICSA | 16:17 | 93 | | | | | | | | | | | | | |
| ICSAB | 16:19 | 93 | | | | | | | | | | | | | |
| LRS3 | 16:21 | 103 | | | | | | | | | | | | | |
| CCS | 16:22 | 101 | | | | | | | | | | | | | |
| CCS | 16:24 | 100 | | | | | | | | | | | | | |
| CCV | 16:26 | 100 | | | | | | | | | | | | | |
| CCB | 16:28 | 100 | | | | | | | | | | | | | |
| CCV | 17:28 | 99 | | | | | | | | | | | | | |
| CCB | 17:30 | 98 | | | | | | | | | | | | | |
| P03511AB | 17:32 | 100 | | | | | | | | | | | | | |
| P03511AQ | 17:33 | 100 | | | | | | | | | | | | | |
| *51892BKG | 17:35 | 99 | | | | | | | | | | | | | |
| ZZZZZZ | 17:37 | | | | | | | | | | | | | | |
| ZZZZZZ | 17:39 | | | | | | | | | | | | | | |
| ZZZZZZ | 17:41 | | | | | | | | | | | | | | |
| ZZZZZZ | 17:43 | | | | | | | | | | | | | | |
| *51892L | 17:45 | 99 | | | | | | | | | | | | | |
| ZZZZZZ | 17:47 | | | | | | | | | | | | | | |
| ZZZZZZ | 17:49 | | | | | | | | | | | | | | |
| CCV | 17:51 | 97 | | | | | | | | | | | | | |
| CCB | 17:52 | 99 | | | | | | | | | | | | | |
| ZZZZZZ | 17:54 | | | | | | | | | | | | | | |
| ZZZZZZ | 17:56 | | | | | | | | | | | | | | |
| 1251387 | 17:58 | 97 | | | | | | | | | | | | | |
| ZZZZZZ | 18:00 | | | | | | | | | | | | | | |
| 1251379 | 18:02 | 99 | | | | | | | | | | | | | |
| 1251383 | 18:04 | 100 | | | | | | | | | | | | | |
| ZZZZZZ | 18:06 | | | | | | | | | | | | | | |

LEGEND:
BKG = Background
DUP = Duplicate
L = Serial Dilution
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate
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A = Post Digest Spike

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R = Internal Standard Relative Intensity OOS

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GE = Germanium
HO = Holmium
IN = Indium
LI = Lithium
SC = Scandium
TB = Terbium
Y = Yttrium

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QUALITY ASSURANCE SUMMARY
FORM 16
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
SDG No.: PUP93

Instrument ID:
Run Name: 15151

Start Date:
End Date:

| Standard | Elements Applies to | Standard | Elements Applies to |
|---|---|---|---|
| IN-3-115 | AS | | |

| Lab Sample ID | Time | Internal Standards %RI For: Element IN-3-115 | Q | Element | Q | Element | Q | Element | Q | Element | Q | Element | Q | Element | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1251374 | 18:08 | 97 | | | | | | | | | | | | | |
| ZZZZZZ | 18:10 | | | | | | | | | | | | | | |
| 1251381 | 18:12 | 98 | | | | | | | | | | | | | |
| CCV | 18:14 | 98 | | | | | | | | | | | | | |
| CCB | 18:15 | 98 | | | | | | | | | | | | | |
| ZZZZZZ | 18:17 | | | | | | | | | | | | | | |
| 1251372 | 18:19 | 98 | | | | | | | | | | | | | |
| CCV | 18:21 | 100 | | | | | | | | | | | | | |
| CCB | 18:23 | 98 | | | | | | | | | | | | | |

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HO = Holmium
IN = Indium
LI = Lithium
SC = Scandium
TB = Terbium
Y = Yttrium

eurofins | Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 16
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
SDG No.: PUP93

Instrument ID: 27813
Run Name: 2004203E07

Start Date: 02/11/2020
End Date: 02/11/2020

| Standard | Elements Applies to | Standard | Elements Applies to |
|---|---|---|---|
| IN-3-115 | AS | | |

| Lab Sample ID | Time | Internal Standards %RI For: Element IN-3-115 | Q | Element | Q | Element | Q | Element | Q | Element | Q | Element | Q | Element | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S0 | 09:45 | 100 | | | | | | | | | | | | | |
| S | 09:47 | 103 | | | | | | | | | | | | | |
| ICV | 09:49 | 101 | | | | | | | | | | | | | |
| ICB | 09:51 | 101 | | | | | | | | | | | | | |
| LLC | 09:53 | 100 | | | | | | | | | | | | | |
| ICSA | 09:55 | 98 | | | | | | | | | | | | | |
| ICSAB | 09:57 | 97 | | | | | | | | | | | | | |
| LRS3 | 09:59 | 105 | | | | | | | | | | | | | |
| CCS | 10:01 | 102 | | | | | | | | | | | | | |
| CCS | 10:03 | 101 | | | | | | | | | | | | | |
| CCV | 10:05 | 103 | | | | | | | | | | | | | |
| CCB | 10:07 | 102 | | | | | | | | | | | | | |
| CCV | 10:16 | 102 | | | | | | | | | | | | | |
| CCB | 10:18 | 102 | | | | | | | | | | | | | |
| P03711BB | 10:20 | 102 | | | | | | | | | | | | | |
| P03711BQ | 10:22 | 105 | | | | | | | | | | | | | |
| 1251397BKG | 10:24 | 102 | | | | | | | | | | | | | |
| 1251397A | 10:26 | 101 | | | | | | | | | | | | | |
| 1251397DUP | 10:28 | 101 | | | | | | | | | | | | | |
| 1251397MS | 10:29 | 102 | | | | | | | | | | | | | |
| 1251397MSD | 10:31 | 102 | | | | | | | | | | | | | |
| 1251397L | 10:33 | 101 | | | | | | | | | | | | | |
| 1251377 | 10:35 | 102 | | | | | | | | | | | | | |
| 1251385 | 10:37 | 102 | | | | | | | | | | | | | |
| CCV | 10:39 | 102 | | | | | | | | | | | | | |
| CCB | 10:41 | 101 | | | | | | | | | | | | | |

LEGEND:
BKG = Background
DUP = Duplicate
L = Serial Dilution
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
A = Post Digest Spike

FLAG:
R = Internal Standard Relative Intensity OOS

INTERNAL STANDARD ELEMENTS:
BE = Beryllium
BI = Bismuth
GE = Germanium
HO = Holmium
IN = Indium
LI = Lithium
SC = Scandium
TB = Terbium
Y = Yttrium

# Raw Data

# Metals in Liquid

# ICP Data

# Metals in Liquid

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# ICP-AES Run Data Report

Reviewed By
Lisa J Cooke

Reviewed Date
02/04/2020 6:30AM

Data File Name 2003404T74.TXT
Run Name: 2003404T74

Method Reference Name(s):

Verified By:
Parker D Lindstrom

Verified Date
02/04/2020 5:00PM

Analyst Employee: 3024

Instrument Parameters:

Individual Integration Time: 10.00 sec Total Integration Time: 30.00 sec Rinse Time: 15.00 sec

| Element | Analyte Name | Wavelength Value |
|---|---|---|
| AG | Silver | 328.06 |
| AL | Aluminum | 308.21 |
| AS | Arsenic | 189.04 |
| AU | Gold | 242.80 |
| B | Boron | 249.67 |
| BA | Barium | 455.40 |
| BE | Beryllium | 313.04 |
| CA | Calcium | 317.93 |
| CD | Cadmium | 226.50 |
| CO | Cobalt | 228.62 |
| CR | Chromium | 267.72 |
| CU | Copper | 327.40 |
| FE | Iron | 261.19 |
| K | Potassium | 766.49 |
| LI | Lithium | 670.78 |
| MG | Magnesium | 285.21 |
| MN | Manganese | 257.61 |
| MO | Molybdenum | 202.03 |
| NA | Sodium | 589.59 |
| NI | Nickel | 231.60 |
| P | Phosphorus | 177.49 |
| PB | Lead | 220.35 |
| S | Sulfur | 182.00 |
| SB | Antimony | 206.83 |
| SE | Selenium | 196.09 |
| SI | Silicon | 251.60 |
| SN | Tin | 189.99 |
| SR | Strontium | 421.55 |
| TE | Tellurium | 214.28 |
| TH | Thorium | 401.91 |
| TI | Titanium | 334.94 |
| TL | Thallium | 190.86 |
| V | Vanadium | 292.40 |
| W | Tungsten | 207.91 |
| Y1 | Yttrium | 224.31 |
| Y2 | Yttrium | 371.03 |
| ZN | Zinc | 213.86 |
| ZR | Zirconium | 339.19 |

The TRACE ICP utilizes Yttrium as an internal standard to compensate for fluctuations in nebulization and plasma conditions. All Yttrium readings are expressed in counts.

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 1 Date/Time: 02/03/2020 21:11

Sample Number: **S0**

| ELEMENT | CONC (ppm) | AVERAGE INTENSITY | % RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| AG | 0.000 | -16.43990 | 12.353 | -0.00600 | -0.00511 | -0.00473 |
| AL | 0.000 | -1.48333 | 140.471 | -0.01845 | -0.03104 | 0.00751 |
| AL A | 0.000 | 22.08064 | 13.197 | 0.00817 | 0.00650 | 0.00660 |
| AS | 0.000 | 0.09466 | 327.653 | -0.00038 | 0.00467 | -0.00133 |
| B | 0.000 | 9.53489 | 20.064 | 0.00006 | 0.00008 | 0.00005 |
| BA | 0.000 | 136.91856 | 15.111 | 0.00074 | 0.00090 | 0.00100 |
| BE | 0.000 | -1195.50665 | 1.578 | -0.37786 | -0.38450 | -0.38996 |
| CA | 0.000 | 1.43333 | 421.892 | -0.00058 | -0.00017 | 0.00155 |
| CD | 0.000 | -5.66610 | 31.091 | -0.07837 | -0.05627 | -0.04203 |
| CO | 0.000 | 2.39309 | 60.970 | 0.00820 | 0.03786 | 0.02861 |
| CR | 0.000 | -11.86369 | 44.747 | -0.00010 | -0.00009 | -0.00004 |
| CU | 0.000 | 6.19184 | 122.125 | -0.00081 | 0.00354 | 0.00326 |
| FE | 0.000 | -0.70000 | 214.821 | -0.00038 | 0.00018 | -0.00020 |
| K | 0.000 | 94.45000 | 11.209 | 1.00262 | 0.85416 | 0.81297 |
| LI | 0.000 | -1.60000 | 543.762 | 0.00109 | 0.00009 | -0.00207 |
| MG | 0.000 | 0.83333 | 26.925 | 0.00016 | 0.00011 | 0.00020 |
| MN | 0.000 | 0.48228 | 585.932 | 0.00061 | -0.00090 | 0.00076 |
| MO | 0.000 | -0.32463 | 131.287 | -0.00847 | -0.00052 | -0.00112 |
| NA | 0.000 | 103.98333 | 3.347 | 0.02000 | 0.01883 | 0.01994 |
| NI | 0.000 | 5.97940 | 10.971 | 0.06581 | 0.05429 | 0.06638 |
| P | 0.000 | 1.61317 | 9.411 | 0.00034 | 0.00030 | 0.00036 |
| PB | 0.000 | 0.49995 | 140.103 | -0.00069 | 0.00295 | 0.01335 |
| S | 0.000 | 1.70316 | 43.995 | 0.00043 | 0.00017 | 0.00046 |
| SB | 0.000 | 0.78992 | 120.637 | -0.00006 | 0.00023 | 0.00032 |
| SE | 0.000 | 0.83658 | 141.150 | 0.00882 | 0.02091 | -0.00364 |
| SI | 0.000 | 2.10000 | 48.091 | 0.00018 | 0.00053 | 0.00048 |
| SN | 0.000 | 0.40329 | 189.456 | -0.00218 | 0.01311 | 0.00166 |
| SR | 0.000 | 14.55028 | 59.458 | 0.00014 | 0.00011 | 0.00003 |
| TH | 0.000 | -2.70000 | 67.704 | -0.00089 | -0.00022 | -0.00042 |
| TI | 0.000 | 13.36126 | 43.980 | 0.00538 | 0.00211 | 0.00539 |
| TL | 0.000 | 0.31330 | 198.847 | -0.00394 | 0.00510 | 0.00864 |
| V | 0.000 | -22.36269 | 29.299 | -0.00959 | -0.00621 | -0.00573 |
| W | 0.000 | 1.70909 | 47.931 | 0.00036 | 0.00018 | 0.00052 |
| Y1 | 0.000 | 4809.45839 | 0.126 | 4816.38436 | 4806.74733 | 4805.24348 |
| Y2A | 0.000 | 155630.49809 | 0.570 | 156346.08283 | 155907.67925 | 154637.73217 |
| Y2R | 0.000 | 5308.32500 | 0.415 | 5283.67500 | 5315.15000 | 5326.15000 |
| ZN | 0.000 | 1.69983 | 82.631 | 0.00976 | 0.03453 | 0.00874 |
| ZR | 0.000 | 1.00000 | 398.383 | -0.00033 | 0.00104 | -0.00015 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 2 Date/Time: 02/03/2020 21:14

Sample Number: **S1**

| ELEMENT | CONC (ppm) | AVERAGE INTENSITY | % RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| AL | 50.000 | 1755.02101 | 1.066 | 16.27372 | 16.58828 | 16.56662 |
| AL A | 50.000 | 68235.90655 | 0.166 | 22.83876 | 22.81820 | 22.89174 |
| CA | 50.000 | 18648.49741 | 0.255 | 3.49103 | 3.50647 | 3.50658 |
| FE | 50.000 | 4932.50530 | 0.569 | 0.92199 | 0.93205 | 0.92430 |
| K | 50.000 | 13397.34499 | 0.280 | 125.74544 | 125.43075 | 126.13422 |
| MG | 50.000 | 23897.19392 | 0.746 | 4.45278 | 4.51968 | 4.48825 |
| NA | 50.000 | 48935.93132 | 0.516 | 9.14605 | 9.23946 | 9.17867 |
| S | 50.000 | 3294.39389 | 0.050 | 0.70180 | 0.70165 | 0.70113 |
| SI | 50.000 | 3297.27899 | 0.311 | 0.61976 | 0.62057 | 0.61691 |
| Y1 | 50.000 | 4696.04306 | 0.225 | 4686.76532 | 4707.57724 | 4693.78662 |
| Y2A | 50.000 | 149316.16032 | 0.393 | 149658.83647 | 149651.88736 | 148637.75714 |
| Y2R | 50.000 | 5326.11675 | 0.506 | 5356.71582 | 5305.76885 | 5315.86558 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 3 Date/Time: 02/03/2020 21:17

Sample Number: **S2**

| ELEMENT | CONC (ppm) | AVERAGE INTENSITY | % RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| AG | 1.000 | 13545.85128 | 0.214 | 4.43590 | 4.45291 | 4.43713 |
| AS | 1.000 | 101.13657 | 0.689 | 1.07035 | 1.06203 | 1.05576 |
| B | 1.000 | 6212.18477 | 0.153 | 0.04068 | 0.04081 | 0.04074 |
| BA | 1.000 | 447976.40462 | 0.111 | 2.94079 | 2.93445 | 2.93883 |
| BE | 1.000 | 395782.17678 | 0.938 | 130.97158 | 128.53906 | 129.84643 |
| CD | 1.000 | 11632.07956 | 0.230 | 122.47925 | 122.27814 | 121.92366 |
| CO | 1.000 | 2787.50494 | 0.236 | 29.34188 | 29.31736 | 29.21200 |
| CU | 1.000 | 7691.86225 | 0.372 | 2.51254 | 2.53124 | 2.52320 |
| LI | 1.000 | 5114.26629 | 0.255 | 0.95569 | 0.95932 | 0.95469 |
| MN | 1.000 | 49635.48763 | 0.130 | 16.25517 | 16.29759 | 16.27688 |
| NI | 1.000 | 1331.86414 | 0.338 | 14.02752 | 14.01654 | 13.94063 |
| P | 1.000 | 199.04121 | 0.639 | 0.04167 | 0.04168 | 0.04214 |
| PB | 1.000 | 892.38396 | 0.171 | 9.39545 | 9.36674 | 9.36866 |
| SE | 1.000 | 116.12150 | 0.881 | 1.20886 | 1.22144 | 1.23024 |
| SR | 1.000 | 495277.21873 | 0.873 | 3.27335 | 3.25401 | 3.21749 |
| TH | 1.000 | 61.95815 | 3.474 | 0.01155 | 0.01121 | 0.01201 |
| TL | 1.000 | 249.12732 | 0.638 | 2.62146 | 2.63232 | 2.59952 |
| W | 1.000 | 530.91907 | 0.298 | 0.11196 | 0.11139 | 0.11137 |
| Y1 | 1.000 | 4758.38761 | 0.060 | 4761.66134 | 4756.99601 | 4756.50549 |
| Y2A | 1.000 | 152475.44802 | 0.224 | 152236.64103 | 152322.16906 | 152867.53396 |
| Y2R | 1.000 | 5346.48139 | 0.130 | 5354.44932 | 5343.41290 | 5341.58194 |
| ZN | 1.000 | 6746.75850 | 0.257 | 71.10230 | 70.81166 | 70.76580 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 4 Date/Time: 02/03/2020 21:21

Sample Number: **S3**

| ELEMENT | CONC (ppm) | AVERAGE INTENSITY | % RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| CR | 1.000 | 9461.45603 | 0.220 | 0.06039 | 0.06039 | 0.06016 |
| MO | 1.000 | 1348.15785 | 0.359 | 13.84589 | 13.74683 | 13.79476 |
| SB | 1.000 | 294.41389 | 0.387 | 0.06030 | 0.06000 | 0.06047 |
| SN | 1.000 | 201.10989 | 0.585 | 2.07157 | 2.05370 | 2.04866 |
| TI | 1.000 | 43283.15183 | 0.262 | 13.77797 | 13.83729 | 13.77168 |
| V | 1.000 | 9390.78713 | 0.210 | 2.99509 | 2.98607 | 2.99820 |
| Y1 | 1.000 | 4886.06473 | 0.385 | 4902.06979 | 4865.36746 | 4890.75692 |
| Y2A | 1.000 | 156872.78216 | 0.231 | 157291.74161 | 156651.78927 | 156674.81559 |
| Y2R | 1.000 | 5337.35000 | 0.395 | 5340.92500 | 5356.42500 | 5314.70000 |
| ZR | 1.000 | 692.25000 | 0.694 | 0.12991 | 0.13047 | 0.12871 |

LANCASTER LABORATORIES

Run Name: 2003404T74

Instrument ID: 23745

Tube: 5

Date/Time: 02/03/2020 21:24

Sample Number: **ICV**

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | 0.59361 | 7,886.67 | 0.077 | 0.59312 | 0.59368 | 0.59403 |
| ____ AL | 29.65089 | 1,030.95 | 0.893 | 29.94728 | 29.56757 | 29.43783 |
| ____ AL A› | 29.55126 | 40,493.01 | 0.445 | 29.64461 | 29.40078 | 29.60839 |
| ____ AS | 0.59290 | 59.14 | 3.233 | 0.60883 | 0.59824 | 0.57163 |
| ____ B | 0.61106 | 3,776.97 | 0.360 | 0.60900 | 0.61081 | 0.61338 |
| ____ BA | 0.59980 | 262,728.73 | 1.515 | 0.59103 | 0.59920 | 0.60918 |
| ____ BE | 0.58564 | 226,385.38 | 0.523 | 0.58728 | 0.58211 | 0.58754 |
| ____ CA | 29.17172 | 10,761.09 | 0.105 | 29.20275 | 29.14162 | 29.17079 |
| ____ CD | 0.59413 | 6,830.47 | 0.080 | 0.59461 | 0.59365 | 0.59414 |
| ____ CO | 0.59250 | 1,633.68 | 0.272 | 0.59367 | 0.59317 | 0.59066 |
| ____ CR | 0.58237 | 5,226.47 | 0.335 | 0.58100 | 0.58151 | 0.58461 |
| ____ CU | 0.60561 | 4,438.74 | 0.395 | 0.60837 | 0.60438 | 0.60408 |
| ____ FE | 28.97180 | 2,844.67 | 0.596 | 29.16194 | 28.92837 | 28.82511 |
| ____ K | 29.96336 | 7,961.75 | 0.417 | 29.98446 | 29.82935 | 30.07628 |
| ____ LI | 0.61004 | 3,054.10 | 0.611 | 0.60768 | 0.61434 | 0.60812 |
| ____ MG | 29.30131 | 14,004.52 | 0.413 | 29.44011 | 29.21776 | 29.24608 |
| ____ MN | 0.59579 | 28,903.36 | 0.096 | 0.59513 | 0.59614 | 0.59610 |
| ____ MO | 0.60660 | 784.72 | 0.430 | 0.60960 | 0.60493 | 0.60527 |
| ____ NA | 28.93927 | 27,999.40 | 0.300 | 29.03388 | 28.86301 | 28.92091 |
| ____ NI | 0.59547 | 782.62 | 0.441 | 0.59648 | 0.59745 | 0.59249 |
| ____ P | 0.60306 | 119.01 | 0.525 | 0.60611 | 0.60328 | 0.59980 |
| ____ PB | 0.58527 | 521.62 | 0.454 | 0.58823 | 0.58308 | 0.58450 |
| ____ S | 30.43989 | 2,001.42 | 0.108 | 30.46264 | 30.45474 | 30.40229 |
| ____ SB | 0.61965 | 175.34 | 0.082 | 0.61911 | 0.61971 | 0.62012 |
| ____ SE | 0.58662 | 66.84 | 1.373 | 0.59588 | 0.58271 | 0.58126 |
| ____ SI | 30.39749 | 1,979.70 | 0.149 | 30.41297 | 30.43300 | 30.34651 |
| ____ SN | 0.58156 | 112.37 | 1.268 | 0.57311 | 0.58669 | 0.58489 |
| ____ SR | 0.59377 | 287,806.15 | 0.754 | 0.59403 | 0.58918 | 0.59812 |
| ____ TH | 0.62464 | 37.07 | 5.954 | 0.59784 | 0.60900 | 0.66710 |
| ____ TI | 0.60008 | 24,678.76 | 0.542 | 0.60159 | 0.59635 | 0.60230 |
| ____ TL | 0.60413 | 143.94 | 0.499 | 0.60761 | 0.60252 | 0.60226 |
| ____ V | 0.61238 | 5,459.31 | 0.261 | 0.61336 | 0.61054 | 0.61324 |
| ____ W | 0.61277 | 321.33 | 0.256 | 0.61347 | 0.61387 | 0.61098 |
| ____ Y1 | 4692.79286 | 4,692.79 | 0.311 | 4679.48902 | 4708.38426 | 4690.50529 |
| ____ Y2A | 149025.41600 | 149,025.42 | 0.767 | 149484.00959 | 149868.21763 | 147724.02078 |
| ____ Y2R | 5256.97223 | 5,256.97 | 0.201 | 5244.74287 | 5263.13686 | 5263.03696 |
| ____ ZN | 0.58699 | 3,930.00 | 0.197 | 0.58766 | 0.58766 | 0.58566 |
| ____ ZR | 0.60972 | 441.71 | 0.258 | 0.61129 | 0.60814 | 0.60971 |

LANCASTER LABORATORIES

Run Name: 2003404T74

Instrument ID: 23745

Tube: 6

Date/Time: 02/03/2020 21:27

Sample Number: **ICB**

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00048 | -9.51 | 366.843 | 0.00127 | -0.00046 | -0.00224 |
| ____ AL | -0.01670 | -1.88 | 597.392 | -0.12564 | 0.00540 | 0.07015 |
| ____ AL A› | -0.00009 | 27.06 | 3625.880 | -0.00052 | -0.00291 | 0.00318 |
| ____ AS | 0.00665 | 0.77 | 95.541 | 0.00805 | -0.00029 | 0.01219 |
| ____ B | 0.00500 | 17.43 | 11.614 | 0.00535 | 0.00533 | 0.00433 |
| ____ BA | 0.00005 | 157.30 | 57.909 | 0.00005 | 0.00002 | 0.00008 |
| ____ BE | -0.00188 | -1,177.12 | 1.337 | -0.00185 | -0.00188 | -0.00190 |
| ____ CA | 0.01852 | 8.15 | 67.623 | 0.02493 | 0.00409 | 0.02655 |
| ____ CD | 0.00047 | -4.19 | 33.727 | 0.00065 | 0.00042 | 0.00034 |
| ____ CO | -0.00006 | 2.22 | 1053.675 | 0.00050 | -0.00074 | 0.00006 |
| ____ CR | 0.00112 | -8.98 | 40.874 | 0.00070 | 0.00161 | 0.00105 |
| ____ CU | 0.00550 | 3.56 | 54.586 | 0.00224 | 0.00611 | 0.00815 |
| ____ FE | 0.00863 | -0.23 | 198.811 | -0.00485 | 0.02794 | 0.00279 |
| ____ K | 0.04746 | 104.32 | 111.209 | 0.00342 | 0.10597 | 0.03300 |
| ____ LI | 0.00869 | -6.53 | 21.475 | 0.00786 | 0.00739 | 0.01083 |
| ____ MG | 0.01205 | 6.60 | 50.160 | 0.01463 | 0.00515 | 0.01638 |
| ____ MN | 0.00007 | 3.82 | 182.900 | 0.00019 | -0.00006 | 0.00007 |
| ____ MO | 0.00130 | 1.09 | 73.396 | 0.00068 | 0.00082 | 0.00240 |
| ____ NA | 0.02651 | 126.55 | 32.434 | 0.03625 | 0.02328 | 0.01999 |
| ____ NI | -0.00038 | 5.46 | 149.198 | 0.00018 | -0.00094 | -0.00037 |
| ____ P | -0.00407 | 0.81 | 144.528 | -0.00074 | -0.01086 | -0.00061 |
| ____ PB | 0.00235 | -3.65 | 87.100 | 0.00014 | 0.00418 | 0.00274 |
| ____ S | 0.01410 | 2.65 | 12.060 | 0.01408 | 0.01581 | 0.01241 |
| ____ SB | 0.00238 | 1.47 | 164.806 | 0.00668 | -0.00098 | 0.00143 |
| ____ SE | 0.00981 | 0.98 | 13.942 | 0.00832 | 0.01102 | 0.01009 |
| ____ SI | 0.01781 | 1.48 | 77.533 | 0.01178 | 0.00804 | 0.03361 |
| ____ SN | -0.00021 | 0.04 | 778.831 | -0.00149 | -0.00073 | 0.00160 |
| ____ SR | 0.00006 | 41.47 | 48.637 | 0.00007 | 0.00002 | 0.00007 |
| ____ TH | 0.03607 | -0.33 | 193.209 | 0.10988 | 0.02691 | -0.02859 |
| ____ TI | 0.00027 | 24.49 | 83.106 | 0.00023 | 0.00052 | 0.00007 |
| ____ TL | -0.00093 | -0.47 | 151.958 | -0.00224 | -0.00109 | 0.00056 |
| ____ V | 0.00026 | -22.66 | 200.078 | -0.00016 | 0.00084 | 0.00010 |
| ____ W | -0.00001 | 1.71 | 5261.168 | -0.00043 | 0.00066 | -0.00026 |
| ____ Y1 | 4803.33433 | 4,803.33 | 0.362 | 4783.69963 | 4816.69033 | 4809.61304 |
| ____ Y2A | 151978.90036 | 151,978.90 | 0.343 | 152205.32500 | 152348.43719 | 151382.93889 |
| ____ Y2R | 5175.40833 | 5,175.41 | 0.722 | 5194.97500 | 5132.35000 | 5198.90000 |
| ____ ZN | 0.00038 | 4.33 | 35.495 | 0.00052 | 0.00025 | 0.00039 |
| ____ ZR | 0.00229 | 3.97 | 112.619 | 0.00108 | 0.00054 | 0.00525 |

LANCASTER LABORATORIES

Run Name: 2003404T74

Instrument ID: 23745

Tube: 7

Date/Time: 02/03/2020 21:30

Sample Number: **LLC**

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | 0.00868 | -7.27 | 18.710 | 0.00824 | 0.01048 | 0.00732 |
| ____ AL | 0.26272 | 9.63 | 25.452 | 0.27567 | 0.19032 | 0.32217 |
| ____ AL A› | 0.20136 | 387.21 | 2.756 | 0.20069 | 0.19618 | 0.20722 |
| ____ AS | 0.03346 | 3.54 | 28.470 | 0.04022 | 0.02256 | 0.03758 |
| ____ B | 0.03335 | 198.35 | 0.765 | 0.03341 | 0.03307 | 0.03357 |
| ____ BA | 0.00542 | 2,624.95 | 0.429 | 0.00544 | 0.00540 | 0.00543 |
| ____ BE | 0.00310 | 768.31 | 0.308 | 0.00309 | 0.00311 | 0.00310 |
| ____ CA | 0.20055 | 76.53 | 1.053 | 0.20268 | 0.20050 | 0.19846 |
| ____ CD | 0.00572 | 58.40 | 3.064 | 0.00574 | 0.00588 | 0.00554 |
| ____ CO | 0.00489 | 16.42 | 3.333 | 0.00507 | 0.00476 | 0.00484 |
| ____ CR | 0.01630 | 133.66 | 2.745 | 0.01578 | 0.01650 | 0.01660 |
| ____ CU | 0.03100 | 310.35 | 8.023 | 0.03279 | 0.02816 | 0.03206 |
| ____ FE | 0.22774 | 21.82 | 3.935 | 0.23029 | 0.23514 | 0.21777 |
| ____ K | 0.33501 | 183.80 | 19.093 | 0.34153 | 0.26804 | 0.39547 |
| ____ LI | 0.06069 | 260.73 | 3.749 | 0.05891 | 0.05989 | 0.06325 |
| ____ MG | 0.11165 | 55.87 | 4.443 | 0.10655 | 0.11193 | 0.11646 |
| ____ MN | 0.01048 | 531.95 | 0.779 | 0.01053 | 0.01052 | 0.01038 |
| ____ MO | 0.01059 | 13.56 | 4.187 | 0.01076 | 0.01093 | 0.01009 |
| ____ NA | 1.04443 | 1,123.88 | 0.614 | 1.04628 | 1.03730 | 1.04972 |
| ____ NI | 0.01071 | 20.53 | 3.217 | 0.01093 | 0.01089 | 0.01031 |
| ____ P | 0.09599 | 20.94 | 3.361 | 0.09971 | 0.09414 | 0.09410 |
| ____ PB | 0.02096 | 13.46 | 10.310 | 0.02025 | 0.01924 | 0.02339 |
| ____ S | 0.53253 | 37.88 | 2.562 | 0.54644 | 0.53198 | 0.51917 |
| ____ SB | 0.05445 | 16.54 | 3.429 | 0.05511 | 0.05234 | 0.05590 |
| ____ SE | 0.05456 | 6.29 | 4.274 | 0.05478 | 0.05678 | 0.05213 |
| ____ SI | 0.49607 | 33.09 | 3.155 | 0.47806 | 0.50382 | 0.50634 |
| ____ SN | 0.04954 | 10.00 | 6.576 | 0.04771 | 0.04761 | 0.05330 |
| ____ SR | 0.00527 | 2,684.24 | 0.458 | 0.00530 | 0.00525 | 0.00526 |
| ____ TH | 0.49170 | 28.98 | 9.777 | 0.48392 | 0.54318 | 0.44799 |
| ____ TI | 0.01029 | 455.45 | 2.974 | 0.01063 | 0.01007 | 0.01015 |
| ____ TL | 0.03290 | 8.05 | 11.039 | 0.03626 | 0.03339 | 0.02904 |
| ____ V | 0.01078 | 75.36 | 2.264 | 0.01085 | 0.01051 | 0.01098 |
| ____ W | 0.03032 | 18.07 | 2.478 | 0.02946 | 0.03070 | 0.03081 |
| ____ Y1 | 4863.14768 | 4,863.15 | 0.260 | 4877.59624 | 4857.71823 | 4854.12859 |
| ____ Y2A | 155812.27050 | 155,812.27 | 1.139 | 156897.56597 | 156774.52642 | 153764.71911 |
| ____ Y2R | 5323.81667 | 5,323.82 | 0.151 | 5318.17500 | 5333.00000 | 5320.27500 |
| ____ ZN | 0.02075 | 144.67 | 0.890 | 0.02067 | 0.02096 | 0.02062 |
| ____ ZR | 0.05193 | 57.22 | 4.056 | 0.05348 | 0.04953 | 0.05278 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 8 Date/Time: 02/03/2020 21:33

Sample Number: **ICSA**

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| AG | -0.00126 | -65.87 | 45.862 | -0.00163 | -0.00059 | -0.00154 |
| AL | 506.91520 | 16,874.74 | 0.618 | 503.37481 | 509.33578 | 508.03501 |
| AL A› | 495.88969 | 588,299.96 | 1.025 | 491.16089 | 495.24001 | 501.26816 |
| AS | 0.00904 | 0.90 | 133.732 | 0.00196 | 0.00216 | 0.02299 |
| B | -0.01565 | 736.30 | 3.776 | -0.01627 | -0.01560 | -0.01509 |
| BA | 0.00089 | 471.56 | 2.740 | 0.00089 | 0.00087 | 0.00092 |
| BE | -0.00205 | -1,118.58 | 2.022 | -0.00202 | -0.00204 | -0.00210 |
| CA | 499.55245 | 169,521.48 | 0.094 | 499.01931 | 499.89313 | 499.74490 |
| CD | 0.00296 | 136.26 | 12.275 | 0.00337 | 0.00285 | 0.00266 |
| CO | 0.00173 | 6.45 | 13.399 | 0.00148 | 0.00194 | 0.00177 |
| CR | -0.00241 | -36.66 | 35.822 | -0.00199 | -0.00183 | -0.00340 |
| CU | 0.00488 | 116.33 | 23.664 | 0.00518 | 0.00360 | 0.00585 |
| FE | 204.03557 | 17,897.41 | 0.315 | 203.34581 | 204.61995 | 204.14095 |
| K | 0.01033 | 166.08 | 340.335 | -0.02728 | 0.04234 | 0.01593 |
| LI | -0.00336 | 36.91 | 49.260 | -0.00515 | -0.00188 | -0.00306 |
| MG | 534.79850 | 168,250.04 | 0.356 | 534.63318 | 532.98438 | 536.77794 |
| MN | 0.00500 | 219.52 | 2.248 | 0.00510 | 0.00501 | 0.00488 |
| MO | -0.00090 | -1.63 | 25.520 | -0.00107 | -0.00100 | -0.00064 |
| NA | 0.08032 | 173.31 | 17.633 | 0.06988 | 0.07464 | 0.09644 |
| NI | -0.00421 | 0.29 | 28.669 | -0.00438 | -0.00293 | -0.00533 |
| P | 0.00252 | 1.88 | 168.996 | 0.00743 | -0.00032 | 0.00046 |
| PB | -0.02793 | 71.29 | 9.882 | -0.03032 | -0.02856 | -0.02491 |
| S | -0.13730 | -6.72 | 4.072 | -0.14131 | -0.13091 | -0.13968 |
| SB | 0.02010 | 5.78 | 29.905 | 0.01584 | 0.01748 | 0.02697 |
| SE | -0.00031 | -2.16 | 4164.726 | 0.01217 | 0.00019 | -0.01328 |
| SI | -0.00536 | -0.01 | 244.253 | -0.00922 | -0.01610 | 0.00923 |
| SN | 0.00248 | 0.51 | 115.302 | 0.00481 | -0.00071 | 0.00333 |
| SR | 0.00095 | 6,287.52 | 8.350 | 0.00099 | 0.00101 | 0.00086 |
| TH | 0.21117 | 10.37 | 20.471 | 0.16695 | 0.25334 | 0.21321 |
| TI | -0.00024 | 2.57 | 34.256 | -0.00015 | -0.00032 | -0.00026 |
| TL | -0.00877 | -5.09 | 31.671 | -0.01177 | -0.00629 | -0.00824 |
| V | -0.00133 | -1.20 | 35.219 | -0.00081 | -0.00172 | -0.00146 |
| W | 0.00154 | 2.20 | 81.549 | 0.00260 | 0.00187 | 0.00015 |
| Y1 | 4274.53455 | 4,274.53 | 0.028 | 4275.60644 | 4273.26267 | 4274.73453 |
| Y2A | 134719.64199 | 134,719.64 | 0.228 | 134893.97788 | 134899.88022 | 134365.06788 |
| Y2R | 5051.52891 | 5,051.53 | 0.605 | 5054.39331 | 5080.54059 | 5019.65283 |
| ZN | -0.00738 | 105.77 | 3.140 | -0.00711 | -0.00752 | -0.00750 |
| ZR | -0.00513 | 5.92 | 59.458 | -0.00831 | -0.00223 | -0.00485 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 9 Date/Time: 02/03/2020 21:37

Sample Number: **ICSAB**

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | 0.21557 | 2,591.81 | 0.522 | 0.21673 | 0.21449 | 0.21548 |
| ____ AL | 511.15926 | 17,115.51 | 0.557 | 512.14232 | 507.95051 | 513.38496 |
| ____ AL A› | 503.74600 | 596,916.25 | 0.408 | 502.02516 | 503.18757 | 506.02528 |
| ____ AS | 0.08137 | 7.36 | 17.023 | 0.07535 | 0.07156 | 0.09722 |
| ____ B | -0.01537 | 739.62 | 4.997 | -0.01559 | -0.01452 | -0.01600 |
| ____ BA | 0.51989 | 205,720.78 | 0.472 | 0.51713 | 0.52074 | 0.52181 |
| ____ BE | 0.51142 | 178,597.17 | 0.556 | 0.50824 | 0.51228 | 0.51373 |
| ____ CA | 502.85821 | 171,586.45 | 0.117 | 502.70150 | 502.36657 | 503.50655 |
| ____ CD | 0.95274 | 10,007.45 | 0.010 | 0.95273 | 0.95283 | 0.95264 |
| ____ CO | 0.47825 | 1,191.39 | 0.166 | 0.47841 | 0.47895 | 0.47739 |
| ____ CR | 0.48757 | 3,950.50 | 0.932 | 0.48342 | 0.48686 | 0.49243 |
| ____ CU | 0.52864 | 3,572.68 | 0.898 | 0.52490 | 0.53398 | 0.52705 |
| ____ FE | 206.02964 | 18,161.88 | 0.242 | 205.86093 | 205.63642 | 206.59158 |
| ____ K | -0.19464 | 113.02 | 28.161 | -0.17995 | -0.25530 | -0.14867 |
| ____ LI | -0.00427 | 33.32 | 51.597 | -0.00191 | -0.00628 | -0.00463 |
| ____ MG | 520.23703 | 166,805.07 | 0.188 | 521.20902 | 519.25211 | 520.24996 |
| ____ MN | 0.50305 | 22,049.45 | 0.237 | 0.50180 | 0.50316 | 0.50418 |
| ____ MO | -0.00122 | -1.99 | 85.759 | -0.00157 | -0.00203 | -0.00004 |
| ____ NA | 0.07884 | 172.99 | 11.030 | 0.07970 | 0.08708 | 0.06975 |
| ____ NI | 0.93369 | 1,110.90 | 0.248 | 0.93522 | 0.93102 | 0.93482 |
| ____ P | -0.00127 | 1.60 | 514.439 | -0.00864 | 0.00112 | 0.00372 |
| ____ PB | 0.47707 | 476.90 | 0.458 | 0.47823 | 0.47843 | 0.47455 |
| ____ S | -0.16820 | -8.64 | 3.327 | -0.16201 | -0.17289 | -0.16971 |
| ____ SB | 0.64438 | 164.99 | 1.047 | 0.63773 | 0.65122 | 0.64420 |
| ____ SE | 0.51605 | 50.86 | 0.933 | 0.52145 | 0.51224 | 0.51445 |
| ____ SI | -0.00716 | -0.12 | 159.022 | 0.00055 | -0.02023 | -0.00179 |
| ____ SN | 0.00682 | 1.26 | 78.054 | 0.00140 | 0.01204 | 0.00701 |
| ____ SR | -0.00049 | 5,691.24 | 7.395 | -0.00052 | -0.00051 | -0.00045 |
| ____ TH | 0.16372 | 7.51 | 57.080 | 0.23693 | 0.05846 | 0.19576 |
| ____ TI | 0.00010 | 15.26 | 188.045 | 0.00013 | -0.00010 | 0.00027 |
| ____ TL | 0.08264 | 15.34 | 6.843 | 0.07988 | 0.07890 | 0.08915 |
| ____ V | 0.51493 | 4,236.85 | 0.509 | 0.51227 | 0.51500 | 0.51751 |
| ____ W | 0.00202 | 8.04 | 164.725 | 0.00368 | 0.00419 | -0.00181 |
| ____ Y1 | 4247.95121 | 4,247.95 | 0.215 | 4258.14130 | 4245.23919 | 4240.47315 |
| ____ Y2A | 134647.19552 | 134,647.20 | 1.063 | 135835.18075 | 135047.61312 | 133058.79269 |
| ____ Y2R | 5080.97763 | 5,080.98 | 0.162 | 5073.85569 | 5089.99201 | 5079.08520 |
| ____ ZN | 0.99465 | 6,135.32 | 0.069 | 0.99542 | 0.99410 | 0.99443 |
| ____ ZR | 0.00177 | 8.61 | 348.837 | 0.00139 | 0.00814 | -0.00421 |

LANCASTER LABORATORIES

Run Name: 2003404T74

Instrument ID: 23745

Tube: 10

Date/Time: 02/03/2020 21:40

Sample Number: **CCV**

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | 0.49737 | 6,673.88 | 0.298 | 0.49571 | 0.49782 | 0.49857 |
| ____ AL | 25.15953 | 881.61 | 0.490 | 25.07118 | 25.10709 | 25.30033 |
| ____ AL A› | 25.16599 | 34,877.51 | 0.586 | 25.24616 | 25.25598 | 24.99582 |
| ____ AS | 0.49296 | 49.82 | 2.038 | 0.48292 | 0.49294 | 0.50301 |
| ____ B | 0.48633 | 3,039.50 | 0.286 | 0.48766 | 0.48488 | 0.48645 |
| ____ BA | 0.50563 | 223,938.71 | 0.814 | 0.51017 | 0.50461 | 0.50213 |
| ____ BE | 0.48644 | 190,024.84 | 0.191 | 0.48642 | 0.48738 | 0.48553 |
| ____ CA | 24.92512 | 9,271.91 | 0.329 | 24.98525 | 24.95830 | 24.83182 |
| ____ CD | 0.49924 | 5,812.61 | 0.221 | 0.50007 | 0.49966 | 0.49798 |
| ____ CO | 0.49711 | 1,388.77 | 0.165 | 0.49719 | 0.49789 | 0.49625 |
| ____ CR | 0.48707 | 4,415.94 | 0.092 | 0.48680 | 0.48758 | 0.48682 |
| ____ CU | 0.50655 | 3,752.63 | 0.451 | 0.50827 | 0.50396 | 0.50742 |
| ____ FE | 24.89017 | 2,467.39 | 0.096 | 24.89028 | 24.91395 | 24.86629 |
| ____ K | 25.03463 | 6,720.99 | 0.527 | 24.88706 | 25.14146 | 25.07536 |
| ____ LI | 0.50859 | 2,558.16 | 0.369 | 0.50810 | 0.50701 | 0.51066 |
| ____ MG | 24.82059 | 11,991.41 | 0.389 | 24.92159 | 24.72925 | 24.81092 |
| ____ MN | 0.50085 | 24,563.68 | 0.106 | 0.50092 | 0.50029 | 0.50135 |
| ____ MO | 0.49897 | 653.74 | 0.264 | 0.50047 | 0.49798 | 0.49847 |
| ____ NA | 25.11075 | 24,503.43 | 0.279 | 25.18185 | 25.04174 | 25.10866 |
| ____ NI | 0.49786 | 663.78 | 0.587 | 0.50004 | 0.49900 | 0.49454 |
| ____ P | 0.50349 | 100.91 | 1.126 | 0.49979 | 0.51002 | 0.50067 |
| ____ PB | 0.49691 | 447.76 | 0.366 | 0.49899 | 0.49614 | 0.49560 |
| ____ S | 24.94695 | 1,661.79 | 0.309 | 24.95814 | 24.86477 | 25.01793 |
| ____ SB | 0.49391 | 141.82 | 0.352 | 0.49250 | 0.49585 | 0.49337 |
| ____ SE | 0.49530 | 57.12 | 1.252 | 0.49560 | 0.48896 | 0.50135 |
| ____ SI | 25.10705 | 1,648.29 | 0.231 | 25.14994 | 25.04117 | 25.13005 |
| ____ SN | 0.48115 | 94.18 | 0.283 | 0.48189 | 0.48199 | 0.47958 |
| ____ SR | 0.49636 | 243,238.24 | 0.337 | 0.49585 | 0.49823 | 0.49500 |
| ____ TH | 0.54869 | 32.50 | 3.812 | 0.56900 | 0.54985 | 0.52722 |
| ____ TI | 0.50012 | 20,795.39 | 0.122 | 0.50071 | 0.50015 | 0.49949 |
| ____ TL | 0.51142 | 123.44 | 0.432 | 0.51251 | 0.50888 | 0.51287 |
| ____ V | 0.50569 | 4,553.68 | 0.222 | 0.50674 | 0.50451 | 0.50581 |
| ____ W | 0.50719 | 269.77 | 0.202 | 0.50706 | 0.50828 | 0.50625 |
| ____ Y1 | 4753.58401 | 4,753.58 | 0.346 | 4735.89211 | 4756.40944 | 4768.45048 |
| ____ Y2A | 150656.17583 | 150,656.18 | 0.093 | 150818.12749 | 150574.77500 | 150575.62500 |
| ____ Y2R | 5299.05890 | 5,299.06 | 0.265 | 5283.52443 | 5310.81284 | 5302.83943 |
| ____ ZN | 0.49660 | 3,368.15 | 0.208 | 0.49761 | 0.49664 | 0.49554 |
| ____ ZR | 0.50245 | 368.48 | 1.606 | 0.50267 | 0.49427 | 0.51040 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 11 Date/Time: 02/03/2020 21:43

Sample Number: **CCB**

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00053 | -9.46 | 275.295 | -0.00061 | -0.00195 | 0.00097 |
| ____ AL | -0.00974 | -1.68 | 323.572 | 0.02665 | -0.02859 | -0.02730 |
| ____ AL A› | 0.00027 | 27.53 | 3434.213 | 0.00378 | 0.00721 | -0.01019 |
| ____ AS | 0.00158 | 0.25 | 746.053 | 0.00097 | -0.00988 | 0.01365 |
| ____ B | 0.00409 | 11.57 | 18.959 | 0.00469 | 0.00321 | 0.00436 |
| ____ BA | 0.00001 | 139.99 | 209.544 | 0.00002 | -0.00001 | 0.00000 |
| ____ BE | -0.00191 | -1,204.40 | 1.835 | -0.00187 | -0.00192 | -0.00193 |
| ____ CA | 0.00118 | 1.85 | 410.894 | -0.00069 | 0.00666 | -0.00245 |
| ____ CD | 0.00043 | -4.62 | 15.627 | 0.00051 | 0.00040 | 0.00039 |
| ____ CO | -0.00025 | 1.70 | 169.059 | -0.00061 | -0.00034 | 0.00021 |
| ____ CR | 0.00155 | -5.14 | 46.430 | 0.00165 | 0.00221 | 0.00078 |
| ____ CU | 0.00506 | -0.31 | 36.653 | 0.00647 | 0.00575 | 0.00296 |
| ____ FE | 0.00393 | -0.70 | 253.487 | 0.01245 | -0.00704 | 0.00639 |
| ____ K | 0.05054 | 106.88 | 40.337 | 0.02877 | 0.06917 | 0.05368 |
| ____ LI | 0.00829 | -8.68 | 44.907 | 0.00443 | 0.01185 | 0.00857 |
| ____ MG | 0.00874 | 5.08 | 66.575 | 0.01407 | 0.00962 | 0.00253 |
| ____ MN | -0.00002 | -0.63 | 328.040 | 0.00003 | 0.00001 | -0.00010 |
| ____ MO | 0.00114 | 0.88 | 65.752 | 0.00157 | 0.00157 | 0.00027 |
| ____ NA | 0.00589 | 108.72 | 202.781 | 0.01373 | 0.01180 | -0.00786 |
| ____ NI | -0.00101 | 4.62 | 182.794 | -0.00313 | 0.00028 | -0.00018 |
| ____ P | -0.00171 | 1.28 | 211.094 | -0.00309 | 0.00239 | -0.00444 |
| ____ PB | 0.00284 | -3.23 | 127.424 | -0.00029 | 0.00201 | 0.00679 |
| ____ S | 0.01938 | 3.01 | 21.946 | 0.02157 | 0.02210 | 0.01448 |
| ____ SB | 0.00243 | 1.49 | 129.577 | -0.00027 | 0.00168 | 0.00589 |
| ____ SE | 0.00320 | 0.21 | 285.513 | -0.00528 | 0.01286 | 0.00201 |
| ____ SI | 0.04059 | 2.98 | 34.915 | 0.03997 | 0.02673 | 0.05505 |
| ____ SN | -0.00026 | 0.03 | 1812.988 | -0.00068 | -0.00476 | 0.00465 |
| ____ SR | 0.00003 | 31.60 | 69.112 | 0.00006 | 0.00003 | 0.00001 |
| ____ TH | 0.03402 | -0.48 | 196.730 | 0.01143 | -0.01869 | 0.10933 |
| ____ TI | 0.00041 | 30.56 | 34.339 | 0.00043 | 0.00053 | 0.00026 |
| ____ TL | -0.00196 | -0.74 | 92.020 | -0.00299 | -0.00300 | 0.00012 |
| ____ V | -0.00006 | -26.01 | 843.724 | -0.00057 | -0.00012 | 0.00050 |
| ____ W | 0.00096 | 2.22 | 154.572 | 0.00049 | 0.00262 | -0.00023 |
| ____ Y1 | 4815.79175 | 4,815.79 | 0.471 | 4832.35076 | 4825.09949 | 4789.92501 |
| ____ Y2A | 154149.51248 | 154,149.51 | 0.264 | 154028.85000 | 153817.10605 | 154602.58139 |
| ____ Y2R | 5258.69167 | 5,258.69 | 0.653 | 5240.50000 | 5298.32500 | 5237.25000 |
| ____ ZN | 0.00027 | 3.57 | 11.898 | 0.00029 | 0.00024 | 0.00030 |
| ____ ZR | 0.00834 | 8.05 | 13.821 | 0.00958 | 0.00813 | 0.00730 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 12 Date/Time: 02/03/2020 21:46

Sample Number: **PBW** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00067 | -10.02 | 141.146 | -0.00154 | -0.00079 | 0.00033 |
| ____ AL | 0.01726 | -0.77 | 120.196 | 0.02402 | 0.03377 | -0.00602 |
| ____ AL A› | 0.00080 | 27.62 | 925.538 | 0.00250 | 0.00718 | -0.00729 |
| ____ AS | 0.00047 | 0.15 | 485.092 | 0.00183 | 0.00173 | -0.00216 |
| ____ B | 0.00377 | 9.95 | 5.358 | 0.00398 | 0.00374 | 0.00358 |
| ____ BA | 0.00001 | 141.38 | 375.233 | 0.00003 | 0.00002 | -0.00003 |
| ____ BE | -0.00196 | -1,230.85 | 1.178 | -0.00197 | -0.00197 | -0.00193 |
| ____ CA | 0.00810 | 4.42 | 19.574 | 0.00689 | 0.00990 | 0.00752 |
| ____ CD | 0.00038 | -5.35 | 8.697 | 0.00036 | 0.00036 | 0.00042 |
| ____ CO | -0.00035 | 1.43 | 35.337 | -0.00021 | -0.00043 | -0.00042 |
| ____ CR | 0.00121 | -8.33 | 86.471 | 0.00001 | 0.00169 | 0.00194 |
| ____ CU | 0.00632 | 8.04 | 23.750 | 0.00790 | 0.00492 | 0.00613 |
| ____ FE | 0.00879 | -0.22 | 69.602 | 0.00347 | 0.01548 | 0.00742 |
| ____ K | 0.02917 | 101.55 | 216.482 | 0.02384 | 0.09482 | -0.03114 |
| ____ LI | 0.00891 | -5.62 | 13.935 | 0.00971 | 0.00953 | 0.00748 |
| ____ MG | 0.00341 | 2.50 | 191.723 | 0.00267 | -0.00273 | 0.01029 |
| ____ MN | 0.00045 | 22.92 | 12.294 | 0.00047 | 0.00038 | 0.00048 |
| ____ MO | 0.00061 | 0.17 | 43.004 | 0.00083 | 0.00067 | 0.00032 |
| ____ NA | 0.02175 | 124.32 | 84.512 | 0.00929 | 0.04285 | 0.01309 |
| ____ NI | 0.00062 | 6.94 | 103.238 | 0.00075 | -0.00008 | 0.00119 |
| ____ P | -0.00377 | 0.89 | 30.137 | -0.00498 | -0.00273 | -0.00360 |
| ____ PB | 0.00446 | -1.77 | 85.082 | 0.00012 | 0.00717 | 0.00609 |
| ____ S | 0.01038 | 2.46 | 165.183 | -0.00359 | 0.02951 | 0.00521 |
| ____ SB | 0.00012 | 0.84 | 1879.754 | -0.00121 | -0.00497 | 0.00654 |
| ____ SE | 0.00454 | 0.37 | 117.483 | 0.00919 | 0.00572 | -0.00129 |
| ____ SI | 0.00149 | 0.43 | 950.980 | -0.00839 | 0.01774 | -0.00488 |
| ____ SN | 0.00131 | 0.35 | 130.878 | 0.00042 | 0.00328 | 0.00022 |
| ____ SR | 0.00000 | 15.74 | 613.871 | 0.00000 | -0.00001 | 0.00002 |
| ____ TH | 0.02863 | -0.82 | 102.777 | 0.01108 | 0.01221 | 0.06260 |
| ____ TI | -0.00006 | 10.61 | 135.499 | 0.00000 | -0.00016 | -0.00002 |
| ____ TL | 0.00300 | 0.53 | 84.538 | 0.00201 | 0.00589 | 0.00111 |
| ____ V | 0.00048 | -20.92 | 80.143 | 0.00049 | 0.00009 | 0.00087 |
| ____ W | -0.00103 | 1.19 | 153.614 | 0.00058 | -0.00258 | -0.00109 |
| ____ Y1 | 4901.69183 | 4,901.69 | 0.353 | 4883.72363 | 4918.19818 | 4903.15368 |
| ____ Y2A | 154947.85283 | 154,947.85 | 0.493 | 155647.52500 | 155062.56229 | 154133.47120 |
| ____ Y2R | 5276.12500 | 5,276.13 | 0.733 | 5316.35000 | 5239.22500 | 5272.80000 |
| ____ ZN | 0.00050 | 5.28 | 26.162 | 0.00041 | 0.00065 | 0.00044 |
| ____ ZR | 0.00621 | 6.42 | 121.320 | 0.00442 | -0.00027 | 0.01448 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 13 Date/Time: 02/03/2020 21:49

Sample Number: **LCSW** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | 0.01447 | 228.27 | 11.799 | 0.01633 | 0.01409 | 0.01298 |
| ____ AL | 0.34658 | 10.62 | 18.291 | 0.27373 | 0.37679 | 0.38922 |
| ____ AL A› | 0.35109 | 525.01 | 2.291 | 0.34226 | 0.35303 | 0.35800 |
| ____ AS | 0.04858 | 5.19 | 2.566 | 0.04715 | 0.04943 | 0.04917 |
| ____ B | 0.04911 | 300.94 | 2.186 | 0.04795 | 0.05007 | 0.04931 |
| ____ BA | 0.00836 | 4,006.89 | 0.129 | 0.00836 | 0.00836 | 0.00838 |
| ____ BE | 0.00584 | 1,940.77 | 1.434 | 0.00593 | 0.00582 | 0.00576 |
| ____ CA | 0.33906 | 128.50 | 3.314 | 0.34499 | 0.34608 | 0.32610 |
| ____ CD | 0.00873 | 96.03 | 2.885 | 0.00858 | 0.00903 | 0.00859 |
| ____ CO | 0.00796 | 25.64 | 7.486 | 0.00779 | 0.00862 | 0.00746 |
| ____ CR | 0.02564 | 223.39 | 0.970 | 0.02588 | 0.02566 | 0.02538 |
| ____ CU | 0.04074 | 253.79 | 6.062 | 0.03850 | 0.04031 | 0.04339 |
| ____ FE | 0.33879 | 33.02 | 7.695 | 0.33598 | 0.31424 | 0.36616 |
| ____ K | 0.49965 | 227.75 | 7.922 | 0.45463 | 0.51535 | 0.52897 |
| ____ LI | 0.09272 | 425.85 | 2.321 | 0.09151 | 0.09143 | 0.09520 |
| ____ MG | 0.16691 | 83.17 | 3.704 | 0.16617 | 0.16112 | 0.17342 |
| ____ MN | 0.01701 | 870.05 | 0.916 | 0.01690 | 0.01694 | 0.01719 |
| ____ MO | 0.01674 | 22.18 | 3.591 | 0.01657 | 0.01624 | 0.01741 |
| ____ NA | 1.66875 | 1,734.67 | 0.325 | 1.66475 | 1.66658 | 1.67492 |
| ____ NI | 0.01687 | 29.38 | 3.968 | 0.01631 | 0.01670 | 0.01761 |
| ____ P | 0.16256 | 34.94 | 1.788 | 0.16197 | 0.16571 | 0.15999 |
| ____ PB | 0.02887 | 21.14 | 7.039 | 0.03121 | 0.02782 | 0.02758 |
| ____ S | 0.83960 | 59.78 | 0.361 | 0.84163 | 0.83612 | 0.84106 |
| ____ SB | 0.07538 | 23.00 | 4.067 | 0.07408 | 0.07889 | 0.07318 |
| ____ SE | 0.08805 | 10.43 | 6.150 | 0.09347 | 0.08264 | 0.08803 |
| ____ SI | 0.82861 | 55.08 | 3.947 | 0.81265 | 0.80695 | 0.86623 |
| ____ SN | 0.07694 | 15.76 | 3.329 | 0.07654 | 0.07968 | 0.07461 |
| ____ SR | 0.00831 | 4,257.28 | 0.186 | 0.00832 | 0.00829 | 0.00832 |
| ____ TH | -0.03571 | -4.97 | 256.138 | 0.06702 | -0.06586 | -0.10828 |
| ____ TI | 0.01638 | 722.66 | 0.878 | 0.01628 | 0.01631 | 0.01654 |
| ____ TL | 0.04872 | 12.25 | 2.498 | 0.05001 | 0.04858 | 0.04759 |
| ____ V | 0.01711 | 135.69 | 0.729 | 0.01713 | 0.01723 | 0.01698 |
| ____ W | 0.04621 | 27.12 | 2.511 | 0.04688 | 0.04487 | 0.04688 |
| ____ Y1 | 4950.00233 | 4,950.00 | 0.254 | 4960.97390 | 4936.26837 | 4952.76472 |
| ____ Y2A | 157011.02274 | 157,011.02 | 0.490 | 156290.62562 | 156920.72867 | 157821.71394 |
| ____ Y2R | 5327.80833 | 5,327.81 | 0.123 | 5330.85000 | 5320.30000 | 5332.27500 |
| ____ ZN | 0.03332 | 235.27 | 0.368 | 0.03324 | 0.03346 | 0.03326 |
| ____ ZR | 0.08521 | 58.32 | 10.347 | 0.07889 | 0.08147 | 0.09529 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 14 Date/Time: 02/03/2020 21:52

Sample Number: **1251392** Class: U*** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: S

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00069 | -11.58 | 197.319 | -0.00011 | 0.00029 | -0.00223 |
| ____ AL | -0.00520 | -1.51 | 1233.934 | -0.07083 | -0.00210 | 0.05733 |
| ____ AL A› | 0.00117 | 30.75 | 739.037 | -0.00753 | 0.00129 | 0.00975 |
| ____ AS | 0.00628 | 0.84 | 194.028 | -0.00686 | 0.01723 | 0.00848 |
| ____ B | 0.03991 | 204.32 | 0.679 | 0.04009 | 0.03960 | 0.04005 |
| ____ BA | 0.02217 | 10,284.27 | 0.927 | 0.02233 | 0.02223 | 0.02194 |
| ____ BE | -0.00190 | -1,213.22 | 1.693 | -0.00189 | -0.00193 | -0.00187 |
| ____ CA | 24.42125 | 9,246.83 | 0.664 | 24.60586 | 24.35622 | 24.30168 |
| ____ CD | 0.00040 | -5.06 | 18.557 | 0.00049 | 0.00034 | 0.00037 |
| ____ CO | 0.00008 | 2.70 | 528.124 | 0.00059 | -0.00014 | -0.00020 |
| ____ CR | 0.00132 | -7.39 | 19.646 | 0.00105 | 0.00132 | 0.00157 |
| ____ CU | 0.00631 | 13.05 | 18.297 | 0.00652 | 0.00507 | 0.00735 |
| ____ FE | 0.05674 | 4.67 | 47.114 | 0.03702 | 0.08717 | 0.04603 |
| ____ K | 4.64476 | 1,348.51 | 0.916 | 4.69294 | 4.62897 | 4.61237 |
| ____ LI | 0.01079 | 9.36 | 15.326 | 0.01268 | 0.01002 | 0.00966 |
| ____ MG | 11.41137 | 5,659.70 | 0.644 | 11.48405 | 11.33718 | 11.41288 |
| ____ MN | 0.52364 | 26,563.39 | 0.100 | 0.52310 | 0.52414 | 0.52369 |
| ____ MO | 0.00278 | 3.11 | 24.472 | 0.00320 | 0.00199 | 0.00313 |
| ____ NA | 16.52861 | 16,454.38 | 0.879 | 16.68638 | 16.40022 | 16.49921 |
| ____ NI | 0.00045 | 5.39 | 116.937 | 0.00104 | 0.00004 | 0.00027 |
| ____ P | 0.17452 | 37.04 | 2.087 | 0.17320 | 0.17864 | 0.17173 |
| ____ PB | 0.00797 | 2.67 | 26.184 | 0.01033 | 0.00636 | 0.00723 |
| ____ S | 1.87172 | 130.56 | 0.524 | 1.87267 | 1.88102 | 1.86147 |
| ____ SB | 0.00225 | 1.46 | 247.370 | -0.00204 | 0.00854 | 0.00026 |
| ____ SE | 0.00805 | 0.79 | 89.991 | 0.00970 | 0.00012 | 0.01433 |
| ____ SI | 20.38724 | 1,361.83 | 0.513 | 20.50697 | 20.34059 | 20.31417 |
| ____ SN | 0.00174 | 0.44 | 92.494 | 0.00071 | 0.00360 | 0.00092 |
| ____ SR | 0.16816 | 85,461.59 | 0.284 | 0.16831 | 0.16854 | 0.16762 |
| ____ TH | 0.03187 | -0.64 | 181.394 | 0.06836 | 0.06205 | -0.03479 |
| ____ TI | 0.00220 | 108.00 | 5.966 | 0.00215 | 0.00235 | 0.00211 |
| ____ TL | 0.00540 | 1.28 | 37.189 | 0.00762 | 0.00369 | 0.00490 |
| ____ V | 0.00214 | -5.59 | 15.361 | 0.00243 | 0.00178 | 0.00221 |
| ____ W | 0.00081 | 2.19 | 107.756 | 0.00015 | 0.00180 | 0.00048 |
| ____ Y1 | 4907.99920 | 4,908.00 | 0.460 | 4933.98260 | 4896.58634 | 4893.42866 |
| ____ Y2A | 155831.52265 | 155,831.52 | 0.385 | 156424.34079 | 155224.39548 | 155845.83167 |
| ____ Y2R | 5394.25766 | 5,394.26 | 0.603 | 5359.56513 | 5399.11231 | 5424.09554 |
| ____ ZN | 0.00137 | 11.28 | 10.343 | 0.00130 | 0.00127 | 0.00153 |
| ____ ZR | 0.00109 | 3.13 | 919.197 | -0.00614 | -0.00312 | 0.01253 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 15 Date/Time: 02/03/2020 21:56

Sample Number: **1251392** Class: UP** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: S

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | 0.01538 | 259.21 | 7.911 | 0.01433 | 0.01509 | 0.01671 |
| ____ AL | 0.91112 | 31.51 | 7.494 | 0.96526 | 0.83442 | 0.93368 |
| ____ AL A› | 1.01567 | 1,487.57 | 0.807 | 1.00787 | 1.01491 | 1.02421 |
| ____ AS | 0.51545 | 53.05 | 2.019 | 0.52493 | 0.50432 | 0.51711 |
| ____ B | 0.23068 | 1,438.13 | 0.383 | 0.22972 | 0.23089 | 0.23145 |
| ____ BA | 0.07339 | 33,598.90 | 0.287 | 0.07330 | 0.07324 | 0.07363 |
| ____ BE | 0.01763 | 6,644.06 | 1.045 | 0.01751 | 0.01753 | 0.01784 |
| ____ CA | 24.87906 | 9,411.18 | 1.273 | 24.82268 | 25.22007 | 24.59442 |
| ____ CD | 0.05046 | 589.14 | 0.238 | 0.05058 | 0.05047 | 0.05034 |
| ____ CO | 0.10116 | 290.22 | 0.351 | 0.10149 | 0.10122 | 0.10078 |
| ____ CR | 0.19701 | 1,821.91 | 0.508 | 0.19612 | 0.19681 | 0.19809 |
| ____ CU | 0.50040 | 3,749.60 | 0.301 | 0.49976 | 0.49931 | 0.50212 |
| ____ FE | 0.53802 | 53.68 | 0.946 | 0.54327 | 0.53770 | 0.53310 |
| ____ K | 6.55508 | 1,861.39 | 0.389 | 6.54113 | 6.58448 | 6.53963 |
| ____ LI | 1.00584 | 5,190.96 | 0.905 | 1.00970 | 1.01237 | 0.99545 |
| ____ MG | 12.07829 | 5,982.41 | 1.072 | 12.12124 | 12.18081 | 11.93282 |
| ____ MN | 0.57311 | 28,854.50 | 0.088 | 0.57289 | 0.57277 | 0.57369 |
| ____ MO | 0.20240 | 270.10 | 0.636 | 0.20384 | 0.20137 | 0.20198 |
| ____ NA | 18.09764 | 17,989.77 | 1.100 | 18.15574 | 18.26128 | 17.87589 |
| ____ NI | 0.15157 | 209.40 | 0.797 | 0.15293 | 0.15117 | 0.15062 |
| ____ P | 1.19289 | 240.87 | 0.537 | 1.19019 | 1.18827 | 1.20019 |
| ____ PB | 0.49042 | 443.79 | 0.517 | 0.48875 | 0.49334 | 0.48917 |
| ____ S | 2.67981 | 183.65 | 0.519 | 2.69535 | 2.66859 | 2.67547 |
| ____ SB | 0.39780 | 115.48 | 0.992 | 0.40188 | 0.39401 | 0.39752 |
| ____ SE | 0.78510 | 91.80 | 0.611 | 0.78589 | 0.77996 | 0.78946 |
| ____ SI | 20.81634 | 1,389.92 | 0.833 | 20.77165 | 21.00776 | 20.66961 |
| ____ SN | 0.57792 | 115.30 | 0.412 | 0.57654 | 0.57654 | 0.58066 |
| ____ SR | 0.18524 | 93,406.92 | 0.155 | 0.18535 | 0.18491 | 0.18545 |
| ____ TH | 0.07350 | 2.09 | 32.605 | 0.07440 | 0.04910 | 0.09700 |
| ____ TI | 0.10226 | 4,375.39 | 0.659 | 0.10170 | 0.10206 | 0.10301 |
| ____ TL | 1.01644 | 256.70 | 0.485 | 1.01723 | 1.01116 | 1.02094 |
| ____ V | 0.10287 | 914.71 | 0.476 | 0.10240 | 0.10283 | 0.10338 |
| ____ W | 0.00253 | 3.85 | 85.697 | 0.00232 | 0.00480 | 0.00048 |
| ____ Y1 | 4845.72009 | 4,845.72 | 0.495 | 4871.93881 | 4840.37996 | 4824.84152 |
| ____ Y2A | 154660.08387 | 154,660.08 | 0.454 | 155098.29613 | 155031.98544 | 153849.97002 |
| ____ Y2R | 5389.29183 | 5,389.29 | 0.347 | 5384.78630 | 5373.27844 | 5409.81076 |
| ____ ZN | 0.12180 | 842.51 | 0.492 | 0.12243 | 0.12124 | 0.12171 |
| ____ ZR | 0.99348 | 697.50 | 1.207 | 0.98841 | 1.00717 | 0.98486 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 16 Date/Time: 02/03/2020 21:59

Sample Number: **1251395** Class: D*** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: S

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00107 | -3.87 | 59.749 | -0.00164 | -0.00038 | -0.00118 |
| ____ AL | -0.02192 | -2.25 | 349.482 | -0.02444 | 0.05592 | -0.09725 |
| ____ AL A› | 0.00663 | 31.38 | 102.748 | 0.01441 | 0.00174 | 0.00374 |
| ____ AS | 0.00802 | 1.01 | 75.574 | 0.01478 | 0.00617 | 0.00309 |
| ____ B | 0.04011 | 204.11 | 1.963 | 0.03955 | 0.03977 | 0.04101 |
| ____ BA | 0.02238 | 10,309.12 | 0.811 | 0.02237 | 0.02256 | 0.02220 |
| ____ BE | -0.00192 | -1,208.57 | 1.156 | -0.00194 | -0.00189 | -0.00191 |
| ____ CA | 24.65131 | 9,214.94 | 0.646 | 24.62770 | 24.50530 | 24.82094 |
| ____ CD | 0.00052 | -3.63 | 12.114 | 0.00059 | 0.00048 | 0.00048 |
| ____ CO | -0.00057 | 0.83 | 24.780 | -0.00047 | -0.00050 | -0.00073 |
| ____ CR | 0.00171 | -3.61 | 35.477 | 0.00108 | 0.00178 | 0.00229 |
| ____ CU | 0.00780 | 13.07 | 29.379 | 0.00871 | 0.00519 | 0.00950 |
| ____ FE | 0.06092 | 5.03 | 32.865 | 0.03949 | 0.07914 | 0.06412 |
| ____ K | 4.74780 | 1,358.89 | 1.364 | 4.81853 | 4.73340 | 4.69147 |
| ____ LI | 0.01100 | 10.41 | 19.535 | 0.00919 | 0.01337 | 0.01043 |
| ____ MG | 11.45018 | 5,606.44 | 0.661 | 11.39733 | 11.41637 | 11.53683 |
| ____ MN | 0.52652 | 26,529.65 | 0.522 | 0.52680 | 0.52911 | 0.52364 |
| ____ MO | 0.00336 | 3.85 | 2.548 | 0.00339 | 0.00343 | 0.00327 |
| ____ NA | 16.73697 | 16,448.43 | 0.584 | 16.68524 | 16.67599 | 16.84967 |
| ____ NI | -0.00016 | 4.49 | 893.513 | -0.00173 | 0.00092 | 0.00034 |
| ____ P | 0.17963 | 37.56 | 1.360 | 0.17693 | 0.18027 | 0.18169 |
| ____ PB | 0.00572 | 0.57 | 25.624 | 0.00470 | 0.00740 | 0.00506 |
| ____ S | 1.90957 | 131.33 | 1.154 | 1.88497 | 1.92750 | 1.91623 |
| ____ SB | 0.00436 | 2.05 | 69.209 | 0.00157 | 0.00395 | 0.00756 |
| ____ SE | 0.01956 | 2.13 | 15.645 | 0.01860 | 0.02299 | 0.01710 |
| ____ SI | 20.38979 | 1,344.65 | 0.702 | 20.33342 | 20.28332 | 20.55264 |
| ____ SN | 0.00322 | 0.73 | 162.184 | 0.00754 | 0.00471 | -0.00258 |
| ____ SR | 0.16899 | 85,310.55 | 0.565 | 0.16909 | 0.16989 | 0.16799 |
| ____ TH | -0.01339 | -3.53 | 401.261 | -0.06018 | 0.04528 | -0.02527 |
| ____ TI | 0.00229 | 110.89 | 4.692 | 0.00219 | 0.00240 | 0.00227 |
| ____ TL | 0.00374 | 0.84 | 46.323 | 0.00572 | 0.00254 | 0.00294 |
| ____ V | 0.00146 | -12.10 | 31.692 | 0.00095 | 0.00185 | 0.00158 |
| ____ W | 0.00189 | 2.73 | 114.555 | 0.00180 | -0.00023 | 0.00409 |
| ____ Y1 | 4840.93324 | 4,840.93 | 0.259 | 4855.10849 | 4831.17888 | 4836.51235 |
| ____ Y2A | 154785.40790 | 154,785.41 | 0.477 | 154937.22533 | 153983.22198 | 155435.77638 |
| ____ Y2R | 5325.65651 | 5,325.66 | 0.936 | 5359.63994 | 5348.89067 | 5268.43894 |
| ____ ZN | 0.00127 | 10.50 | 9.158 | 0.00127 | 0.00139 | 0.00116 |
| ____ ZR | 0.00322 | 2.68 | 124.377 | 0.00771 | 0.00196 | 0.00000 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 17 Date/Time: 02/03/2020 22:02

Sample Number: **1251393** Class: R*** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 52.20 DF: 1.00 Protocol Symbol: S

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | 0.00553 | 94.70 | 9.958 | 0.00609 | 0.00552 | 0.00498 |
| ____ AL | 0.33453 | 10.49 | 16.152 | 0.36251 | 0.27224 | 0.36883 |
| ____ AL A› | 0.32459 | 487.24 | 0.907 | 0.32776 | 0.32195 | 0.32406 |
| ____ AS | 0.05752 | 6.07 | 7.079 | 0.05421 | 0.05627 | 0.06207 |
| ____ B | 0.08467 | 489.10 | 0.791 | 0.08447 | 0.08542 | 0.08412 |
| ____ BA | 0.03241 | 14,957.37 | 0.174 | 0.03244 | 0.03244 | 0.03234 |
| ____ BE | 0.00572 | 1,875.20 | 0.347 | 0.00574 | 0.00572 | 0.00570 |
| ____ CA | 24.75214 | 9,418.92 | 0.293 | 24.67648 | 24.75903 | 24.82091 |
| ____ CD | 0.00832 | 88.80 | 1.699 | 0.00830 | 0.00847 | 0.00819 |
| ____ CO | 0.00757 | 23.95 | 6.297 | 0.00812 | 0.00727 | 0.00733 |
| ____ CR | 0.02460 | 211.62 | 1.238 | 0.02466 | 0.02428 | 0.02488 |
| ____ CU | 0.03952 | 251.22 | 1.387 | 0.03953 | 0.04006 | 0.03897 |
| ____ FE | 0.36319 | 36.10 | 3.341 | 0.37050 | 0.34919 | 0.36989 |
| ____ K | 5.21133 | 1,508.64 | 0.872 | 5.20811 | 5.16760 | 5.25829 |
| ____ LI | 0.09133 | 431.41 | 1.842 | 0.09089 | 0.09318 | 0.08990 |
| ____ MG | 11.52795 | 5,745.70 | 0.566 | 11.45707 | 11.54133 | 11.58545 |
| ____ MN | 0.56461 | 28,596.55 | 0.159 | 0.56512 | 0.56357 | 0.56513 |
| ____ MO | 0.01846 | 23.92 | 1.997 | 0.01884 | 0.01843 | 0.01810 |
| ____ NA | 18.16527 | 18,163.54 | 0.732 | 18.05506 | 18.12791 | 18.31282 |
| ____ NI | 0.01607 | 26.29 | 7.657 | 0.01635 | 0.01472 | 0.01713 |
| ____ P | 0.35648 | 72.77 | 0.766 | 0.35917 | 0.35371 | 0.35656 |
| ____ PB | 0.02881 | 21.70 | 8.119 | 0.02739 | 0.03151 | 0.02752 |
| ____ S | 2.53697 | 173.23 | 0.546 | 2.52644 | 2.53180 | 2.55268 |
| ____ SB | 0.07591 | 22.59 | 5.434 | 0.07612 | 0.07993 | 0.07169 |
| ____ SE | 0.08241 | 9.51 | 3.652 | 0.08159 | 0.08574 | 0.07989 |
| ____ SI | 20.82791 | 1,398.35 | 0.117 | 20.83841 | 20.80000 | 20.84532 |
| ____ SN | 0.07514 | 15.01 | 11.173 | 0.07585 | 0.08316 | 0.06641 |
| ____ SR | 0.18193 | 92,292.47 | 0.158 | 0.18220 | 0.18196 | 0.18163 |
| ____ TH | -0.01665 | -3.80 | 112.618 | 0.00369 | -0.02039 | -0.03325 |
| ____ TI | 0.01776 | 775.53 | 0.412 | 0.01773 | 0.01771 | 0.01784 |
| ____ TL | 0.04559 | 11.31 | 2.484 | 0.04683 | 0.04461 | 0.04533 |
| ____ V | 0.01732 | 136.19 | 1.830 | 0.01697 | 0.01759 | 0.01740 |
| ____ W | 0.04814 | 27.48 | 4.474 | 0.05011 | 0.04848 | 0.04584 |
| ____ Y1 | 4828.39783 | 4,828.40 | 0.301 | 4843.55364 | 4827.00930 | 4814.63054 |
| ____ Y2A | 155586.76300 | 155,586.76 | 0.334 | 155699.60040 | 156041.50000 | 155019.18860 |
| ____ Y2R | 5421.32221 | 5,421.32 | 1.003 | 5477.88827 | 5416.62502 | 5369.45333 |
| ____ ZN | 0.03413 | 235.03 | 0.334 | 0.03403 | 0.03412 | 0.03425 |
| ____ ZR | 0.08388 | 59.20 | 3.058 | 0.08194 | 0.08291 | 0.08678 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 18 Date/Time: 02/03/2020 22:05

Sample Number: **1251394** Class: M*** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 52.20 DF: 1.00 Protocol Symbol: S

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | 0.01030 | 148.13 | 2.628 | 0.01060 | 0.01009 | 0.01020 |
| ____ AL | 0.23892 | 7.02 | 26.044 | 0.27590 | 0.27378 | 0.16708 |
| ____ AL A› | 0.31774 | 476.63 | 0.584 | 0.31562 | 0.31851 | 0.31908 |
| ____ AS | 0.05570 | 5.85 | 7.693 | 0.05395 | 0.05256 | 0.06058 |
| ____ B | 0.08455 | 481.33 | 1.112 | 0.08518 | 0.08499 | 0.08347 |
| ____ BA | 0.03063 | 13,941.64 | 0.175 | 0.03069 | 0.03059 | 0.03061 |
| ____ BE | 0.00561 | 1,799.04 | 0.191 | 0.00562 | 0.00561 | 0.00560 |
| ____ CA | 24.76484 | 9,162.77 | 0.457 | 24.89563 | 24.69747 | 24.70141 |
| ____ CD | 0.00815 | 86.26 | 1.074 | 0.00814 | 0.00807 | 0.00825 |
| ____ CO | 0.00788 | 24.65 | 2.885 | 0.00762 | 0.00804 | 0.00799 |
| ____ CR | 0.02445 | 207.15 | 1.096 | 0.02428 | 0.02431 | 0.02476 |
| ____ CU | 0.03846 | 249.49 | 3.526 | 0.03850 | 0.03979 | 0.03708 |
| ____ FE | 0.36449 | 35.22 | 7.450 | 0.33634 | 0.36659 | 0.39053 |
| ____ K | 5.13557 | 1,446.95 | 1.329 | 5.21350 | 5.08647 | 5.10675 |
| ____ LI | 0.08839 | 404.52 | 3.689 | 0.08972 | 0.08467 | 0.09078 |
| ____ MG | 11.45479 | 5,551.47 | 0.347 | 11.49986 | 11.42476 | 11.43974 |
| ____ MN | 0.55262 | 27,590.96 | 0.310 | 0.55133 | 0.55197 | 0.55457 |
| ____ MO | 0.01834 | 23.62 | 2.583 | 0.01829 | 0.01790 | 0.01884 |
| ____ NA | 18.11932 | 17,616.62 | 0.509 | 18.22531 | 18.05802 | 18.07463 |
| ____ NI | 0.01638 | 26.52 | 3.741 | 0.01590 | 0.01707 | 0.01615 |
| ____ P | 0.34033 | 69.10 | 1.236 | 0.34424 | 0.34088 | 0.33588 |
| ____ PB | 0.02655 | 19.51 | 4.462 | 0.02617 | 0.02559 | 0.02787 |
| ____ S | 2.58019 | 175.02 | 0.841 | 2.55516 | 2.59345 | 2.59195 |
| ____ SB | 0.07629 | 22.55 | 7.606 | 0.08292 | 0.07382 | 0.07214 |
| ____ SE | 0.08558 | 9.82 | 6.700 | 0.08120 | 0.08348 | 0.09207 |
| ____ SI | 20.90962 | 1,364.92 | 0.647 | 21.05135 | 20.89557 | 20.78195 |
| ____ SN | 0.07468 | 14.82 | 7.855 | 0.07115 | 0.07142 | 0.08145 |
| ____ SR | 0.17864 | 89,337.23 | 0.223 | 0.17847 | 0.17835 | 0.17909 |
| ____ TH | 0.02313 | -1.16 | 62.644 | 0.01481 | 0.01472 | 0.03985 |
| ____ TI | 0.01755 | 755.80 | 0.927 | 0.01765 | 0.01764 | 0.01737 |
| ____ TL | 0.04574 | 11.28 | 12.987 | 0.04816 | 0.05010 | 0.03898 |
| ____ V | 0.01654 | 126.90 | 8.790 | 0.01595 | 0.01819 | 0.01546 |
| ____ W | 0.04713 | 26.75 | 2.110 | 0.04618 | 0.04703 | 0.04817 |
| ____ Y1 | 4797.16695 | 4,797.17 | 0.468 | 4818.07819 | 4799.98400 | 4773.43866 |
| ____ Y2A | 153370.81642 | 153,370.82 | 0.227 | 153770.38071 | 153204.56357 | 153137.50498 |
| ____ Y2R | 5271.06060 | 5,271.06 | 0.303 | 5281.05637 | 5252.64313 | 5279.48231 |
| ____ ZN | 0.03159 | 216.33 | 0.835 | 0.03130 | 0.03165 | 0.03182 |
| ____ ZR | 0.07804 | 55.21 | 7.700 | 0.08278 | 0.08007 | 0.07128 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 19 Date/Time: 02/03/2020 22:08

Sample Number: **1251392** Class: UL** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 5.00 Protocol Symbol: S

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00156 | -2.45 | 58.586 | -0.00125 | -0.00084 | -0.00259 |
| ____ AL | -0.01913 | -2.32 | 580.244 | 0.07953 | -0.13929 | 0.00238 |
| ____ AL A› | 0.00888 | 28.70 | 33.832 | 0.00542 | 0.01040 | 0.01081 |
| ____ AS | 0.00318 | 0.44 | 284.004 | 0.00860 | -0.00724 | 0.00818 |
| ____ B | 0.01032 | 44.30 | 3.294 | 0.01069 | 0.01024 | 0.01003 |
| ____ BA | 0.00461 | 2,245.81 | 0.225 | 0.00462 | 0.00460 | 0.00461 |
| ____ BE | -0.00200 | -1,247.60 | 0.506 | -0.00200 | -0.00199 | -0.00201 |
| ____ CA | 4.98344 | 1,866.87 | 0.991 | 4.94724 | 5.03968 | 4.96341 |
| ____ CD | 0.00044 | -4.64 | 42.377 | 0.00038 | 0.00028 | 0.00064 |
| ____ CO | 0.00015 | 2.86 | 112.815 | -0.00001 | 0.00013 | 0.00032 |
| ____ CR | 0.00114 | -9.04 | 41.118 | 0.00087 | 0.00168 | 0.00086 |
| ____ CU | 0.00846 | 7.45 | 18.263 | 0.00752 | 0.00761 | 0.01024 |
| ____ FE | 0.00799 | -0.30 | 206.833 | 0.02542 | -0.00745 | 0.00599 |
| ____ K | 0.97908 | 355.28 | 7.212 | 1.03092 | 1.00766 | 0.89867 |
| ____ LI | 0.00836 | -7.40 | 25.761 | 0.00891 | 0.01019 | 0.00599 |
| ____ MG | 2.30153 | 1,133.67 | 0.264 | 2.30703 | 2.29502 | 2.30255 |
| ____ MN | 0.10816 | 5,482.36 | 0.307 | 0.10778 | 0.10830 | 0.10840 |
| ____ MO | 0.00124 | 1.02 | 15.861 | 0.00123 | 0.00144 | 0.00105 |
| ____ NA | 3.44652 | 3,469.13 | 0.689 | 3.44964 | 3.42137 | 3.46854 |
| ____ NI | -0.00066 | 4.90 | 106.458 | -0.00076 | 0.00009 | -0.00130 |
| ____ P | 0.03443 | 8.58 | 17.603 | 0.04143 | 0.03073 | 0.03114 |
| ____ PB | 0.00705 | 0.85 | 22.105 | 0.00557 | 0.00690 | 0.00868 |
| ____ S | 0.36725 | 26.83 | 1.183 | 0.36512 | 0.36439 | 0.37225 |
| ____ SB | 0.00092 | 1.07 | 402.085 | 0.00485 | -0.00253 | 0.00044 |
| ____ SE | 0.00621 | 0.57 | 81.859 | 0.00855 | 0.00969 | 0.00038 |
| ____ SI | 4.05773 | 267.81 | 0.562 | 4.03366 | 4.06056 | 4.07898 |
| ____ SN | -0.00151 | -0.22 | 79.066 | -0.00187 | -0.00018 | -0.00247 |
| ____ SR | 0.03426 | 17,407.09 | 0.163 | 0.03424 | 0.03432 | 0.03421 |
| ____ TH | -0.04286 | -5.43 | 98.514 | -0.01559 | -0.02150 | -0.09150 |
| ____ TI | 0.00066 | 41.81 | 6.060 | 0.00071 | 0.00063 | 0.00065 |
| ____ TL | -0.00055 | -0.36 | 571.739 | 0.00285 | -0.00334 | -0.00116 |
| ____ V | 0.00091 | -17.04 | 25.768 | 0.00093 | 0.00114 | 0.00067 |
| ____ W | 0.00006 | 1.77 | 1337.178 | -0.00088 | 0.00047 | 0.00059 |
| ____ Y1 | 4874.80319 | 4,874.80 | 0.213 | 4867.06929 | 4886.60934 | 4870.73093 |
| ____ Y2A | 155697.57741 | 155,697.58 | 0.650 | 156759.44854 | 155587.33287 | 154745.95081 |
| ____ Y2R | 5324.17500 | 5,324.18 | 0.520 | 5296.42500 | 5324.32500 | 5351.77500 |
| ____ ZN | 0.00035 | 4.15 | 84.506 | 0.00002 | 0.00059 | 0.00043 |
| ____ ZR | 0.00496 | 2.63 | 79.360 | 0.00751 | 0.00043 | 0.00695 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 20 Date/Time: 02/03/2020 22:11

Sample Number: **1249723** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: S

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00096 | -8.80 | 67.993 | -0.00031 | -0.00161 | -0.00094 |
| ____ AL | 0.02316 | -0.43 | 255.451 | 0.04686 | 0.06680 | -0.04418 |
| ____ AL A› | 0.00748 | 41.95 | 77.657 | 0.00182 | 0.00720 | 0.01343 |
| ____ AS | 0.00258 | 0.41 | 170.211 | 0.00616 | -0.00232 | 0.00389 |
| ____ B | 0.14937 | 937.50 | 0.742 | 0.15055 | 0.14836 | 0.14920 |
| ____ BA | 0.11855 | 53,830.19 | 0.802 | 0.11903 | 0.11746 | 0.11917 |
| ____ BE | -0.00196 | -1,223.55 | 1.037 | -0.00197 | -0.00194 | -0.00197 |
| ____ CA | 17.07269 | 6,297.82 | 0.218 | 17.08553 | 17.10174 | 17.03081 |
| ____ CD | 0.00056 | -3.19 | 32.532 | 0.00060 | 0.00036 | 0.00071 |
| ____ CO | 0.00252 | 9.58 | 6.965 | 0.00270 | 0.00235 | 0.00250 |
| ____ CR | 0.00098 | -10.42 | 61.107 | 0.00096 | 0.00159 | 0.00039 |
| ____ CU | 0.00707 | 12.07 | 12.076 | 0.00623 | 0.00705 | 0.00794 |
| ____ FE | -0.00428 | -1.51 | 253.109 | -0.00627 | -0.01398 | 0.00741 |
| ____ K | 7.65027 | 2,100.83 | 0.186 | 7.64886 | 7.63678 | 7.66516 |
| ____ LI | 0.00819 | -5.55 | 43.382 | 0.01004 | 0.01044 | 0.00410 |
| ____ MG | 11.97094 | 5,777.44 | 0.117 | 11.95538 | 11.97511 | 11.98233 |
| ____ MN | 0.18079 | 9,075.39 | 0.118 | 0.18055 | 0.18097 | 0.18084 |
| ____ MO | 0.00042 | -0.08 | 87.811 | 0.00007 | 0.00080 | 0.00039 |
| ____ NA | 14.62539 | 14,186.05 | 0.099 | 14.62197 | 14.64122 | 14.61298 |
| ____ NI | 0.00374 | 10.68 | 9.754 | 0.00402 | 0.00332 | 0.00386 |
| ____ P | 0.00611 | 2.86 | 99.136 | 0.00212 | 0.00313 | 0.01308 |
| ____ PB | 0.00534 | -0.59 | 42.920 | 0.00313 | 0.00518 | 0.00771 |
| ____ S | 3.41066 | 233.66 | 0.148 | 3.41615 | 3.40962 | 3.40619 |
| ____ SB | -0.00010 | 0.77 | 5003.731 | 0.00361 | 0.00208 | -0.00600 |
| ____ SE | 0.00835 | 0.81 | 72.185 | 0.00713 | 0.00302 | 0.01489 |
| ____ SI | 6.20880 | 403.98 | 0.200 | 6.22265 | 6.19863 | 6.20512 |
| ____ SN | 0.00220 | 0.52 | 205.361 | 0.00738 | -0.00077 | -0.00002 |
| ____ SR | 0.03631 | 18,429.44 | 0.142 | 0.03631 | 0.03625 | 0.03636 |
| ____ TH | 0.01074 | -1.96 | 469.828 | 0.06832 | -0.02560 | -0.01052 |
| ____ TI | 0.00173 | 86.76 | 5.858 | 0.00184 | 0.00168 | 0.00166 |
| ____ TL | -0.00134 | -0.54 | 324.250 | -0.00618 | -0.00009 | 0.00224 |
| ____ V | 0.00060 | -19.65 | 64.967 | 0.00093 | 0.00017 | 0.00071 |
| ____ W | -0.00043 | 1.60 | 305.130 | -0.00180 | -0.00027 | 0.00079 |
| ____ Y1 | 4849.46439 | 4,849.46 | 0.143 | 4856.98230 | 4848.11119 | 4843.29967 |
| ____ Y2A | 154202.05475 | 154,202.05 | 0.278 | 154382.41610 | 154511.41803 | 153712.33014 |
| ____ Y2R | 5251.27567 | 5,251.28 | 0.684 | 5222.04736 | 5291.35095 | 5240.42871 |
| ____ ZN | 0.01608 | 111.78 | 1.562 | 0.01631 | 0.01581 | 0.01614 |
| ____ ZR | 0.00938 | 7.80 | 53.292 | 0.00456 | 0.00904 | 0.01454 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 21 Date/Time: 02/03/2020 22:14

Sample Number: **1249725** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: S

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00078 | -3.62 | 130.619 | -0.00196 | -0.00018 | -0.00020 |
| ____ AL | -0.01398 | -1.76 | 357.135 | -0.05944 | -0.02194 | 0.03944 |
| ____ AL A› | 0.00282 | 34.25 | 12.654 | 0.00317 | 0.00284 | 0.00245 |
| ____ AS | 0.00176 | 0.34 | 159.685 | 0.00465 | -0.00097 | 0.00160 |
| ____ B | 0.16418 | 1,033.31 | 0.618 | 0.16514 | 0.16312 | 0.16428 |
| ____ BA | 0.11854 | 53,806.09 | 0.168 | 0.11854 | 0.11834 | 0.11874 |
| ____ BE | -0.00196 | -1,223.29 | 0.839 | -0.00198 | -0.00195 | -0.00196 |
| ____ CA | 16.88389 | 6,262.76 | 0.680 | 16.76110 | 16.90186 | 16.98872 |
| ____ CD | 0.00059 | -2.81 | 14.625 | 0.00065 | 0.00049 | 0.00063 |
| ____ CO | 0.00314 | 11.38 | 10.846 | 0.00275 | 0.00338 | 0.00328 |
| ____ CR | 0.00117 | -8.64 | 62.872 | 0.00191 | 0.00116 | 0.00044 |
| ____ CU | 0.01042 | 34.85 | 4.212 | 0.01058 | 0.00992 | 0.01075 |
| ____ FE | 0.01761 | 0.67 | 80.973 | 0.02989 | 0.00197 | 0.02098 |
| ____ K | 7.63666 | 2,108.88 | 0.253 | 7.62251 | 7.62876 | 7.65871 |
| ____ LI | 0.01218 | 14.72 | 1.282 | 0.01203 | 0.01234 | 0.01219 |
| ____ MG | 11.86589 | 5,758.80 | 1.025 | 11.73603 | 11.88448 | 11.97715 |
| ____ MN | 0.18522 | 9,294.60 | 0.102 | 0.18535 | 0.18500 | 0.18531 |
| ____ MO | -0.00012 | -0.81 | 64.707 | -0.00013 | -0.00004 | -0.00020 |
| ____ NA | 14.71495 | 14,351.34 | 0.694 | 14.59749 | 14.76427 | 14.78309 |
| ____ NI | 0.00296 | 9.67 | 22.482 | 0.00292 | 0.00365 | 0.00232 |
| ____ P | 0.00521 | 2.69 | 49.942 | 0.00695 | 0.00646 | 0.00222 |
| ____ PB | 0.00501 | -0.91 | 50.903 | 0.00773 | 0.00268 | 0.00461 |
| ____ S | 3.38705 | 233.01 | 0.105 | 3.38297 | 3.38927 | 3.38892 |
| ____ SB | 0.00022 | 0.87 | 1656.460 | 0.00423 | -0.00307 | -0.00048 |
| ____ SE | 0.00805 | 0.78 | 101.243 | 0.00877 | 0.01582 | -0.00044 |
| ____ SI | 6.14797 | 402.25 | 1.260 | 6.06114 | 6.21003 | 6.17273 |
| ____ SN | 0.00064 | 0.21 | 60.997 | 0.00108 | 0.00032 | 0.00052 |
| ____ SR | 0.03597 | 18,249.97 | 0.172 | 0.03598 | 0.03602 | 0.03590 |
| ____ TH | 0.00028 | -2.63 | 2071.688 | -0.03813 | 0.02584 | 0.01314 |
| ____ TI | 0.00172 | 86.34 | 2.531 | 0.00176 | 0.00171 | 0.00168 |
| ____ TL | 0.00255 | 0.45 | 102.440 | 0.00319 | 0.00477 | -0.00032 |
| ____ V | -0.00008 | -25.94 | 158.457 | -0.00014 | -0.00015 | 0.00006 |
| ____ W | -0.00266 | 0.55 | 24.974 | -0.00335 | -0.00203 | -0.00259 |
| ____ Y1 | 4869.06576 | 4,869.07 | 0.324 | 4852.24478 | 4883.51765 | 4871.43486 |
| ____ Y2A | 154144.90176 | 154,144.90 | 0.145 | 154384.14573 | 154109.41247 | 153941.14708 |
| ____ Y2R | 5280.41754 | 5,280.42 | 0.349 | 5288.19306 | 5293.69392 | 5259.36563 |
| ____ ZN | 0.03770 | 260.53 | 0.526 | 0.03757 | 0.03761 | 0.03793 |
| ____ ZR | 0.00536 | 4.66 | 104.486 | 0.00776 | -0.00104 | 0.00935 |

LANCASTER LABORATORIES

Run Name: 2003404T74

Instrument ID: 23745

Tube: 22

Date/Time: 02/03/2020 22:18

Sample Number: **CCV**

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | 0.50031 | 6,714.13 | 0.483 | 0.49772 | 0.50068 | 0.50251 |
| ____ AL | 25.20239 | 864.61 | 1.429 | 25.03616 | 24.95550 | 25.61552 |
| ____ AL A› | 25.19950 | 34,835.44 | 0.923 | 24.98129 | 25.17318 | 25.44403 |
| ____ AS | 0.48366 | 48.84 | 1.210 | 0.47753 | 0.48919 | 0.48426 |
| ____ B | 0.48562 | 3,028.64 | 0.329 | 0.48442 | 0.48499 | 0.48743 |
| ____ BA | 0.50377 | 222,609.95 | 0.525 | 0.50118 | 0.50369 | 0.50646 |
| ____ BE | 0.48757 | 190,036.54 | 0.883 | 0.48314 | 0.48783 | 0.49174 |
| ____ CA | 24.75803 | 9,019.39 | 0.352 | 24.74721 | 24.67677 | 24.85013 |
| ____ CD | 0.49533 | 5,761.20 | 0.173 | 0.49522 | 0.49452 | 0.49623 |
| ____ CO | 0.49313 | 1,376.34 | 0.104 | 0.49371 | 0.49273 | 0.49295 |
| ____ CR | 0.48601 | 4,396.28 | 0.882 | 0.48202 | 0.48548 | 0.49054 |
| ____ CU | 0.50785 | 3,740.22 | 0.507 | 0.50488 | 0.50932 | 0.50935 |
| ____ FE | 24.57420 | 2,385.93 | 0.914 | 24.42970 | 24.45998 | 24.83292 |
| ____ K | 25.15470 | 6,612.97 | 0.333 | 25.12623 | 25.08875 | 25.24910 |
| ____ LI | 0.51813 | 2,553.03 | 0.811 | 0.51581 | 0.51560 | 0.52298 |
| ____ MG | 24.68390 | 11,679.70 | 0.516 | 24.60984 | 24.61089 | 24.83096 |
| ____ MN | 0.49875 | 24,405.58 | 0.163 | 0.49825 | 0.49831 | 0.49969 |
| ____ MO | 0.49379 | 646.30 | 0.124 | 0.49415 | 0.49413 | 0.49308 |
| ____ NA | 25.49857 | 24,365.56 | 0.566 | 25.43180 | 25.39968 | 25.66424 |
| ____ NI | 0.49176 | 655.08 | 0.061 | 0.49204 | 0.49144 | 0.49179 |
| ____ P | 0.49217 | 98.59 | 1.174 | 0.48961 | 0.49879 | 0.48812 |
| ____ PB | 0.49149 | 442.41 | 0.300 | 0.48996 | 0.49289 | 0.49163 |
| ____ S | 24.69715 | 1,643.52 | 0.365 | 24.79150 | 24.61176 | 24.68820 |
| ____ SB | 0.49734 | 142.64 | 0.695 | 0.49463 | 0.49616 | 0.50123 |
| ____ SE | 0.49018 | 56.47 | 2.507 | 0.49833 | 0.47604 | 0.49617 |
| ____ SI | 24.55864 | 1,578.93 | 1.105 | 24.45320 | 24.35589 | 24.86682 |
| ____ SN | 0.47665 | 93.21 | 0.738 | 0.47759 | 0.47961 | 0.47276 |
| ____ SR | 0.49497 | 241,994.23 | 1.674 | 0.48563 | 0.49783 | 0.50144 |
| ____ TH | 0.49464 | 28.43 | 8.364 | 0.45348 | 0.49423 | 0.53622 |
| ____ TI | 0.50230 | 20,838.16 | 0.942 | 0.49707 | 0.50352 | 0.50629 |
| ____ TL | 0.50935 | 122.79 | 0.238 | 0.50838 | 0.50896 | 0.51071 |
| ____ V | 0.50404 | 4,529.01 | 0.401 | 0.50288 | 0.50287 | 0.50637 |
| ____ W | 0.50141 | 266.46 | 0.500 | 0.50220 | 0.50343 | 0.49861 |
| ____ Y1 | 4748.83157 | 4,748.83 | 0.078 | 4753.11489 | 4746.56937 | 4746.81047 |
| ____ Y2A | 150318.93251 | 150,318.93 | 0.722 | 151360.32500 | 150402.13914 | 149194.33340 |
| ____ Y2R | 5189.46160 | 5,189.46 | 0.277 | 5198.80240 | 5196.66700 | 5172.91542 |
| ____ ZN | 0.49222 | 3,335.08 | 0.267 | 0.49235 | 0.49347 | 0.49085 |
| ____ ZR | 0.50940 | 363.35 | 0.446 | 0.50931 | 0.50718 | 0.51172 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 23 Date/Time: 02/03/2020 22:21

Sample Number: **CCB**

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00060 | -4.32 | 257.338 | 0.00113 | -0.00114 | -0.00178 |
| ____ AL | 0.01661 | -0.83 | 429.525 | -0.05983 | 0.02826 | 0.08139 |
| ____ AL A› | 0.00260 | 27.37 | 245.963 | -0.00454 | 0.00782 | 0.00452 |
| ____ AS | 0.00195 | 0.30 | 50.581 | 0.00119 | 0.00307 | 0.00160 |
| ____ B | 0.00521 | 18.99 | 14.396 | 0.00495 | 0.00605 | 0.00461 |
| ____ BA | 0.00007 | 169.22 | 26.275 | 0.00007 | 0.00010 | 0.00006 |
| ____ BE | -0.00196 | -1,217.89 | 0.995 | -0.00195 | -0.00198 | -0.00195 |
| ____ CA | 0.01999 | 8.73 | 21.764 | 0.01731 | 0.02501 | 0.01766 |
| ____ CD | 0.00055 | -3.28 | 21.450 | 0.00062 | 0.00061 | 0.00041 |
| ____ CO | 0.00003 | 2.52 | 439.769 | 0.00017 | 0.00004 | -0.00012 |
| ____ CR | 0.00185 | -2.34 | 36.165 | 0.00234 | 0.00212 | 0.00109 |
| ____ CU | 0.00654 | 5.44 | 9.935 | 0.00597 | 0.00725 | 0.00639 |
| ____ FE | 0.01088 | 0.00 | 199.392 | -0.00947 | 0.03370 | 0.00841 |
| ____ K | 0.05050 | 105.93 | 173.943 | 0.11057 | 0.09126 | -0.05032 |
| ____ LI | 0.00858 | -7.17 | 50.478 | 0.00750 | 0.00489 | 0.01335 |
| ____ MG | 0.00924 | 5.28 | 39.104 | 0.00768 | 0.00667 | 0.01337 |
| ____ MN | 0.00009 | 5.15 | 94.490 | 0.00018 | 0.00010 | 0.00000 |
| ____ MO | 0.00098 | 0.67 | 10.206 | 0.00107 | 0.00100 | 0.00087 |
| ____ NA | 0.02351 | 124.67 | 24.140 | 0.02065 | 0.03005 | 0.01983 |
| ____ NI | -0.00003 | 6.00 | 553.795 | -0.00018 | 0.00008 | 0.00002 |
| ____ P | -0.00062 | 1.51 | 557.967 | -0.00028 | 0.00264 | -0.00422 |
| ____ PB | 0.00566 | -0.66 | 42.969 | 0.00808 | 0.00322 | 0.00566 |
| ____ S | 0.01490 | 2.74 | 30.508 | 0.01555 | 0.01910 | 0.01007 |
| ____ SB | -0.00037 | 0.70 | 190.553 | -0.00114 | 0.00022 | -0.00018 |
| ____ SE | 0.01270 | 1.33 | 52.275 | 0.00898 | 0.00877 | 0.02037 |
| ____ SI | 0.01229 | 1.13 | 33.541 | 0.01590 | 0.01317 | 0.00780 |
| ____ SN | 0.00211 | 0.51 | 200.175 | 0.00673 | 0.00118 | -0.00157 |
| ____ SR | 0.00007 | 47.89 | 51.374 | 0.00010 | 0.00003 | 0.00006 |
| ____ TH | 0.01175 | -1.88 | 502.053 | 0.07971 | -0.01790 | -0.02655 |
| ____ TI | 0.00027 | 24.45 | 33.042 | 0.00036 | 0.00025 | 0.00019 |
| ____ TL | 0.00015 | -0.21 | 1941.172 | 0.00340 | -0.00145 | -0.00152 |
| ____ V | -0.00008 | -26.00 | 744.496 | 0.00050 | -0.00068 | -0.00005 |
| ____ W | -0.00063 | 1.39 | 131.380 | -0.00002 | -0.00156 | -0.00030 |
| ____ Y1 | 4855.87041 | 4,855.87 | 0.210 | 4859.96400 | 4844.27157 | 4863.37566 |
| ____ Y2A | 153383.86794 | 153,383.87 | 0.340 | 153549.47605 | 152799.35719 | 153802.77058 |
| ____ Y2R | 5215.80000 | 5,215.80 | 0.517 | 5184.72500 | 5229.30000 | 5233.37500 |
| ____ ZN | 0.00032 | 3.99 | 20.352 | 0.00040 | 0.00031 | 0.00027 |
| ____ ZR | 0.00388 | 4.07 | 61.972 | 0.00537 | 0.00111 | 0.00517 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 24 Date/Time: 02/03/2020 22:24

Sample Number: **1249727** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: S

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00148 | -4.75 | 17.253 | -0.00131 | -0.00177 | -0.00136 |
| ____ AL | 0.04102 | 0.07 | 247.214 | 0.15812 | -0.01778 | -0.01728 |
| ____ AL A› | 0.01485 | 46.86 | 25.513 | 0.01869 | 0.01111 | 0.01474 |
| ____ AS | -0.00044 | 0.11 | 1579.268 | -0.00586 | 0.00737 | -0.00283 |
| ____ B | 0.16770 | 1,056.19 | 0.475 | 0.16790 | 0.16838 | 0.16682 |
| ____ BA | 0.12169 | 55,256.21 | 0.427 | 0.12110 | 0.12193 | 0.12205 |
| ____ BE | -0.00176 | -1,141.68 | 0.576 | -0.00177 | -0.00177 | -0.00175 |
| ____ CA | 16.99924 | 6,328.93 | 0.754 | 16.85210 | 17.05916 | 17.08646 |
| ____ CD | 0.00038 | -5.34 | 27.548 | 0.00026 | 0.00045 | 0.00043 |
| ____ CO | 0.00302 | 11.08 | 6.641 | 0.00301 | 0.00282 | 0.00322 |
| ____ CR | 0.00133 | -7.15 | 39.285 | 0.00084 | 0.00188 | 0.00127 |
| ____ CU | 0.00952 | 20.55 | 17.375 | 0.00938 | 0.00794 | 0.01124 |
| ____ FE | 0.01404 | 0.32 | 199.443 | 0.00550 | 0.04531 | -0.00869 |
| ____ K | 7.63806 | 2,117.07 | 1.265 | 7.52890 | 7.71278 | 7.67249 |
| ____ LI | 0.01234 | 15.67 | 27.637 | 0.01598 | 0.01179 | 0.00923 |
| ____ MG | 11.92310 | 5,807.93 | 0.923 | 11.79870 | 12.00791 | 11.96271 |
| ____ MN | 0.19030 | 9,553.49 | 0.211 | 0.19036 | 0.19067 | 0.18987 |
| ____ MO | 0.00031 | -0.22 | 40.165 | 0.00028 | 0.00021 | 0.00045 |
| ____ NA | 14.71134 | 14,401.36 | 0.552 | 14.61780 | 14.76272 | 14.75352 |
| ____ NI | 0.00345 | 10.38 | 18.985 | 0.00286 | 0.00415 | 0.00333 |
| ____ P | 0.00251 | 2.16 | 126.990 | 0.00603 | 0.00170 | -0.00020 |
| ____ PB | 0.00551 | -0.44 | 32.924 | 0.00640 | 0.00342 | 0.00670 |
| ____ S | 3.37073 | 232.85 | 0.232 | 3.36927 | 3.37918 | 3.36373 |
| ____ SB | -0.00031 | 0.72 | 1111.912 | 0.00360 | -0.00270 | -0.00181 |
| ____ SE | 0.00330 | 0.22 | 111.479 | 0.00285 | 0.00719 | -0.00013 |
| ____ SI | 6.12739 | 402.40 | 0.878 | 6.07760 | 6.18444 | 6.12014 |
| ____ SN | 0.00079 | 0.24 | 123.917 | 0.00181 | 0.00067 | -0.00013 |
| ____ SR | 0.03618 | 18,365.57 | 0.128 | 0.03620 | 0.03613 | 0.03622 |
| ____ TH | -0.03027 | -4.60 | 86.088 | -0.05211 | -0.00142 | -0.03728 |
| ____ TI | 0.00171 | 86.07 | 5.522 | 0.00167 | 0.00182 | 0.00164 |
| ____ TL | -0.00207 | -0.73 | 303.137 | 0.00460 | -0.00294 | -0.00788 |
| ____ V | 0.00046 | -21.02 | 22.793 | 0.00039 | 0.00058 | 0.00040 |
| ____ W | -0.00073 | 1.45 | 207.886 | -0.00061 | -0.00231 | 0.00072 |
| ____ Y1 | 4889.31107 | 4,889.31 | 0.090 | 4894.14259 | 4885.59544 | 4888.19518 |
| ____ Y2A | 154210.00766 | 154,210.01 | 0.167 | 154116.90971 | 154012.71440 | 154500.39888 |
| ____ Y2R | 5300.21454 | 5,300.21 | 0.913 | 5346.37290 | 5304.42058 | 5249.85015 |
| ____ ZN | 0.01686 | 118.08 | 0.339 | 0.01680 | 0.01687 | 0.01692 |
| ____ ZR | 0.00588 | 3.76 | 83.348 | 0.00458 | 0.00176 | 0.01130 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 25 Date/Time: 02/03/2020 22:27

Sample Number: **1251372** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: S

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00083 | -11.76 | 81.173 | -0.00089 | -0.00148 | -0.00013 |
| ____ AL | -0.01462 | -1.74 | 544.182 | -0.08512 | -0.03033 | 0.07160 |
| ____ AL A› | 0.00002 | 30.98 | 9503.446 | 0.00726 | -0.00282 | -0.00437 |
| ____ AS | 0.00067 | 0.32 | 421.281 | -0.00131 | -0.00058 | 0.00391 |
| ____ B | 0.07547 | 403.56 | 0.540 | 0.07500 | 0.07572 | 0.07568 |
| ____ BA | 0.10622 | 46,839.85 | 0.413 | 0.10671 | 0.10589 | 0.10604 |
| ____ BE | -0.00199 | -1,200.05 | 0.961 | -0.00200 | -0.00200 | -0.00197 |
| ____ CA | 61.15901 | 22,413.79 | 0.267 | 61.17686 | 60.98752 | 61.31266 |
| ____ CD | 0.00052 | -3.54 | 12.189 | 0.00058 | 0.00045 | 0.00053 |
| ____ CO | -0.00030 | 1.55 | 51.385 | -0.00014 | -0.00045 | -0.00032 |
| ____ CR | 0.00141 | -6.30 | 69.037 | 0.00253 | 0.00092 | 0.00077 |
| ____ CU | 0.00902 | 37.69 | 21.558 | 0.00981 | 0.01043 | 0.00680 |
| ____ FE | 0.02154 | 1.03 | 129.708 | 0.00693 | 0.00394 | 0.05377 |
| ____ K | 6.76718 | 1,867.69 | 0.461 | 6.75346 | 6.74520 | 6.80287 |
| ____ LI | 0.00641 | -5.17 | 46.200 | 0.00918 | 0.00676 | 0.00329 |
| ____ MG | 31.80075 | 15,122.25 | 0.246 | 31.80597 | 31.72001 | 31.87626 |
| ____ MN | 0.03872 | 1,887.48 | 0.740 | 0.03903 | 0.03866 | 0.03847 |
| ____ MO | 0.00057 | 0.12 | 29.423 | 0.00055 | 0.00075 | 0.00041 |
| ____ NA | 35.24888 | 33,963.92 | 0.284 | 35.23476 | 35.15660 | 35.35526 |
| ____ NI | 0.00005 | 4.19 | 863.427 | -0.00035 | 0.00052 | -0.00003 |
| ____ P | 0.02584 | 6.69 | 12.620 | 0.02564 | 0.02919 | 0.02268 |
| ____ PB | 0.00626 | 1.49 | 25.986 | 0.00593 | 0.00482 | 0.00802 |
| ____ S | 16.50100 | 1,103.10 | 0.389 | 16.55290 | 16.42930 | 16.52082 |
| ____ SB | 0.00384 | 1.87 | 20.216 | 0.00317 | 0.00469 | 0.00365 |
| ____ SE | 0.01191 | 1.21 | 36.061 | 0.01655 | 0.00808 | 0.01111 |
| ____ SI | 28.39856 | 1,842.22 | 0.199 | 28.33891 | 28.40538 | 28.45139 |
| ____ SN | 0.00079 | 0.24 | 277.726 | -0.00063 | 0.00333 | -0.00032 |
| ____ SR | 0.44501 | 217,213.62 | 1.066 | 0.44948 | 0.44552 | 0.44003 |
| ____ TH | 0.02777 | -0.88 | 136.451 | -0.00012 | 0.01252 | 0.07092 |
| ____ TI | 0.00307 | 139.72 | 7.047 | 0.00291 | 0.00332 | 0.00298 |
| ____ TL | -0.00084 | -0.46 | 561.928 | -0.00585 | -0.00026 | 0.00358 |
| ____ V | 0.01795 | 139.20 | 2.992 | 0.01774 | 0.01855 | 0.01754 |
| ____ W | -0.00007 | 1.66 | 2375.363 | 0.00141 | -0.00192 | 0.00029 |
| ____ Y1 | 4759.83602 | 4,759.84 | 0.772 | 4718.23818 | 4787.88521 | 4773.38466 |
| ____ Y2A | 149719.33507 | 149,719.34 | 0.890 | 148401.90885 | 149690.76054 | 151065.33580 |
| ____ Y2R | 5238.88998 | 5,238.89 | 0.975 | 5256.49900 | 5278.81356 | 5181.35737 |
| ____ ZN | 0.00222 | 16.68 | 5.615 | 0.00219 | 0.00236 | 0.00212 |
| ____ ZR | 0.00581 | 6.06 | 99.948 | 0.01231 | 0.00400 | 0.00113 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 26 Date/Time: 02/03/2020 22:30

Sample Number: **1251374** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: S

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00079 | -6.91 | 46.638 | -0.00077 | -0.00043 | -0.00116 |
| ____ AL | 0.00777 | -1.08 | 1541.525 | 0.02929 | -0.12129 | 0.11531 |
| ____ AL A› | 0.00028 | 28.27 | 1401.809 | -0.00151 | 0.00478 | -0.00243 |
| ____ AS | -0.01049 | -0.89 | 31.594 | -0.01318 | -0.00679 | -0.01152 |
| ____ B | 0.05155 | 261.06 | 0.881 | 0.05198 | 0.05107 | 0.05159 |
| ____ BA | 0.06970 | 31,451.43 | 0.301 | 0.06959 | 0.06994 | 0.06956 |
| ____ BE | -0.00197 | -1,217.06 | 2.773 | -0.00202 | -0.00191 | -0.00198 |
| ____ CA | 35.09946 | 12,981.64 | 0.487 | 34.94093 | 35.07676 | 35.28070 |
| ____ CD | 0.00042 | -4.75 | 43.636 | 0.00042 | 0.00061 | 0.00024 |
| ____ CO | -0.00032 | 1.51 | 74.123 | -0.00045 | -0.00047 | -0.00005 |
| ____ CR | 0.00245 | 3.20 | 13.574 | 0.00282 | 0.00232 | 0.00220 |
| ____ CU | 0.00861 | 27.05 | 9.840 | 0.00786 | 0.00844 | 0.00953 |
| ____ FE | 0.00440 | -0.65 | 202.013 | 0.01094 | 0.00797 | -0.00571 |
| ____ K | 3.28358 | 961.17 | 0.994 | 3.24590 | 3.30132 | 3.30351 |
| ____ LI | 0.00751 | -5.25 | 21.172 | 0.00932 | 0.00633 | 0.00688 |
| ____ MG | 18.45644 | 8,909.75 | 0.534 | 18.46996 | 18.35176 | 18.54761 |
| ____ MN | 0.00124 | 62.29 | 7.723 | 0.00114 | 0.00134 | 0.00125 |
| ____ MO | 0.00168 | 1.61 | 33.032 | 0.00180 | 0.00217 | 0.00108 |
| ____ NA | 25.59940 | 24,861.22 | 0.510 | 25.55456 | 25.49727 | 25.74637 |
| ____ NI | 0.00041 | 4.80 | 219.704 | 0.00113 | 0.00069 | -0.00059 |
| ____ P | 0.02359 | 6.35 | 4.961 | 0.02494 | 0.02288 | 0.02294 |
| ____ PB | 0.00539 | 0.67 | 4.222 | 0.00551 | 0.00554 | 0.00513 |
| ____ S | 11.03493 | 751.02 | 0.363 | 11.04876 | 10.98977 | 11.06625 |
| ____ SB | 0.00081 | 1.04 | 511.435 | -0.00344 | 0.00480 | 0.00106 |
| ____ SE | 0.00713 | 0.67 | 49.193 | 0.00768 | 0.01032 | 0.00338 |
| ____ SI | 27.41347 | 1,790.29 | 0.836 | 27.54249 | 27.14902 | 27.54890 |
| ____ SN | 0.00052 | 0.19 | 485.740 | 0.00285 | 0.00083 | -0.00213 |
| ____ SR | 0.24568 | 122,558.91 | 0.604 | 0.24445 | 0.24733 | 0.24525 |
| ____ TH | 0.01218 | -1.86 | 47.847 | 0.01318 | 0.01744 | 0.00592 |
| ____ TI | 0.00253 | 119.95 | 9.110 | 0.00240 | 0.00240 | 0.00280 |
| ____ TL | -0.00152 | -0.65 | 257.240 | 0.00097 | -0.00603 | 0.00050 |
| ____ V | 0.02399 | 198.40 | 1.475 | 0.02358 | 0.02414 | 0.02423 |
| ____ W | -0.00057 | 1.43 | 142.716 | -0.00104 | 0.00037 | -0.00105 |
| ____ Y1 | 4842.13645 | 4,842.14 | 0.470 | 4820.04400 | 4865.51545 | 4840.84992 |
| ____ Y2A | 152979.49007 | 152,979.49 | 0.478 | 153322.49201 | 152139.47500 | 153476.50320 |
| ____ Y2R | 5274.34997 | 5,274.35 | 0.929 | 5261.37725 | 5328.51734 | 5233.15532 |
| ____ ZN | 0.00228 | 17.35 | 1.973 | 0.00227 | 0.00224 | 0.00233 |
| ____ ZR | 0.00712 | 6.37 | 43.640 | 0.00808 | 0.00963 | 0.00364 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 27 Date/Time: 02/03/2020 22:33

Sample Number: **1251377** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: S

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00136 | -16.49 | 63.662 | -0.00045 | -0.00146 | -0.00217 |
| ____ AL | -0.03492 | -2.51 | 299.371 | 0.01370 | 0.03645 | -0.15492 |
| ____ AL A› | 0.00250 | 31.30 | 262.091 | 0.00469 | -0.00486 | 0.00766 |
| ____ AS | 0.00292 | 0.48 | 271.793 | 0.00432 | -0.00563 | 0.01008 |
| ____ B | 0.02977 | 121.54 | 1.785 | 0.02963 | 0.02932 | 0.03036 |
| ____ BA | 0.05984 | 26,979.67 | 0.611 | 0.05943 | 0.05995 | 0.06013 |
| ____ BE | -0.00195 | -1,209.76 | 1.206 | -0.00196 | -0.00193 | -0.00197 |
| ____ CA | 34.22995 | 12,582.32 | 0.224 | 34.16589 | 34.20889 | 34.31507 |
| ____ CD | 0.00038 | -5.21 | 42.530 | 0.00041 | 0.00052 | 0.00021 |
| ____ CO | -0.00039 | 1.32 | 19.302 | -0.00030 | -0.00044 | -0.00043 |
| ____ CR | 0.00310 | 9.19 | 19.708 | 0.00252 | 0.00303 | 0.00374 |
| ____ CU | 0.00735 | 18.76 | 20.759 | 0.00645 | 0.00649 | 0.00911 |
| ____ FE | 0.01352 | 0.27 | 195.563 | 0.04248 | 0.00741 | -0.00933 |
| ____ K | 3.29429 | 957.84 | 0.185 | 3.30090 | 3.29307 | 3.28891 |
| ____ LI | 0.00747 | -5.57 | 39.840 | 0.01032 | 0.00438 | 0.00770 |
| ____ MG | 17.41845 | 8,361.80 | 0.689 | 17.28917 | 17.43981 | 17.52638 |
| ____ MN | 0.00013 | 6.84 | 48.308 | 0.00017 | 0.00006 | 0.00016 |
| ____ MO | 0.00132 | 1.12 | 22.491 | 0.00098 | 0.00146 | 0.00152 |
| ____ NA | 21.42882 | 20,698.23 | 0.579 | 21.31523 | 21.40997 | 21.56125 |
| ____ NI | 0.00009 | 4.36 | 740.830 | -0.00004 | 0.00083 | -0.00051 |
| ____ P | 0.02104 | 5.81 | 14.753 | 0.01827 | 0.02439 | 0.02045 |
| ____ PB | 0.00816 | 3.18 | 10.805 | 0.00727 | 0.00818 | 0.00904 |
| ____ S | 7.14058 | 483.78 | 0.155 | 7.14984 | 7.12829 | 7.14361 |
| ____ SB | -0.00013 | 0.77 | 1588.760 | -0.00156 | -0.00111 | 0.00227 |
| ____ SE | 0.00210 | 0.08 | 127.468 | -0.00073 | 0.00245 | 0.00458 |
| ____ SI | 27.33143 | 1,773.86 | 0.767 | 27.15858 | 27.27119 | 27.56450 |
| ____ SN | -0.00218 | -0.35 | 107.852 | -0.00361 | 0.00053 | -0.00346 |
| ____ SR | 0.24335 | 121,207.73 | 0.186 | 0.24284 | 0.24355 | 0.24368 |
| ____ TH | 0.01769 | -1.50 | 206.645 | 0.03046 | 0.04615 | -0.02354 |
| ____ TI | 0.00252 | 119.14 | 3.665 | 0.00262 | 0.00247 | 0.00246 |
| ____ TL | 0.00077 | -0.07 | 203.833 | -0.00069 | 0.00244 | 0.00057 |
| ____ V | 0.02577 | 214.78 | 0.913 | 0.02599 | 0.02552 | 0.02580 |
| ____ W | -0.00059 | 1.41 | 210.303 | -0.00086 | -0.00168 | 0.00077 |
| ____ Y1 | 4814.24258 | 4,814.24 | 0.236 | 4809.89101 | 4827.13529 | 4805.70143 |
| ____ Y2A | 152744.33243 | 152,744.33 | 0.134 | 152981.33993 | 152633.32835 | 152618.32900 |
| ____ Y2R | 5241.51357 | 5,241.51 | 0.527 | 5271.98104 | 5234.39058 | 5218.16910 |
| ____ ZN | 0.00271 | 20.12 | 5.347 | 0.00267 | 0.00286 | 0.00258 |
| ____ ZR | 0.00449 | 4.74 | 140.143 | -0.00182 | 0.00453 | 0.01076 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 28 Date/Time: 02/03/2020 22:37

Sample Number: **1251379** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: S

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00091 | -4.85 | 17.974 | -0.00110 | -0.00082 | -0.00080 |
| ____ AL | 0.02015 | -0.67 | 316.902 | -0.00065 | 0.09183 | -0.03072 |
| ____ AL A› | 0.00307 | 30.54 | 19.905 | 0.00258 | 0.00375 | 0.00288 |
| ____ AS | 0.00908 | 1.07 | 40.435 | 0.01172 | 0.00489 | 0.01065 |
| ____ B | 0.07870 | 439.30 | 1.168 | 0.07805 | 0.07975 | 0.07830 |
| ____ BA | 0.03898 | 17,818.17 | 0.760 | 0.03932 | 0.03882 | 0.03880 |
| ____ BE | -0.00201 | -1,243.33 | 0.614 | -0.00201 | -0.00202 | -0.00199 |
| ____ CA | 13.07948 | 4,833.97 | 0.646 | 13.15097 | 12.98626 | 13.10120 |
| ____ CD | 0.00044 | -4.58 | 25.126 | 0.00034 | 0.00042 | 0.00056 |
| ____ CO | -0.00028 | 1.66 | 47.326 | -0.00013 | -0.00031 | -0.00039 |
| ____ CR | 0.00323 | 10.53 | 14.566 | 0.00292 | 0.00299 | 0.00377 |
| ____ CU | 0.00747 | 11.43 | 11.077 | 0.00744 | 0.00666 | 0.00831 |
| ____ FE | -0.00029 | -1.11 | 1941.935 | -0.00571 | -0.00057 | 0.00542 |
| ____ K | 2.07521 | 639.56 | 1.262 | 2.08783 | 2.09270 | 2.04509 |
| ____ LI | 0.00991 | 2.34 | 42.426 | 0.00723 | 0.01476 | 0.00775 |
| ____ MG | 7.60497 | 3,685.80 | 0.673 | 7.64736 | 7.54807 | 7.61949 |
| ____ MN | 0.01032 | 519.04 | 1.212 | 0.01023 | 0.01026 | 0.01046 |
| ____ MO | 0.00103 | 0.74 | 59.251 | 0.00121 | 0.00153 | 0.00035 |
| ____ NA | 12.84569 | 12,490.65 | 0.768 | 12.95380 | 12.76037 | 12.82290 |
| ____ NI | 0.00058 | 5.09 | 75.645 | 0.00042 | 0.00025 | 0.00108 |
| ____ P | 0.07008 | 15.81 | 5.578 | 0.07436 | 0.06918 | 0.06670 |
| ____ PB | 0.00703 | 2.19 | 22.545 | 0.00771 | 0.00816 | 0.00522 |
| ____ S | 2.60276 | 180.24 | 0.300 | 2.59574 | 2.61116 | 2.60139 |
| ____ SB | 0.00029 | 0.90 | 723.456 | -0.00076 | 0.00274 | -0.00110 |
| ____ SE | 0.00284 | 0.17 | 289.663 | 0.01223 | -0.00315 | -0.00055 |
| ____ SI | 27.33773 | 1,780.27 | 0.248 | 27.32831 | 27.27520 | 27.40968 |
| ____ SN | -0.00178 | -0.27 | 139.952 | -0.00375 | -0.00261 | 0.00102 |
| ____ SR | 0.09215 | 46,416.99 | 0.108 | 0.09223 | 0.09204 | 0.09219 |
| ____ TH | -0.00173 | -2.74 | 749.274 | 0.00750 | 0.00386 | -0.01655 |
| ____ TI | 0.00135 | 70.92 | 9.287 | 0.00147 | 0.00122 | 0.00136 |
| ____ TL | -0.00313 | -1.06 | 33.470 | -0.00286 | -0.00224 | -0.00428 |
| ____ V | 0.02306 | 191.68 | 1.148 | 0.02336 | 0.02287 | 0.02295 |
| ____ W | -0.00075 | 1.34 | 144.844 | -0.00145 | -0.00129 | 0.00050 |
| ____ Y1 | 4890.65294 | 4,890.65 | 0.167 | 4898.22218 | 4891.77082 | 4881.96580 |
| ____ Y2A | 154433.93525 | 154,433.94 | 0.441 | 154477.18887 | 153731.67265 | 155092.94423 |
| ____ Y2R | 5259.10701 | 5,259.11 | 0.365 | 5237.44007 | 5274.09699 | 5265.78396 |
| ____ ZN | 0.00048 | 5.11 | 20.290 | 0.00059 | 0.00046 | 0.00039 |
| ____ ZR | 0.00477 | 4.17 | 124.465 | -0.00080 | 0.00409 | 0.01103 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 29 Date/Time: 02/03/2020 22:40

Sample Number: **1251381** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: S

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00110 | -11.41 | 11.816 | -0.00101 | -0.00104 | -0.00125 |
| ____ AL | 0.03595 | -0.07 | 77.434 | 0.02292 | 0.01702 | 0.06791 |
| ____ AL A› | 0.00172 | 30.75 | 116.542 | 0.00077 | 0.00401 | 0.00037 |
| ____ AS | 0.00527 | 0.68 | 86.053 | 0.01047 | 0.00317 | 0.00217 |
| ____ B | 0.07962 | 444.84 | 1.313 | 0.08051 | 0.07847 | 0.07989 |
| ____ BA | 0.03930 | 17,930.10 | 0.349 | 0.03941 | 0.03933 | 0.03915 |
| ____ BE | -0.00198 | -1,232.44 | 0.909 | -0.00200 | -0.00197 | -0.00198 |
| ____ CA | 13.01829 | 4,829.86 | 0.485 | 13.08931 | 12.96878 | 12.99679 |
| ____ CD | 0.00043 | -4.78 | 18.852 | 0.00042 | 0.00051 | 0.00035 |
| ____ CO | -0.00031 | 1.57 | 159.320 | -0.00056 | -0.00063 | 0.00026 |
| ____ CR | 0.00318 | 10.04 | 14.160 | 0.00363 | 0.00273 | 0.00317 |
| ____ CU | 0.00707 | 11.78 | 4.694 | 0.00720 | 0.00731 | 0.00669 |
| ____ FE | 0.01044 | -0.05 | 107.807 | 0.01745 | 0.01641 | -0.00254 |
| ____ K | 2.06897 | 640.35 | 0.360 | 2.06697 | 2.06271 | 2.07721 |
| ____ LI | 0.00940 | -0.31 | 12.459 | 0.00992 | 0.00806 | 0.01022 |
| ____ MG | 7.52819 | 3,662.76 | 0.818 | 7.56702 | 7.45717 | 7.56039 |
| ____ MN | 0.01272 | 638.91 | 0.427 | 0.01277 | 0.01274 | 0.01266 |
| ____ MO | 0.00097 | 0.66 | 49.558 | 0.00126 | 0.00123 | 0.00041 |
| ____ NA | 12.78086 | 12,475.91 | 0.624 | 12.87279 | 12.73091 | 12.73888 |
| ____ NI | 0.00068 | 5.23 | 120.696 | 0.00037 | 0.00160 | 0.00006 |
| ____ P | 0.07430 | 16.68 | 3.524 | 0.07705 | 0.07184 | 0.07400 |
| ____ PB | 0.00564 | 0.90 | 60.688 | 0.00289 | 0.00455 | 0.00947 |
| ____ S | 2.59550 | 179.92 | 0.095 | 2.59611 | 2.59277 | 2.59761 |
| ____ SB | 0.00019 | 0.87 | 36.183 | 0.00024 | 0.00022 | 0.00011 |
| ____ SE | 0.00665 | 0.62 | 51.073 | 0.00987 | 0.00310 | 0.00697 |
| ____ SI | 27.18761 | 1,777.29 | 0.427 | 27.05364 | 27.24849 | 27.26070 |
| ____ SN | 0.00121 | 0.33 | 281.649 | 0.00498 | -0.00167 | 0.00032 |
| ____ SR | 0.09212 | 46,316.21 | 0.069 | 0.09213 | 0.09205 | 0.09217 |
| ____ TH | 0.01251 | -1.84 | 194.003 | 0.01790 | 0.03363 | -0.01400 |
| ____ TI | 0.00151 | 77.58 | 16.480 | 0.00167 | 0.00165 | 0.00122 |
| ____ TL | 0.00191 | 0.23 | 112.277 | 0.00023 | 0.00117 | 0.00432 |
| ____ V | 0.02295 | 190.28 | 1.571 | 0.02267 | 0.02281 | 0.02336 |
| ____ W | -0.00077 | 1.33 | 173.203 | -0.00220 | -0.00056 | 0.00045 |
| ____ Y1 | 4895.40713 | 4,895.41 | 0.158 | 4900.13999 | 4886.47935 | 4899.60204 |
| ____ Y2A | 154161.65445 | 154,161.65 | 0.452 | 154919.61431 | 154018.37722 | 153546.97182 |
| ____ Y2R | 5279.26478 | 5,279.26 | 0.205 | 5269.35178 | 5290.82802 | 5277.61454 |
| ____ ZN | 0.00098 | 8.55 | 13.747 | 0.00089 | 0.00091 | 0.00113 |
| ____ ZR | 0.00758 | 6.68 | 84.761 | 0.01138 | 0.00016 | 0.01120 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 30 Date/Time: 02/03/2020 22:43

Sample Number: **1251383** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: S

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00150 | -11.07 | 67.924 | -0.00057 | -0.00133 | -0.00259 |
| ____ AL | -0.05224 | -3.25 | 198.700 | -0.17211 | 0.00686 | 0.00852 |
| ____ AL A› | 0.00645 | 32.59 | 113.696 | -0.00029 | 0.00538 | 0.01426 |
| ____ AS | 0.01143 | 1.33 | 21.542 | 0.01412 | 0.01089 | 0.00929 |
| ____ B | 0.03060 | 144.69 | 1.874 | 0.03024 | 0.03030 | 0.03126 |
| ____ BA | 0.01385 | 6,457.78 | 0.656 | 0.01393 | 0.01387 | 0.01375 |
| ____ BE | -0.00195 | -1,227.30 | 1.219 | -0.00198 | -0.00194 | -0.00194 |
| ____ CA | 16.62632 | 6,153.33 | 0.509 | 16.62606 | 16.71101 | 16.54189 |
| ____ CD | 0.00059 | -2.86 | 9.912 | 0.00065 | 0.00055 | 0.00055 |
| ____ CO | -0.00045 | 1.17 | 56.829 | -0.00051 | -0.00017 | -0.00066 |
| ____ CR | 0.00795 | 54.89 | 8.635 | 0.00733 | 0.00782 | 0.00869 |
| ____ CU | 0.00731 | 9.09 | 29.007 | 0.00499 | 0.00782 | 0.00914 |
| ____ FE | 0.01240 | 0.15 | 122.703 | -0.00469 | 0.01743 | 0.02446 |
| ____ K | 2.81003 | 834.01 | 1.302 | 2.83812 | 2.76865 | 2.82332 |
| ____ LI | 0.01197 | 13.53 | 22.387 | 0.01297 | 0.00894 | 0.01401 |
| ____ MG | 8.14360 | 3,952.37 | 0.700 | 8.20225 | 8.14017 | 8.08838 |
| ____ MN | 0.00192 | 97.80 | 1.351 | 0.00195 | 0.00190 | 0.00192 |
| ____ MO | 0.00233 | 2.50 | 23.374 | 0.00242 | 0.00175 | 0.00283 |
| ____ NA | 15.46428 | 15,042.27 | 0.465 | 15.54531 | 15.43942 | 15.40810 |
| ____ NI | -0.00052 | 4.11 | 36.763 | -0.00066 | -0.00030 | -0.00058 |
| ____ P | 0.15773 | 33.53 | 2.086 | 0.15723 | 0.15472 | 0.16124 |
| ____ PB | 0.00717 | 1.85 | 15.194 | 0.00601 | 0.00731 | 0.00818 |
| ____ S | 2.01322 | 139.86 | 1.098 | 2.00714 | 2.03773 | 1.99479 |
| ____ SB | 0.00343 | 1.84 | 40.868 | 0.00377 | 0.00464 | 0.00189 |
| ____ SE | 0.00394 | 0.30 | 290.488 | 0.01570 | -0.00714 | 0.00324 |
| ____ SI | 19.44873 | 1,268.85 | 0.344 | 19.42900 | 19.52325 | 19.39393 |
| ____ SN | -0.00241 | -0.40 | 26.875 | -0.00231 | -0.00310 | -0.00182 |
| ____ SR | 0.14043 | 71,105.90 | 0.060 | 0.14050 | 0.14034 | 0.14046 |
| ____ TH | -0.00894 | -3.21 | 587.959 | 0.04221 | -0.00624 | -0.06278 |
| ____ TI | 0.00163 | 83.07 | 8.423 | 0.00170 | 0.00171 | 0.00147 |
| ____ TL | -0.00089 | -0.49 | 281.736 | 0.00170 | -0.00107 | -0.00331 |
| ____ V | 0.03203 | 277.55 | 0.457 | 0.03216 | 0.03187 | 0.03205 |
| ____ W | 0.00172 | 2.67 | 15.783 | 0.00141 | 0.00184 | 0.00190 |
| ____ Y1 | 4892.70206 | 4,892.70 | 0.208 | 4883.83162 | 4903.77762 | 4890.49695 |
| ____ Y2A | 155359.40154 | 155,359.40 | 0.067 | 155475.84432 | 155326.65071 | 155275.70957 |
| ____ Y2R | 5268.31682 | 5,268.32 | 0.394 | 5244.45222 | 5282.32888 | 5278.16937 |
| ____ ZN | 0.00145 | 11.75 | 5.784 | 0.00138 | 0.00142 | 0.00154 |
| ____ ZR | 0.00608 | 4.78 | 146.569 | -0.00355 | 0.00775 | 0.01403 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 31 Date/Time: 02/03/2020 22:46

Sample Number: **1251385** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: S

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00205 | -10.03 | 17.346 | -0.00187 | -0.00246 | -0.00182 |
| ____ AL | -0.01303 | -1.91 | 164.216 | 0.01069 | -0.01889 | -0.03087 |
| ____ AL A› | 0.00492 | 28.82 | 131.687 | -0.00255 | 0.00900 | 0.00830 |
| ____ AS | 0.00503 | 0.70 | 43.433 | 0.00750 | 0.00333 | 0.00426 |
| ____ B | 0.11713 | 682.26 | 1.701 | 0.11513 | 0.11911 | 0.11717 |
| ____ BA | 0.06361 | 28,570.61 | 0.515 | 0.06331 | 0.06396 | 0.06355 |
| ____ BE | -0.00197 | -1,206.66 | 1.158 | -0.00197 | -0.00199 | -0.00195 |
| ____ CA | 43.34168 | 15,934.65 | 0.289 | 43.40890 | 43.41874 | 43.19738 |
| ____ CD | 0.00033 | -5.83 | 23.434 | 0.00037 | 0.00037 | 0.00024 |
| ____ CO | -0.00029 | 1.60 | 66.482 | -0.00022 | -0.00051 | -0.00014 |
| ____ CR | 0.00478 | 24.68 | 7.724 | 0.00441 | 0.00515 | 0.00480 |
| ____ CU | 0.00946 | 22.40 | 10.083 | 0.00922 | 0.01051 | 0.00865 |
| ____ FE | 0.00743 | -0.35 | 166.780 | -0.00565 | 0.01902 | 0.00893 |
| ____ K | 3.28818 | 958.26 | 0.548 | 3.29921 | 3.29796 | 3.26737 |
| ____ LI | 0.00863 | 2.25 | 25.847 | 0.01073 | 0.00629 | 0.00887 |
| ____ MG | 24.77032 | 11,849.11 | 0.508 | 24.86259 | 24.82124 | 24.62712 |
| ____ MN | 0.00032 | 16.52 | 17.915 | 0.00030 | 0.00028 | 0.00039 |
| ____ MO | 0.00341 | 3.86 | 22.011 | 0.00391 | 0.00377 | 0.00254 |
| ____ NA | 23.54281 | 22,753.94 | 0.168 | 23.57729 | 23.55159 | 23.49953 |
| ____ NI | 0.01927 | 30.03 | 7.490 | 0.01826 | 0.01862 | 0.02092 |
| ____ P | 0.03914 | 9.34 | 13.583 | 0.03712 | 0.04517 | 0.03513 |
| ____ PB | 0.00686 | 1.86 | 45.195 | 0.00332 | 0.00907 | 0.00820 |
| ____ S | 29.24961 | 1,962.78 | 0.218 | 29.31306 | 29.25047 | 29.18531 |
| ____ SB | 0.00107 | 1.11 | 297.871 | 0.00367 | -0.00249 | 0.00203 |
| ____ SE | 0.00846 | 0.81 | 96.534 | 0.01745 | 0.00642 | 0.00150 |
| ____ SI | 25.20033 | 1,637.32 | 0.254 | 25.27176 | 25.14801 | 25.18122 |
| ____ SN | 0.00012 | 0.11 | 2089.523 | -0.00236 | 0.00252 | 0.00019 |
| ____ SR | 0.29554 | 146,702.41 | 0.176 | 0.29512 | 0.29612 | 0.29538 |
| ____ TH | -0.03801 | -5.04 | 56.542 | -0.02615 | -0.06281 | -0.02506 |
| ____ TI | 0.00263 | 123.29 | 7.926 | 0.00245 | 0.00286 | 0.00257 |
| ____ TL | -0.00009 | -0.28 | 1363.165 | -0.00157 | 0.00069 | 0.00060 |
| ____ V | 0.01527 | 116.29 | 1.103 | 0.01508 | 0.01535 | 0.01539 |
| ____ W | -0.00108 | 1.15 | 57.384 | -0.00158 | -0.00039 | -0.00127 |
| ____ Y1 | 4781.05923 | 4,781.06 | 0.138 | 4773.67063 | 4783.18368 | 4786.32337 |
| ____ Y2A | 152205.76553 | 152,205.77 | 0.399 | 152704.15000 | 151529.21981 | 152383.92679 |
| ____ Y2R | 5246.94691 | 5,246.95 | 0.379 | 5243.02789 | 5229.33307 | 5268.47978 |
| ____ ZN | 0.00202 | 16.02 | 9.515 | 0.00219 | 0.00204 | 0.00181 |
| ____ ZR | 0.01177 | 7.43 | 18.140 | 0.00951 | 0.01376 | 0.01203 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 32 Date/Time: 02/03/2020 22:49

Sample Number: **1251387** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: S

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00086 | -11.30 | 93.871 | -0.00079 | -0.00009 | -0.00170 |
| ____ AL | -0.05305 | -3.16 | 124.883 | -0.04608 | 0.00944 | -0.12252 |
| ____ AL A› | -0.00082 | 26.83 | 61.359 | -0.00061 | -0.00139 | -0.00045 |
| ____ AS | 0.00723 | 0.86 | 95.827 | 0.00604 | 0.00097 | 0.01467 |
| ____ B | 0.02022 | 76.71 | 3.895 | 0.01950 | 0.02106 | 0.02011 |
| ____ BA | 0.01605 | 7,357.99 | 0.328 | 0.01602 | 0.01611 | 0.01602 |
| ____ BE | -0.00198 | -1,224.16 | 0.793 | -0.00196 | -0.00200 | -0.00198 |
| ____ CA | 11.29977 | 4,176.57 | 0.288 | 11.30131 | 11.33152 | 11.26647 |
| ____ CD | 0.00037 | -5.36 | 37.092 | 0.00044 | 0.00021 | 0.00046 |
| ____ CO | -0.00023 | 1.79 | 69.861 | -0.00012 | -0.00042 | -0.00016 |
| ____ CR | 0.00562 | 32.62 | 6.111 | 0.00558 | 0.00599 | 0.00530 |
| ____ CU | 0.00801 | 21.29 | 9.202 | 0.00885 | 0.00747 | 0.00771 |
| ____ FE | 0.03922 | 2.81 | 43.207 | 0.03094 | 0.05872 | 0.02801 |
| ____ K | 1.55892 | 503.58 | 2.313 | 1.51755 | 1.57560 | 1.58362 |
| ____ LI | 0.00705 | -12.61 | 25.503 | 0.00501 | 0.00841 | 0.00774 |
| ____ MG | 5.19407 | 2,521.03 | 0.254 | 5.20075 | 5.20259 | 5.17885 |
| ____ MN | 0.00517 | 258.10 | 2.042 | 0.00527 | 0.00505 | 0.00517 |
| ____ MO | 0.01587 | 20.66 | 3.212 | 0.01610 | 0.01623 | 0.01529 |
| ____ NA | 16.63207 | 16,140.15 | 0.564 | 16.67792 | 16.69409 | 16.52419 |
| ____ NI | 0.05674 | 81.75 | 1.601 | 0.05570 | 0.05719 | 0.05734 |
| ____ P | 0.03235 | 8.14 | 11.754 | 0.03576 | 0.02825 | 0.03302 |
| ____ PB | 0.00656 | 1.26 | 17.624 | 0.00596 | 0.00583 | 0.00790 |
| ____ S | 1.17382 | 81.76 | 1.439 | 1.16267 | 1.19325 | 1.16554 |
| ____ SB | -0.00209 | 0.22 | 77.660 | -0.00086 | -0.00393 | -0.00148 |
| ____ SE | 0.00812 | 0.79 | 81.520 | 0.01179 | 0.01209 | 0.00048 |
| ____ SI | 19.32364 | 1,258.32 | 0.483 | 19.26760 | 19.43133 | 19.27199 |
| ____ SN | -0.00162 | -0.24 | 173.622 | 0.00143 | -0.00411 | -0.00218 |
| ____ SR | 0.06964 | 34,821.40 | 0.190 | 0.06971 | 0.06972 | 0.06948 |
| ____ TH | 0.02312 | -1.16 | 39.234 | 0.01874 | 0.03355 | 0.01707 |
| ____ TI | 0.00116 | 62.01 | 1.483 | 0.00115 | 0.00118 | 0.00115 |
| ____ TL | -0.00056 | -0.40 | 613.949 | 0.00330 | -0.00180 | -0.00316 |
| ____ V | 0.02752 | 229.57 | 0.868 | 0.02771 | 0.02725 | 0.02759 |
| ____ W | -0.00007 | 1.70 | 1268.410 | 0.00083 | -0.00004 | -0.00101 |
| ____ Y1 | 4863.37300 | 4,863.37 | 0.300 | 4854.80852 | 4880.20398 | 4855.10649 |
| ____ Y2A | 153216.42399 | 153,216.42 | 0.800 | 154631.10790 | 152462.52244 | 152555.64162 |
| ____ Y2R | 5258.42042 | 5,258.42 | 0.243 | 5268.47978 | 5244.04168 | 5262.73981 |
| ____ ZN | 0.00181 | 16.25 | 5.266 | 0.00175 | 0.00192 | 0.00176 |
| ____ ZR | 0.00209 | 3.36 | 153.751 | 0.00502 | -0.00134 | 0.00258 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 33 Date/Time: 02/03/2020 22:52

Sample Number: **1251397** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: S

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00124 | -10.20 | 121.798 | -0.00023 | -0.00297 | -0.00051 |
| ____ AL | -0.01178 | -1.80 | 564.719 | -0.08597 | 0.04255 | 0.00807 |
| ____ AL A› | 0.00533 | 32.58 | 81.685 | 0.00072 | 0.00938 | 0.00591 |
| ____ AS | 0.00494 | 0.69 | 122.102 | -0.00150 | 0.01046 | 0.00587 |
| ____ B | 0.02411 | 89.91 | 4.439 | 0.02460 | 0.02288 | 0.02484 |
| ____ BA | 0.06102 | 27,525.40 | 0.597 | 0.06131 | 0.06113 | 0.06061 |
| ____ BE | -0.00198 | -1,218.90 | 1.232 | -0.00199 | -0.00199 | -0.00195 |
| ____ CA | 35.96996 | 13,140.62 | 0.153 | 36.00642 | 35.90675 | 35.99671 |
| ____ CD | 0.00039 | -5.14 | 13.708 | 0.00044 | 0.00038 | 0.00034 |
| ____ CO | 0.00014 | 2.80 | 432.252 | -0.00050 | 0.00024 | 0.00067 |
| ____ CR | 0.00286 | 7.02 | 20.806 | 0.00276 | 0.00350 | 0.00232 |
| ____ CU | 0.00859 | 24.27 | 11.232 | 0.00798 | 0.00970 | 0.00808 |
| ____ FE | 0.01330 | 0.25 | 173.200 | 0.03743 | 0.01094 | -0.00846 |
| ____ K | 3.09774 | 901.06 | 3.292 | 3.00347 | 3.20596 | 3.08378 |
| ____ LI | 0.00893 | 2.19 | 33.899 | 0.00992 | 0.01134 | 0.00553 |
| ____ MG | 19.24609 | 9,173.54 | 0.225 | 19.26998 | 19.27213 | 19.19616 |
| ____ MN | 0.00012 | 6.56 | 45.665 | 0.00015 | 0.00006 | 0.00016 |
| ____ MO | 0.00094 | 0.61 | 45.139 | 0.00142 | 0.00079 | 0.00061 |
| ____ NA | 16.56303 | 15,926.03 | 0.408 | 16.60016 | 16.60400 | 16.48494 |
| ____ NI | 0.00010 | 4.51 | 289.095 | 0.00043 | -0.00010 | -0.00003 |
| ____ P | 0.02422 | 6.43 | 16.203 | 0.02078 | 0.02340 | 0.02850 |
| ____ PB | 0.00531 | 0.45 | 22.367 | 0.00658 | 0.00510 | 0.00424 |
| ____ S | 5.26843 | 357.02 | 0.209 | 5.27656 | 5.27286 | 5.25588 |
| ____ SB | 0.00056 | 0.96 | 891.983 | -0.00436 | 0.00557 | 0.00046 |
| ____ SE | 0.00790 | 0.76 | 36.215 | 0.01120 | 0.00620 | 0.00630 |
| ____ SI | 24.94496 | 1,609.31 | 0.185 | 24.89316 | 24.96042 | 24.98131 |
| ____ SN | 0.00266 | 0.61 | 82.807 | 0.00417 | 0.00366 | 0.00013 |
| ____ SR | 0.25710 | 128,133.45 | 0.143 | 0.25753 | 0.25691 | 0.25687 |
| ____ TH | 0.00096 | -2.54 | 2092.630 | 0.01328 | -0.02228 | 0.01189 |
| ____ TI | 0.00256 | 120.98 | 1.036 | 0.00254 | 0.00255 | 0.00259 |
| ____ TL | 0.00095 | -0.03 | 201.700 | -0.00078 | 0.00061 | 0.00301 |
| ____ V | 0.02499 | 207.74 | 2.982 | 0.02446 | 0.02467 | 0.02584 |
| ____ W | 0.00103 | 2.27 | 87.558 | 0.00051 | 0.00051 | 0.00208 |
| ____ Y1 | 4809.35840 | 4,809.36 | 0.302 | 4810.48695 | 4823.26567 | 4794.32257 |
| ____ Y2A | 152841.27255 | 152,841.27 | 0.569 | 152376.30000 | 152303.51804 | 153843.99960 |
| ____ Y2R | 5210.05953 | 5,210.06 | 1.108 | 5276.70024 | 5174.86053 | 5178.61783 |
| ____ ZN | 0.00164 | 12.89 | 12.577 | 0.00142 | 0.00168 | 0.00182 |
| ____ ZR | 0.00343 | 3.32 | 64.932 | 0.00198 | 0.00599 | 0.00231 |

LANCASTER LABORATORIES

Run Name: 2003404T74

Instrument ID: 23745

Tube: 34

Date/Time: 02/03/2020 22:55

Sample Number: **CCV**

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | 0.49929 | 6,625.87 | 0.502 | 0.49661 | 0.50159 | 0.49968 |
| ____ AL | 25.36182 | 848.27 | 0.681 | 25.38579 | 25.17833 | 25.52132 |
| ____ AL A› | 25.31675 | 34,634.12 | 0.654 | 25.14371 | 25.33310 | 25.47345 |
| ____ AS | 0.49407 | 49.19 | 0.808 | 0.49176 | 0.49867 | 0.49176 |
| ____ B | 0.48905 | 3,017.32 | 0.976 | 0.48381 | 0.49018 | 0.49315 |
| ____ BA | 0.50698 | 221,674.87 | 1.163 | 0.50054 | 0.51212 | 0.50827 |
| ____ BE | 0.48960 | 188,835.49 | 0.527 | 0.48700 | 0.48963 | 0.49216 |
| ____ CA | 24.78981 | 8,803.75 | 0.334 | 24.84997 | 24.69529 | 24.82416 |
| ____ CD | 0.50013 | 5,735.59 | 0.263 | 0.50154 | 0.49991 | 0.49894 |
| ____ CO | 0.49855 | 1,371.97 | 0.184 | 0.49812 | 0.49961 | 0.49793 |
| ____ CR | 0.49012 | 4,387.21 | 0.945 | 0.48488 | 0.49365 | 0.49183 |
| ____ CU | 0.51140 | 3,730.37 | 0.895 | 0.50806 | 0.50951 | 0.51661 |
| ____ FE | 24.38534 | 2,308.24 | 0.658 | 24.36911 | 24.23350 | 24.55342 |
| ____ K | 25.59955 | 6,558.90 | 0.419 | 25.68917 | 25.62883 | 25.48066 |
| ____ LI | 0.52898 | 2,541.86 | 0.376 | 0.53080 | 0.52685 | 0.52930 |
| ____ MG | 24.60824 | 11,351.50 | 0.437 | 24.73101 | 24.56251 | 24.53120 |
| ____ MN | 0.50132 | 24,274.10 | 0.672 | 0.49752 | 0.50393 | 0.50250 |
| ____ MO | 0.49865 | 643.53 | 0.473 | 0.49704 | 0.49754 | 0.50135 |
| ____ NA | 25.90085 | 24,125.82 | 0.424 | 26.01542 | 25.79669 | 25.89044 |
| ____ NI | 0.49763 | 653.61 | 0.486 | 0.50033 | 0.49690 | 0.49566 |
| ____ P | 0.50412 | 99.52 | 0.442 | 0.50315 | 0.50667 | 0.50254 |
| ____ PB | 0.49778 | 441.76 | 0.817 | 0.49348 | 0.49830 | 0.50157 |
| ____ S | 24.92377 | 1,635.40 | 0.196 | 24.98023 | 24.89677 | 24.89432 |
| ____ SB | 0.50010 | 141.43 | 0.392 | 0.49880 | 0.49914 | 0.50235 |
| ____ SE | 0.48848 | 55.50 | 0.990 | 0.49406 | 0.48592 | 0.48547 |
| ____ SI | 24.27025 | 1,521.17 | 0.207 | 24.28226 | 24.31344 | 24.21507 |
| ____ SN | 0.48769 | 94.03 | 0.922 | 0.49258 | 0.48374 | 0.48675 |
| ____ SR | 0.49770 | 240,803.70 | 0.352 | 0.49886 | 0.49855 | 0.49568 |
| ____ TH | 0.51021 | 28.67 | 3.911 | 0.52458 | 0.51863 | 0.48743 |
| ____ TI | 0.50527 | 20,742.98 | 0.608 | 0.50219 | 0.50530 | 0.50834 |
| ____ TL | 0.51630 | 122.76 | 0.493 | 0.51606 | 0.51895 | 0.51388 |
| ____ V | 0.50812 | 4,517.85 | 0.659 | 0.50478 | 0.51148 | 0.50808 |
| ____ W | 0.50551 | 264.87 | 0.336 | 0.50619 | 0.50357 | 0.50676 |
| ____ Y1 | 4682.42534 | 4,682.43 | 0.259 | 4695.45709 | 4680.33353 | 4671.48541 |
| ____ Y2A | 148747.46829 | 148,747.47 | 0.773 | 150025.47405 | 147798.82306 | 148418.10776 |
| ____ Y2R | 5058.86287 | 5,058.86 | 0.197 | 5057.41018 | 5049.69518 | 5069.48324 |
| ____ ZN | 0.49627 | 3,315.23 | 0.200 | 0.49732 | 0.49614 | 0.49535 |
| ____ ZR | 0.50720 | 353.38 | 0.747 | 0.51146 | 0.50593 | 0.50421 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 35 Date/Time: 02/03/2020 22:59

Sample Number: **CCB**

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00058 | -7.33 | 128.693 | -0.00124 | -0.00074 | 0.00023 |
| ____ AL | -0.03508 | -2.52 | 221.018 | -0.07306 | -0.08632 | 0.05412 |
| ____ AL A› | 0.01159 | 41.29 | 30.783 | 0.01137 | 0.01525 | 0.00813 |
| ____ AS | 0.00728 | 0.83 | 67.609 | 0.01187 | 0.00209 | 0.00787 |
| ____ B | 0.00446 | 13.96 | 7.448 | 0.00422 | 0.00432 | 0.00484 |
| ____ BA | 0.00016 | 206.81 | 8.715 | 0.00018 | 0.00016 | 0.00015 |
| ____ BE | -0.00190 | -1,179.77 | 2.228 | -0.00186 | -0.00189 | -0.00194 |
| ____ CA | 0.01788 | 7.77 | 17.524 | 0.01456 | 0.01830 | 0.02078 |
| ____ CD | 0.00042 | -4.73 | 30.111 | 0.00027 | 0.00051 | 0.00048 |
| ____ CO | -0.00033 | 1.45 | 116.864 | -0.00029 | 0.00003 | -0.00074 |
| ____ CR | 0.00151 | -5.40 | 28.653 | 0.00179 | 0.00173 | 0.00101 |
| ____ CU | 0.00682 | 10.26 | 3.917 | 0.00659 | 0.00711 | 0.00676 |
| ____ FE | 0.02996 | 1.83 | 41.456 | 0.03733 | 0.01562 | 0.03693 |
| ____ K | 0.03810 | 100.35 | 210.701 | 0.08288 | 0.08600 | -0.05458 |
| ____ LI | 0.01108 | 5.25 | 17.126 | 0.01003 | 0.01327 | 0.00994 |
| ____ MG | 0.01205 | 6.48 | 62.980 | 0.01617 | 0.01670 | 0.00329 |
| ____ MN | 0.00020 | 10.44 | 51.816 | 0.00010 | 0.00020 | 0.00031 |
| ____ MO | 0.00051 | 0.04 | 85.823 | 0.00083 | 0.00068 | 0.00001 |
| ____ NA | 0.03903 | 136.23 | 25.522 | 0.04540 | 0.02755 | 0.04413 |
| ____ NI | -0.00080 | 4.88 | 57.746 | -0.00079 | -0.00035 | -0.00127 |
| ____ P | -0.00385 | 0.85 | 93.767 | 0.00014 | -0.00480 | -0.00689 |
| ____ PB | 0.00420 | -1.97 | 63.832 | 0.00271 | 0.00729 | 0.00259 |
| ____ S | 0.00637 | 2.12 | 98.933 | 0.00716 | -0.00029 | 0.01224 |
| ____ SB | 0.00076 | 1.01 | 80.845 | 0.00079 | 0.00135 | 0.00013 |
| ____ SE | 0.00419 | 0.32 | 161.446 | 0.01117 | -0.00232 | 0.00371 |
| ____ SI | 0.01891 | 1.52 | 40.326 | 0.02769 | 0.01503 | 0.01400 |
| ____ SN | -0.00005 | 0.07 | 3132.806 | -0.00022 | -0.00165 | 0.00171 |
| ____ SR | 0.00016 | 94.70 | 28.531 | 0.00021 | 0.00016 | 0.00012 |
| ____ TH | 0.02325 | -1.12 | 77.724 | 0.03818 | 0.00316 | 0.02841 |
| ____ TI | 0.00039 | 29.32 | 68.084 | 0.00008 | 0.00053 | 0.00055 |
| ____ TL | 0.00239 | 0.36 | 80.404 | 0.00144 | 0.00113 | 0.00460 |
| ____ V | 0.00099 | -15.74 | 46.081 | 0.00099 | 0.00145 | 0.00053 |
| ____ W | 0.00038 | 1.90 | 375.456 | -0.00070 | -0.00016 | 0.00199 |
| ____ Y1 | 4783.75496 | 4,783.75 | 0.256 | 4789.06909 | 4769.74103 | 4792.45475 |
| ____ Y2A | 151633.88315 | 151,633.88 | 0.256 | 151496.30074 | 152072.34871 | 151333.00000 |
| ____ Y2R | 5093.17500 | 5,093.18 | 0.298 | 5110.17500 | 5080.97500 | 5088.37500 |
| ____ ZN | 0.00039 | 4.37 | 53.034 | 0.00062 | 0.00022 | 0.00033 |
| ____ ZR | 0.00291 | 3.80 | 185.703 | 0.00245 | 0.00854 | -0.00225 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 36 Date/Time: 02/03/2020 23:02

Sample Number: **1251430** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: U4

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00139 | -12.27 | 15.702 | -0.00121 | -0.00134 | -0.00163 |
| ____ AL | 0.65314 | 21.23 | 8.753 | 0.68640 | 0.68588 | 0.58712 |
| ____ AL A› | 0.68686 | 998.38 | 0.941 | 0.68058 | 0.69349 | 0.68651 |
| ____ AS | 0.00064 | 0.26 | 771.509 | 0.00065 | -0.00429 | 0.00556 |
| ____ B | 0.04310 | 262.18 | 1.690 | 0.04368 | 0.04333 | 0.04228 |
| ____ BA | 0.39361 | 177,347.37 | 0.331 | 0.39446 | 0.39211 | 0.39426 |
| ____ BE | -0.00068 | -704.98 | 4.870 | -0.00064 | -0.00071 | -0.00068 |
| ____ CA | 6.04716 | 2,213.34 | 0.523 | 6.08221 | 6.02081 | 6.03848 |
| ____ CD | 0.00067 | 0.79 | 9.899 | 0.00073 | 0.00060 | 0.00068 |
| ____ CO | 0.00851 | 26.62 | 4.712 | 0.00833 | 0.00823 | 0.00897 |
| ____ CR | 0.00094 | -10.77 | 54.613 | 0.00037 | 0.00136 | 0.00108 |
| ____ CU | 0.01062 | 34.42 | 11.908 | 0.00930 | 0.01182 | 0.01074 |
| ____ FE | 4.16903 | 408.29 | 0.592 | 4.15048 | 4.19705 | 4.15957 |
| ____ K | 3.27282 | 944.03 | 3.067 | 3.18298 | 3.38115 | 3.25433 |
| ____ LI | 0.01793 | 41.12 | 7.000 | 0.01833 | 0.01894 | 0.01653 |
| ____ MG | 8.89344 | 4,260.98 | 0.361 | 8.86614 | 8.88533 | 8.92886 |
| ____ MN | 0.03177 | 1,585.87 | 0.704 | 0.03182 | 0.03153 | 0.03197 |
| ____ MO | -0.00023 | -0.95 | 86.044 | -0.00039 | -0.00001 | -0.00030 |
| ____ NA | 33.19059 | 31,769.12 | 0.262 | 33.18361 | 33.10749 | 33.28067 |
| ____ NI | 0.00571 | 13.15 | 9.786 | 0.00508 | 0.00612 | 0.00594 |
| ____ P | -0.00236 | 1.16 | 75.229 | -0.00111 | -0.00440 | -0.00159 |
| ____ PB | 0.00606 | 0.83 | 28.552 | 0.00731 | 0.00678 | 0.00408 |
| ____ S | 0.18099 | 14.05 | 7.181 | 0.18668 | 0.16611 | 0.19017 |
| ____ SB | -0.00192 | 0.25 | 43.936 | -0.00289 | -0.00137 | -0.00149 |
| ____ SE | 0.00784 | 0.71 | 123.326 | 0.01478 | -0.00320 | 0.01192 |
| ____ SI | 9.62074 | 620.07 | 0.522 | 9.58186 | 9.60299 | 9.67738 |
| ____ SN | 0.00422 | 0.93 | 57.144 | 0.00154 | 0.00620 | 0.00493 |
| ____ SR | 0.25882 | 128,959.52 | 0.445 | 0.25886 | 0.25764 | 0.25994 |
| ____ TH | 0.00045 | -2.58 | 2526.075 | 0.01291 | -0.00218 | -0.00938 |
| ____ TI | 0.00075 | 44.70 | 11.919 | 0.00081 | 0.00064 | 0.00078 |
| ____ TL | 0.00141 | 0.06 | 118.280 | -0.00011 | 0.00319 | 0.00115 |
| ____ V | 0.00081 | -16.76 | 96.804 | 0.00134 | 0.00119 | -0.00009 |
| ____ W | -0.00006 | 1.91 | 813.424 | 0.00014 | -0.00066 | 0.00033 |
| ____ Y1 | 4857.37160 | 4,857.37 | 0.398 | 4838.47415 | 4877.15428 | 4856.48635 |
| ____ Y2A | 153284.74353 | 153,284.74 | 0.265 | 153309.02778 | 152867.67782 | 153677.52500 |
| ____ Y2R | 5203.16620 | 5,203.17 | 0.033 | 5204.97807 | 5201.59521 | 5202.92532 |
| ____ ZN | 0.03365 | 235.71 | 0.429 | 0.03380 | 0.03351 | 0.03364 |
| ____ ZR | 0.00517 | 4.47 | 139.028 | -0.00163 | 0.00445 | 0.01267 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 37 Date/Time: 02/03/2020 23:05

Sample Number: **1251431** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: U4

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00081 | -2.95 | 30.722 | -0.00054 | -0.00085 | -0.00104 |
| ____ AL | 0.26040 | 7.69 | 34.843 | 0.15570 | 0.30959 | 0.31592 |
| ____ AL A› | 0.26991 | 408.92 | 3.859 | 0.26204 | 0.28172 | 0.26598 |
| ____ AS | 0.00380 | 0.53 | 226.489 | 0.00505 | 0.01169 | -0.00536 |
| ____ B | 0.23540 | 1,494.10 | 1.221 | 0.23208 | 0.23698 | 0.23714 |
| ____ BA | 0.14518 | 64,943.38 | 0.396 | 0.14482 | 0.14486 | 0.14584 |
| ____ BE | -0.00182 | -1,147.94 | 1.548 | -0.00184 | -0.00178 | -0.00182 |
| ____ CA | 3.06424 | 1,114.24 | 0.470 | 3.05008 | 3.07885 | 3.06380 |
| ____ CD | 0.00062 | 1.47 | 43.242 | 0.00050 | 0.00092 | 0.00043 |
| ____ CO | 0.00499 | 16.60 | 6.753 | 0.00521 | 0.00460 | 0.00515 |
| ____ CR | 0.00119 | -8.29 | 49.497 | 0.00066 | 0.00183 | 0.00109 |
| ____ CU | 0.00957 | 23.74 | 18.804 | 0.01070 | 0.00749 | 0.01051 |
| ____ FE | 6.18934 | 601.70 | 0.176 | 6.20050 | 6.18883 | 6.17868 |
| ____ K | 1.66813 | 522.29 | 1.940 | 1.66360 | 1.63826 | 1.70251 |
| ____ LI | 0.00739 | -12.43 | 30.887 | 0.00836 | 0.00902 | 0.00478 |
| ____ MG | 1.79925 | 860.11 | 0.594 | 1.78716 | 1.80314 | 1.80744 |
| ____ MN | 0.05440 | 2,691.93 | 0.543 | 0.05440 | 0.05469 | 0.05410 |
| ____ MO | 0.00011 | -0.49 | 786.024 | -0.00014 | 0.00106 | -0.00059 |
| ____ NA | 77.91722 | 73,892.17 | 0.350 | 77.62159 | 78.15874 | 77.97132 |
| ____ NI | 0.01149 | 20.93 | 5.955 | 0.01210 | 0.01160 | 0.01075 |
| ____ P | 0.02074 | 5.79 | 11.335 | 0.01926 | 0.01950 | 0.02345 |
| ____ PB | 0.00678 | 1.62 | 37.844 | 0.00644 | 0.00440 | 0.00950 |
| ____ S | 5.38971 | 367.97 | 1.203 | 5.46202 | 5.37030 | 5.33682 |
| ____ SB | -0.00383 | -0.30 | 111.710 | -0.00218 | -0.00869 | -0.00063 |
| ____ SE | 0.01074 | 1.02 | 24.505 | 0.01334 | 0.01082 | 0.00807 |
| ____ SI | 9.44853 | 604.46 | 1.200 | 9.32639 | 9.55041 | 9.46878 |
| ____ SN | -0.00169 | -0.25 | 168.084 | -0.00098 | -0.00481 | 0.00073 |
| ____ SR | 0.12244 | 60,505.52 | 0.040 | 0.12246 | 0.12239 | 0.12248 |
| ____ TH | -0.00338 | -2.80 | 247.272 | 0.00147 | 0.00142 | -0.01304 |
| ____ TI | 0.00648 | 284.86 | 3.118 | 0.00627 | 0.00651 | 0.00667 |
| ____ TL | -0.00051 | -0.49 | 471.272 | -0.00301 | 0.00177 | -0.00028 |
| ____ V | 0.00486 | 21.22 | 3.706 | 0.00479 | 0.00506 | 0.00472 |
| ____ W | -0.00162 | 0.98 | 115.694 | 0.00015 | -0.00142 | -0.00359 |
| ____ Y1 | 4845.87475 | 4,845.87 | 0.691 | 4809.15908 | 4874.69453 | 4853.77062 |
| ____ Y2A | 151992.49207 | 151,992.49 | 0.712 | 151740.13748 | 153178.66780 | 151058.67092 |
| ____ Y2R | 5164.69052 | 5,164.69 | 0.242 | 5175.76485 | 5167.14971 | 5151.15699 |
| ____ ZN | 0.01854 | 133.86 | 2.177 | 0.01899 | 0.01822 | 0.01841 |
| ____ ZR | 0.00821 | 6.33 | 50.809 | 0.01062 | 0.00339 | 0.01062 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 38 Date/Time: 02/03/2020 23:08

Sample Number: **1251432** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: U4

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00157 | -11.14 | 33.107 | -0.00215 | -0.00114 | -0.00143 |
| ____ AL | -0.03374 | -2.62 | 65.847 | -0.01425 | -0.02903 | -0.05793 |
| ____ AL A› | 0.02632 | 60.66 | 20.355 | 0.02253 | 0.02397 | 0.03244 |
| ____ AS | 0.00591 | 0.75 | 47.420 | 0.00334 | 0.00890 | 0.00548 |
| ____ B | 0.01664 | 70.90 | 2.787 | 0.01677 | 0.01703 | 0.01613 |
| ____ BA | 0.08887 | 40,983.23 | 0.291 | 0.08890 | 0.08860 | 0.08912 |
| ____ BE | -0.00188 | -1,208.27 | 2.406 | -0.00185 | -0.00186 | -0.00193 |
| ____ CA | 2.15786 | 796.44 | 1.013 | 2.13281 | 2.16785 | 2.17294 |
| ____ CD | 0.00046 | -4.40 | 20.851 | 0.00036 | 0.00049 | 0.00054 |
| ____ CO | 0.00113 | 5.76 | 41.277 | 0.00080 | 0.00166 | 0.00092 |
| ____ CR | 0.00156 | -5.13 | 35.492 | 0.00215 | 0.00105 | 0.00148 |
| ____ CU | 0.00842 | 14.13 | 12.164 | 0.00840 | 0.00740 | 0.00945 |
| ____ FE | 0.01834 | 0.73 | 80.950 | 0.02099 | 0.03169 | 0.00235 |
| ____ K | 1.68039 | 532.94 | 1.406 | 1.70486 | 1.67860 | 1.65771 |
| ____ LI | 0.01309 | 16.01 | 38.294 | 0.00730 | 0.01601 | 0.01596 |
| ____ MG | 0.96173 | 467.00 | 1.087 | 0.95563 | 0.97380 | 0.95575 |
| ____ MN | 0.03266 | 1,663.96 | 0.118 | 0.03267 | 0.03269 | 0.03261 |
| ____ MO | 0.00050 | 0.03 | 46.744 | 0.00071 | 0.00054 | 0.00025 |
| ____ NA | 7.51198 | 7,319.51 | 0.340 | 7.51383 | 7.53656 | 7.48555 |
| ____ NI | 0.00238 | 8.71 | 8.903 | 0.00253 | 0.00247 | 0.00214 |
| ____ P | -0.00318 | 1.02 | 145.034 | -0.00499 | 0.00206 | -0.00660 |
| ____ PB | 0.00833 | 2.52 | 23.593 | 0.00697 | 0.01058 | 0.00744 |
| ____ S | 0.76840 | 55.36 | 0.955 | 0.76576 | 0.76274 | 0.77668 |
| ____ SB | -0.00051 | 0.67 | 377.348 | -0.00270 | 0.00016 | 0.00100 |
| ____ SE | 0.00473 | 0.40 | 52.948 | 0.00751 | 0.00400 | 0.00267 |
| ____ SI | 11.57645 | 751.22 | 0.434 | 11.54367 | 11.55140 | 11.63427 |
| ____ SN | -0.00222 | -0.37 | 222.153 | -0.00561 | -0.00448 | 0.00343 |
| ____ SR | 0.08472 | 43,104.72 | 0.050 | 0.08469 | 0.08470 | 0.08477 |
| ____ TH | -0.01325 | -3.47 | 171.098 | -0.02617 | 0.01293 | -0.02650 |
| ____ TI | 0.00039 | 30.31 | 49.090 | 0.00048 | 0.00053 | 0.00017 |
| ____ TL | -0.00065 | -0.41 | 599.027 | 0.00374 | -0.00365 | -0.00204 |
| ____ V | 0.00026 | -23.25 | 68.204 | 0.00036 | 0.00005 | 0.00036 |
| ____ W | -0.00194 | 0.75 | 31.732 | -0.00256 | -0.00133 | -0.00192 |
| ____ Y1 | 4973.66663 | 4,973.67 | 0.124 | 4966.54935 | 4977.07029 | 4977.38026 |
| ____ Y2A | 156474.53427 | 156,474.53 | 0.417 | 155722.98307 | 156811.42543 | 156889.19432 |
| ____ Y2R | 5239.24129 | 5,239.24 | 0.379 | 5261.27275 | 5222.74136 | 5233.70977 |
| ____ ZN | 0.00682 | 49.67 | 0.938 | 0.00683 | 0.00687 | 0.00675 |
| ____ ZR | 0.00337 | 2.73 | 111.035 | 0.00768 | 0.00102 | 0.00140 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 39 Date/Time: 02/03/2020 23:11

Sample Number: **1251434** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: U4

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00047 | -12.71 | 73.456 | -0.00065 | -0.00070 | -0.00007 |
| ____ AL | 0.05162 | 0.55 | 128.509 | -0.01487 | 0.11781 | 0.05193 |
| ____ AL A› | 0.03970 | 88.51 | 7.633 | 0.04239 | 0.04028 | 0.03642 |
| ____ AS | 0.00338 | 0.49 | 55.226 | 0.00140 | 0.00361 | 0.00511 |
| ____ B | 0.01148 | 25.98 | 3.952 | 0.01096 | 0.01182 | 0.01165 |
| ____ BA | 0.10352 | 47,281.81 | 0.366 | 0.10384 | 0.10310 | 0.10361 |
| ____ BE | -0.00181 | -1,175.12 | 2.326 | -0.00178 | -0.00186 | -0.00180 |
| ____ CA | 2.22002 | 799.24 | 0.879 | 2.22273 | 2.23804 | 2.19929 |
| ____ CD | 0.00059 | -2.53 | 5.892 | 0.00055 | 0.00062 | 0.00060 |
| ____ CO | 0.00123 | 6.04 | 8.281 | 0.00128 | 0.00112 | 0.00130 |
| ____ CR | 0.00126 | -7.85 | 24.604 | 0.00112 | 0.00104 | 0.00162 |
| ____ CU | 0.00617 | 11.60 | 39.578 | 0.00851 | 0.00635 | 0.00364 |
| ____ FE | 0.47865 | 45.17 | 3.729 | 0.48851 | 0.48939 | 0.45805 |
| ____ K | 1.37836 | 442.69 | 8.956 | 1.49993 | 1.38204 | 1.25312 |
| ____ LI | 0.01956 | 47.62 | 22.101 | 0.02453 | 0.01661 | 0.01755 |
| ____ MG | 1.07789 | 510.50 | 1.238 | 1.07622 | 1.09199 | 1.06546 |
| ____ MN | 0.09087 | 4,587.19 | 0.160 | 0.09085 | 0.09073 | 0.09102 |
| ____ MO | 0.00054 | 0.08 | 154.536 | 0.00109 | 0.00094 | -0.00042 |
| ____ NA | 8.73540 | 8,286.12 | 1.357 | 8.76798 | 8.83422 | 8.60400 |
| ____ NI | 0.00168 | 7.27 | 6.034 | 0.00170 | 0.00157 | 0.00177 |
| ____ P | 0.01382 | 4.48 | 24.168 | 0.01679 | 0.01447 | 0.01020 |
| ____ PB | 0.00624 | 0.98 | 30.613 | 0.00450 | 0.00593 | 0.00828 |
| ____ S | 3.79622 | 264.61 | 0.689 | 3.81152 | 3.81110 | 3.76603 |
| ____ SB | -0.00424 | -0.42 | 95.508 | -0.00851 | -0.00375 | -0.00046 |
| ____ SE | 0.00534 | 0.46 | 101.812 | 0.01161 | 0.00195 | 0.00246 |
| ____ SI | 17.85495 | 1,130.03 | 0.733 | 17.84037 | 17.99242 | 17.73205 |
| ____ SN | 0.00030 | 0.15 | 701.062 | -0.00210 | 0.00155 | 0.00144 |
| ____ SR | 0.07554 | 38,092.63 | 0.118 | 0.07565 | 0.07548 | 0.07550 |
| ____ TH | 0.04691 | 0.35 | 68.296 | 0.03006 | 0.02682 | 0.08385 |
| ____ TI | 0.00139 | 72.75 | 7.774 | 0.00127 | 0.00143 | 0.00147 |
| ____ TL | 0.00043 | -0.13 | 512.339 | 0.00266 | 0.00033 | -0.00171 |
| ____ V | 0.00023 | -23.22 | 176.003 | 0.00019 | -0.00015 | 0.00065 |
| ____ W | -0.00061 | 1.49 | 104.355 | -0.00076 | 0.00009 | -0.00115 |
| ____ Y1 | 4937.79489 | 4,937.79 | 0.434 | 4928.77912 | 4922.32977 | 4962.27577 |
| ____ Y2A | 155059.09138 | 155,059.09 | 0.399 | 154653.81356 | 154752.51895 | 155770.94162 |
| ____ Y2R | 5110.81323 | 5,110.81 | 0.707 | 5095.43091 | 5084.90425 | 5152.10453 |
| ____ ZN | 0.01086 | 77.81 | 1.042 | 0.01097 | 0.01075 | 0.01087 |
| ____ ZR | 0.00236 | 4.39 | 75.539 | 0.00409 | 0.00246 | 0.00053 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 40 Date/Time: 02/03/2020 23:14

Sample Number: **1251435** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: U4

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00052 | -9.36 | 189.918 | -0.00058 | 0.00050 | -0.00147 |
| ____ AL | 0.16667 | 4.76 | 3.895 | 0.16809 | 0.15958 | 0.17233 |
| ____ AL A› | 0.18120 | 291.45 | 2.378 | 0.18438 | 0.17629 | 0.18293 |
| ____ AS | -0.00817 | -0.32 | 49.721 | -0.01022 | -0.01079 | -0.00349 |
| ____ B | 0.04404 | 281.62 | 1.757 | 0.04314 | 0.04453 | 0.04444 |
| ____ BA | 0.69323 | 303,998.07 | 0.825 | 0.68698 | 0.69451 | 0.69820 |
| ____ BE | -0.00004 | -440.47 | 173.984 | -0.00009 | 0.00003 | -0.00005 |
| ____ CA | 46.92433 | 16,876.35 | 0.048 | 46.94000 | 46.89842 | 46.93456 |
| ____ CD | 0.00092 | 8.54 | 11.564 | 0.00088 | 0.00084 | 0.00104 |
| ____ CO | 0.04094 | 115.88 | 1.951 | 0.04002 | 0.04146 | 0.04134 |
| ____ CR | 0.00116 | -8.45 | 32.346 | 0.00076 | 0.00122 | 0.00150 |
| ____ CU | 0.00731 | 23.86 | 16.053 | 0.00759 | 0.00602 | 0.00832 |
| ____ FE | 11.91601 | 1,149.91 | 1.115 | 11.80619 | 11.87810 | 12.06373 |
| ____ K | 3.00113 | 862.08 | 1.575 | 3.05439 | 2.96423 | 2.98476 |
| ____ LI | 0.04625 | 189.49 | 5.210 | 0.04532 | 0.04444 | 0.04898 |
| ____ MG | 9.73863 | 4,602.54 | 0.753 | 9.69692 | 9.69565 | 9.82332 |
| ____ MN | 0.74811 | 36,342.16 | 0.690 | 0.75102 | 0.75116 | 0.74215 |
| ____ MO | 0.00020 | -0.36 | 214.753 | 0.00046 | -0.00030 | 0.00045 |
| ____ NA | 58.54473 | 55,219.35 | 0.461 | 58.57188 | 58.26254 | 58.79976 |
| ____ NI | 0.02030 | 31.59 | 6.661 | 0.01902 | 0.02171 | 0.02016 |
| ____ P | 0.00464 | 2.50 | 70.839 | 0.00109 | 0.00524 | 0.00758 |
| ____ PB | 0.00698 | 2.77 | 27.977 | 0.00828 | 0.00473 | 0.00793 |
| ____ S | 3.60524 | 241.17 | 0.231 | 3.61477 | 3.60159 | 3.59937 |
| ____ SB | 0.00268 | 1.54 | 78.096 | 0.00117 | 0.00180 | 0.00507 |
| ____ SE | 0.00571 | 0.37 | 144.592 | -0.00247 | 0.00556 | 0.01405 |
| ____ SI | 16.88629 | 1,073.69 | 0.541 | 16.85710 | 16.81311 | 16.98866 |
| ____ SN | 0.00185 | 0.44 | 253.333 | 0.00676 | -0.00258 | 0.00137 |
| ____ SR | 1.13825 | 552,383.70 | 0.421 | 1.13289 | 1.13976 | 1.14210 |
| ____ TH | 0.03279 | -0.53 | 128.928 | 0.01987 | 0.08000 | -0.00152 |
| ____ TI | 0.00290 | 132.33 | 2.563 | 0.00291 | 0.00297 | 0.00282 |
| ____ TL | 0.00000 | -0.21 | 5243.307 | 0.00465 | -0.00084 | -0.00381 |
| ____ V | 0.00039 | -18.91 | 119.227 | 0.00065 | 0.00066 | -0.00015 |
| ____ W | 0.00100 | 2.57 | 21.678 | 0.00081 | 0.00096 | 0.00124 |
| ____ Y1 | 4737.19961 | 4,737.20 | 0.032 | 4738.82012 | 4735.80842 | 4736.97030 |
| ____ Y2A | 149232.11549 | 149,232.12 | 0.655 | 148185.90064 | 149387.44502 | 150123.00080 |
| ____ Y2R | 5134.41167 | 5,134.41 | 0.774 | 5170.00798 | 5141.71497 | 5091.51207 |
| ____ ZN | 0.05762 | 396.56 | 0.533 | 0.05731 | 0.05792 | 0.05761 |
| ____ ZR | 0.00122 | 3.10 | 180.867 | 0.00287 | 0.00206 | -0.00128 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 41 Date/Time: 02/03/2020 23:18

Sample Number: **1251436** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: U4

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00093 | -12.16 | 158.623 | -0.00257 | 0.00030 | -0.00053 |
| ____ AL | 0.03724 | 0.22 | 114.162 | 0.02110 | 0.08547 | 0.00516 |
| ____ AL A› | 0.03282 | 82.05 | 6.611 | 0.03470 | 0.03045 | 0.03332 |
| ____ AS | 0.00760 | 1.09 | 36.141 | 0.01075 | 0.00630 | 0.00574 |
| ____ B | 0.05149 | 366.24 | 1.211 | 0.05220 | 0.05104 | 0.05122 |
| ____ BA | 0.46379 | 203,766.61 | 1.301 | 0.47061 | 0.45914 | 0.46163 |
| ____ BE | -0.00167 | -1,074.80 | 1.023 | -0.00168 | -0.00165 | -0.00167 |
| ____ CA | 18.16217 | 6,528.27 | 1.024 | 18.01377 | 18.10185 | 18.37089 |
| ____ CD | 0.00085 | 10.01 | 12.384 | 0.00096 | 0.00075 | 0.00083 |
| ____ CO | 0.00509 | 16.68 | 6.257 | 0.00474 | 0.00537 | 0.00515 |
| ____ CR | 0.00129 | -7.28 | 26.808 | 0.00106 | 0.00169 | 0.00113 |
| ____ CU | 0.00698 | 14.31 | 4.555 | 0.00734 | 0.00678 | 0.00681 |
| ____ FE | 15.53159 | 1,492.07 | 1.274 | 15.34905 | 15.50381 | 15.74192 |
| ____ K | 5.09956 | 1,394.82 | 2.548 | 4.95662 | 5.13161 | 5.21045 |
| ____ LI | 0.00831 | -4.51 | 28.303 | 0.01102 | 0.00692 | 0.00698 |
| ____ MG | 7.84996 | 3,701.60 | 1.118 | 7.76882 | 7.83795 | 7.94313 |
| ____ MN | 0.09624 | 4,683.96 | 0.128 | 0.09630 | 0.09633 | 0.09610 |
| ____ MO | -0.00074 | -1.62 | 49.724 | -0.00038 | -0.00112 | -0.00074 |
| ____ NA | 38.83266 | 36,538.65 | 1.439 | 38.35875 | 38.69017 | 39.44907 |
| ____ NI | 0.00431 | 11.30 | 9.634 | 0.00419 | 0.00476 | 0.00396 |
| ____ P | 0.11337 | 24.09 | 3.836 | 0.11724 | 0.11422 | 0.10866 |
| ____ PB | 0.00537 | 1.11 | 15.321 | 0.00442 | 0.00593 | 0.00575 |
| ____ S | 1.94104 | 132.30 | 0.346 | 1.94477 | 1.93328 | 1.94508 |
| ____ SB | -0.00205 | 0.21 | 191.807 | 0.00168 | -0.00617 | -0.00167 |
| ____ SE | 0.01129 | 0.98 | 72.078 | 0.02052 | 0.00512 | 0.00824 |
| ____ SI | 6.56056 | 415.97 | 1.309 | 6.50235 | 6.52014 | 6.65921 |
| ____ SN | 0.00101 | 0.28 | 329.729 | 0.00372 | -0.00270 | 0.00201 |
| ____ SR | 0.66332 | 322,342.39 | 0.394 | 0.66595 | 0.66328 | 0.66073 |
| ____ TH | 0.02374 | -1.10 | 112.202 | 0.00582 | 0.05434 | 0.01105 |
| ____ TI | 0.00175 | 84.77 | 11.069 | 0.00183 | 0.00188 | 0.00152 |
| ____ TL | -0.00051 | -0.60 | 213.325 | -0.00029 | -0.00168 | 0.00045 |
| ____ V | 0.00104 | -12.16 | 98.271 | 0.00023 | 0.00070 | 0.00220 |
| ____ W | -0.00163 | 0.86 | 62.678 | -0.00263 | -0.00166 | -0.00059 |
| ____ Y1 | 4797.55891 | 4,797.56 | 0.155 | 4806.05939 | 4794.35656 | 4792.26077 |
| ____ Y2A | 149492.73479 | 149,492.73 | 0.485 | 148657.76845 | 149865.95181 | 149954.48410 |
| ____ Y2R | 5118.09748 | 5,118.10 | 1.843 | 5216.44881 | 5109.45609 | 5028.38755 |
| ____ ZN | 0.00185 | 27.09 | 19.278 | 0.00158 | 0.00171 | 0.00225 |
| ____ ZR | 0.00764 | 6.99 | 57.690 | 0.00810 | 0.01179 | 0.00302 |

LANCASTER LABORATORIES

Run Name: 2003404T74 Instrument ID: 23745

Tube: 42 Date/Time: 02/03/2020 23:21

Sample Number: **1251437** Class: **** Batch: 200341486603

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol Symbol: U4

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | -0.00104 | -32.25 | 79.976 | -0.00171 | -0.00131 | -0.00011 |
| ____ AL | -0.04356 | -2.21 | 262.745 | -0.04014 | 0.06914 | -0.15968 |
| ____ AL A› | 0.01266 | 64.18 | 57.321 | 0.01935 | 0.01370 | 0.00494 |
| ____ AS | 0.01351 | 1.62 | 55.249 | 0.02095 | 0.00602 | 0.01356 |
| ____ B | 0.29297 | 2,054.45 | 0.935 | 0.29243 | 0.29055 | 0.29595 |
| ____ BA | 0.17833 | 76,773.70 | 0.506 | 0.17762 | 0.17801 | 0.17935 |
| ____ BE | -0.00194 | -1,159.83 | 2.547 | -0.00189 | -0.00194 | -0.00199 |
| ____ CA | 13.63356 | 4,861.52 | 0.882 | 13.62771 | 13.51630 | 13.75667 |
| ____ CD | 0.00217 | 53.08 | 3.192 | 0.00221 | 0.00222 | 0.00210 |
| ____ CO | 0.00247 | 9.07 | 17.565 | 0.00230 | 0.00215 | 0.00297 |
| ____ CR | 0.00004 | -18.22 | 1661.493 | 0.00071 | -0.00056 | -0.00004 |
| ____ CU | 0.00410 | 7.86 | 12.322 | 0.00430 | 0.00448 | 0.00352 |
| ____ FE | 61.96826 | 5,796.19 | 0.908 | 62.09473 | 61.35305 | 62.45698 |
| ____ K | 3.09401 | 874.92 | 2.694 | 3.00149 | 3.11726 | 3.16328 |
| ____ LI | 0.00743 | -9.81 | 11.053 | 0.00689 | 0.00838 | 0.00704 |
| ____ MG | 5.51845 | 2,587.02 | 1.331 | 5.49614 | 5.45874 | 5.60046 |
| ____ MN | 2.29263 | 109,209.49 | 0.273 | 2.29075 | 2.28753 | 2.29961 |
| ____ MO | -0.00080 | -1.64 | 83.441 | -0.00042 | -0.00041 | -0.00157 |
| ____ NA | 162.48806 | 151,292.81 | 0.624 | 162.73093 | 161.37432 | 163.35892 |
| ____ NI | 0.00101 | 6.99 | 28.567 | 0.00078 | 0.00133 | 0.00093 |
| ____ P | 0.00550 | 2.62 | 44.313 | 0.00618 | 0.00280 | 0.00753 |
| ____ PB | -0.00067 | 0.28 | 338.109 | -0.00245 | -0.00141 | 0.00186 |
| ____ S | 0.20394 | 14.97 | 2.060 | 0.20581 | 0.20687 | 0.19913 |
| ____ SB | 0.00201 | 1.32 | 140.289 | -0.00106 | 0.00260 | 0.00450 |
| ____ SE | 0.01289 | 0.64 | 21.804 | 0.01483 | 0.00967 | 0.01418 |
| ____ SI | 1.79852 | 113.31 | 1.093 | 1.79323 | 1.78206 | 1.82028 |
| ____ SN | -0.00329 | -0.55 | 58.493 | -0.00401 | -0.00474 | -0.00111 |
| ____ SR | 0.22723 | 108,191.40 | 0.090 | 0.22741 | 0.22701 | 0.22726 |
| ____ TH | 0.08945 | 2.94 | 55.332 | 0.06342 | 0.05840 | 0.14652 |
| ____ TI | 0.00219 | 100.76 | 9.593 | 0.00207 | 0.00243 | 0.00206 |
| ____ TL | -0.00023 | -0.62 | 312.932 | 0.00059 | -0.00051 | -0.00078 |
| ____ V | 0.00190 | 3.56 | 44.768 | 0.00092 | 0.00241 | 0.00238 |
| ____ W | -0.00060 | 1.34 | 194.349 | 0.00065 | -0.00164 | -0.00080 |
| ____ Y1 | 4656.80099 | 4,656.80 | 0.718 | 4682.03380 | 4669.49305 | 4618.87611 |
| ____ Y2A | 146332.69206 | 146,332.69 | 0.653 | 146875.09996 | 146893.56386 | 145229.41235 |
| ____ Y2R | 5074.48201 | 5,074.48 | 0.398 | 5068.37927 | 5097.00080 | 5058.06596 |
| ____ ZN | -0.00114 | 43.47 | 10.193 | -0.00103 | -0.00112 | -0.00126 |
| ____ ZR | 0.00435 | 7.36 | 153.136 | -0.00009 | 0.01202 | 0.00114 |

LANCASTER LABORATORIES

Run Name: 2003404T74

Instrument ID: 23745

Tube: 43

Date/Time: 02/03/2020 23:24

Sample Number: **CCV**

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | 0.50389 | 6,581.33 | 0.389 | 0.50177 | 0.50564 | 0.50426 |
| ____ AL | 25.56879 | 849.87 | 0.750 | 25.48343 | 25.78855 | 25.43440 |
| ____ AL A› | 25.85779 | 34,805.37 | 0.573 | 25.71370 | 25.85004 | 26.00964 |
| ____ AS | 0.49459 | 49.42 | 0.934 | 0.49046 | 0.49958 | 0.49374 |
| ____ B | 0.49163 | 2,985.45 | 0.025 | 0.49149 | 0.49172 | 0.49169 |
| ____ BA | 0.50615 | 217,782.39 | 1.297 | 0.49857 | 0.50995 | 0.50993 |
| ____ BE | 0.50087 | 190,111.97 | 0.483 | 0.49809 | 0.50212 | 0.50242 |
| ____ CA | 24.89355 | 8,785.69 | 0.568 | 24.96904 | 24.98123 | 24.73040 |
| ____ CD | 0.50073 | 5,763.47 | 0.208 | 0.49953 | 0.50144 | 0.50122 |
| ____ CO | 0.49950 | 1,379.67 | 0.309 | 0.50094 | 0.49969 | 0.49787 |
| ____ CR | 0.49622 | 4,371.30 | 0.211 | 0.49501 | 0.49677 | 0.49687 |
| ____ CU | 0.51374 | 3,686.37 | 0.519 | 0.51467 | 0.51073 | 0.51581 |
| ____ FE | 24.40733 | 2,295.93 | 0.992 | 24.46334 | 24.61647 | 24.14217 |
| ____ K | 25.88102 | 6,588.97 | 0.479 | 25.88977 | 26.00048 | 25.75282 |
| ____ LI | 0.53597 | 2,560.03 | 1.079 | 0.54081 | 0.53753 | 0.52956 |
| ____ MG | 24.70822 | 11,326.38 | 0.358 | 24.73492 | 24.78025 | 24.60950 |
| ____ MN | 0.50539 | 24,080.94 | 0.382 | 0.50351 | 0.50737 | 0.50527 |
| ____ MO | 0.49835 | 645.50 | 0.598 | 0.49658 | 0.50179 | 0.49668 |
| ____ NA | 26.28616 | 24,331.45 | 0.663 | 26.42434 | 26.34393 | 26.09022 |
| ____ NI | 0.49474 | 652.20 | 0.315 | 0.49398 | 0.49653 | 0.49371 |
| ____ P | 0.49687 | 98.48 | 1.318 | 0.50394 | 0.49566 | 0.49101 |
| ____ PB | 0.49399 | 440.08 | 0.244 | 0.49527 | 0.49383 | 0.49287 |
| ____ S | 24.96712 | 1,644.23 | 0.266 | 24.93799 | 25.04308 | 24.92028 |
| ____ SB | 0.50558 | 143.50 | 1.224 | 0.50292 | 0.51265 | 0.50116 |
| ____ SE | 0.49174 | 56.07 | 1.395 | 0.49228 | 0.48463 | 0.49832 |
| ____ SI | 24.17993 | 1,506.13 | 0.594 | 24.32687 | 24.17300 | 24.03993 |
| ____ SN | 0.48128 | 93.14 | 0.459 | 0.48323 | 0.48172 | 0.47889 |
| ____ SR | 0.49778 | 236,989.20 | 0.698 | 0.49417 | 0.50110 | 0.49807 |
| ____ TH | 0.51107 | 28.53 | 10.836 | 0.50960 | 0.56717 | 0.45644 |
| ____ TI | 0.51476 | 20,795.12 | 0.476 | 0.51214 | 0.51516 | 0.51699 |
| ____ TL | 0.51629 | 123.15 | 0.754 | 0.51602 | 0.52032 | 0.51254 |
| ____ V | 0.51277 | 4,487.46 | 0.126 | 0.51216 | 0.51269 | 0.51345 |
| ____ W | 0.50501 | 265.57 | 0.408 | 0.50293 | 0.50705 | 0.50505 |
| ____ Y1 | 4699.56123 | 4,699.56 | 0.422 | 4716.69930 | 4677.87285 | 4704.11153 |
| ____ Y2A | 146373.01464 | 146,373.01 | 0.714 | 147498.17973 | 145433.47661 | 146187.38757 |
| ____ Y2R | 5027.61377 | 5,027.61 | 0.541 | 5017.41865 | 5006.99440 | 5058.42826 |
| ____ ZN | 0.49583 | 3,324.38 | 0.203 | 0.49514 | 0.49698 | 0.49537 |
| ____ ZR | 0.51422 | 355.80 | 0.817 | 0.51835 | 0.50995 | 0.51435 |

LANCASTER LABORATORIES

Run Name: 2003404T74

Instrument ID: 23745

Tube: 44

Date/Time: 02/03/2020 23:27

Sample Number: **CCB**

| ELEMENT | AVERAGE CONC (ppm) | AVERAGE INTENSITY | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|
| ____ AG | 0.00047 | 3.48 | 140.708 | 0.00074 | -0.00028 | 0.00095 |
| ____ AL | -0.05105 | -2.95 | 121.493 | 0.00845 | -0.04628 | -0.11533 |
| ____ AL A› | 0.00267 | 30.53 | 88.053 | 0.00210 | 0.00525 | 0.00066 |
| ____ AS | 0.00473 | 0.57 | 52.394 | 0.00593 | 0.00637 | 0.00188 |
| ____ B | 0.00435 | 13.14 | 12.492 | 0.00410 | 0.00497 | 0.00398 |
| ____ BA | 0.00013 | 188.26 | 12.583 | 0.00014 | 0.00011 | 0.00013 |
| ____ BE | -0.00198 | -1,203.55 | 1.250 | -0.00197 | -0.00196 | -0.00201 |
| ____ CA | 0.00475 | 3.02 | 189.501 | 0.00392 | -0.00381 | 0.01413 |
| ____ CD | 0.00044 | -4.55 | 38.462 | 0.00029 | 0.00062 | 0.00040 |
| ____ CO | 0.00021 | 2.98 | 333.817 | 0.00008 | 0.00095 | -0.00041 |
| ____ CR | 0.00103 | -9.70 | 47.036 | 0.00084 | 0.00158 | 0.00067 |
| ____ CU | 0.00614 | 8.28 | 7.513 | 0.00605 | 0.00664 | 0.00573 |
| ____ FE | 0.02981 | 1.78 | 35.627 | 0.03329 | 0.01789 | 0.03827 |
| ____ K | 0.04514 | 99.87 | 108.168 | 0.00616 | 0.09991 | 0.02936 |
| ____ LI | 0.01384 | 18.48 | 21.781 | 0.01036 | 0.01554 | 0.01562 |
| ____ MG | 0.01242 | 6.50 | 52.153 | 0.01949 | 0.01098 | 0.00678 |
| ____ MN | 0.00003 | 2.20 | 250.476 | 0.00010 | 0.00007 | -0.00006 |
| ____ MO | 0.00112 | 0.85 | 67.843 | 0.00038 | 0.00190 | 0.00107 |
| ____ NA | 0.06339 | 155.50 | 9.826 | 0.07047 | 0.06095 | 0.05875 |
| ____ NI | 0.00037 | 6.45 | 141.706 | 0.00064 | -0.00023 | 0.00070 |
| ____ P | -0.00224 | 1.17 | 111.229 | -0.00506 | -0.00135 | -0.00032 |
| ____ PB | 0.00529 | -0.99 | 11.671 | 0.00553 | 0.00458 | 0.00574 |
| ____ S | 0.01952 | 3.01 | 53.644 | 0.03152 | 0.01479 | 0.01224 |
| ____ SB | 0.00023 | 0.86 | 781.225 | 0.00190 | -0.00166 | 0.00045 |
| ____ SE | 0.00327 | 0.22 | 28.114 | 0.00287 | 0.00431 | 0.00261 |
| ____ SI | 0.01019 | 0.95 | 169.751 | -0.00859 | 0.01370 | 0.02547 |
| ____ SN | 0.00111 | 0.30 | 207.635 | -0.00022 | 0.00377 | -0.00022 |
| ____ SR | 0.00006 | 44.31 | 84.341 | 0.00011 | 0.00007 | 0.00001 |
| ____ TH | 0.03614 | -0.32 | 27.892 | 0.04558 | 0.02552 | 0.03731 |
| ____ TI | 0.00033 | 26.58 | 60.206 | 0.00012 | 0.00051 | 0.00036 |
| ____ TL | -0.00034 | -0.33 | 789.106 | -0.00264 | 0.00264 | -0.00103 |
| ____ V | -0.00013 | -26.03 | 253.621 | -0.00025 | -0.00040 | 0.00025 |
| ____ W | 0.00066 | 2.06 | 105.623 | 0.00048 | 0.00144 | 0.00007 |
| ____ Y1 | 4796.10839 | 4,796.11 | 0.170 | 4788.82512 | 4804.90151 | 4794.59854 |
| ____ Y2A | 150359.21751 | 150,359.22 | 0.289 | 150703.40000 | 150503.68746 | 149870.56508 |
| ____ Y2R | 4982.34167 | 4,982.34 | 0.916 | 4970.65000 | 4943.70000 | 5032.67500 |
| ____ ZN | 0.00041 | 4.53 | 66.561 | 0.00013 | 0.00043 | 0.00067 |
| ____ ZR | 0.00288 | 4.18 | 180.467 | -0.00085 | 0.00881 | 0.00068 |

# ICP-MS Data

# Metals in Liquid

eurofins | Lancaster Laboratories Environmental

# ICP-MS Run Data Report

Method Reference Name(s):

Date File Name: 20B04F00.E07

Run Name: 2003506E07

Analyst: 25839

Reviewed By: Bradley M Berlot

Reviewed Date: 02/04/2020 18:03

Verified By: Parker D Lindstrom

Verified Date: 02/09/2020 11:30

Instrument Parameters:

Rinse Time (sec): 25.00

| INTERNAL STD. | ELEMENT | MASS |
|---|---|---|
| **SC-1** | | 45 |
| | BE | 9 |
| | B | 11 |
| **SC-3** | | 45 |
| | NA | 23 |
| | MG | 24 |
| | AL | 27 |
| | K | 39 |
| | CA | 44 |
| | TI | 47 |
| | V | 51 |
| | CR | 52 |
| | MN | 55 |
| | FE | 57 |
| **GE-3** | | 72 |
| | SB | 121 |
| **IN-2** | | 115 |
| | SE | 78 |
| **IN-3** | | 115 |
| | CO | 59 |
| | NI | 60 |
| | CU | 63 |
| | ZN | 66 |
| | AS | 75 |
| | SR | 88 |
| | MO | 98 |
| | AG | 107 |
| | CD | 111 |
| | SN | 120 |
| | BA | 137 |
| **BI-3** | | 209 |
| | TL | 205 |
| | PB | 208 |
| | U | 238 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:06:56
Tube Number: 1
Sample Number: **S0**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| *BE* | 9 | 0.00000 | 7.33300 | 0.000 | -0.00208 | 0.00113 | 0.00095 |
| *B* | 11 | 0.00000 | 2037.48300 | 0.000 | -0.21849 | 0.25137 | -0.03287 |
| *NA* | 23 | 0.00000 | 47864.35700 | 0.000 | -2.01348 | 8.41817 | -6.40469 |
| *MG* | 24 | 0.00000 | 636.70700 | 0.000 | -0.24718 | -0.67183 | 0.91900 |
| *AL* | 27 | 0.00000 | 83.33300 | 0.000 | -0.47096 | 0.98149 | -0.51052 |
| *K* | 39 | 0.00000 | 27215.86700 | 0.000 | 4.15404 | 8.19917 | -12.35321 |
| *CA* | 44 | 0.00000 | 120.00300 | 0.000 | -2.62970 | -1.74777 | 4.37747 |
| *SC-1* | 45 | 836573.16300 | 0.00000 | 0.000 | 838927.72000 | 829053.35000 | 841738.42000 |
| *SC-2* | 45 | 280350.86300 | 0.00000 | 0.000 | 278161.97000 | 282421.13000 | 280469.49000 |
| *SC-3* | 45 | 45267.35000 | 0.00000 | 0.000 | 45471.19000 | 44077.16000 | 46253.70000 |
| *TI* | 47 | 0.00000 | 3.33300 | 0.000 | 0.25197 | -0.12598 | -0.12598 |
| *V* | 51 | 0.00000 | 893.39300 | 0.000 | 0.17836 | -0.10719 | -0.07117 |
| *CR* | 52 | 0.00000 | 826.71300 | 0.000 | 0.01921 | -0.01485 | -0.00435 |
| *MN* | 55 | 0.00000 | 186.67700 | 0.000 | -0.07876 | -0.01954 | 0.09830 |
| *FE* | 57 | 0.00000 | 200.01000 | 0.000 | -3.25152 | -0.67421 | 3.92573 |
| *CO* | 59 | 0.00000 | 50.00000 | 0.000 | 0.01774 | -0.01185 | -0.00589 |
| *NI* | 60 | 0.00000 | 1950.20000 | 0.000 | 0.08571 | 0.08215 | -0.16786 |
| *CU* | 63 | 0.00000 | 1330.11000 | 0.000 | -0.07871 | 0.01426 | 0.06445 |
| *ZN* | 66 | 0.00000 | 5517.92000 | 0.000 | 0.59750 | 0.52898 | -1.12648 |
| *GE-1* | 72 | 773127.90300 | 0.00000 | 0.000 | 770763.66000 | 772728.50000 | 775891.55000 |
| *GE-2* | 72 | 339303.91700 | 0.00000 | 0.000 | 335716.48000 | 339998.20000 | 342197.07000 |
| *GE-3* | 72 | 131016.08700 | 0.00000 | 0.000 | 128944.32000 | 131951.19000 | 132152.75000 |
| *AS* | 75 | 0.00000 | 49.33300 | 0.000 | -0.02204 | -0.03748 | 0.05952 |
| *SE* | 78 | 0.00000 | 0.66700 | 0.000 | 0.00798 | -0.00005 | -0.00792 |
| *SR* | 88 | 0.00000 | 80.00300 | 0.000 | -0.01074 | 0.05467 | -0.04393 |
| *MO* | 98 | 0.00000 | 50.00000 | 0.000 | 0.00011 | -0.00015 | 0.00003 |
| *AG* | 107 | 0.00000 | 70.00000 | 0.000 | 0.00502 | -0.00504 | 0.00001 |
| *CD* | 111 | 0.00000 | 4.00000 | 0.000 | -0.00646 | -0.00650 | 0.01296 |
| *IN-2* | 115 | 320867.95300 | 0.00000 | 0.000 | 318374.45000 | 324015.74000 | 320213.67000 |
| *IN-3* | 115 | 71563.07300 | 0.00000 | 0.000 | 71381.91000 | 71794.40000 | 71512.91000 |
| *SN* | 120 | 0.00000 | 973.40000 | 0.000 | 0.02616 | 0.04775 | -0.07392 |
| *SB* | 121 | 0.00000 | 76.67000 | 0.000 | -0.03311 | -0.02477 | 0.05788 |
| *BA* | 137 | 0.00000 | 36.66700 | 0.000 | 0.05644 | -0.01633 | -0.04012 |
| *TB-3* | 159 | 205866.35300 | 0.00000 | 0.000 | 206465.27000 | 205755.02000 | 205378.77000 |
| *TL* | 205 | 0.00000 | 26.66700 | 0.000 | 0.00068 | 0.00072 | -0.00140 |
| *PB* | 208 | 0.00000 | 250.00700 | 0.000 | 0.00302 | -0.00287 | -0.00015 |
| *BI-3* | 209 | 152585.04000 | 0.00000 | 0.000 | 152768.42000 | 151775.76000 | 153210.94000 |
| *U* | 238 | 0.00000 | 3.33300 | 0.000 | 0.00101 | -0.00050 | -0.00050 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:09:04
Tube Number: 2
Sample Number: **S1**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 819553.81300 | 0.00000 | 0.000 | 810362.25000 | 827411.55000 | 820887.64000 |
| **SC-3** | 45 | 45023.20700 | 0.00000 | 0.000 | 44759.19000 | 45079.88000 | 45230.55000 |
| AL | 27 | 10000.00000 | 296468.12700 | 1.800 | 10122.94004 | 10081.12196 | 9795.93800 |
| B | 11 | 1000.00000 | 366240.93700 | 1.300 | 985.33230 | 1002.91502 | 1011.75268 |
| BE | 9 | 100.00000 | 63652.08000 | 0.600 | 99.44733 | 99.97993 | 100.57275 |
| CA | 44 | 10000.00000 | 39179.74700 | 1.600 | 9815.22052 | 10119.50477 | 10065.27472 |
| CR | 52 | 1000.00000 | 1018669.62000 | 0.300 | 996.42835 | 1001.06931 | 1002.50234 |
| FE | 57 | 10000.00000 | 214162.36700 | 0.800 | 9942.38620 | 10087.14509 | 9970.46871 |
| K | 39 | 10000.00000 | 804233.53000 | 0.600 | 10003.11559 | 10056.21456 | 9940.66985 |
| MG | 24 | 10000.00000 | 746335.53700 | 0.600 | 10047.21463 | 9938.23375 | 10014.55162 |
| MN | 55 | 1000.00000 | 591659.24700 | 0.500 | 1005.55031 | 997.71370 | 996.73599 |
| NA | 23 | 10000.00000 | 1581192.16300 | 1.300 | 10046.27927 | 10099.10956 | 9854.61117 |
| TI | 47 | 1000.00000 | 26197.55700 | 4.900 | 1053.33880 | 957.60396 | 989.05725 |
| V | 51 | 1000.00000 | 851665.43000 | 0.400 | 1004.40870 | 995.75680 | 999.83450 |
| **GE-3** | 72 | 128727.84700 | 0.00000 | 0.000 | 127692.03000 | 131808.14000 | 126683.37000 |
| SB | 121 | 100.00000 | 106051.33700 | 1.000 | 100.27993 | 98.92025 | 100.79981 |
| **IN-2** | 115 | 320315.09300 | 0.00000 | 0.000 | 324427.87000 | 320130.74000 | 316386.67000 |
| **IN-3** | 115 | 72001.87300 | 0.00000 | 0.000 | 72427.54000 | 72045.13000 | 71532.95000 |
| AG | 107 | 100.00000 | 204097.79000 | 1.500 | 98.31182 | 100.64648 | 101.04169 |
| AS | 75 | 1000.00000 | 147144.02300 | 0.800 | 991.01917 | 1003.61318 | 1005.36765 |
| BA | 137 | 1000.00000 | 418255.11000 | 0.900 | 993.03378 | 996.61477 | 1010.35145 |
| CD | 111 | 100.00000 | 31082.22300 | 0.600 | 99.28216 | 100.54423 | 100.17361 |
| CO | 59 | 1000.00000 | 1710424.50700 | 1.300 | 989.98598 | 995.87541 | 1014.13861 |
| CU | 63 | 1000.00000 | 1110683.26300 | 1.300 | 986.11253 | 1010.90821 | 1002.97926 |
| MO | 98 | 100.00000 | 111540.38000 | 0.400 | 99.66813 | 99.95355 | 100.37832 |
| NI | 60 | 1000.00000 | 413590.78700 | 0.900 | 990.80236 | 999.68212 | 1009.51552 |
| SE | 78 | 100.00000 | 8416.23700 | 0.500 | 100.26881 | 99.45770 | 100.27349 |
| SN | 120 | 100.00000 | 113496.09700 | 0.600 | 100.05037 | 99.35968 | 100.58994 |
| SR | 88 | 100.00000 | 91473.33000 | 0.900 | 99.83565 | 99.24362 | 100.92072 |
| ZN | 66 | 1000.00000 | 186796.33700 | 1.800 | 979.25635 | 1013.32629 | 1007.41736 |
| **BI-3** | 209 | 152220.94700 | 0.00000 | 0.000 | 150440.28000 | 153232.11000 | 152990.45000 |
| PB | 208 | 100.00000 | 652081.09700 | 0.500 | 100.59017 | 99.58254 | 99.82729 |
| TL | 205 | 100.00000 | 480306.20300 | 1.700 | 101.86402 | 98.54621 | 99.58977 |
| U | 238 | 100.00000 | 660878.27000 | 1.200 | 101.34024 | 99.48438 | 99.17538 |
| *SC-2* | 45 | 279488.62700 | 0.00000 | 0.000 | 283025.39000 | 277340.46000 | 278100.03000 |
| *GE-1* | 72 | 754460.84700 | 0.00000 | 0.000 | 751837.18000 | 759213.50000 | 752331.86000 |
| *GE-2* | 72 | 337624.52700 | 0.00000 | 0.000 | 342809.68000 | 335840.39000 | 334223.51000 |
| *TB-3* | 159 | 207044.30300 | 0.00000 | 0.000 | 207520.47000 | 208648.30000 | 204964.14000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:11:23
Tube Number: 3
Sample Number: **ICV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | INTEGRATIONS #1 | #2 | #3 |
|---|---|---|---|---|---|---|---|
| **SC-1** | 45 | 806572.15000 | 0.00000 | 0.000 | 808540.61000 | 806715.85000 | 804459.99000 |
| **SC-3** | 45 | 44775.87300 | 0.00000 | 0.000 | 44427.87000 | 44638.57000 | 45261.18000 |
| AL | 27 | 4923.76603 | 145214.96300 | 1.800 | 4884.42793 | 5025.31506 | 4861.55510 |
| B | 11 | 334.08424 | 121714.58000 | 1.300 | 330.11433 | 333.54352 | 338.59486 |
| BE | 9 | 30.35633 | 19020.03000 | 3.500 | 29.15528 | 31.11993 | 30.79377 |
| CA | 44 | 5053.18148 | 19747.17000 | 0.100 | 5045.36632 | 5060.20167 | 5053.97644 |
| CR | 52 | 303.49552 | 308020.04700 | 1.200 | 301.85085 | 307.66868 | 300.96702 |
| FE | 57 | 4928.03139 | 105061.46700 | 0.500 | 4929.91972 | 4900.92337 | 4953.25109 |
| K | 39 | 4865.02117 | 402924.38300 | 1.200 | 4864.69057 | 4921.40782 | 4808.96511 |
| MG | 24 | 4959.11959 | 368390.15300 | 0.700 | 4967.24506 | 4988.63483 | 4921.47889 |
| MN | 55 | 304.05287 | 179032.40000 | 0.600 | 305.86382 | 303.91871 | 302.37608 |
| NA | 23 | 4642.51254 | 755399.07700 | 1.000 | 4644.05936 | 4687.08688 | 4596.39138 |
| TI | 47 | 294.09927 | 7665.57000 | 1.600 | 298.59190 | 289.47616 | 294.22975 |
| V | 51 | 298.22841 | 253218.82000 | 0.900 | 295.87652 | 301.15810 | 297.65060 |
| **GE-3** | 72 | 129233.07000 | 0.00000 | 0.000 | 127058.05000 | 130335.67000 | 130305.49000 |
| SB | 121 | 31.32789 | 33407.56000 | 1.100 | 31.63621 | 31.37087 | 30.97660 |
| **IN-2** | 115 | 312510.10000 | 0.00000 | 0.000 | 309426.97000 | 312671.79000 | 315431.54000 |
| **IN-3** | 115 | 71167.86700 | 0.00000 | 0.000 | 70929.92000 | 71060.85000 | 71512.83000 |
| AG | 107 | 30.63827 | 61856.62300 | 1.600 | 31.11957 | 30.66299 | 30.13224 |
| AS | 75 | 301.24167 | 43848.33000 | 0.300 | 300.06863 | 301.73953 | 301.91685 |
| BA | 137 | 303.09315 | 125328.81700 | 1.800 | 301.05716 | 309.25614 | 298.96615 |
| CD | 111 | 30.08371 | 9245.08700 | 1.200 | 30.06633 | 30.45449 | 29.73031 |
| CO | 59 | 282.30501 | 477334.77300 | 0.500 | 281.58667 | 281.49317 | 283.83520 |
| CU | 63 | 307.12306 | 338085.39700 | 0.800 | 309.47566 | 307.09452 | 304.79901 |
| MO | 98 | 30.74467 | 33931.28300 | 0.900 | 30.52011 | 30.67343 | 31.04047 |
| NI | 60 | 307.80123 | 127180.00000 | 1.000 | 306.07925 | 305.95593 | 311.36850 |
| SE | 78 | 29.65608 | 2435.54300 | 0.100 | 29.68899 | 29.66481 | 29.61443 |
| SN | 120 | 29.71271 | 34012.06300 | 1.000 | 30.00438 | 29.71281 | 29.42095 |
| SR | 88 | 30.30156 | 27453.84300 | 1.200 | 30.02997 | 30.14097 | 30.73373 |
| ZN | 66 | 306.67265 | 60430.18300 | 1.300 | 308.40873 | 302.17086 | 309.43836 |
| **BI-3** | 209 | 154675.08700 | 0.00000 | 0.000 | 155476.33000 | 154454.95000 | 154093.98000 |
| PB | 208 | 29.59404 | 196271.50300 | 0.500 | 29.50205 | 29.53031 | 29.74975 |
| TL | 205 | 29.93127 | 146116.96300 | 0.500 | 30.10806 | 29.82567 | 29.86008 |
| U | 238 | 49.65914 | 333506.16700 | 0.700 | 49.61357 | 50.03463 | 49.32921 |
| *SC-2* | 45 | 275307.80300 | 0.00000 | 0.000 | 273802.93000 | 274336.28000 | 277784.20000 |
| *GE-1* | 72 | 749505.61300 | 0.00000 | 0.000 | 756046.94000 | 748661.71000 | 743808.19000 |
| *GE-2* | 72 | 327536.72300 | 0.00000 | 0.000 | 321931.66000 | 327483.59000 | 333194.92000 |
| *TB-3* | 159 | 207275.69300 | 0.00000 | 0.000 | 205869.18000 | 209054.47000 | 206903.43000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:13:17
Tube Number: 4
Sample Number: **ICB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 809126.52300 | 0.00000 | 0.000 | 810584.52000 | 814165.61000 | 802629.44000 |
| **SC-3** | 45 | 44585.21000 | 0.00000 | 0.000 | 45431.14000 | 43896.39000 | 44428.10000 |
| AL | 27 | 2.65905 | 160.01000 | 69.900 | 1.53755 | 4.80391 | 1.63569 |
| B | 11 | 15.18782 | 7433.86700 | 6.200 | 15.76040 | 15.70016 | 14.10291 |
| BE | 9 | 0.04173 | 33.33300 | 30.400 | 0.05543 | 0.03932 | 0.03042 |
| CA | 44 | 21.30165 | 200.01000 | 63.000 | 7.54649 | 22.00714 | 34.35132 |
| CR | 52 | 0.58171 | 1400.12000 | 20.000 | 0.50683 | 0.52254 | 0.71574 |
| FE | 57 | 0.00031 | 196.67700 | 901264.800 | 2.31190 | 0.79929 | -3.11026 |
| K | 39 | 9.33419 | 27533.10000 | 93.600 | 8.93748 | 18.25978 | 0.80531 |
| MG | 24 | 6.33945 | 1093.40700 | 19.200 | 4.94343 | 6.92586 | 7.14904 |
| MN | 55 | 0.18029 | 290.01300 | 85.000 | 0.35709 | 0.08571 | 0.09807 |
| NA | 23 | 55.30417 | 55538.05700 | 25.400 | 39.10803 | 62.41614 | 64.38833 |
| TI | 47 | 0.38850 | 13.33300 | 57.800 | 0.25230 | 0.26553 | 0.64766 |
| V | 51 | -0.09457 | 800.05000 | 0.000 | -0.06520 | -0.15157 | -0.06694 |
| **GE-3** | 72 | 129830.50000 | 0.00000 | 0.000 | 129517.06000 | 129658.56000 | 130315.88000 |
| SB | 121 | 0.20671 | 296.68000 | 43.000 | 0.11677 | 0.29454 | 0.20881 |
| **IN-2** | 115 | 313470.52300 | 0.00000 | 0.000 | 312852.18000 | 312022.03000 | 315537.36000 |
| **IN-3** | 115 | 71060.30700 | 0.00000 | 0.000 | 69502.39000 | 71211.31000 | 72467.22000 |
| AG | 107 | 0.02499 | 120.00300 | 30.100 | 0.02132 | 0.01999 | 0.03365 |
| AS | 75 | 0.08909 | 62.00000 | 64.700 | 0.02875 | 0.14369 | 0.09482 |
| BA | 137 | 0.09011 | 73.33300 | 59.600 | 0.13467 | 0.10514 | 0.03052 |
| CD | 111 | 0.00649 | 6.00000 | 167.400 | 0.00038 | 0.00006 | 0.01902 |
| CO | 59 | 0.11707 | 246.68000 | 23.200 | 0.14622 | 0.11244 | 0.09255 |
| CU | 63 | 0.05051 | 1376.77300 | 219.900 | 0.04516 | -0.05779 | 0.16416 |
| MO | 98 | 0.05803 | 113.33300 | 21.100 | 0.06638 | 0.06370 | 0.04400 |
| NI | 60 | 0.10453 | 1980.20700 | 230.200 | -0.08517 | 0.02360 | 0.37514 |
| SE | 78 | 0.03529 | 3.55700 | 35.400 | 0.04889 | 0.03270 | 0.02428 |
| SN | 120 | -0.00051 | 966.73300 | 0.000 | 0.00437 | -0.13346 | 0.12754 |
| SR | 88 | 0.09277 | 163.34000 | 52.300 | 0.04803 | 0.14434 | 0.08596 |
| ZN | 66 | 1.98668 | 5831.36000 | 64.700 | 3.44324 | 1.50929 | 1.00751 |
| **BI-3** | 209 | 151775.76700 | 0.00000 | 0.000 | 150330.11000 | 154566.94000 | 150430.25000 |
| PB | 208 | 0.02318 | 400.01700 | 52.600 | 0.02233 | 0.03578 | 0.01142 |
| TL | 205 | 0.03002 | 170.01000 | 20.100 | 0.03451 | 0.02316 | 0.03238 |
| U | 238 | 0.01875 | 126.67300 | 13.800 | 0.02095 | 0.01589 | 0.01940 |
| *SC-2* | 45 | 274964.23300 | 0.00000 | 0.000 | 273977.75000 | 273689.62000 | 277225.33000 |
| *GE-1* | 72 | 754470.74300 | 0.00000 | 0.000 | 754254.13000 | 756283.58000 | 752874.52000 |
| *GE-2* | 72 | 332823.65300 | 0.00000 | 0.000 | 330912.22000 | 335139.33000 | 332419.41000 |
| *TB-3* | 159 | 204933.23700 | 0.00000 | 0.000 | 204303.26000 | 206589.25000 | 203907.20000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:15:11
Tube Number: 5
Sample Number: **LLC**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 820479.39000 | 0.00000 | 0.000 | 824539.21000 | 816619.28000 | 820279.68000 |
| **SC-3** | 45 | 44962.93300 | 0.00000 | 0.000 | 44568.51000 | 45270.20000 | 45050.09000 |
| AL | 27 | 28.27190 | 920.06300 | 14.400 | 26.50351 | 25.37774 | 32.93444 |
| B | 11 | 9.21923 | 5360.31300 | 2.400 | 9.37264 | 9.31826 | 8.96679 |
| BE | 9 | 0.49105 | 320.00700 | 6.300 | 0.46348 | 0.52487 | 0.48480 |
| CA | 44 | 125.83316 | 610.03300 | 17.700 | 109.15711 | 117.17735 | 151.16501 |
| CR | 52 | 2.62632 | 3490.51000 | 6.400 | 2.70625 | 2.73976 | 2.43296 |
| FE | 57 | 53.89128 | 1350.11300 | 9.100 | 48.33752 | 57.67259 | 55.66372 |
| K | 39 | 202.42814 | 42749.33000 | 8.200 | 221.60345 | 194.02922 | 191.65176 |
| MG | 24 | 57.64105 | 4924.30000 | 1.100 | 56.96411 | 57.68339 | 58.27563 |
| MN | 55 | 2.13562 | 1446.79000 | 5.800 | 2.04397 | 2.27650 | 2.08639 |
| NA | 23 | 236.47787 | 83785.39000 | 3.200 | 228.51435 | 243.56263 | 237.35662 |
| TI | 47 | 9.93515 | 263.34300 | 8.900 | 9.12891 | 10.88359 | 9.79294 |
| V | 51 | 0.29877 | 1140.08300 | 44.600 | 0.45247 | 0.23055 | 0.21328 |
| **GE-3** | 72 | 129769.46300 | 0.00000 | 0.000 | 129426.18000 | 129043.92000 | 130838.29000 |
| SB | 121 | 1.00572 | 1150.08700 | 13.700 | 0.86766 | 1.14341 | 1.00608 |
| **IN-2** | 115 | 315257.83300 | 0.00000 | 0.000 | 312267.50000 | 317012.12000 | 316493.88000 |
| **IN-3** | 115 | 72015.16000 | 0.00000 | 0.000 | 72688.57000 | 71421.63000 | 71935.28000 |
| AG | 107 | 0.57935 | 1253.43300 | 12.000 | 0.61606 | 0.49913 | 0.62287 |
| AS | 75 | 2.00081 | 344.01000 | 15.500 | 1.84440 | 1.80086 | 2.35716 |
| BA | 137 | 2.00075 | 873.39700 | 9.300 | 1.80661 | 2.17771 | 2.01791 |
| CD | 111 | 0.42670 | 136.66700 | 1.100 | 0.42688 | 0.42171 | 0.43149 |
| CO | 59 | 0.56488 | 1016.73700 | 1.500 | 0.56710 | 0.57177 | 0.55578 |
| CU | 63 | 0.99629 | 2443.63300 | 13.600 | 0.89228 | 0.94770 | 1.14889 |
| MO | 98 | 0.52252 | 633.37300 | 28.400 | 0.64792 | 0.56074 | 0.35890 |
| NI | 60 | 1.50738 | 2583.63700 | 27.700 | 1.89980 | 1.55264 | 1.06970 |
| SE | 78 | 0.99001 | 82.66700 | 11.100 | 0.95098 | 0.90457 | 1.11448 |
| SN | 120 | 1.90000 | 3117.16000 | 6.600 | 1.85032 | 2.04205 | 1.80762 |
| SR | 88 | 1.17793 | 1156.75300 | 8.800 | 1.06092 | 1.21369 | 1.25917 |
| ZN | 66 | 11.17283 | 7578.93000 | 12.600 | 11.29994 | 9.70615 | 12.51240 |
| **BI-3** | 209 | 151887.60000 | 0.00000 | 0.000 | 150199.70000 | 152272.27000 | 153190.83000 |
| PB | 208 | 0.52714 | 3677.00000 | 2.100 | 0.54016 | 0.52001 | 0.52124 |
| TL | 205 | 0.50220 | 2433.67000 | 8.700 | 0.48191 | 0.55229 | 0.47240 |
| U | 238 | 0.96472 | 6365.09000 | 4.600 | 0.95812 | 1.01167 | 0.92437 |
| *SC-2* | 45 | 279004.35700 | 0.00000 | 0.000 | 278021.40000 | 281180.31000 | 277811.36000 |
| *GE-1* | 72 | 761317.46000 | 0.00000 | 0.000 | 762221.47000 | 762733.27000 | 758997.64000 |
| *GE-2* | 72 | 334699.63000 | 0.00000 | 0.000 | 329804.49000 | 339975.03000 | 334319.37000 |
| *TB-3* | 159 | 206242.52700 | 0.00000 | 0.000 | 207021.87000 | 206335.56000 | 205370.15000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:17:06
Tube Number: 6
Sample Number: **ICSA**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 776793.03700 | 0.00000 | 0.000 | 766830.54000 | 787855.46000 | 775693.11000 |
| **SC-3** | 45 | 43234.48700 | 0.00000 | 0.000 | 43916.63000 | 43525.16000 | 42261.67000 |
| AL | 27 | 100645.72272 | 2863721.52000 | 2.600 | 99136.35896 | 99075.72223 | 103725.08696 |
| B | 11 | 12.14580 | 6083.92700 | 3.600 | 12.39271 | 11.64145 | 12.40324 |
| BE | 9 | 0.02953 | 24.66700 | 31.100 | 0.01894 | 0.03447 | 0.03519 |
| CA | 44 | 287987.74707 | 1079814.33000 | 3.200 | 279725.98855 | 286485.13744 | 297752.11522 |
| CR | 52 | 0.88009 | 1650.14700 | 5.400 | 0.93495 | 0.85914 | 0.84617 |
| FE | 57 | 240492.60605 | 4939953.26300 | 2.200 | 236683.65702 | 238328.79801 | 246465.36313 |
| K | 39 | 98290.23152 | 7359109.47300 | 2.300 | 97107.95455 | 96917.48744 | 100845.25258 |
| MG | 24 | 96475.71568 | 6906583.64700 | 2.700 | 94586.00457 | 95372.30350 | 99468.83897 |
| MN | 55 | 3.61925 | 2233.61300 | 1.300 | 3.58719 | 3.67472 | 3.59585 |
| NA | 23 | 222781.94499 | 32841489.51000 | 3.100 | 219108.09521 | 218601.38597 | 230636.35380 |
| TI | 47 | 1959.93655 | 49294.05000 | 2.400 | 1915.15665 | 1955.73736 | 2008.91564 |
| V | 51 | -0.19109 | 696.70700 | 0.000 | -0.06762 | -0.33850 | -0.16714 |
| **GE-3** | 72 | 123348.37700 | 0.00000 | 0.000 | 123305.38000 | 123849.02000 | 122890.73000 |
| SB | 121 | 0.52987 | 610.03300 | 14.500 | 0.61873 | 0.48821 | 0.48268 |
| **IN-2** | 115 | 286599.67000 | 0.00000 | 0.000 | 282353.28000 | 289943.02000 | 287502.71000 |
| **IN-3** | 115 | 66498.44300 | 0.00000 | 0.000 | 65293.36000 | 66799.68000 | 67402.29000 |
| AG | 107 | 0.05581 | 170.01000 | 35.400 | 0.06276 | 0.07113 | 0.03354 |
| AS | 75 | 0.54060 | 119.33300 | 6.500 | 0.50215 | 0.57115 | 0.54850 |
| BA | 137 | 1.43231 | 586.70000 | 16.300 | 1.54658 | 1.58700 | 1.16336 |
| CD | 111 | 0.62113 | 182.00000 | 5.400 | 0.63282 | 0.58358 | 0.64699 |
| CO | 59 | 1.21378 | 1960.20300 | 18.100 | 1.46645 | 1.11128 | 1.06360 |
| CU | 63 | 1.05556 | 2316.93700 | 14.200 | 1.14983 | 0.88294 | 1.13392 |
| MO | 98 | 2162.33484 | 2226304.91300 | 1.200 | 2191.36747 | 2155.82254 | 2139.81450 |
| NI | 60 | 0.68233 | 2070.22300 | 76.200 | 0.91325 | 1.04707 | 0.08667 |
| SE | 78 | 0.05408 | 4.66700 | 58.800 | 0.04600 | 0.02713 | 0.08912 |
| SN | 120 | -0.00821 | 896.72300 | 0.000 | -0.06667 | -0.05605 | 0.09809 |
| SR | 88 | 9.07175 | 7729.02300 | 3.200 | 9.39857 | 8.97220 | 8.84448 |
| ZN | 66 | 5.95316 | 6121.49700 | 22.300 | 7.40481 | 5.65472 | 4.79996 |
| **BI-3** | 209 | 141143.58700 | 0.00000 | 0.000 | 142200.10000 | 140434.41000 | 140796.25000 |
| PB | 208 | 0.12718 | 1000.05000 | 5.900 | 0.13418 | 0.12804 | 0.11932 |
| TL | 205 | 0.01319 | 83.33700 | 84.400 | 0.00560 | 0.00800 | 0.02597 |
| U | 238 | 0.01365 | 86.66700 | 25.200 | 0.01084 | 0.01262 | 0.01749 |
| *SC-2* | 45 | 261976.52700 | 0.00000 | 0.000 | 264822.03000 | 260377.73000 | 260729.82000 |
| *GE-1* | 72 | 728559.23700 | 0.00000 | 0.000 | 723172.65000 | 730207.57000 | 732297.49000 |
| *GE-2* | 72 | 314415.41300 | 0.00000 | 0.000 | 315265.56000 | 313347.05000 | 314633.63000 |
| *TB-3* | 159 | 200082.05300 | 0.00000 | 0.000 | 199522.71000 | 198367.54000 | 202355.91000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:19:06
Tube Number: 7
Sample Number: **ICSAB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 768512.17300 | 0.00000 | 0.000 | 763189.44000 | 773902.25000 | 768444.83000 |
| **SC-3** | 45 | 42529.13700 | 0.00000 | 0.000 | 42753.05000 | 42673.16000 | 42161.20000 |
| AL | 27 | 102333.73799 | 2865184.95700 | 0.400 | 102330.64322 | 101937.08026 | 102733.49048 |
| B | 11 | 9.91542 | 5258.27700 | 2.900 | 9.94141 | 9.61740 | 10.18746 |
| BE | 9 | 0.02668 | 22.66700 | 18.500 | 0.02583 | 0.03197 | 0.02222 |
| CA | 44 | 292685.12620 | 1079924.49000 | 1.100 | 289297.54202 | 293422.71127 | 295335.12530 |
| CR | 52 | 195.10543 | 188341.46300 | 2.100 | 192.48619 | 193.00637 | 199.82373 |
| FE | 57 | 244226.58369 | 4935892.21700 | 1.500 | 240602.53497 | 244180.10676 | 247897.10933 |
| K | 39 | 99671.59874 | 7342571.55700 | 0.100 | 99763.46615 | 99654.21971 | 99597.11036 |
| MG | 24 | 98347.57504 | 6928110.31300 | 0.300 | 98073.72216 | 98291.36393 | 98677.63904 |
| MN | 55 | 196.09266 | 109727.81700 | 1.400 | 193.60193 | 195.51317 | 199.16287 |
| NA | 23 | 226090.10492 | 32796747.01000 | 0.700 | 224282.77794 | 226669.66089 | 227317.87594 |
| TI | 47 | 1991.57250 | 49283.69000 | 1.700 | 1970.49618 | 1973.77426 | 2030.44705 |
| V | 51 | 195.68013 | 158088.50300 | 1.400 | 192.89958 | 195.79221 | 198.34861 |
| **GE-3** | 72 | 123838.34700 | 0.00000 | 0.000 | 121670.45000 | 124735.69000 | 125108.90000 |
| SB | 121 | 0.50892 | 590.03300 | 27.800 | 0.63798 | 0.35765 | 0.53113 |
| **IN-2** | 115 | 286778.46300 | 0.00000 | 0.000 | 288727.71000 | 286625.97000 | 284981.71000 |
| **IN-3** | 115 | 66421.21300 | 0.00000 | 0.000 | 65604.22000 | 67322.18000 | 66337.24000 |
| AG | 107 | 48.69004 | 91688.17700 | 2.900 | 49.98843 | 47.16583 | 48.91585 |
| AS | 75 | 102.06957 | 13894.05700 | 1.900 | 103.88530 | 99.97375 | 102.34966 |
| BA | 137 | 1.15632 | 480.02700 | 10.800 | 1.27639 | 1.16485 | 1.02772 |
| CD | 111 | 99.90007 | 28641.09300 | 1.600 | 101.03855 | 98.01856 | 100.64309 |
| CO | 59 | 182.60863 | 288167.39300 | 0.800 | 183.02491 | 180.97303 | 183.82796 |
| CU | 63 | 192.36298 | 198064.26300 | 2.000 | 196.47695 | 188.78703 | 191.82496 |
| MO | 98 | 2170.27248 | 2231989.86000 | 1.000 | 2189.74107 | 2147.62709 | 2173.44927 |
| NI | 60 | 193.55386 | 75309.08700 | 1.500 | 195.71754 | 194.65033 | 190.29371 |
| SE | 78 | 100.37019 | 7562.87700 | 0.300 | 100.06681 | 100.57023 | 100.47352 |
| SN | 120 | -0.01593 | 886.72700 | 0.000 | 0.03684 | -0.00533 | -0.07931 |
| SR | 88 | 8.68825 | 7398.78000 | 1.000 | 8.74076 | 8.58576 | 8.73821 |
| ZN | 66 | 103.53415 | 22434.57000 | 2.600 | 100.86888 | 103.54049 | 106.19307 |
| **BI-3** | 209 | 143633.38000 | 0.00000 | 0.000 | 143909.06000 | 144131.96000 | 142859.12000 |
| PB | 208 | 0.11947 | 970.05300 | 7.800 | 0.12727 | 0.10919 | 0.12195 |
| TL | 205 | 0.00477 | 46.66700 | 142.400 | -0.00114 | 0.00325 | 0.01221 |
| U | 238 | 0.01127 | 73.33300 | 36.300 | 0.00750 | 0.01068 | 0.01562 |
| *SC-2* | 45 | 265481.53000 | 0.00000 | 0.000 | 263386.79000 | 265334.23000 | 267723.57000 |
| *GE-1* | 72 | 719168.27000 | 0.00000 | 0.000 | 710691.63000 | 719618.50000 | 727194.68000 |
| *GE-2* | 72 | 316438.40700 | 0.00000 | 0.000 | 315883.88000 | 316067.85000 | 317363.49000 |
| *TB-3* | 159 | 199124.99000 | 0.00000 | 0.000 | 199624.63000 | 201187.34000 | 196563.00000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:21:06
Tube Number: 8
Sample Number: **LRS3**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 788601.08300 | 0.00000 | 0.000 | 786588.27000 | 793469.68000 | 785745.30000 |
| **SC-3** | 45 | 44554.85700 | 0.00000 | 0.000 | 43935.97000 | 44568.48000 | 45160.12000 |
| AL | 27 | 52373.11461 | 1536196.59300 | 0.600 | 52708.29142 | 52281.76828 | 52129.28414 |
| B | 11 | 501.62066 | 177718.50300 | 2.700 | 488.34753 | 501.28811 | 515.22635 |
| BE | 9 | 494.67354 | 302940.58700 | 2.600 | 481.75295 | 494.49602 | 507.77166 |
| CA | 44 | 49770.55930 | 192480.76000 | 0.700 | 50197.16354 | 49568.06782 | 49546.44654 |
| CR | 52 | 494.56746 | 498962.92300 | 0.600 | 493.26615 | 497.88045 | 492.55578 |
| FE | 57 | 48423.23275 | 1025460.61000 | 0.300 | 48572.13698 | 48439.47881 | 48258.08246 |
| K | 39 | 50406.00625 | 3903278.06700 | 0.300 | 50576.71774 | 50390.98193 | 50250.31908 |
| MG | 24 | 50034.10690 | 3692745.46700 | 0.500 | 50289.81149 | 50003.81974 | 49808.68946 |
| MN | 55 | 497.54643 | 291414.14000 | 0.400 | 496.07014 | 500.04550 | 496.52367 |
| NA | 23 | 45544.38584 | 6959403.02000 | 0.400 | 45347.93380 | 45646.60280 | 45638.62093 |
| TI | 47 | 512.22371 | 13286.40700 | 3.300 | 501.57129 | 503.32827 | 531.77157 |
| V | 51 | 495.39254 | 417985.69700 | 0.700 | 494.55352 | 492.29938 | 499.32473 |
| **GE-3** | 72 | 128071.72700 | 0.00000 | 0.000 | 124786.76000 | 127025.44000 | 132402.98000 |
| SB | 121 | 477.13737 | 502975.94300 | 2.400 | 485.67408 | 481.47009 | 464.26794 |
| **IN-2** | 115 | 319520.38300 | 0.00000 | 0.000 | 321232.71000 | 317780.52000 | 319547.92000 |
| **IN-3** | 115 | 73864.87700 | 0.00000 | 0.000 | 73342.32000 | 73171.10000 | 75081.21000 |
| AG | 107 | 601.25803 | 1258411.23300 | 1.900 | 601.07933 | 612.58256 | 590.11219 |
| AS | 75 | 481.39058 | 72688.53300 | 1.200 | 479.62450 | 487.98106 | 476.56617 |
| BA | 137 | 475.10138 | 203856.23300 | 1.400 | 477.53949 | 480.00096 | 467.76368 |
| CD | 111 | 476.45849 | 151894.80000 | 1.600 | 474.49341 | 484.77427 | 470.10780 |
| CO | 59 | 441.10917 | 773983.50700 | 1.300 | 441.51163 | 446.74412 | 435.07177 |
| CU | 63 | 478.28329 | 545645.93000 | 1.200 | 477.96334 | 484.05738 | 472.82916 |
| MO | 98 | 482.88960 | 552304.60000 | 1.300 | 482.43543 | 489.31412 | 476.91924 |
| NI | 60 | 472.45542 | 201515.57000 | 1.400 | 468.32195 | 479.85055 | 469.19376 |
| SE | 78 | 476.37605 | 39990.70000 | 0.300 | 475.01155 | 476.40915 | 477.70746 |
| SN | 120 | 477.95168 | 552651.49000 | 1.200 | 476.86219 | 484.05330 | 472.93953 |
| SR | 88 | 482.84277 | 452756.51700 | 1.000 | 482.37092 | 488.12003 | 478.03736 |
| ZN | 66 | 471.18950 | 93306.74300 | 1.200 | 466.58770 | 477.63464 | 469.34617 |
| **BI-3** | 209 | 148613.90700 | 0.00000 | 0.000 | 148639.84000 | 150583.64000 | 146618.24000 |
| PB | 208 | 502.48199 | 3197489.38700 | 2.200 | 497.39247 | 494.63709 | 515.41641 |
| TL | 205 | 523.16118 | 2453140.43300 | 1.900 | 514.44675 | 521.45339 | 533.58341 |
| U | 238 | 6.07250 | 39186.74000 | 0.200 | 6.08284 | 6.06407 | 6.07059 |
| *SC-2* | 45 | 268368.40300 | 0.00000 | 0.000 | 268202.54000 | 267476.09000 | 269426.58000 |
| *GE-1* | 72 | 731682.72300 | 0.00000 | 0.000 | 728500.38000 | 733892.49000 | 732655.30000 |
| *GE-2* | 72 | 319383.30700 | 0.00000 | 0.000 | 323598.04000 | 314972.63000 | 319579.25000 |
| *TB-3* | 159 | 205082.08000 | 0.00000 | 0.000 | 203016.48000 | 206121.17000 | 206108.59000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:22:59
Tube Number: 9
Sample Number: **CCS**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 806051.42300 | 0.00000 | 0.000 | 807133.43000 | 817597.80000 | 793423.04000 |
| **SC-3** | 45 | 45595.01300 | 0.00000 | 0.000 | 46394.06000 | 44578.69000 | 45812.29000 |
| AL | 27 | 15.06127 | 536.69700 | 30.300 | 19.12859 | 15.93268 | 10.12254 |
| B | 11 | 14.69885 | 7229.77000 | 7.200 | 15.90143 | 14.25649 | 13.93864 |
| BE | 9 | 0.33935 | 219.33300 | 13.400 | 0.38119 | 0.29111 | 0.34577 |
| CA | 44 | 48.78003 | 313.35300 | 11.300 | 44.02811 | 54.82109 | 47.49090 |
| CR | 52 | 0.50660 | 1353.44700 | 27.600 | 0.34605 | 0.57166 | 0.60211 |
| FE | 57 | 21.23832 | 660.04000 | 22.800 | 21.12257 | 26.13690 | 16.45549 |
| K | 39 | 16.06346 | 28695.42300 | 62.200 | 27.29158 | 12.77659 | 8.12221 |
| MG | 24 | 13.33525 | 1650.15000 | 20.100 | 15.98826 | 10.61816 | 13.39932 |
| MN | 55 | 0.13176 | 266.67700 | 27.400 | 0.12987 | 0.09668 | 0.16873 |
| NA | 23 | -11.82993 | 46376.35700 | 0.000 | -16.90874 | -2.57011 | -16.01092 |
| TI | 47 | 0.36949 | 13.33300 | 153.000 | 0.98531 | -0.12598 | 0.24915 |
| V | 51 | -0.02159 | 880.06300 | 0.000 | -0.06268 | 0.03662 | -0.03870 |
| **GE-3** | 72 | 129616.66700 | 0.00000 | 0.000 | 129801.40000 | 129681.45000 | 129367.15000 |
| SB | 121 | 6.36337 | 6865.30700 | 18.700 | 5.14218 | 6.43065 | 7.51730 |
| **IN-2** | 115 | 312638.94300 | 0.00000 | 0.000 | 313561.26000 | 309510.13000 | 314845.44000 |
| **IN-3** | 115 | 72364.26300 | 0.00000 | 0.000 | 71392.77000 | 72940.32000 | 72759.70000 |
| AG | 107 | 0.46478 | 1023.40300 | 8.000 | 0.49934 | 0.42511 | 0.46991 |
| AS | 75 | 0.09508 | 64.00000 | 60.900 | 0.04648 | 0.15912 | 0.07963 |
| BA | 137 | 0.11008 | 83.33300 | 45.200 | 0.12876 | 0.14776 | 0.05370 |
| CD | 111 | 0.07906 | 28.66700 | 50.000 | 0.11685 | 0.08233 | 0.03799 |
| CO | 59 | 0.07515 | 180.01000 | 40.000 | 0.05312 | 0.06291 | 0.10942 |
| CU | 63 | 0.17268 | 1536.81000 | 57.300 | 0.26663 | 0.18198 | 0.06944 |
| MO | 98 | 0.77292 | 916.73300 | 19.900 | 0.74192 | 0.63667 | 0.94018 |
| NI | 60 | 0.46126 | 2160.23300 | 178.400 | 1.40817 | 0.05393 | -0.07834 |
| SE | 78 | 0.20301 | 17.33300 | 9.800 | 0.19443 | 0.18884 | 0.22576 |
| SN | 120 | 1.70143 | 2907.36000 | 16.100 | 1.79287 | 1.39340 | 1.91803 |
| SR | 88 | 0.03553 | 113.33300 | 51.000 | 0.05546 | 0.02001 | 0.03111 |
| ZN | 66 | 3.00523 | 6124.87300 | 73.900 | 4.99101 | 3.41764 | 0.60702 |
| **BI-3** | 209 | 154013.54700 | 0.00000 | 0.000 | 154494.79000 | 152565.39000 | 154980.46000 |
| PB | 208 | 0.10131 | 920.04700 | 33.600 | 0.13104 | 0.10869 | 0.06421 |
| TL | 205 | 0.10905 | 556.70000 | 25.600 | 0.13600 | 0.11079 | 0.08035 |
| U | 238 | 0.00747 | 53.33300 | 30.100 | 0.00546 | 0.00705 | 0.00990 |
| *SC-2* | 45 | 276312.36000 | 0.00000 | 0.000 | 277820.02000 | 273183.26000 | 277933.80000 |
| *GE-1* | 72 | 751723.81700 | 0.00000 | 0.000 | 751734.75000 | 762007.88000 | 741428.82000 |
| *GE-2* | 72 | 331290.52700 | 0.00000 | 0.000 | 330029.64000 | 329245.54000 | 334596.40000 |
| *TB-3* | 159 | 206630.26000 | 0.00000 | 0.000 | 206292.46000 | 207698.30000 | 205900.02000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:24:54
Tube Number: 10
Sample Number: **CCS**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 812126.68000 | 0.00000 | 0.000 | 814948.89000 | 809243.19000 | 812187.96000 |
| **SC-3** | 45 | 44414.75700 | 0.00000 | 0.000 | 44147.49000 | 43414.85000 | 45681.93000 |
| AL | 27 | 8.64722 | 333.35000 | 38.300 | 10.26613 | 10.83667 | 4.83885 |
| B | 11 | 4.31173 | 3534.43300 | 5.800 | 4.38259 | 4.51889 | 4.03370 |
| BE | 9 | 0.10498 | 73.33300 | 16.600 | 0.09616 | 0.09373 | 0.12506 |
| CA | 44 | 45.78876 | 293.34700 | 26.000 | 55.65459 | 49.14076 | 32.57094 |
| CR | 52 | 0.77333 | 1586.80700 | 9.200 | 0.71539 | 0.85320 | 0.75140 |
| FE | 57 | 9.74591 | 400.02000 | 43.300 | 13.13525 | 11.08987 | 5.01259 |
| K | 39 | 21.22916 | 28321.37300 | 116.200 | 46.15668 | 20.72271 | -3.19192 |
| MG | 24 | 5.67552 | 1040.07300 | 36.000 | 7.93246 | 5.14965 | 3.94444 |
| MN | 55 | 0.08249 | 230.01000 | 123.800 | 0.16965 | 0.10767 | -0.02985 |
| NA | 23 | -11.60489 | 45209.32700 | 0.000 | -9.23875 | -6.79807 | -18.77785 |
| TI | 47 | 0.26987 | 10.00000 | 254.100 | -0.12598 | 1.06157 | -0.12598 |
| V | 51 | -0.18569 | 720.04000 | 0.000 | -0.13267 | -0.21481 | -0.20961 |
| **GE-3** | 72 | 129165.92000 | 0.00000 | 0.000 | 128761.91000 | 128671.81000 | 130064.04000 |
| SB | 121 | 1.57413 | 1750.17700 | 17.400 | 1.26873 | 1.65669 | 1.79699 |
| **IN-2** | 115 | 316678.27700 | 0.00000 | 0.000 | 315746.87000 | 318234.88000 | 316053.08000 |
| **IN-3** | 115 | 71653.70000 | 0.00000 | 0.000 | 71402.03000 | 72950.65000 | 70608.42000 |
| AG | 107 | 0.21558 | 506.69300 | 24.000 | 0.22742 | 0.15897 | 0.26036 |
| AS | 75 | 0.03564 | 54.66700 | 323.900 | 0.15611 | 0.02486 | -0.07404 |
| BA | 137 | 0.02394 | 46.66700 | 155.900 | -0.01593 | 0.02973 | 0.05803 |
| CD | 111 | 0.04525 | 18.00000 | 76.000 | 0.08439 | 0.03151 | 0.01986 |
| CO | 59 | 0.04495 | 126.67300 | 52.500 | 0.01773 | 0.05712 | 0.05999 |
| CU | 63 | 0.18971 | 1540.13700 | 54.500 | 0.27552 | 0.07500 | 0.21863 |
| MO | 98 | 0.27040 | 350.02000 | 9.000 | 0.29859 | 0.25589 | 0.25672 |
| NI | 60 | 0.38153 | 2106.89700 | 126.500 | 0.28035 | -0.04268 | 0.90693 |
| SE | 78 | 0.05616 | 5.33300 | 24.500 | 0.04030 | 0.06384 | 0.06433 |
| SN | 120 | 0.27624 | 1283.43700 | 22.200 | 0.33962 | 0.21744 | 0.27165 |
| SR | 88 | 0.01865 | 96.66700 | 196.100 | 0.04441 | -0.02320 | 0.03474 |
| ZN | 66 | 3.62885 | 6178.20000 | 26.200 | 2.92641 | 3.24924 | 4.71091 |
| **BI-3** | 209 | 152645.59300 | 0.00000 | 0.000 | 153251.49000 | 152819.00000 | 151866.29000 |
| PB | 208 | 0.04077 | 516.69000 | 11.200 | 0.04403 | 0.04274 | 0.03556 |
| TL | 205 | 0.03945 | 216.67700 | 18.600 | 0.03168 | 0.04630 | 0.04037 |
| U | 238 | 0.00503 | 36.66700 | 75.400 | 0.00100 | 0.00854 | 0.00556 |
| *SC-2* | 45 | 280141.59300 | 0.00000 | 0.000 | 280803.77000 | 281541.13000 | 278079.88000 |
| *GE-1* | 72 | 754683.94300 | 0.00000 | 0.000 | 760182.64000 | 745034.36000 | 758834.83000 |
| *GE-2* | 72 | 336573.77300 | 0.00000 | 0.000 | 336333.32000 | 334857.89000 | 338530.11000 |
| *TB-3* | 159 | 205633.62700 | 0.00000 | 0.000 | 203401.05000 | 205856.38000 | 207643.45000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:26:49
Tube Number: 11
Sample Number: **CCV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 821206.13300 | 0.00000 | 0.000 | 824396.00000 | 828086.32000 | 811136.08000 |
| **SC-3** | 45 | 45685.24700 | 0.00000 | 0.000 | 45250.83000 | 45320.74000 | 46484.17000 |
| AL | 27 | 4960.83658 | 149264.31300 | 1.500 | 5016.58106 | 4986.46966 | 4879.45903 |
| B | 11 | 301.77297 | 112114.88300 | 3.100 | 292.47901 | 301.65746 | 311.18245 |
| BE | 9 | 30.16320 | 19240.30000 | 2.300 | 29.49826 | 30.11421 | 30.87714 |
| CA | 44 | 5023.45388 | 20031.01300 | 2.900 | 4874.01052 | 5161.92011 | 5034.43101 |
| CR | 52 | 301.53964 | 312198.00300 | 2.200 | 304.58744 | 305.96990 | 294.06159 |
| FE | 57 | 4939.25700 | 107418.75300 | 2.500 | 4901.84702 | 5074.94065 | 4840.98334 |
| K | 39 | 4936.01434 | 416628.01700 | 2.500 | 5017.80249 | 4996.31841 | 4793.92212 |
| MG | 24 | 4961.62319 | 376040.92000 | 0.900 | 4990.92156 | 4984.49605 | 4909.45197 |
| MN | 55 | 299.87526 | 180142.01000 | 1.700 | 299.59750 | 305.17143 | 294.85684 |
| NA | 23 | 4631.88486 | 769042.49000 | 1.100 | 4653.27705 | 4668.35551 | 4574.02204 |
| TI | 47 | 297.54098 | 7905.73000 | 9.600 | 304.93956 | 321.54302 | 266.14036 |
| V | 51 | 301.40606 | 261082.52700 | 0.800 | 302.99286 | 302.64632 | 298.57901 |
| **GE-3** | 72 | 130065.98300 | 0.00000 | 0.000 | 131020.82000 | 129679.74000 | 129497.39000 |
| SB | 121 | 30.93678 | 33203.66700 | 3.700 | 30.26847 | 30.29086 | 32.25102 |
| **IN-2** | 115 | 315320.88700 | 0.00000 | 0.000 | 312870.97000 | 316474.08000 | 316617.61000 |
| **IN-3** | 115 | 71777.83300 | 0.00000 | 0.000 | 71723.74000 | 70237.08000 | 73372.68000 |
| AG | 107 | 31.06473 | 63249.36000 | 1.100 | 31.31847 | 31.18962 | 30.68611 |
| AS | 75 | 308.56715 | 45284.72700 | 2.000 | 308.51700 | 314.83137 | 302.35309 |
| BA | 137 | 307.76383 | 128311.30300 | 2.300 | 306.43992 | 315.40493 | 301.44665 |
| CD | 111 | 30.36237 | 9408.51300 | 1.800 | 30.28279 | 30.93071 | 29.87362 |
| CO | 59 | 289.63147 | 493725.01700 | 2.700 | 286.94880 | 298.58379 | 283.36181 |
| CU | 63 | 308.52614 | 342406.97300 | 2.700 | 308.48384 | 316.92062 | 300.17396 |
| MO | 98 | 30.95771 | 34442.90000 | 3.100 | 30.75108 | 32.00153 | 30.12052 |
| NI | 60 | 309.91245 | 129104.28700 | 1.800 | 306.70267 | 316.38407 | 306.65061 |
| SE | 78 | 29.61597 | 2454.21300 | 0.700 | 29.40261 | 29.82161 | 29.62368 |
| SN | 120 | 30.57197 | 35255.49700 | 3.900 | 31.63978 | 30.79329 | 29.28285 |
| SR | 88 | 31.26900 | 28566.16300 | 0.900 | 31.16045 | 31.58564 | 31.06092 |
| ZN | 66 | 310.32659 | 61588.49700 | 2.300 | 309.99618 | 317.71747 | 303.26612 |
| **BI-3** | 209 | 153595.20000 | 0.00000 | 0.000 | 152006.13000 | 155163.59000 | 153615.88000 |
| PB | 208 | 30.07507 | 198050.75000 | 1.300 | 30.37969 | 29.64430 | 30.20122 |
| TL | 205 | 30.11729 | 145985.53700 | 1.500 | 30.27254 | 29.62142 | 30.45791 |
| U | 238 | 50.21338 | 334836.28300 | 1.600 | 50.96901 | 49.36530 | 50.30582 |
| *SC-2* | 45 | 278076.97300 | 0.00000 | 0.000 | 277839.82000 | 276872.22000 | 279518.88000 |
| *GE-1* | 72 | 753803.37300 | 0.00000 | 0.000 | 753247.10000 | 759772.33000 | 748390.69000 |
| *GE-2* | 72 | 330316.04000 | 0.00000 | 0.000 | 329803.32000 | 329837.30000 | 331307.50000 |
| *TB-3* | 159 | 207213.13000 | 0.00000 | 0.000 | 206648.32000 | 208321.95000 | 206669.12000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:28:43
Tube Number: 12
Sample Number: **CCB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 815519.59300 | 0.00000 | 0.000 | 814268.89000 | 813564.36000 | 818725.53000 |
| **SC-3** | 45 | 45170.09700 | 0.00000 | 0.000 | 45551.46000 | 44768.78000 | 45190.05000 |
| AL | 27 | 2.78727 | 166.67300 | 55.200 | 4.52729 | 1.60152 | 2.23301 |
| B | 11 | 10.18593 | 5677.76300 | 5.700 | 10.62707 | 10.40860 | 9.52212 |
| BE | 9 | 0.06767 | 50.00000 | 8.500 | 0.07094 | 0.07102 | 0.06106 |
| CA | 44 | 18.86815 | 193.34300 | 82.900 | 20.09879 | 33.85770 | 2.64794 |
| CR | 52 | 0.68103 | 1520.13000 | 4.700 | 0.67817 | 0.71403 | 0.65087 |
| FE | 57 | 1.77224 | 236.67700 | 174.200 | 0.43350 | 5.30340 | -0.42020 |
| K | 39 | 6.85396 | 27710.13000 | 270.800 | 27.99670 | -0.68350 | -6.75133 |
| MG | 24 | 0.57382 | 676.70700 | 269.600 | -0.65945 | 2.30965 | 0.07125 |
| MN | 55 | -0.04880 | 156.67300 | 0.000 | -0.07917 | 0.02693 | -0.09416 |
| NA | 23 | -28.62167 | 43370.35300 | 0.000 | -39.40533 | -24.53626 | -21.92342 |
| TI | 47 | -0.12598 | 0.00000 | 0.000 | -0.12598 | -0.12598 | -0.12598 |
| V | 51 | -0.17728 | 740.04700 | 0.000 | -0.07941 | -0.27534 | -0.17709 |
| **GE-3** | 72 | 131384.22700 | 0.00000 | 0.000 | 130233.26000 | 131869.19000 | 132050.23000 |
| SB | 121 | 0.55413 | 676.71000 | 23.700 | 0.41418 | 0.57395 | 0.67426 |
| **IN-2** | 115 | 315992.28000 | 0.00000 | 0.000 | 311645.09000 | 321024.37000 | 315307.38000 |
| **IN-3** | 115 | 71227.89300 | 0.00000 | 0.000 | 70869.35000 | 71824.25000 | 70990.08000 |
| AG | 107 | 0.20170 | 476.69300 | 6.500 | 0.20948 | 0.18657 | 0.20906 |
| AS | 75 | 0.11606 | 66.00000 | 19.600 | 0.13219 | 0.12595 | 0.09003 |
| BA | 137 | -0.01574 | 30.00000 | 0.000 | 0.00890 | -0.01636 | -0.03976 |
| CD | 111 | 0.02823 | 12.66700 | 26.300 | 0.03281 | 0.03220 | 0.01968 |
| CO | 59 | 0.06711 | 163.34300 | 13.900 | 0.07748 | 0.06434 | 0.05951 |
| CU | 63 | 0.16664 | 1506.80300 | 28.500 | 0.11263 | 0.18547 | 0.20182 |
| MO | 98 | 0.10889 | 170.01000 | 32.400 | 0.10980 | 0.14371 | 0.07315 |
| NI | 60 | 0.36389 | 2090.22000 | 163.800 | 0.31830 | 0.98134 | -0.20796 |
| SE | 78 | 0.03203 | 3.33300 | 64.000 | 0.01650 | 0.05527 | 0.02431 |
| SN | 120 | 0.12667 | 1110.08700 | 76.600 | 0.01458 | 0.18105 | 0.18437 |
| SR | 88 | -0.03634 | 46.66700 | 0.000 | -0.02130 | -0.04412 | -0.04360 |
| ZN | 66 | 2.75722 | 5988.13700 | 74.700 | 1.88897 | 5.10887 | 1.27381 |
| **BI-3** | 209 | 152455.91000 | 0.00000 | 0.000 | 152745.41000 | 152292.59000 | 152329.73000 |
| PB | 208 | 0.01382 | 340.01700 | 58.200 | 0.01984 | 0.00468 | 0.01694 |
| TL | 205 | 0.02494 | 146.67700 | 17.100 | 0.02973 | 0.02359 | 0.02151 |
| U | 238 | 0.00907 | 63.33300 | 34.700 | 0.01005 | 0.01160 | 0.00555 |
| *SC-2* | 45 | 279452.97300 | 0.00000 | 0.000 | 276053.49000 | 279371.23000 | 282934.20000 |
| *GE-1* | 72 | 754622.59300 | 0.00000 | 0.000 | 752065.30000 | 753574.05000 | 758228.43000 |
| *GE-2* | 72 | 336535.11300 | 0.00000 | 0.000 | 330725.78000 | 339903.39000 | 338976.17000 |
| *TB-3* | 159 | 206308.90700 | 0.00000 | 0.000 | 206304.65000 | 206084.14000 | 206537.93000 |

Run Name: 2003506E07
Tube Number: 13
Sample Number: **PBW**

Date/Time: 02/04/2020 16:30:36
Batch: 200341511401A
Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846-U345

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 842974.88300 | 0.00000 | 0.000 | 838817.02000 | 851523.35000 | 838584.28000 |
| **SC-3** | 45 | 45815.63300 | 0.00000 | 0.000 | 46855.43000 | 45330.93000 | 45260.54000 |
| AL | 27 | 2.82852 | 170.01000 | 12.300 | 2.70217 | 3.22261 | 2.56077 |
| B | 11 | 2.75788 | 3086.33000 | 10.600 | 2.57790 | 2.60034 | 3.09541 |
| BE | 9 | 0.05185 | 41.33300 | 8.900 | 0.05626 | 0.05222 | 0.04706 |
| CA | 44 | 18.15344 | 193.34300 | 23.100 | 16.23009 | 15.25927 | 22.97096 |
| CR | 52 | 0.12602 | 966.73300 | 103.100 | 0.09863 | 0.01202 | 0.26742 |
| FE | 57 | -0.22404 | 196.67700 | 0.000 | -1.18377 | 0.48070 | 0.03094 |
| K | 39 | 10.56763 | 28411.54000 | 220.900 | 29.91347 | 17.15149 | -15.36207 |
| MG | 24 | 1.35745 | 746.71700 | 59.900 | 1.57156 | 2.04266 | 0.45813 |
| MN | 55 | 0.66091 | 586.69300 | 17.600 | 0.72662 | 0.52649 | 0.72963 |
| NA | 23 | -24.14227 | 44670.84000 | 0.000 | -38.27897 | -14.83226 | -19.31557 |
| TI | 47 | 0.12285 | 6.66700 | 175.500 | 0.24080 | -0.12598 | 0.25373 |
| V | 51 | -0.02021 | 886.72300 | 0.000 | 0.04059 | -0.03970 | -0.06151 |
| **GE-3** | 72 | 131873.12000 | 0.00000 | 0.000 | 131517.23000 | 130891.50000 | 133210.63000 |
| SB | 121 | 0.11670 | 203.34300 | 31.200 | 0.13238 | 0.14263 | 0.07510 |
| **IN-2** | 115 | 320579.80700 | 0.00000 | 0.000 | 322471.26000 | 319946.11000 | 319322.05000 |
| **IN-3** | 115 | 72200.33000 | 0.00000 | 0.000 | 72599.33000 | 73252.11000 | 70749.55000 |
| AG | 107 | 0.29318 | 670.04700 | 7.300 | 0.30089 | 0.26899 | 0.30966 |
| AS | 75 | 0.01483 | 52.00000 | 142.400 | 0.01313 | 0.03673 | -0.00538 |
| BA | 137 | -0.04008 | 20.00000 | 0.000 | -0.06455 | -0.06476 | 0.00907 |
| CD | 111 | 0.01685 | 9.33300 | 107.000 | 0.00619 | 0.03765 | 0.00669 |
| CO | 59 | 0.03073 | 103.33700 | 59.600 | 0.05174 | 0.02228 | 0.01816 |
| CU | 63 | 0.17859 | 1540.13300 | 27.900 | 0.12589 | 0.18491 | 0.22497 |
| MO | 98 | 0.03839 | 93.33300 | 48.500 | 0.01715 | 0.05186 | 0.04616 |
| NI | 60 | 0.66815 | 2243.57000 | 11.600 | 0.75130 | 0.65434 | 0.59882 |
| SE | 78 | 0.02635 | 2.88700 | 62.700 | 0.03138 | 0.00790 | 0.03976 |
| SN | 120 | 0.03013 | 1016.73700 | 275.200 | -0.02414 | 0.12559 | -0.01106 |
| SR | 88 | -0.00814 | 73.33300 | 0.000 | -0.01203 | 0.00880 | -0.02118 |
| ZN | 66 | 3.53521 | 6208.23700 | 36.000 | 2.09965 | 3.97820 | 4.52778 |
| **BI-3** | 209 | 153262.39700 | 0.00000 | 0.000 | 153010.56000 | 152513.72000 | 154262.91000 |
| PB | 208 | 0.01360 | 340.01300 | 89.400 | 0.02127 | 0.01993 | -0.00041 |
| TL | 205 | 0.00756 | 63.33300 | 16.100 | 0.00896 | 0.00693 | 0.00678 |
| U | 238 | 0.00502 | 36.66700 | 69.500 | 0.00702 | 0.00705 | 0.00099 |
| *SC-2* | 45 | 283045.62300 | 0.00000 | 0.000 | 285442.07000 | 281666.66000 | 282028.14000 |
| *GE-1* | 72 | 782908.35000 | 0.00000 | 0.000 | 779272.88000 | 788211.63000 | 781240.54000 |
| *GE-2* | 72 | 340853.56300 | 0.00000 | 0.000 | 341380.78000 | 339626.52000 | 341553.39000 |
| *TB-3* | 159 | 207232.83700 | 0.00000 | 0.000 | 205927.07000 | 209256.83000 | 206514.61000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:32:29
Tube Number: 14 Batch: 200341511401A
Sample Number: **LCSW** Class: **********

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol: SW846-U345

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 835698.19300 | 0.00000 | 0.000 | 827489.68000 | 840638.19000 | 838966.71000 |
| **SC-3** | 45 | 45695.43700 | 0.00000 | 0.000 | 46865.60000 | 45381.08000 | 44839.63000 |
| AL | 27 | 224.34375 | 6831.78300 | 6.900 | 216.02759 | 242.27372 | 214.72993 |
| B | 11 | 270.32659 | 102445.89700 | 2.300 | 263.28398 | 272.86050 | 274.83530 |
| BE | 9 | 4.34904 | 2830.28300 | 4.100 | 4.19081 | 4.54183 | 4.31448 |
| CA | 44 | 4409.01688 | 17597.72000 | 2.000 | 4409.48917 | 4320.72312 | 4496.83834 |
| CR | 52 | 53.71427 | 56309.05300 | 1.900 | 52.87992 | 53.41276 | 54.85014 |
| FE | 57 | 308.74669 | 6905.21000 | 1.600 | 307.81327 | 304.26954 | 314.15725 |
| K | 39 | 10736.98635 | 873979.41700 | 3.100 | 10369.98720 | 10831.45264 | 11009.51922 |
| MG | 24 | 2117.84582 | 160874.49000 | 2.300 | 2060.99409 | 2145.66019 | 2146.88317 |
| MN | 55 | 54.33306 | 32777.57000 | 5.500 | 51.06851 | 55.00173 | 56.92894 |
| NA | 23 | 10462.34241 | 1675834.50700 | 4.000 | 9985.72831 | 10664.17976 | 10737.11916 |
| TI | 47 | 275.68143 | 7328.74300 | 4.800 | 264.70961 | 271.85593 | 290.47876 |
| V | 51 | 53.99640 | 47514.73000 | 2.500 | 53.29199 | 53.16273 | 55.53447 |
| **GE-3** | 72 | 132692.64300 | 0.00000 | 0.000 | 132756.35000 | 131434.25000 | 133887.33000 |
| SB | 121 | 6.15801 | 6805.24700 | 2.400 | 5.98721 | 6.24223 | 6.24458 |
| **IN-2** | 115 | 323390.32000 | 0.00000 | 0.000 | 323004.02000 | 323760.15000 | 323406.79000 |
| **IN-3** | 115 | 73821.34000 | 0.00000 | 0.000 | 73171.30000 | 73563.32000 | 74729.40000 |
| AG | 107 | 51.45509 | 107703.30700 | 1.300 | 52.07109 | 51.55181 | 50.74238 |
| AS | 75 | 10.75516 | 1672.77700 | 2.200 | 10.72772 | 11.00145 | 10.53631 |
| BA | 137 | 51.90133 | 22285.49300 | 4.800 | 53.62555 | 53.03456 | 49.04386 |
| CD | 111 | 5.42899 | 1734.11700 | 0.800 | 5.38262 | 5.43578 | 5.46856 |
| CO | 59 | 251.16339 | 440491.75000 | 0.800 | 251.49307 | 253.02622 | 248.97088 |
| CU | 63 | 55.87196 | 64922.85700 | 0.800 | 56.08034 | 55.37592 | 56.15962 |
| MO | 98 | 52.33808 | 59877.09000 | 0.400 | 52.40301 | 52.52868 | 52.08254 |
| NI | 60 | 55.27496 | 25339.36000 | 0.700 | 55.33529 | 55.63422 | 54.85538 |
| SE | 78 | 10.58523 | 900.03300 | 2.100 | 10.67648 | 10.74557 | 10.33363 |
| SN | 120 | 53.36659 | 62564.33000 | 1.500 | 53.24479 | 54.23163 | 52.62335 |
| SR | 88 | 42.93027 | 40307.73000 | 1.100 | 42.97471 | 43.35821 | 42.45789 |
| ZN | 66 | 548.75848 | 107668.45000 | 1.100 | 544.92831 | 555.83997 | 545.50716 |
| **BI-3** | 209 | 155043.92000 | 0.00000 | 0.000 | 157664.85000 | 153637.60000 | 153829.31000 |
| PB | 208 | 5.32691 | 35616.76000 | 1.400 | 5.24041 | 5.38034 | 5.35997 |
| TL | 205 | 2.08682 | 10234.37700 | 2.300 | 2.03145 | 2.11788 | 2.11112 |
| U | 238 | 0.00100 | 10.00000 | 150.400 | -0.00050 | 0.00100 | 0.00249 |
| *SC-2* | 45 | 284241.52000 | 0.00000 | 0.000 | 279396.25000 | 286051.81000 | 287276.50000 |
| *GE-1* | 72 | 781557.30700 | 0.00000 | 0.000 | 774369.29000 | 789282.80000 | 781019.83000 |
| *GE-2* | 72 | 341538.49700 | 0.00000 | 0.000 | 337897.10000 | 343343.04000 | 343375.35000 |
| *TB-3* | 159 | 209227.84300 | 0.00000 | 0.000 | 209685.86000 | 208548.06000 | 209449.61000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:34:23
Tube Number: 15 Batch: 200341511401A
Sample Number: **1251392** Class: U*********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 829625.66300 | 0.00000 | 0.000 | 826630.38000 | 838566.00000 | 823680.61000 |
| **SC-3** | 45 | 45050.04300 | 0.00000 | 0.000 | 44849.27000 | 45010.02000 | 45290.84000 |
| AL | 27 | 3.03831 | 173.34000 | 50.500 | 2.94870 | 4.61554 | 1.55068 |
| B | 11 | 48.03773 | 19731.60700 | 1.200 | 47.57961 | 47.85599 | 48.67759 |
| BE | 9 | 0.03010 | 26.66700 | 58.800 | 0.01052 | 0.03478 | 0.04499 |
| CA | 44 | 25538.19803 | 99922.31000 | 2.400 | 25539.18526 | 26143.99564 | 24931.41320 |
| CR | 52 | 0.48499 | 1316.77300 | 16.100 | 0.39565 | 0.51912 | 0.54019 |
| FE | 57 | 44.30244 | 1146.75700 | 6.400 | 47.50818 | 42.16187 | 43.23728 |
| K | 39 | 4743.66861 | 395969.56300 | 0.700 | 4779.81826 | 4720.99948 | 4730.18807 |
| MG | 24 | 11717.36378 | 874918.24300 | 0.500 | 11735.77133 | 11760.88158 | 11655.43843 |
| MN | 55 | 530.01197 | 313858.91300 | 0.700 | 534.04915 | 529.24503 | 526.74174 |
| NA | 23 | 16374.12829 | 2560204.07700 | 1.200 | 16593.72052 | 16332.75543 | 16195.90893 |
| TI | 47 | 0.25505 | 10.00000 | 149.700 | -0.12598 | 0.63766 | 0.25347 |
| V | 51 | 0.91399 | 1666.82000 | 12.800 | 0.90335 | 0.80233 | 1.03629 |
| **GE-3** | 72 | 130151.04300 | 0.00000 | 0.000 | 128328.59000 | 132182.62000 | 129941.92000 |
| SB | 121 | 0.18483 | 273.34700 | 39.700 | 0.20368 | 0.10379 | 0.24701 |
| **IN-2** | 115 | 312982.78700 | 0.00000 | 0.000 | 310387.75000 | 314829.76000 | 313730.85000 |
| **IN-3** | 115 | 71965.54300 | 0.00000 | 0.000 | 71824.84000 | 72517.72000 | 71554.07000 |
| AG | 107 | 0.05520 | 183.34000 | 94.400 | 0.08339 | 0.08713 | -0.00494 |
| AS | 75 | 7.69844 | 1181.39000 | 3.700 | 8.01803 | 7.47914 | 7.59816 |
| BA | 137 | 22.74061 | 9543.60700 | 5.400 | 21.32364 | 23.47103 | 23.42717 |
| CD | 111 | 0.02135 | 10.66700 | 45.000 | 0.01285 | 0.03177 | 0.01942 |
| CO | 59 | 0.20063 | 393.35300 | 5.700 | 0.21087 | 0.20277 | 0.18824 |
| CU | 63 | 0.12284 | 1473.46000 | 49.400 | 0.10411 | 0.07370 | 0.19072 |
| MO | 98 | 2.86894 | 3247.15000 | 4.600 | 2.73361 | 2.87631 | 2.99691 |
| NI | 60 | 0.61615 | 2213.58300 | 91.700 | 0.78649 | -0.01445 | 1.07642 |
| SE | 78 | 0.03808 | 3.77700 | 68.700 | 0.04934 | 0.00816 | 0.05674 |
| SN | 120 | 0.27424 | 1286.78000 | 41.200 | 0.37707 | 0.15333 | 0.29234 |
| SR | 88 | 170.85157 | 156143.84000 | 1.200 | 170.30422 | 169.08416 | 173.16633 |
| ZN | 66 | 2.06193 | 5921.39700 | 60.800 | 2.28609 | 0.71131 | 3.18838 |
| **BI-3** | 209 | 156567.52300 | 0.00000 | 0.000 | 155548.15000 | 156349.47000 | 157804.95000 |
| PB | 208 | 0.07065 | 730.04000 | 9.200 | 0.07134 | 0.07676 | 0.06386 |
| TL | 205 | 0.00593 | 56.66700 | 71.200 | 0.00261 | 0.01067 | 0.00450 |
| U | 238 | 0.81235 | 5524.68000 | 4.800 | 0.82443 | 0.84378 | 0.76883 |
| *SC-2* | 45 | 276041.19300 | 0.00000 | 0.000 | 274963.80000 | 276769.02000 | 276390.76000 |
| *GE-1* | 72 | 769184.88700 | 0.00000 | 0.000 | 760590.77000 | 769900.85000 | 777063.04000 |
| *GE-2* | 72 | 335635.47700 | 0.00000 | 0.000 | 337273.51000 | 336699.10000 | 332933.82000 |
| *TB-3* | 159 | 207515.26300 | 0.00000 | 0.000 | 208811.54000 | 204243.18000 | 209491.07000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:36:17
Tube Number: 16 Batch: 200341511401A
Sample Number: **1251392** Class: UP********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 831949.18000 | 0.00000 | 0.000 | 831688.03000 | 825271.94000 | 838887.57000 |
| **SC-3** | 45 | 45658.34000 | 0.00000 | 0.000 | 46213.25000 | 45601.51000 | 45160.26000 |
| AL | 27 | 42.56382 | 1363.44300 | 5.800 | 39.92410 | 44.82837 | 42.93898 |
| B | 11 | 43.22488 | 18009.47000 | 2.300 | 42.42414 | 42.93326 | 44.31725 |
| BE | 9 | 0.82065 | 537.34300 | 6.500 | 0.78147 | 0.88125 | 0.79923 |
| CA | 44 | 24629.01530 | 97673.45300 | 0.500 | 24618.70976 | 24509.17485 | 24759.16130 |
| CR | 52 | 2.18398 | 3087.09700 | 5.600 | 2.04507 | 2.23855 | 2.26833 |
| FE | 57 | 113.70635 | 2666.99700 | 7.600 | 103.66898 | 119.03109 | 118.41898 |
| K | 39 | 4857.87678 | 410302.69000 | 1.500 | 4854.77720 | 4786.05309 | 4932.80005 |
| MG | 24 | 11449.35540 | 866405.32700 | 1.100 | 11322.93328 | 11461.83345 | 11563.29948 |
| MN | 55 | 518.41804 | 311104.88700 | 1.900 | 508.82582 | 518.24919 | 528.17910 |
| NA | 23 | 16107.97195 | 2553309.07700 | 1.200 | 15900.90168 | 16264.65927 | 16158.35491 |
| TI | 47 | 13.31177 | 356.68300 | 14.100 | 12.14645 | 12.31146 | 15.47740 |
| V | 51 | 1.92508 | 2563.64700 | 19.500 | 2.35773 | 1.68371 | 1.73379 |
| **GE-3** | 72 | 131378.34700 | 0.00000 | 0.000 | 130012.41000 | 131820.22000 | 132302.41000 |
| SB | 121 | 1.68940 | 1903.52300 | 10.500 | 1.81640 | 1.48643 | 1.76537 |
| **IN-2** | 115 | 316118.38700 | 0.00000 | 0.000 | 317371.30000 | 314625.95000 | 316357.91000 |
| **IN-3** | 115 | 71368.43300 | 0.00000 | 0.000 | 72919.52000 | 69693.68000 | 71492.10000 |
| AG | 107 | 0.86599 | 1817.77700 | 20.000 | 0.84178 | 1.05016 | 0.70602 |
| AS | 75 | 11.03143 | 1656.77300 | 3.700 | 10.73908 | 11.50461 | 10.85062 |
| BA | 137 | 24.99620 | 10387.61300 | 7.700 | 22.82146 | 26.50234 | 25.66480 |
| CD | 111 | 0.85287 | 266.67000 | 9.000 | 0.79404 | 0.82474 | 0.93981 |
| CO | 59 | 0.96006 | 1676.82700 | 3.400 | 0.92317 | 0.98537 | 0.97163 |
| CU | 63 | 1.87711 | 3387.18000 | 12.000 | 1.74919 | 2.13749 | 1.74465 |
| MO | 98 | 3.84372 | 4294.11700 | 5.900 | 3.58663 | 4.01430 | 3.93023 |
| NI | 60 | 2.42709 | 2933.73300 | 11.100 | 2.28661 | 2.73856 | 2.25610 |
| SE | 78 | 1.67010 | 139.33000 | 8.500 | 1.54313 | 1.82281 | 1.64435 |
| SN | 120 | 3.22422 | 4567.56700 | 4.000 | 3.20233 | 3.10609 | 3.36424 |
| SR | 88 | 173.60138 | 157327.27300 | 0.900 | 171.79010 | 174.77442 | 174.23961 |
| ZN | 66 | 18.52500 | 8829.64300 | 8.600 | 17.05422 | 18.29102 | 20.22975 |
| **BI-3** | 209 | 155606.25000 | 0.00000 | 0.000 | 155953.30000 | 156297.29000 | 154568.16000 |
| PB | 208 | 0.85488 | 5950.76000 | 4.800 | 0.87975 | 0.80749 | 0.87741 |
| TL | 205 | 0.83501 | 4127.46700 | 1.500 | 0.83386 | 0.84825 | 0.82293 |
| U | 238 | 2.39675 | 16197.36000 | 1.500 | 2.40536 | 2.42661 | 2.35828 |
| *SC-2* | 45 | 279547.38000 | 0.00000 | 0.000 | 284126.85000 | 272975.70000 | 281539.59000 |
| *GE-1* | 72 | 774268.16700 | 0.00000 | 0.000 | 772496.47000 | 768373.35000 | 781934.68000 |
| *GE-2* | 72 | 338285.88000 | 0.00000 | 0.000 | 339191.52000 | 336313.04000 | 339353.08000 |
| *TB-3* | 159 | 206139.86300 | 0.00000 | 0.000 | 206986.85000 | 205763.84000 | 205668.90000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:38:11
Tube Number: 17 Batch: 200341511401A
Sample Number: **1251395** Class: D*********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 827126.26700 | 0.00000 | 0.000 | 832374.99000 | 822432.96000 | 826570.85000 |
| **SC-3** | 45 | 44972.85000 | 0.00000 | 0.000 | 46303.57000 | 43835.94000 | 44779.04000 |
| AL | 27 | 2.15906 | 146.67300 | 38.700 | 1.45564 | 3.08181 | 1.93973 |
| B | 11 | 42.71141 | 17714.45300 | 1.700 | 42.07621 | 42.53045 | 43.52757 |
| BE | 9 | 0.03435 | 29.33300 | 18.000 | 0.04131 | 0.02942 | 0.03233 |
| CA | 44 | 25536.23839 | 99707.83300 | 2.200 | 24941.70076 | 26061.58527 | 25605.42914 |
| CR | 52 | 0.49448 | 1323.44300 | 9.100 | 0.48205 | 0.54458 | 0.45681 |
| FE | 57 | 48.79989 | 1240.09300 | 11.500 | 48.45211 | 54.58102 | 43.36653 |
| K | 39 | 4717.46120 | 393057.57000 | 3.200 | 4587.65615 | 4884.60262 | 4680.12483 |
| MG | 24 | 11747.99337 | 875284.46700 | 2.700 | 11426.48149 | 12049.00856 | 11768.49006 |
| MN | 55 | 530.60372 | 313510.58300 | 2.900 | 514.27195 | 544.64079 | 532.89843 |
| NA | 23 | 16366.71972 | 2553456.47300 | 2.900 | 15880.35022 | 16815.55139 | 16404.25755 |
| TI | 47 | -0.12598 | 0.00000 | 0.000 | -0.12598 | -0.12598 | -0.12598 |
| V | 51 | 0.98578 | 1723.49000 | 9.800 | 0.87649 | 1.02081 | 1.06005 |
| **GE-3** | 72 | 131815.22000 | 0.00000 | 0.000 | 132716.62000 | 130567.37000 | 132161.67000 |
| SB | 121 | 0.07358 | 156.67700 | 7.800 | 0.07564 | 0.07805 | 0.06706 |
| **IN-2** | 115 | 314692.21000 | 0.00000 | 0.000 | 314477.30000 | 311892.24000 | 317707.09000 |
| **IN-3** | 115 | 72434.36700 | 0.00000 | 0.000 | 73372.66000 | 73523.12000 | 70407.32000 |
| AG | 107 | -0.01997 | 30.00000 | 0.000 | -0.00567 | -0.02973 | -0.02450 |
| AS | 75 | 7.60205 | 1174.05700 | 5.100 | 7.25464 | 7.53210 | 8.01940 |
| BA | 137 | 22.71200 | 9590.29300 | 2.000 | 22.32778 | 22.61001 | 23.19820 |
| CD | 111 | 0.01923 | 10.00000 | 62.600 | 0.01231 | 0.01225 | 0.03311 |
| CO | 59 | 0.19947 | 393.35300 | 9.600 | 0.18859 | 0.18814 | 0.22168 |
| CU | 63 | 0.06684 | 1423.45300 | 220.600 | 0.12070 | 0.17979 | -0.09998 |
| MO | 98 | 2.89005 | 3287.15300 | 9.900 | 2.82466 | 2.64306 | 3.20242 |
| NI | 60 | 0.63609 | 2236.91300 | 49.300 | 0.28783 | 0.89615 | 0.72429 |
| SE | 78 | 0.03249 | 3.33300 | 50.800 | 0.03238 | 0.04907 | 0.01604 |
| SN | 120 | -0.02734 | 953.40300 | 0.000 | -0.12899 | 0.01746 | 0.02949 |
| SR | 88 | 170.39109 | 156691.91700 | 2.300 | 166.77659 | 169.76291 | 174.63377 |
| ZN | 66 | 3.13276 | 6151.53300 | 60.200 | 1.26689 | 3.09368 | 5.03770 |
| **BI-3** | 209 | 155100.26300 | 0.00000 | 0.000 | 156157.61000 | 156458.92000 | 152684.26000 |
| PB | 208 | 0.06473 | 683.37000 | 26.300 | 0.04549 | 0.07071 | 0.07799 |
| TL | 205 | 0.00197 | 36.66700 | 125.700 | 0.00055 | 0.00054 | 0.00484 |
| U | 238 | 0.88228 | 5944.92000 | 8.600 | 0.96139 | 0.80933 | 0.87613 |
| *SC-2* | 45 | 277343.59700 | 0.00000 | 0.000 | 276521.19000 | 273397.40000 | 282112.20000 |
| *GE-1* | 72 | 769975.14300 | 0.00000 | 0.000 | 772949.83000 | 770023.97000 | 766951.63000 |
| *GE-2* | 72 | 335661.90700 | 0.00000 | 0.000 | 335527.14000 | 332719.33000 | 338739.25000 |
| *TB-3* | 159 | 206800.13000 | 0.00000 | 0.000 | 207177.26000 | 207230.95000 | 205992.18000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:40:04
Tube Number: 18 Batch: 200341511401A
Sample Number: **1251393** Class: R*********

Initial Vol: 50.00 Final Vol: 52.00 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 839879.13000 | 0.00000 | 0.000 | 835389.36000 | 837570.46000 | 846677.57000 |
| **SC-3** | 45 | 45123.63000 | 0.00000 | 0.000 | 45571.32000 | 44498.56000 | 45301.01000 |
| AL | 27 | 210.20732 | 6324.90000 | 6.100 | 197.23087 | 222.88827 | 210.50281 |
| B | 11 | 309.02501 | 117397.06300 | 1.700 | 303.01454 | 311.24768 | 312.81282 |
| BE | 9 | 4.18547 | 2736.93300 | 2.200 | 4.27441 | 4.18945 | 4.09254 |
| CA | 44 | 29578.44087 | 115885.02000 | 2.300 | 29154.89810 | 30351.65880 | 29228.76572 |
| CR | 52 | 53.47769 | 55372.33300 | 1.400 | 52.64125 | 53.94926 | 53.84257 |
| FE | 57 | 367.36442 | 8075.82300 | 4.700 | 350.54233 | 366.78882 | 384.76212 |
| K | 39 | 15367.22080 | 1223635.00700 | 4.600 | 14880.86159 | 16170.14630 | 15050.65452 |
| MG | 24 | 13773.38032 | 1029917.51000 | 1.200 | 13643.59849 | 13960.72225 | 13715.82021 |
| MN | 55 | 609.16024 | 361277.86000 | 0.700 | 605.34149 | 613.55184 | 608.58738 |
| NA | 23 | 25838.15608 | 4018429.62700 | 2.400 | 25141.76035 | 26374.49539 | 25998.21250 |
| TI | 47 | 264.86287 | 6955.22700 | 5.300 | 248.83819 | 274.93353 | 270.81690 |
| V | 51 | 53.36969 | 46394.43700 | 1.000 | 53.32104 | 53.95150 | 52.83654 |
| **GE-3** | 72 | 131815.67300 | 0.00000 | 0.000 | 132403.16000 | 131991.72000 | 131052.14000 |
| SB | 121 | 6.14407 | 6745.19700 | 1.400 | 6.21438 | 6.04984 | 6.16798 |
| **IN-2** | 115 | 315322.64700 | 0.00000 | 0.000 | 314672.32000 | 319550.19000 | 311745.43000 |
| **IN-3** | 115 | 71349.02300 | 0.00000 | 0.000 | 72176.49000 | 71272.28000 | 70598.30000 |
| AG | 107 | 41.84882 | 84674.58000 | 2.500 | 40.81832 | 42.89605 | 41.83207 |
| AS | 75 | 18.37689 | 2728.27700 | 2.100 | 18.68043 | 18.49583 | 17.95442 |
| BA | 137 | 78.28994 | 32478.97300 | 2.200 | 77.35832 | 77.24977 | 80.26174 |
| CD | 111 | 5.48717 | 1693.45000 | 3.400 | 5.28365 | 5.53291 | 5.64493 |
| CO | 59 | 249.41737 | 422751.33300 | 1.900 | 246.60564 | 246.77484 | 254.87163 |
| CU | 63 | 56.04659 | 62937.61000 | 0.700 | 55.66856 | 56.45412 | 56.01707 |
| MO | 98 | 56.06556 | 61993.26700 | 0.700 | 56.45156 | 55.65745 | 56.08767 |
| NI | 60 | 55.14295 | 24434.53300 | 2.700 | 54.48872 | 54.10943 | 56.83071 |
| SE | 78 | 8.94906 | 742.02300 | 1.200 | 8.83038 | 8.98134 | 9.03546 |
| SN | 120 | 53.99408 | 61171.32700 | 2.500 | 54.46228 | 52.48615 | 55.03380 |
| SR | 88 | 222.27052 | 201378.71300 | 0.800 | 220.92106 | 224.18329 | 221.70720 |
| ZN | 66 | 549.71378 | 104217.26000 | 2.600 | 535.29049 | 550.32756 | 563.52328 |
| **BI-3** | 209 | 154817.90000 | 0.00000 | 0.000 | 153332.19000 | 154114.12000 | 157007.39000 |
| PB | 208 | 5.28862 | 35312.85000 | 1.300 | 5.36974 | 5.25893 | 5.23719 |
| TL | 205 | 2.07446 | 10160.86700 | 1.700 | 2.05589 | 2.11542 | 2.05208 |
| U | 238 | 0.74656 | 5021.18300 | 5.000 | 0.78526 | 0.71102 | 0.74340 |
| *SC-2* | 45 | 275368.50700 | 0.00000 | 0.000 | 276421.97000 | 276116.95000 | 273566.60000 |
| *GE-1* | 72 | 779331.11000 | 0.00000 | 0.000 | 775333.43000 | 778784.91000 | 783874.99000 |
| *GE-2* | 72 | 332424.64300 | 0.00000 | 0.000 | 333780.62000 | 334918.71000 | 328574.60000 |
| *TB-3* | 159 | 205472.36700 | 0.00000 | 0.000 | 205055.04000 | 207443.86000 | 203918.20000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:41:57
Tube Number: 19 Batch: 200341511401A
Sample Number: **1251394** Class: M*********

Initial Vol: 50.00 Final Vol: 52.00 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 831947.85300 | 0.00000 | 0.000 | 841731.16000 | 835636.24000 | 818476.16000 |
| **SC-3** | 45 | 45123.28000 | 0.00000 | 0.000 | 46283.38000 | 44879.38000 | 44207.08000 |
| AL | 27 | 213.11169 | 6411.64000 | 3.000 | 205.97687 | 218.26339 | 215.09481 |
| B | 11 | 315.84115 | 118776.23000 | 2.700 | 306.36809 | 318.71184 | 322.44354 |
| BE | 9 | 4.14928 | 2687.59000 | 5.600 | 3.91467 | 4.38105 | 4.15211 |
| CA | 44 | 29270.81107 | 114659.06700 | 2.800 | 28678.04734 | 28937.05116 | 30197.33472 |
| CR | 52 | 53.02306 | 54890.36700 | 3.500 | 51.94332 | 51.95142 | 55.17444 |
| FE | 57 | 352.99173 | 7772.34000 | 3.600 | 367.75411 | 346.24070 | 344.98039 |
| K | 39 | 15574.19518 | 1240172.74300 | 1.600 | 15467.61264 | 15851.48913 | 15403.48376 |
| MG | 24 | 13741.81415 | 1027311.23300 | 2.100 | 13423.55831 | 13804.64438 | 13997.23976 |
| MN | 55 | 587.47577 | 348343.71700 | 1.900 | 577.69510 | 584.81247 | 599.91975 |
| NA | 23 | 25930.43209 | 4031090.56300 | 3.600 | 24867.95030 | 26338.50228 | 26584.84367 |
| TI | 47 | 262.93553 | 6901.86000 | 4.900 | 250.57732 | 261.87128 | 276.35799 |
| V | 51 | 53.47392 | 46474.57700 | 1.700 | 52.43832 | 53.98148 | 54.00196 |
| **GE-3** | 72 | 131390.36000 | 0.00000 | 0.000 | 131696.96000 | 130697.87000 | 131776.25000 |
| SB | 121 | 5.88391 | 6441.69000 | 1.500 | 5.86982 | 5.98026 | 5.80166 |
| **IN-2** | 115 | 319651.50000 | 0.00000 | 0.000 | 322281.66000 | 316817.71000 | 319855.13000 |
| **IN-3** | 115 | 71084.48300 | 0.00000 | 0.000 | 72297.40000 | 70337.60000 | 70618.45000 |
| AG | 107 | 49.88350 | 100575.17000 | 2.500 | 51.18559 | 49.78947 | 48.67544 |
| AS | 75 | 18.40712 | 2722.94300 | 3.200 | 19.05491 | 18.24491 | 17.92155 |
| BA | 137 | 76.91838 | 31780.74700 | 5.000 | 72.59754 | 79.89723 | 78.26035 |
| CD | 111 | 5.47035 | 1681.44700 | 5.900 | 5.10172 | 5.69884 | 5.61051 |
| CO | 59 | 249.76121 | 421749.07000 | 1.600 | 245.26648 | 251.90555 | 252.11160 |
| CU | 63 | 55.04188 | 61584.63000 | 3.500 | 52.87699 | 56.57144 | 55.67720 |
| MO | 98 | 55.49709 | 61132.71300 | 0.600 | 55.17227 | 55.80696 | 55.51206 |
| NI | 60 | 54.84131 | 24220.86300 | 2.600 | 53.61398 | 54.54304 | 56.36690 |
| SE | 78 | 10.70448 | 899.58700 | 4.700 | 10.28305 | 10.57274 | 11.25766 |
| SN | 120 | 54.17373 | 61141.42300 | 2.600 | 53.95159 | 55.65324 | 52.91637 |
| SR | 88 | 218.88138 | 197551.11000 | 1.800 | 215.11525 | 218.62753 | 222.90135 |
| ZN | 66 | 546.93385 | 103327.96000 | 2.500 | 531.64122 | 557.87743 | 551.28289 |
| **BI-3** | 209 | 155281.28000 | 0.00000 | 0.000 | 156772.94000 | 155314.89000 | 153756.01000 |
| PB | 208 | 5.23700 | 35082.68000 | 1.900 | 5.34056 | 5.23295 | 5.13748 |
| TL | 205 | 2.04177 | 10030.84300 | 1.200 | 2.01877 | 2.03777 | 2.06878 |
| U | 238 | 0.78146 | 5271.25000 | 3.500 | 0.75039 | 0.80342 | 0.79058 |
| *SC-2* | 45 | 280173.48700 | 0.00000 | 0.000 | 279134.66000 | 279453.71000 | 281932.09000 |
| *GE-1* | 72 | 772423.16700 | 0.00000 | 0.000 | 771886.55000 | 776392.41000 | 768990.54000 |
| *GE-2* | 72 | 337502.03700 | 0.00000 | 0.000 | 339086.67000 | 336394.45000 | 337024.99000 |
| *TB-3* | 159 | 207394.41700 | 0.00000 | 0.000 | 208336.03000 | 207490.43000 | 206356.79000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:43:51
Tube Number: 20 Batch: 200341511401A
Sample Number: **1251392** Class: UL********

Initial Vol: 50.00 Final Vol: 51.50 DF: 5.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 822788.58300 | 0.00000 | 0.000 | 828607.02000 | 821052.18000 | 818706.55000 |
| **SC-3** | 45 | 45461.13000 | 0.00000 | 0.000 | 45792.33000 | 45069.56000 | 45521.50000 |
| AL | 27 | 2.87889 | 170.00700 | 52.300 | 1.83464 | 4.60573 | 2.19629 |
| B | 11 | 17.34896 | 8347.69300 | 1.600 | 17.12971 | 17.26100 | 17.65619 |
| BE | 9 | 0.02421 | 22.66700 | 42.200 | 0.01979 | 0.01694 | 0.03589 |
| CA | 44 | 4965.28689 | 19700.50700 | 3.100 | 4790.85392 | 5026.89929 | 5078.10745 |
| CR | 52 | 0.60704 | 1453.45300 | 19.900 | 0.46747 | 0.68424 | 0.66943 |
| FE | 57 | 6.64443 | 343.35300 | 60.400 | 4.51864 | 11.27623 | 4.13841 |
| K | 39 | 952.51888 | 102089.08300 | 2.500 | 966.70423 | 965.92160 | 924.93080 |
| MG | 24 | 2312.18090 | 174730.33700 | 0.900 | 2305.88896 | 2336.35929 | 2294.29446 |
| MN | 55 | 104.00745 | 62297.28300 | 2.400 | 103.00275 | 106.86293 | 102.15667 |
| NA | 23 | 3087.35527 | 526156.62000 | 0.600 | 3069.15304 | 3108.78307 | 3084.12968 |
| TI | 47 | 0.12496 | 6.66700 | 173.900 | 0.24932 | -0.12598 | 0.25155 |
| V | 51 | 0.08136 | 966.73000 | 225.600 | 0.25069 | 0.10704 | -0.11365 |
| **GE-3** | 72 | 132118.72300 | 0.00000 | 0.000 | 133293.46000 | 130769.64000 | 132293.07000 |
| SB | 121 | 0.22692 | 323.35000 | 34.800 | 0.13879 | 0.29144 | 0.25055 |
| **IN-2** | 115 | 319643.35700 | 0.00000 | 0.000 | 317352.46000 | 322802.85000 | 318774.76000 |
| **IN-3** | 115 | 72005.95700 | 0.00000 | 0.000 | 71483.22000 | 71875.56000 | 72659.09000 |
| AG | 107 | 0.01938 | 110.00000 | 43.500 | 0.02471 | 0.00966 | 0.02375 |
| AS | 75 | 1.64885 | 292.00700 | 14.500 | 1.85380 | 1.70563 | 1.38712 |
| BA | 137 | 4.19082 | 1790.18300 | 4.600 | 4.07860 | 4.07983 | 4.41403 |
| CD | 111 | 0.00845 | 6.66700 | 114.100 | 0.00649 | -0.00006 | 0.01893 |
| CO | 59 | 0.09348 | 210.01000 | 28.200 | 0.11190 | 0.10527 | 0.06326 |
| CU | 63 | 0.24212 | 1606.80700 | 53.900 | 0.15577 | 0.39219 | 0.17840 |
| MO | 98 | 0.69676 | 826.71700 | 10.800 | 0.75899 | 0.71865 | 0.61264 |
| NI | 60 | 0.44100 | 2143.56000 | 25.200 | 0.49483 | 0.51479 | 0.31337 |
| SE | 78 | 0.23816 | 20.66300 | 15.400 | 0.27189 | 0.24358 | 0.19900 |
| SN | 120 | 0.10131 | 1093.41700 | 62.000 | 0.14129 | 0.02892 | 0.13371 |
| SR | 88 | 34.24690 | 31381.79700 | 0.300 | 34.36859 | 34.19138 | 34.18074 |
| ZN | 66 | 1.52355 | 5828.04700 | 99.200 | 0.49790 | 3.25835 | 0.81440 |
| **BI-3** | 209 | 153244.92300 | 0.00000 | 0.000 | 154242.41000 | 152817.89000 | 152674.47000 |
| PB | 208 | 0.02370 | 406.68300 | 18.300 | 0.02836 | 0.01981 | 0.02293 |
| TL | 205 | 0.00482 | 50.00000 | 188.000 | -0.00143 | 0.00068 | 0.01522 |
| U | 238 | 0.16633 | 1110.08700 | 7.100 | 0.16974 | 0.15324 | 0.17601 |
| *SC-2* | 45 | 278471.17000 | 0.00000 | 0.000 | 278155.99000 | 278997.50000 | 278260.02000 |
| *GE-1* | 72 | 767213.27000 | 0.00000 | 0.000 | 770658.89000 | 765979.60000 | 765001.32000 |
| *GE-2* | 72 | 338971.68700 | 0.00000 | 0.000 | 339028.94000 | 338994.41000 | 338891.71000 |
| *TB-3* | 159 | 206305.20700 | 0.00000 | 0.000 | 206031.25000 | 207766.62000 | 205117.75000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:45:44
Tube Number: 21 Batch: 200341511401A
Sample Number: **1250960** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 833803.37300 | 0.00000 | 0.000 | 839406.32000 | 832701.39000 | 829302.41000 |
| **SC-3** | 45 | 45721.88700 | 0.00000 | 0.000 | 45390.62000 | 45230.47000 | 46544.57000 |
| AL | 27 | 1.39488 | 126.67000 | 52.700 | 1.87608 | 0.54899 | 1.75959 |
| B | 11 | 10.41273 | 5889.18700 | 2.900 | 10.07500 | 10.65437 | 10.50881 |
| BE | 9 | 0.02987 | 26.66700 | 67.300 | 0.02859 | 0.05057 | 0.01045 |
| CA | 44 | 88639.34137 | 351639.64700 | 1.800 | 89276.62923 | 89829.86704 | 86811.52783 |
| CR | 52 | 0.26905 | 1113.41000 | 14.700 | 0.25459 | 0.23878 | 0.31379 |
| FE | 57 | 18.23625 | 596.70000 | 37.600 | 25.96718 | 15.85592 | 12.88566 |
| K | 39 | 4732.88282 | 400940.96000 | 2.400 | 4826.08005 | 4767.65936 | 4604.90904 |
| MG | 24 | 10257.53852 | 777266.57700 | 2.000 | 10369.13952 | 10381.39468 | 10022.08137 |
| MN | 55 | 2085.56044 | 1252631.57000 | 2.100 | 2100.20965 | 2120.48472 | 2035.98694 |
| NA | 23 | 59239.84111 | 9272442.57300 | 2.100 | 59604.62407 | 60246.37140 | 57868.52785 |
| TI | 47 | -0.12598 | 0.00000 | 0.000 | -0.12598 | -0.12598 | -0.12598 |
| V | 51 | 0.10622 | 993.40300 | 51.500 | 0.16886 | 0.06785 | 0.08195 |
| **GE-3** | 72 | 131265.97000 | 0.00000 | 0.000 | 131050.99000 | 131554.76000 | 131192.16000 |
| SB | 121 | 0.21903 | 313.35000 | 42.100 | 0.11457 | 0.28928 | 0.25324 |
| **IN-2** | 115 | 316739.64700 | 0.00000 | 0.000 | 317215.64000 | 319560.00000 | 313443.30000 |
| **IN-3** | 115 | 71582.66300 | 0.00000 | 0.000 | 70597.44000 | 71844.09000 | 72306.46000 |
| AG | 107 | -0.01485 | 40.00000 | 0.000 | -0.01953 | -0.01488 | -0.01013 |
| AS | 75 | 4.48883 | 706.02000 | 4.500 | 4.32192 | 4.43183 | 4.71273 |
| BA | 137 | 629.54597 | 261773.75300 | 1.300 | 638.85082 | 625.60691 | 624.18018 |
| CD | 111 | 0.03240 | 14.00000 | 21.400 | 0.03955 | 0.02574 | 0.03190 |
| CO | 59 | 0.21584 | 416.69000 | 18.800 | 0.25679 | 0.17565 | 0.21509 |
| CU | 63 | 1.99348 | 3527.21700 | 10.400 | 2.23261 | 1.88382 | 1.86402 |
| MO | 98 | 0.18036 | 250.01300 | 25.600 | 0.15614 | 0.23355 | 0.15138 |
| NI | 60 | 0.30773 | 2076.88300 | 100.100 | 0.13956 | 0.66325 | 0.12038 |
| SE | 78 | 0.25364 | 21.77700 | 9.400 | 0.27201 | 0.26209 | 0.22681 |
| SN | 120 | 0.59855 | 1643.48700 | 12.100 | 0.58004 | 0.53707 | 0.67854 |
| SR | 88 | 352.40698 | 320270.48700 | 0.900 | 355.69276 | 349.04709 | 352.48109 |
| ZN | 66 | 5.11293 | 6441.66300 | 15.600 | 4.54737 | 4.76681 | 6.02463 |
| **BI-3** | 209 | 151718.45000 | 0.00000 | 0.000 | 150733.84000 | 153869.28000 | 150552.23000 |
| PB | 208 | 0.02022 | 380.01000 | 39.400 | 0.02681 | 0.02245 | 0.01138 |
| TL | 205 | 0.00631 | 56.66700 | 39.500 | 0.00918 | 0.00476 | 0.00498 |
| U | 238 | 1.91707 | 12633.21700 | 3.100 | 1.96090 | 1.94190 | 1.84841 |
| *SC-2* | 45 | 281662.79000 | 0.00000 | 0.000 | 284174.41000 | 281041.52000 | 279772.44000 |
| *GE-1* | 72 | 776612.69700 | 0.00000 | 0.000 | 781985.93000 | 775486.94000 | 772365.22000 |
| *GE-2* | 72 | 338368.12000 | 0.00000 | 0.000 | 339869.33000 | 339138.86000 | 336096.17000 |
| *TB-3* | 159 | 207783.05000 | 0.00000 | 0.000 | 205248.41000 | 209940.72000 | 208160.02000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:47:38
Tube Number: 22 Batch: 200341511401A
Sample Number: **1250961** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 835871.55000 | 0.00000 | 0.000 | 834462.49000 | 837025.22000 | 836126.94000 |
| **SC-3** | 45 | 45006.63700 | 0.00000 | 0.000 | 45009.69000 | 45321.23000 | 44688.99000 |
| AL | 27 | 7.53929 | 306.68000 | 15.300 | 6.30301 | 8.58685 | 7.72802 |
| B | 11 | 7.88755 | 4966.18000 | 3.700 | 7.90660 | 8.16683 | 7.58922 |
| BE | 9 | 0.03184 | 28.00000 | 28.900 | 0.02266 | 0.03179 | 0.04107 |
| CA | 44 | 88021.23848 | 343763.08000 | 1.800 | 87529.14710 | 86748.77116 | 89785.79718 |
| CR | 52 | 0.35186 | 1180.08700 | 17.400 | 0.32255 | 0.42215 | 0.31087 |
| FE | 57 | 117.78116 | 2717.02300 | 4.100 | 121.65261 | 112.39480 | 119.29606 |
| K | 39 | 2659.38053 | 233660.99300 | 1.400 | 2689.74940 | 2616.37389 | 2672.01829 |
| MG | 24 | 5339.22930 | 398618.53300 | 1.000 | 5346.02389 | 5281.62233 | 5390.04169 |
| MN | 55 | 4368.16521 | 2582745.84700 | 1.600 | 4361.05534 | 4303.81320 | 4439.62708 |
| NA | 23 | 37249.07553 | 5757763.24700 | 1.300 | 36965.99844 | 36984.75210 | 37796.47606 |
| TI | 47 | 0.25767 | 10.00000 | 149.200 | 0.25584 | -0.12598 | 0.64315 |
| V | 51 | -0.01666 | 873.39300 | 0.000 | 0.04978 | -0.07450 | -0.02527 |
| **GE-3** | 72 | 132155.93000 | 0.00000 | 0.000 | 131980.13000 | 132314.89000 | 132172.77000 |
| SB | 121 | 0.43467 | 550.03700 | 9.100 | 0.41696 | 0.47999 | 0.40707 |
| **IN-2** | 115 | 321782.74300 | 0.00000 | 0.000 | 323615.27000 | 322177.28000 | 319555.68000 |
| **IN-3** | 115 | 71489.33300 | 0.00000 | 0.000 | 70990.47000 | 71904.62000 | 71572.91000 |
| AG | 107 | -0.00008 | 70.00000 | 0.000 | -0.02956 | 0.01946 | 0.00985 |
| AS | 75 | 3.69010 | 588.01700 | 11.200 | 3.96516 | 3.21604 | 3.88911 |
| BA | 137 | 708.90260 | 294399.45300 | 1.100 | 716.62252 | 701.31401 | 708.77128 |
| CD | 111 | 0.10367 | 36.00000 | 16.000 | 0.09800 | 0.12237 | 0.09063 |
| CO | 59 | 0.97164 | 1700.16300 | 1.900 | 0.97277 | 0.98931 | 0.95285 |
| CU | 63 | 6.87807 | 8906.42300 | 6.300 | 6.39364 | 7.01046 | 7.23012 |
| MO | 98 | 0.38878 | 480.02300 | 16.000 | 0.45524 | 0.33212 | 0.37898 |
| NI | 60 | 0.47041 | 2140.23700 | 149.700 | 0.87635 | 0.87768 | -0.34281 |
| SE | 78 | 0.18927 | 16.66700 | 8.800 | 0.18814 | 0.17319 | 0.20647 |
| SN | 120 | 0.35260 | 1366.78000 | 32.500 | 0.22042 | 0.42018 | 0.41721 |
| SR | 88 | 231.08990 | 209772.33300 | 1.000 | 233.53979 | 228.92662 | 230.80329 |
| ZN | 66 | 21.63650 | 9406.69700 | 4.600 | 20.47755 | 22.20481 | 22.22716 |
| **BI-3** | 209 | 152647.77300 | 0.00000 | 0.000 | 151926.87000 | 151906.06000 | 154110.39000 |
| PB | 208 | 0.17959 | 1423.41700 | 9.900 | 0.19539 | 0.18312 | 0.16026 |
| TL | 205 | 0.02424 | 143.34000 | 18.700 | 0.02575 | 0.02784 | 0.01913 |
| U | 238 | 0.58713 | 3894.06700 | 5.500 | 0.56960 | 0.62428 | 0.56751 |
| *SC-2* | 45 | 284140.01000 | 0.00000 | 0.000 | 288585.72000 | 278431.93000 | 285402.38000 |
| *GE-1* | 72 | 779151.26700 | 0.00000 | 0.000 | 782640.46000 | 780981.79000 | 773831.55000 |
| *GE-2* | 72 | 343894.81300 | 0.00000 | 0.000 | 349797.34000 | 341245.70000 | 340641.40000 |
| *TB-3* | 159 | 207747.03300 | 0.00000 | 0.000 | 208079.02000 | 205300.15000 | 209861.93000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:49:32
Tube Number: 23
Sample Number: **CCV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 806723.50300 | 0.00000 | 0.000 | 812765.53000 | 807541.71000 | 799863.27000 |
| **SC-3** | 45 | 44919.55300 | 0.00000 | 0.000 | 45280.34000 | 45310.97000 | 44167.35000 |
| AL | 27 | 4976.21526 | 147216.94300 | 1.800 | 4983.44802 | 4882.64415 | 5062.55363 |
| B | 11 | 305.50143 | 111480.71700 | 2.100 | 298.23175 | 307.28695 | 310.98558 |
| BE | 9 | 30.43323 | 19070.07300 | 2.800 | 29.46681 | 30.78477 | 31.04811 |
| CA | 44 | 4957.57714 | 19436.89300 | 2.200 | 4837.71726 | 5043.27590 | 4991.73825 |
| CR | 52 | 303.70823 | 309176.77300 | 2.200 | 304.11964 | 296.69796 | 310.30710 |
| FE | 57 | 5027.36106 | 107498.63300 | 1.800 | 4963.28923 | 4990.83673 | 5127.95722 |
| K | 39 | 4967.75614 | 412141.10000 | 2.100 | 4985.24865 | 4856.39985 | 5061.61993 |
| MG | 24 | 5013.64060 | 373581.25700 | 1.700 | 4983.11464 | 4946.30959 | 5111.49757 |
| MN | 55 | 300.24256 | 177363.11000 | 0.100 | 300.32515 | 299.86320 | 300.53934 |
| NA | 23 | 4697.72986 | 766148.40000 | 2.300 | 4643.31842 | 4630.22407 | 4819.64709 |
| TI | 47 | 289.93628 | 7578.88300 | 3.800 | 287.64842 | 280.24973 | 301.91070 |
| V | 51 | 300.74982 | 256133.22700 | 1.500 | 298.42560 | 297.80257 | 306.02128 |
| **GE-3** | 72 | 127731.58300 | 0.00000 | 0.000 | 127983.56000 | 126652.33000 | 128558.86000 |
| SB | 121 | 30.71689 | 32378.39000 | 1.000 | 30.89314 | 30.88175 | 30.37577 |
| **IN-2** | 115 | 313386.67300 | 0.00000 | 0.000 | 310523.04000 | 311973.49000 | 317663.49000 |
| **IN-3** | 115 | 70367.68000 | 0.00000 | 0.000 | 70478.48000 | 70267.48000 | 70357.08000 |
| AG | 107 | 30.72352 | 61334.25000 | 1.000 | 30.82131 | 30.38408 | 30.96516 |
| AS | 75 | 307.57696 | 44265.63700 | 0.300 | 306.85503 | 308.72735 | 307.14848 |
| BA | 137 | 309.73966 | 126639.51300 | 0.700 | 308.87783 | 308.07022 | 312.27094 |
| CD | 111 | 30.98258 | 9414.53000 | 1.900 | 31.64704 | 30.71277 | 30.58793 |
| CO | 59 | 290.03317 | 484880.65700 | 0.200 | 290.45329 | 290.15150 | 289.49472 |
| CU | 63 | 312.34790 | 339956.31000 | 0.300 | 313.32786 | 312.47281 | 311.24304 |
| MO | 98 | 31.02805 | 33857.73000 | 0.400 | 30.97315 | 30.92791 | 31.18309 |
| NI | 60 | 314.41298 | 128406.95300 | 0.400 | 315.68128 | 313.40259 | 314.15506 |
| SE | 78 | 30.12411 | 2480.88700 | 0.900 | 30.40959 | 29.85335 | 30.10940 |
| SN | 120 | 30.18440 | 34149.24700 | 1.900 | 29.94741 | 29.77522 | 30.83057 |
| SR | 88 | 31.41466 | 28138.37300 | 1.400 | 31.14132 | 31.17851 | 31.92414 |
| ZN | 66 | 308.24395 | 60028.35700 | 0.900 | 310.35297 | 309.27713 | 305.10175 |
| **BI-3** | 209 | 152483.38700 | 0.00000 | 0.000 | 153858.07000 | 152563.89000 | 151028.20000 |
| PB | 208 | 29.99939 | 196122.88700 | 1.400 | 29.63628 | 29.91570 | 30.44620 |
| TL | 205 | 30.07283 | 144718.75700 | 0.800 | 29.91230 | 29.94988 | 30.35631 |
| U | 238 | 50.38921 | 333589.08300 | 1.300 | 49.66294 | 50.65038 | 50.85433 |
| *SC-2* | 45 | 275220.88700 | 0.00000 | 0.000 | 272024.27000 | 275981.13000 | 277657.26000 |
| *GE-1* | 72 | 749509.78000 | 0.00000 | 0.000 | 752418.74000 | 750434.05000 | 745676.55000 |
| *GE-2* | 72 | 324085.77700 | 0.00000 | 0.000 | 318957.67000 | 325219.00000 | 328080.66000 |
| *TB-3* | 159 | 205258.00700 | 0.00000 | 0.000 | 206628.24000 | 204162.81000 | 204982.97000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:51:26
Tube Number: 24
Sample Number: **CCB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 799550.43300 | 0.00000 | 0.000 | 794427.49000 | 798007.49000 | 806216.32000 |
| **SC-3** | 45 | 44384.47300 | 0.00000 | 0.000 | 44448.06000 | 43946.71000 | 44758.65000 |
| AL | 27 | 2.10552 | 143.34000 | 78.600 | 2.65893 | 3.41261 | 0.24502 |
| B | 11 | 9.56381 | 5344.98000 | 5.900 | 9.98098 | 9.78755 | 8.92291 |
| BE | 9 | 0.04135 | 32.66700 | 17.000 | 0.04382 | 0.04680 | 0.03343 |
| CA | 44 | 21.40508 | 200.01000 | 63.600 | 36.91558 | 11.45511 | 15.84454 |
| CR | 52 | 0.58486 | 1396.78300 | 22.300 | 0.68520 | 0.63176 | 0.43762 |
| FE | 57 | -1.21314 | 170.01000 | 0.000 | -1.21934 | -2.08517 | -0.33492 |
| K | 39 | 8.42638 | 27339.36700 | 142.700 | 18.79999 | 11.23566 | -4.75653 |
| MG | 24 | 0.31684 | 646.69700 | 217.100 | -0.46531 | 0.58782 | 0.82800 |
| MN | 55 | 0.20753 | 303.34300 | 35.600 | 0.21777 | 0.27579 | 0.12905 |
| NA | 23 | -10.89293 | 45299.59300 | 0.000 | -8.82251 | -8.39774 | -15.45853 |
| TI | 47 | 0.12999 | 6.66700 | 341.100 | -0.12598 | -0.12598 | 0.64195 |
| V | 51 | -0.02541 | 853.39000 | 0.000 | -0.12691 | 0.14848 | -0.09779 |
| **GE-3** | 72 | 129168.14000 | 0.00000 | 0.000 | 128639.69000 | 130093.28000 | 128771.45000 |
| SB | 121 | 0.33985 | 436.69000 | 24.000 | 0.26911 | 0.32133 | 0.42911 |
| **IN-2** | 115 | 310793.01300 | 0.00000 | 0.000 | 312147.89000 | 307953.26000 | 312277.89000 |
| **IN-3** | 115 | 70279.84000 | 0.00000 | 0.000 | 70839.10000 | 70366.87000 | 69633.55000 |
| AG | 107 | -0.01271 | 43.33300 | 0.000 | -0.02456 | -0.00945 | -0.00412 |
| AS | 75 | 0.13138 | 67.33300 | 30.600 | 0.17385 | 0.09381 | 0.12647 |
| BA | 137 | 0.00168 | 36.66700 | 2244.200 | -0.03966 | 0.03406 | 0.01063 |
| CD | 111 | 0.00463 | 5.33300 | 82.700 | 0.00667 | 0.00022 | 0.00701 |
| CO | 59 | 0.05037 | 133.34000 | 23.800 | 0.05376 | 0.06030 | 0.03706 |
| CU | 63 | 0.07456 | 1386.78000 | 117.700 | -0.00593 | 0.16816 | 0.06146 |
| MO | 98 | 0.05303 | 106.67000 | 95.700 | 0.00046 | 0.10173 | 0.05690 |
| NI | 60 | 0.32005 | 2043.54000 | 54.500 | 0.12284 | 0.45402 | 0.38330 |
| SE | 78 | 0.04104 | 4.00300 | 68.300 | 0.07341 | 0.02508 | 0.02462 |
| SN | 120 | 0.10409 | 1070.07300 | 107.400 | 0.15951 | -0.02457 | 0.17734 |
| SR | 88 | -0.00588 | 73.33700 | 0.000 | 0.01211 | -0.00962 | -0.02011 |
| ZN | 66 | 3.93885 | 6114.84700 | 23.300 | 3.02495 | 3.92846 | 4.86315 |
| **BI-3** | 209 | 151300.21000 | 0.00000 | 0.000 | 152048.85000 | 153009.38000 | 148842.40000 |
| PB | 208 | -0.00331 | 226.67300 | 0.000 | -0.00600 | 0.00295 | -0.00688 |
| TL | 205 | 0.01898 | 116.67000 | 44.000 | 0.01530 | 0.01310 | 0.02853 |
| U | 238 | 0.00758 | 53.33300 | 49.100 | 0.00707 | 0.01154 | 0.00414 |
| *SC-2* | 45 | 272452.58300 | 0.00000 | 0.000 | 272558.08000 | 272160.87000 | 272638.80000 |
| *GE-1* | 72 | 745573.32000 | 0.00000 | 0.000 | 741337.33000 | 744306.00000 | 751076.63000 |
| *GE-2* | 72 | 328692.67700 | 0.00000 | 0.000 | 329670.89000 | 326236.56000 | 330170.58000 |
| *TB-3* | 159 | 202160.44000 | 0.00000 | 0.000 | 201615.02000 | 203907.73000 | 200958.57000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:53:19
Tube Number: 25 Batch: 200341511401A
Sample Number: **1250738** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 802384.67700 | 0.00000 | 0.000 | 805257.57000 | 807905.61000 | 793990.85000 |
| **SC-3** | 45 | 43969.86300 | 0.00000 | 0.000 | 43615.78000 | 44167.02000 | 44126.79000 |
| AL | 27 | 2.59939 | 156.67700 | 49.300 | 1.71847 | 4.06941 | 2.01027 |
| B | 11 | 121.05883 | 45119.93300 | 2.300 | 117.84524 | 122.27407 | 123.05717 |
| BE | 9 | 0.07965 | 56.66700 | 16.200 | 0.06547 | 0.09072 | 0.08278 |
| CA | 44 | 79349.96433 | 302792.96000 | 0.900 | 79429.13705 | 78631.11472 | 79989.64122 |
| CR | 52 | 0.87508 | 1673.49700 | 20.000 | 0.68328 | 0.91506 | 1.02692 |
| FE | 57 | 5.40685 | 306.68000 | 49.800 | 4.72370 | 3.11977 | 8.37708 |
| K | 39 | 5069.68931 | 411219.47300 | 0.600 | 5085.16209 | 5034.03565 | 5089.87019 |
| MG | 24 | 20553.49523 | 1497405.55000 | 0.900 | 20728.01431 | 20559.60538 | 20372.86598 |
| MN | 55 | 6193.13421 | 3577426.09000 | 1.200 | 6273.73071 | 6120.02739 | 6185.64453 |
| NA | 23 | 660679.58403 | 98995095.19000 | 0.700 | 666097.90643 | 656794.44753 | 659146.39812 |
| TI | 47 | -0.12598 | 0.00000 | 0.000 | -0.12598 | -0.12598 | -0.12598 |
| V | 51 | -0.01618 | 853.38700 | 0.000 | 0.09686 | -0.08513 | -0.06027 |
| **GE-3** | 72 | 127278.99300 | 0.00000 | 0.000 | 128056.11000 | 125836.65000 | 127944.22000 |
| SB | 121 | 0.12614 | 206.67700 | 49.300 | 0.10942 | 0.07399 | 0.19501 |
| **IN-2** | 115 | 302472.69300 | 0.00000 | 0.000 | 298570.82000 | 304772.26000 | 304075.00000 |
| **IN-3** | 115 | 68494.73000 | 0.00000 | 0.000 | 68367.06000 | 67694.33000 | 69422.80000 |
| AG | 107 | -0.01208 | 43.33300 | 0.000 | -0.01904 | 0.00718 | -0.02436 |
| AS | 75 | 0.19105 | 74.00000 | 18.900 | 0.19234 | 0.15422 | 0.22659 |
| BA | 137 | 54.04151 | 21530.88300 | 3.500 | 55.53302 | 54.71049 | 51.88101 |
| CD | 111 | 0.56469 | 170.66700 | 8.100 | 0.57668 | 0.60307 | 0.51432 |
| CO | 59 | 81.46749 | 132594.66300 | 1.400 | 80.91355 | 82.74100 | 80.74792 |
| CU | 63 | 0.48819 | 1790.18300 | 46.500 | 0.38877 | 0.32791 | 0.74790 |
| MO | 98 | 0.02713 | 76.66700 | 17.600 | 0.03045 | 0.02166 | 0.02930 |
| NI | 60 | 52.18339 | 22300.89700 | 2.500 | 53.68942 | 51.37226 | 51.48849 |
| SE | 78 | 0.12912 | 10.88700 | 8.200 | 0.13651 | 0.11696 | 0.13390 |
| SN | 120 | 0.11463 | 1053.41700 | 89.700 | 0.09379 | 0.22627 | 0.02382 |
| SR | 88 | 585.35230 | 508980.99700 | 0.500 | 584.17963 | 588.89567 | 582.98158 |
| ZN | 66 | 42.06232 | 12532.49300 | 5.400 | 44.53575 | 41.52358 | 40.12762 |
| **BI-3** | 209 | 145310.04000 | 0.00000 | 0.000 | 147577.95000 | 144242.24000 | 144109.93000 |
| PB | 208 | 0.03982 | 486.68700 | 40.100 | 0.05669 | 0.03784 | 0.02494 |
| TL | 205 | 0.00683 | 56.66700 | 67.700 | 0.00520 | 0.00325 | 0.01205 |
| U | 238 | 0.01008 | 66.66700 | 33.700 | 0.00730 | 0.01387 | 0.00909 |
| *SC-2* | 45 | 273280.82700 | 0.00000 | 0.000 | 271646.77000 | 272751.85000 | 275443.86000 |
| *GE-1* | 72 | 746448.16700 | 0.00000 | 0.000 | 750107.33000 | 748251.32000 | 740985.85000 |
| *GE-2* | 72 | 326466.88700 | 0.00000 | 0.000 | 326834.70000 | 323801.67000 | 328764.29000 |
| *TB-3* | 159 | 200647.58000 | 0.00000 | 0.000 | 200328.86000 | 201005.50000 | 200608.38000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:55:11
Tube Number: 26 Batch: 200341511401A
Sample Number: **1250740** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 777344.52300 | 0.00000 | 0.000 | 775326.79000 | 779818.82000 | 776887.96000 |
| **SC-3** | 45 | 42913.46300 | 0.00000 | 0.000 | 42271.71000 | 42101.23000 | 44367.45000 |
| AL | 27 | 2.82411 | 160.00700 | 77.600 | 0.42471 | 3.32455 | 4.72308 |
| B | 11 | 149.08402 | 53398.06000 | 2.400 | 145.01837 | 151.11799 | 151.11571 |
| BE | 9 | 0.03068 | 25.33300 | 45.000 | 0.04186 | 0.03495 | 0.01523 |
| CA | 44 | 408280.54360 | 1519095.18300 | 3.400 | 411967.92273 | 419795.83952 | 393077.86854 |
| CR | 52 | 0.18980 | 966.73700 | 27.500 | 0.21785 | 0.22201 | 0.12953 |
| FE | 57 | 37.71067 | 960.06700 | 13.700 | 36.53213 | 33.21841 | 43.38148 |
| K | 39 | 12591.10667 | 958051.96300 | 2.400 | 12684.70318 | 12838.44654 | 12250.17029 |
| MG | 24 | 95440.26898 | 6781578.23300 | 2.200 | 95468.62017 | 97495.71614 | 93356.47063 |
| MN | 55 | 19532.53656 | 11007867.75300 | 2.000 | 19585.72314 | 19898.54726 | 19113.33927 |
| NA | 23 | 1526881 | 223142823 | 2.200 | 1535967 | 1554899 | 1489777 |
| TI | 47 | -0.12598 | 0.00000 | 0.000 | -0.12598 | -0.12598 | -0.12598 |
| V | 51 | -0.08584 | 776.71300 | 0.000 | -0.09223 | -0.07582 | -0.08946 |
| **GE-3** | 72 | 122514.49000 | 0.00000 | 0.000 | 122276.09000 | 122254.64000 | 123012.74000 |
| SB | 121 | 0.06479 | 136.67300 | 64.300 | 0.09807 | 0.07824 | 0.01807 |
| **IN-2** | 115 | 284844.21700 | 0.00000 | 0.000 | 283645.76000 | 286805.62000 | 284081.27000 |
| **IN-3** | 115 | 65533.97300 | 0.00000 | 0.000 | 66237.30000 | 64930.89000 | 65433.73000 |
| AG | 107 | -0.00389 | 56.66700 | 0.000 | -0.01854 | 0.01982 | -0.01296 |
| AS | 75 | 0.23079 | 76.00000 | 42.800 | 0.15026 | 0.34100 | 0.20113 |
| BA | 137 | 110.36923 | 42044.77700 | 0.900 | 109.45046 | 111.36283 | 110.29438 |
| CD | 111 | 4.24890 | 1205.39300 | 3.300 | 4.21243 | 4.40449 | 4.12978 |
| CO | 59 | 24.95885 | 38892.80000 | 3.900 | 23.83366 | 25.48389 | 25.55898 |
| CU | 63 | 0.65578 | 1880.18300 | 5.900 | 0.64587 | 0.62313 | 0.69835 |
| MO | 98 | -0.00575 | 40.00000 | 0.000 | -0.00612 | -0.02523 | 0.01410 |
| NI | 60 | 29.29473 | 12759.38700 | 4.800 | 27.86099 | 29.35341 | 30.66979 |
| SE | 78 | 0.07227 | 6.00300 | 21.100 | 0.08158 | 0.08059 | 0.05465 |
| SN | 120 | 0.10987 | 1003.41000 | 231.500 | -0.06845 | -0.00304 | 0.40109 |
| SR | 88 | 2078.80337 | 1729249.81700 | 0.800 | 2059.05606 | 2084.67880 | 2092.67526 |
| ZN | 66 | 8.03739 | 6378.27000 | 16.800 | 6.86285 | 7.73967 | 9.50965 |
| **BI-3** | 209 | 137248.04700 | 0.00000 | 0.000 | 136561.61000 | 138378.80000 | 136803.73000 |
| PB | 208 | 0.01901 | 336.67700 | 20.700 | 0.01476 | 0.02250 | 0.01978 |
| TL | 205 | -0.00017 | 23.33300 | 0.000 | -0.00322 | 0.00362 | -0.00091 |
| U | 238 | 0.37163 | 2216.93700 | 6.400 | 0.38576 | 0.34406 | 0.38508 |
| *SC-2* | 45 | 269948.46000 | 0.00000 | 0.000 | 265016.99000 | 273487.50000 | 271340.89000 |
| *GE-1* | 72 | 703716.36700 | 0.00000 | 0.000 | 701249.05000 | 705978.11000 | 703921.94000 |
| *GE-2* | 72 | 313191.27000 | 0.00000 | 0.000 | 310759.84000 | 316209.25000 | 312604.72000 |
| *TB-3* | 159 | 194334.19300 | 0.00000 | 0.000 | 194431.70000 | 192970.92000 | 195599.96000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:57:12
Tube Number: 27 Batch: 200341511401A
Sample Number: **1250742** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 787330.45700 | 0.00000 | 0.000 | 793480.38000 | 782074.99000 | 786436.00000 |
| **SC-3** | 45 | 44598.61300 | 0.00000 | 0.000 | 44688.41000 | 43635.94000 | 45471.49000 |
| AL | 27 | 1.40377 | 123.34000 | 74.600 | 1.94970 | 2.06449 | 0.19713 |
| B | 11 | 134.75666 | 49065.45000 | 1.900 | 131.91846 | 135.75226 | 136.59926 |
| BE | 9 | 0.03016 | 25.33300 | 17.300 | 0.02441 | 0.03152 | 0.03456 |
| CA | 44 | 621589.83967 | 2404553.66300 | 1.700 | 625306.84820 | 629593.95811 | 609868.71271 |
| CR | 52 | 0.19964 | 1016.73700 | 39.400 | 0.19209 | 0.12496 | 0.28188 |
| FE | 57 | 62.96740 | 1530.13700 | 9.200 | 68.43339 | 63.55577 | 56.91304 |
| K | 39 | 10859.65292 | 862704.78000 | 1.400 | 10944.70774 | 10945.16550 | 10689.08551 |
| MG | 24 | 137956.39234 | 10188361.51300 | 2.000 | 138032.49219 | 140685.20403 | 135151.48080 |
| MN | 55 | 4568.75675 | 2676406.21000 | 1.900 | 4597.17025 | 4636.14185 | 4472.95815 |
| NA | 23 | 1038588 | 157812818 | 0.600 | 1042824 | 1042089 | 1030851 |
| TI | 47 | -0.12598 | 0.00000 | 0.000 | -0.12598 | -0.12598 | -0.12598 |
| V | 51 | 0.14402 | 1000.06300 | 77.800 | 0.04580 | 0.26613 | 0.12014 |
| **GE-3** | 72 | 125237.76000 | 0.00000 | 0.000 | 123324.65000 | 125310.59000 | 127078.04000 |
| SB | 121 | 0.14261 | 220.01000 | 12.100 | 0.15573 | 0.12306 | 0.14904 |
| **IN-2** | 115 | 289643.22000 | 0.00000 | 0.000 | 288426.64000 | 290318.34000 | 290184.68000 |
| **IN-3** | 115 | 67593.89700 | 0.00000 | 0.000 | 66649.78000 | 68558.06000 | 67573.85000 |
| AG | 107 | -0.01178 | 43.33300 | 0.000 | 0.00253 | -0.02423 | -0.01364 |
| AS | 75 | 0.25655 | 82.00000 | 13.200 | 0.26475 | 0.21942 | 0.28548 |
| BA | 137 | 390.71281 | 153412.77300 | 2.500 | 401.64870 | 386.73229 | 383.75745 |
| CD | 111 | 3.46210 | 1013.37700 | 7.300 | 3.74827 | 3.37320 | 3.26481 |
| CO | 59 | 2.15336 | 3503.87000 | 8.000 | 2.32043 | 2.16291 | 1.97674 |
| CU | 63 | 1.05768 | 2356.93700 | 12.000 | 1.19928 | 1.01872 | 0.95505 |
| MO | 98 | 0.06950 | 120.00300 | 12.800 | 0.06147 | 0.06792 | 0.07912 |
| NI | 60 | 13.80222 | 7175.34300 | 3.000 | 13.68773 | 13.45474 | 14.26420 |
| SE | 78 | 1.45215 | 111.11300 | 7.700 | 1.42614 | 1.57412 | 1.35620 |
| SN | 120 | -0.03786 | 880.06300 | 0.000 | -0.07340 | 0.06309 | -0.10326 |
| SR | 88 | 4869.08812 | 4176849.00000 | 2.300 | 4971.48265 | 4748.95309 | 4886.82862 |
| ZN | 66 | 6.40146 | 6298.24300 | 33.900 | 7.40594 | 3.91268 | 7.88576 |
| **BI-3** | 209 | 138511.48000 | 0.00000 | 0.000 | 139480.91000 | 137208.04000 | 138845.49000 |
| PB | 208 | 0.01506 | 316.67700 | 87.700 | 0.02704 | 0.00089 | 0.01725 |
| TL | 205 | 0.02655 | 140.00300 | 38.700 | 0.01945 | 0.03834 | 0.02185 |
| U | 238 | 5.92925 | 35666.67700 | 2.500 | 6.05170 | 5.76317 | 5.97289 |
| *SC-2* | 45 | 272313.81700 | 0.00000 | 0.000 | 271287.18000 | 276963.53000 | 268690.74000 |
| *GE-1* | 72 | 711732.07300 | 0.00000 | 0.000 | 718812.96000 | 708528.19000 | 707855.07000 |
| *GE-2* | 72 | 319599.82300 | 0.00000 | 0.000 | 319781.34000 | 317866.69000 | 321151.44000 |
| *TB-3* | 159 | 196875.01700 | 0.00000 | 0.000 | 197446.93000 | 194891.83000 | 198286.29000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 16:59:12
Tube Number: 28 Batch: 200341511401A
Sample Number: **1250744** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 790728.40000 | 0.00000 | 0.000 | 792126.47000 | 791314.21000 | 788744.52000 |
| **SC-3** | 45 | 44187.29000 | 0.00000 | 0.000 | 43726.06000 | 44337.56000 | 44498.25000 |
| AL | 27 | 2.69537 | 160.00700 | 56.400 | 3.79139 | 0.95922 | 3.33549 |
| B | 11 | 140.37560 | 51253.39700 | 2.800 | 136.43402 | 140.38518 | 144.30759 |
| BE | 9 | 0.03648 | 29.33300 | 10.100 | 0.04073 | 0.03427 | 0.03442 |
| CA | 44 | 297532.74636 | 1140606.67300 | 0.800 | 300309.94852 | 295823.05422 | 296465.23633 |
| CR | 52 | 0.12024 | 926.72700 | 43.000 | 0.17363 | 0.07028 | 0.11682 |
| FE | 57 | 794.43546 | 16877.01300 | 0.900 | 792.00165 | 802.32756 | 788.97718 |
| K | 39 | 11046.55498 | 869107.51300 | 0.500 | 11099.37969 | 11049.48141 | 10990.80383 |
| MG | 24 | 86623.54289 | 6340094.49000 | 0.700 | 87025.86465 | 86964.96482 | 85879.79921 |
| MN | 55 | 16088.46429 | 9338987.77700 | 1.000 | 16280.88330 | 15993.99923 | 15990.51035 |
| NA | 23 | 1468789 | 221114490 | 0.500 | 1476049 | 1460602 | 1469716 |
| TI | 47 | 0.13604 | 6.66700 | 333.600 | 0.66008 | -0.12598 | -0.12598 |
| V | 51 | -0.01832 | 856.71700 | 0.000 | -0.14809 | 0.10216 | -0.00902 |
| **GE-3** | 72 | 124999.00000 | 0.00000 | 0.000 | 125250.84000 | 123688.52000 | 126057.64000 |
| SB | 121 | 0.01333 | 86.66700 | 105.600 | 0.01648 | -0.00206 | 0.02556 |
| **IN-2** | 115 | 287534.85300 | 0.00000 | 0.000 | 287274.35000 | 288990.68000 | 286339.53000 |
| **IN-3** | 115 | 66297.32000 | 0.00000 | 0.000 | 66729.38000 | 65513.34000 | 66649.24000 |
| AG | 107 | -0.02388 | 20.00000 | 0.000 | -0.02395 | -0.02375 | -0.02394 |
| AS | 75 | 0.20019 | 72.66700 | 84.500 | 0.08798 | 0.39474 | 0.11787 |
| BA | 137 | 552.29324 | 212706.51300 | 1.000 | 548.63190 | 558.59480 | 549.65303 |
| CD | 111 | 0.12236 | 38.66700 | 33.300 | 0.13286 | 0.15679 | 0.07742 |
| CO | 59 | 3.11401 | 4951.01000 | 3.300 | 3.03069 | 3.08106 | 3.23029 |
| CU | 63 | 0.08902 | 1323.44700 | 164.100 | 0.25283 | 0.04209 | -0.02786 |
| MO | 98 | -0.02241 | 23.33300 | 0.000 | -0.02577 | -0.02541 | -0.01605 |
| NI | 60 | 1.90210 | 2526.98700 | 16.800 | 1.55139 | 2.17596 | 1.97894 |
| SE | 78 | 0.04503 | 4.00300 | 33.600 | 0.05395 | 0.05358 | 0.02757 |
| SN | 120 | -0.13672 | 760.05000 | 0.000 | -0.21823 | -0.13774 | -0.05420 |
| SR | 88 | 1434.66853 | 1207310.06000 | 1.200 | 1418.73118 | 1453.67682 | 1431.59759 |
| ZN | 66 | 2.08198 | 5461.20300 | 119.300 | 4.91887 | 0.30113 | 1.02593 |
| **BI-3** | 209 | 136420.45000 | 0.00000 | 0.000 | 134228.33000 | 137088.30000 | 137944.72000 |
| PB | 208 | 0.32972 | 2150.15000 | 2.500 | 0.32015 | 0.33482 | 0.33420 |
| TL | 205 | 0.00224 | 33.33300 | 164.400 | 0.00626 | 0.00139 | -0.00095 |
| U | 238 | 0.05411 | 323.34700 | 28.300 | 0.05269 | 0.07006 | 0.03957 |
| *SC-2* | 45 | 274669.76700 | 0.00000 | 0.000 | 272564.37000 | 275962.38000 | 275482.55000 |
| *GE-1* | 72 | 712777.17700 | 0.00000 | 0.000 | 712229.99000 | 715626.08000 | 710475.46000 |
| *GE-2* | 72 | 324381.35700 | 0.00000 | 0.000 | 320693.00000 | 329496.09000 | 322954.98000 |
| *TB-3* | 159 | 197400.38700 | 0.00000 | 0.000 | 196401.54000 | 197069.74000 | 198729.88000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 17:01:12
Tube Number: 29 Batch: 200341511401A
Sample Number: **1250746** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 782556.10700 | 0.00000 | 0.000 | 779970.77000 | 781611.55000 | 786086.00000 |
| **SC-3** | 45 | 44508.37700 | 0.00000 | 0.000 | 44177.41000 | 44407.96000 | 44939.76000 |
| AL | 27 | 1.74882 | 133.34000 | 83.400 | 3.38011 | 1.29565 | 0.57071 |
| B | 11 | 92.30144 | 34007.58000 | 1.200 | 91.10959 | 92.40142 | 93.39331 |
| BE | 9 | 0.01613 | 16.66700 | 23.100 | 0.01182 | 0.01836 | 0.01820 |
| CA | 44 | 208189.76461 | 803955.61300 | 0.600 | 208471.91535 | 209293.16972 | 206804.20876 |
| CR | 52 | 0.04034 | 853.39000 | 109.900 | 0.06345 | -0.01079 | 0.06837 |
| FE | 57 | 57.70283 | 1416.78700 | 15.200 | 62.66271 | 47.59808 | 62.84768 |
| K | 39 | 4213.90837 | 350515.50000 | 0.600 | 4232.43214 | 4182.60125 | 4226.69173 |
| MG | 24 | 54423.69586 | 4012461.50300 | 0.800 | 54819.97340 | 54494.51109 | 53956.60309 |
| MN | 55 | 11478.73920 | 6712009.89700 | 0.900 | 11565.49929 | 11366.07825 | 11504.64007 |
| NA | 23 | 1446714 | 219377943 | 0.400 | 1452030 | 1441360 | 1446751 |
| TI | 47 | 0.00149 | 3.33300 | 14820.100 | -0.12598 | -0.12598 | 0.25644 |
| V | 51 | -0.07676 | 813.38300 | 0.000 | -0.04942 | -0.14993 | -0.03095 |
| **GE-3** | 72 | 124542.04300 | 0.00000 | 0.000 | 124838.66000 | 123819.23000 | 124968.24000 |
| SB | 121 | 0.03332 | 106.67000 | 145.100 | -0.02215 | 0.06653 | 0.05556 |
| **IN-2** | 115 | 286547.28700 | 0.00000 | 0.000 | 284604.08000 | 289742.57000 | 285295.21000 |
| **IN-3** | 115 | 67037.78700 | 0.00000 | 0.000 | 67041.11000 | 66528.58000 | 67543.67000 |
| AG | 107 | -0.01876 | 30.00000 | 0.000 | -0.01874 | -0.02392 | -0.01363 |
| AS | 75 | 0.22725 | 77.33300 | 21.100 | 0.17362 | 0.26584 | 0.24228 |
| BA | 137 | 404.81237 | 157659.38000 | 1.600 | 399.09325 | 411.97572 | 403.36814 |
| CD | 111 | 0.00543 | 5.33300 | 262.200 | -0.00604 | 0.00098 | 0.02135 |
| CO | 59 | 3.65959 | 5874.71300 | 1.700 | 3.59436 | 3.71725 | 3.66717 |
| CU | 63 | -0.06048 | 1183.42300 | 0.000 | -0.01538 | -0.07452 | -0.09153 |
| MO | 98 | 0.03204 | 80.00000 | 80.600 | 0.05121 | 0.04224 | 0.00268 |
| NI | 60 | 1.19949 | 2286.92300 | 21.600 | 1.41760 | 0.91296 | 1.26790 |
| SE | 78 | 0.07758 | 6.44300 | 47.400 | 0.03661 | 0.08837 | 0.10775 |
| SN | 120 | 0.01463 | 926.73300 | 569.700 | -0.03033 | 0.11080 | -0.03659 |
| SR | 88 | 1153.53985 | 981645.19300 | 0.800 | 1144.50338 | 1163.43111 | 1152.68505 |
| ZN | 66 | 1.63165 | 5444.54300 | 32.600 | 2.14536 | 1.08375 | 1.66584 |
| **BI-3** | 209 | 138783.18000 | 0.00000 | 0.000 | 137631.38000 | 140501.09000 | 138217.07000 |
| PB | 208 | 0.03694 | 446.68700 | 37.400 | 0.05167 | 0.03488 | 0.02426 |
| TL | 205 | -0.00172 | 16.66700 | 0.000 | 0.00137 | -0.00329 | -0.00325 |
| U | 238 | 0.11287 | 683.37300 | 13.900 | 0.09656 | 0.11425 | 0.12781 |
| *SC-2* | 45 | 272079.69700 | 0.00000 | 0.000 | 273937.05000 | 273073.18000 | 269228.86000 |
| *GE-1* | 72 | 713890.43300 | 0.00000 | 0.000 | 711626.63000 | 716014.13000 | 714030.54000 |
| *GE-2* | 72 | 320971.95000 | 0.00000 | 0.000 | 320434.96000 | 322389.41000 | 320091.48000 |
| *TB-3* | 159 | 194913.52000 | 0.00000 | 0.000 | 194831.21000 | 192382.26000 | 197527.09000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 17:03:13
Tube Number: 30 Batch: 200341511401A
Sample Number: **1250748** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 794580.09000 | 0.00000 | 0.000 | 795274.05000 | 792260.14000 | 796206.08000 |
| **SC-3** | 45 | 45260.63300 | 0.00000 | 0.000 | 46053.15000 | 44749.06000 | 44979.69000 |
| AL | 27 | 9.46323 | 366.68300 | 35.700 | 13.35360 | 7.71388 | 7.32221 |
| B | 11 | 19.72558 | 8900.66700 | 3.700 | 19.81002 | 20.40068 | 18.96604 |
| BE | 9 | 0.02329 | 21.33300 | 16.500 | 0.02109 | 0.02772 | 0.02106 |
| CA | 44 | 27066.93235 | 106376.81000 | 1.800 | 26493.94311 | 27406.90326 | 27299.95067 |
| CR | 52 | 0.12761 | 956.72700 | 22.700 | 0.09521 | 0.15118 | 0.13643 |
| FE | 57 | 23.90280 | 713.37300 | 5.300 | 23.17522 | 23.18022 | 25.35297 |
| K | 39 | 1004.32263 | 105673.77300 | 1.800 | 986.09182 | 1021.48757 | 1005.38849 |
| MG | 24 | 3573.98080 | 268511.75000 | 1.700 | 3511.51328 | 3635.35169 | 3575.07743 |
| MN | 55 | 404.79103 | 240820.67300 | 2.400 | 395.02196 | 414.30536 | 405.04577 |
| NA | 23 | 709511.21156 | 109420078.37000 | 1.200 | 700116.97412 | 714925.63341 | 713491.02714 |
| TI | 47 | 0.00138 | 3.33300 | 16024.100 | -0.12598 | -0.12598 | 0.25610 |
| V | 51 | 0.02386 | 913.39700 | 415.700 | 0.08247 | 0.07981 | -0.09069 |
| **GE-3** | 72 | 128745.04300 | 0.00000 | 0.000 | 128682.42000 | 128347.34000 | 129205.37000 |
| SB | 121 | 0.29722 | 390.02000 | 14.200 | 0.32563 | 0.31720 | 0.24883 |
| **IN-2** | 115 | 296973.35300 | 0.00000 | 0.000 | 300179.31000 | 297745.50000 | 292995.25000 |
| **IN-3** | 115 | 68722.15300 | 0.00000 | 0.000 | 68467.59000 | 68477.71000 | 69221.16000 |
| AG | 107 | -0.02250 | 23.33300 | 0.000 | -0.02422 | -0.00876 | -0.03453 |
| AS | 75 | 0.37941 | 100.66700 | 34.700 | 0.23446 | 0.49170 | 0.41208 |
| BA | 137 | 38.94183 | 15579.25700 | 1.800 | 39.71398 | 38.77676 | 38.33475 |
| CD | 111 | 0.16684 | 53.33300 | 10.100 | 0.14946 | 0.18327 | 0.16778 |
| CO | 59 | 7.10413 | 11645.00000 | 3.300 | 7.37015 | 6.98751 | 6.95474 |
| CU | 63 | 0.63595 | 1950.20700 | 33.200 | 0.50019 | 0.87915 | 0.52850 |
| MO | 98 | 0.61569 | 703.37700 | 7.800 | 0.61517 | 0.56792 | 0.66397 |
| NI | 60 | 5.52645 | 4044.06300 | 2.800 | 5.37729 | 5.68243 | 5.51965 |
| SE | 78 | 0.06629 | 5.77700 | 33.700 | 0.04280 | 0.06878 | 0.08730 |
| SN | 120 | -0.06641 | 863.39300 | 0.000 | -0.13195 | -0.00123 | -0.06605 |
| SR | 88 | 184.42262 | 160950.47000 | 0.600 | 185.74706 | 183.70488 | 183.81591 |
| ZN | 66 | 16.22195 | 8105.87000 | 8.900 | 14.58096 | 16.78041 | 17.30448 |
| **BI-3** | 209 | 144309.44700 | 0.00000 | 0.000 | 143383.27000 | 143727.22000 | 145817.85000 |
| PB | 208 | 105.02623 | 649232.12000 | 1.000 | 105.82899 | 105.44667 | 103.80303 |
| TL | 205 | 0.00545 | 50.00000 | 41.600 | 0.00551 | 0.00769 | 0.00315 |
| U | 238 | 0.04846 | 306.68300 | 20.200 | 0.05893 | 0.03956 | 0.04688 |
| *SC-2* | 45 | 273815.31300 | 0.00000 | 0.000 | 274373.26000 | 275112.59000 | 271960.09000 |
| *GE-1* | 72 | 729951.21300 | 0.00000 | 0.000 | 729585.46000 | 727121.47000 | 733146.71000 |
| *GE-2* | 72 | 327810.18300 | 0.00000 | 0.000 | 327606.11000 | 328245.27000 | 327579.17000 |
| *TB-3* | 159 | 201506.46000 | 0.00000 | 0.000 | 201524.88000 | 202963.16000 | 200031.34000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 17:05:06
Tube Number: 31 Batch: 200341511401A
Sample Number: **1250750** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 781433.26700 | 0.00000 | 0.000 | 778539.91000 | 779733.50000 | 786026.39000 |
| **SC-3** | 45 | 45046.44700 | 0.00000 | 0.000 | 45160.32000 | 44307.32000 | 45671.70000 |
| AL | 27 | 1.57136 | 130.00300 | 62.500 | 0.55421 | 1.64746 | 2.51242 |
| B | 11 | 94.46264 | 34709.83700 | 2.000 | 92.30673 | 95.39063 | 95.69058 |
| BE | 9 | 0.02056 | 19.33300 | 72.300 | 0.00525 | 0.03495 | 0.02147 |
| CA | 44 | 223606.79075 | 873880.95000 | 1.300 | 220581.90349 | 226389.76105 | 223848.70771 |
| CR | 52 | 0.21060 | 1036.74000 | 12.600 | 0.20123 | 0.24063 | 0.18993 |
| FE | 57 | 22.53299 | 680.04000 | 16.600 | 20.08853 | 26.82867 | 20.68177 |
| K | 39 | 10601.33304 | 851345.11700 | 0.900 | 10532.75682 | 10711.70610 | 10559.53620 |
| MG | 24 | 66640.39043 | 4972134.51000 | 1.100 | 66172.60596 | 67487.46131 | 66261.10403 |
| MN | 55 | 17901.04918 | 10592881.09000 | 1.300 | 17687.68445 | 18140.59145 | 17874.87165 |
| NA | 23 | 1375820 | 211122944 | 1.400 | 1370420 | 1397585 | 1359455 |
| TI | 47 | 0.00331 | 3.33300 | 6766.900 | -0.12598 | 0.26189 | -0.12598 |
| V | 51 | -0.14766 | 763.37700 | 0.000 | 0.01097 | -0.27929 | -0.17465 |
| **GE-3** | 72 | 125714.91300 | 0.00000 | 0.000 | 124494.95000 | 124796.04000 | 127853.75000 |
| SB | 121 | 0.00974 | 83.33300 | 252.400 | -0.01226 | 0.03626 | 0.00520 |
| **IN-2** | 115 | 287368.02000 | 0.00000 | 0.000 | 287274.72000 | 285868.39000 | 288960.95000 |
| **IN-3** | 115 | 66367.71300 | 0.00000 | 0.000 | 65212.20000 | 66357.91000 | 67533.03000 |
| AG | 107 | -0.02227 | 23.33300 | 0.000 | -0.03453 | -0.02389 | -0.00840 |
| AS | 75 | 0.48304 | 111.33300 | 14.300 | 0.45816 | 0.42967 | 0.56129 |
| BA | 137 | 3725.50508 | 1435980.65700 | 1.600 | 3774.33003 | 3743.68294 | 3658.50226 |
| CD | 111 | 0.02180 | 10.00000 | 61.300 | 0.00836 | 0.02196 | 0.03507 |
| CO | 59 | 4.91159 | 7788.99700 | 1.600 | 5.00057 | 4.85659 | 4.87763 |
| CU | 63 | -0.02762 | 1203.41700 | 0.000 | 0.16730 | -0.11073 | -0.13942 |
| MO | 98 | 0.03934 | 86.66700 | 104.500 | 0.07372 | -0.00619 | 0.05051 |
| NI | 60 | 4.00209 | 3327.20000 | 5.500 | 4.11304 | 3.74869 | 4.14453 |
| SE | 78 | 0.09801 | 8.00000 | 17.800 | 0.11569 | 0.08088 | 0.09745 |
| SN | 120 | -0.14680 | 750.04700 | 0.000 | -0.08529 | -0.20493 | -0.15017 |
| SR | 88 | 1054.79461 | 888560.76300 | 1.100 | 1065.08455 | 1056.40508 | 1042.89421 |
| ZN | 66 | 3.59322 | 5718.00000 | 37.300 | 4.16120 | 2.06351 | 4.55496 |
| **BI-3** | 209 | 138938.38300 | 0.00000 | 0.000 | 138035.03000 | 139784.50000 | 138995.62000 |
| PB | 208 | 1.11614 | 6867.62300 | 5.000 | 1.17150 | 1.11796 | 1.05896 |
| TL | 205 | -0.00249 | 13.33300 | 0.000 | -0.00095 | -0.00554 | -0.00098 |
| U | 238 | 0.07137 | 433.35700 | 22.600 | 0.07458 | 0.05387 | 0.08567 |
| *SC-2* | 45 | 273573.33000 | 0.00000 | 0.000 | 270200.62000 | 273404.84000 | 277114.53000 |
| *GE-1* | 72 | 703958.50700 | 0.00000 | 0.000 | 703241.71000 | 705429.76000 | 703204.05000 |
| *GE-2* | 72 | 323061.59000 | 0.00000 | 0.000 | 321459.39000 | 323137.24000 | 324588.14000 |
| *TB-3* | 159 | 194955.43000 | 0.00000 | 0.000 | 195669.10000 | 193255.86000 | 195941.33000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 17:07:07
Tube Number: 32 Batch: 200341511401A
Sample Number: **1250752** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 796258.19000 | 0.00000 | 0.000 | 786558.97000 | 806543.27000 | 795672.33000 |
| **SC-3** | 45 | 44832.54700 | 0.00000 | 0.000 | 44437.96000 | 44919.72000 | 45139.96000 |
| AL | 27 | 1.36180 | 123.33700 | 109.900 | -0.07477 | 1.24854 | 2.91162 |
| B | 11 | 184.15411 | 67107.79700 | 1.700 | 181.47807 | 183.31303 | 187.67124 |
| BE | 9 | 0.01562 | 16.66700 | 29.400 | 0.01163 | 0.02064 | 0.01460 |
| CA | 44 | 176244.11070 | 685555.17000 | 0.900 | 177788.58933 | 176431.65612 | 174512.08664 |
| CR | 52 | 0.27745 | 1100.08300 | 41.700 | 0.26740 | 0.16724 | 0.39771 |
| FE | 57 | 1700.25427 | 36422.80300 | 0.900 | 1701.36973 | 1683.97424 | 1715.41883 |
| K | 39 | 15583.09414 | 1233030.97000 | 3.500 | 15363.00916 | 15178.44110 | 16207.83217 |
| MG | 24 | 57368.89613 | 4260451.18700 | 0.600 | 57771.57472 | 57072.17561 | 57262.93805 |
| MN | 55 | 8145.83569 | 4797830.44700 | 0.300 | 8175.11822 | 8137.44332 | 8124.94553 |
| NA | 23 | 1132363 | 172965457 | 0.800 | 1140631 | 1133072 | 1123386 |
| TI | 47 | 0.00293 | 3.33300 | 7622.500 | 0.26075 | -0.12598 | -0.12598 |
| V | 51 | -0.19322 | 720.05300 | 0.000 | -0.09096 | -0.17187 | -0.31683 |
| **GE-3** | 72 | 127204.58700 | 0.00000 | 0.000 | 126077.98000 | 127057.18000 | 128478.60000 |
| SB | 121 | 0.09468 | 173.34300 | 20.500 | 0.10262 | 0.07260 | 0.10883 |
| **IN-2** | 115 | 291425.72700 | 0.00000 | 0.000 | 293315.39000 | 289492.75000 | 291469.04000 |
| **IN-3** | 115 | 67610.83700 | 0.00000 | 0.000 | 67262.18000 | 69191.91000 | 66378.42000 |
| AG | 107 | -0.02583 | 16.66700 | 0.000 | -0.02928 | -0.02433 | -0.02389 |
| AS | 75 | 1.18507 | 210.00000 | 15.600 | 1.33629 | 0.97834 | 1.24059 |
| BA | 137 | 2562.16234 | 1005937.43300 | 2.300 | 2586.34200 | 2494.14184 | 2606.00319 |
| CD | 111 | -0.00145 | 3.33300 | 0.000 | -0.00607 | -0.00626 | 0.00799 |
| CO | 59 | 0.06781 | 156.67700 | 31.400 | 0.05819 | 0.09224 | 0.05301 |
| CU | 63 | 0.01101 | 1266.76700 | 796.600 | 0.01929 | -0.08054 | 0.09429 |
| MO | 98 | 0.05354 | 103.33300 | 6.600 | 0.05089 | 0.05755 | 0.05217 |
| NI | 60 | 0.28878 | 1953.52300 | 114.700 | 0.66893 | 0.06226 | 0.13513 |
| SE | 78 | 0.29390 | 23.11000 | 14.600 | 0.32077 | 0.31644 | 0.24450 |
| SN | 120 | -0.07125 | 843.39300 | 0.000 | -0.02358 | -0.14894 | -0.04123 |
| SR | 88 | 2037.00501 | 1747800.39000 | 1.900 | 2051.21403 | 1993.73377 | 2066.06722 |
| ZN | 66 | 3.36091 | 5784.68700 | 42.700 | 1.80134 | 3.65355 | 4.62782 |
| **BI-3** | 209 | 140607.55700 | 0.00000 | 0.000 | 141937.96000 | 140411.59000 | 139473.12000 |
| PB | 208 | 3.12926 | 19072.82300 | 1.900 | 3.16934 | 3.05942 | 3.15903 |
| TL | 205 | -0.00179 | 16.66700 | 0.000 | -0.00108 | -0.00103 | -0.00327 |
| U | 238 | 0.02733 | 170.00700 | 39.200 | 0.02546 | 0.03887 | 0.01766 |
| *SC-2* | 45 | 277111.16000 | 0.00000 | 0.000 | 277226.11000 | 276585.23000 | 277522.14000 |
| *GE-1* | 72 | 722630.66700 | 0.00000 | 0.000 | 718101.79000 | 724954.05000 | 724836.16000 |
| *GE-2* | 72 | 327935.37700 | 0.00000 | 0.000 | 329384.25000 | 326557.63000 | 327864.25000 |
| *TB-3* | 159 | 197863.16700 | 0.00000 | 0.000 | 198365.82000 | 198611.91000 | 196611.77000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 17:09:07
Tube Number: 33 Batch: 200341511401A
Sample Number: **1250754** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 780322.17300 | 0.00000 | 0.000 | 789982.33000 | 782553.97000 | 768430.22000 |
| **SC-3** | 45 | 45257.16300 | 0.00000 | 0.000 | 45982.79000 | 45140.05000 | 44648.65000 |
| AL | 27 | 61.96281 | 1930.19000 | 7.900 | 61.28241 | 67.19210 | 57.41393 |
| B | 11 | 32.05716 | 13015.65700 | 2.100 | 31.34127 | 32.15134 | 32.67887 |
| BE | 9 | 0.02725 | 23.33300 | 39.700 | 0.03109 | 0.01504 | 0.03563 |
| CA | 44 | 103159.37068 | 405024.38000 | 2.900 | 100050.94549 | 103517.61427 | 105909.55227 |
| CR | 52 | 1.23870 | 2093.56000 | 12.500 | 1.15493 | 1.41699 | 1.14419 |
| FE | 57 | 15.24206 | 526.69700 | 14.500 | 12.69915 | 16.37241 | 16.65460 |
| K | 39 | 3643.02478 | 311764.12000 | 1.800 | 3569.01118 | 3668.63785 | 3691.42531 |
| MG | 24 | 4859.86199 | 364846.92300 | 2.100 | 4746.89455 | 4883.34791 | 4949.34352 |
| MN | 55 | 246.39303 | 146651.33700 | 2.100 | 241.26509 | 246.52407 | 251.38994 |
| NA | 23 | 2288249 | 352740408 | 1.700 | 2248991 | 2289368 | 2326387 |
| TI | 47 | 0.12690 | 6.66700 | 172.600 | 0.24776 | -0.12598 | 0.25893 |
| V | 51 | 1.98939 | 2593.66000 | 2.700 | 1.97191 | 1.94611 | 2.05015 |
| **GE-3** | 72 | 126434.23700 | 0.00000 | 0.000 | 126470.89000 | 126692.64000 | 126139.18000 |
| SB | 121 | 0.22378 | 306.68300 | 27.800 | 0.15970 | 0.28392 | 0.22771 |
| **IN-2** | 115 | 284964.38300 | 0.00000 | 0.000 | 285778.69000 | 283075.03000 | 286039.43000 |
| **IN-3** | 115 | 67023.85300 | 0.00000 | 0.000 | 67382.06000 | 67382.07000 | 66307.43000 |
| AG | 107 | -0.02574 | 16.66700 | 0.000 | -0.02929 | -0.02405 | -0.02388 |
| AS | 75 | 1.60018 | 265.33300 | 8.200 | 1.74011 | 1.47860 | 1.58185 |
| BA | 137 | 254.55636 | 99124.42300 | 2.200 | 251.34037 | 251.36831 | 260.96041 |
| CD | 111 | 0.06084 | 21.33300 | 18.200 | 0.04893 | 0.06269 | 0.07090 |
| CO | 59 | 0.67875 | 1126.74300 | 12.700 | 0.64530 | 0.61406 | 0.77688 |
| CU | 63 | 0.79106 | 2063.56000 | 20.500 | 0.82633 | 0.93232 | 0.61453 |
| MO | 98 | 0.88608 | 966.73300 | 13.000 | 1.01880 | 0.80793 | 0.83150 |
| NI | 60 | 0.54412 | 2033.53300 | 114.600 | 0.32175 | 0.06212 | 1.24848 |
| SE | 78 | 0.35741 | 27.33300 | 30.900 | 0.23181 | 0.44023 | 0.40019 |
| SN | 120 | -0.06495 | 843.38700 | 0.000 | -0.07258 | -0.09158 | -0.03069 |
| SR | 88 | 1220.90019 | 1038667.40700 | 1.600 | 1208.78760 | 1209.97742 | 1243.93553 |
| ZN | 66 | 3.19739 | 5708.01300 | 58.900 | 5.34141 | 1.80254 | 2.44821 |
| **BI-3** | 209 | 135544.56300 | 0.00000 | 0.000 | 134067.25000 | 136186.80000 | 136379.64000 |
| PB | 208 | 4.78753 | 28009.17700 | 2.200 | 4.84972 | 4.66547 | 4.84742 |
| TL | 205 | 0.01471 | 86.66700 | 17.600 | 0.01337 | 0.01307 | 0.01770 |
| U | 238 | 0.76829 | 4524.29700 | 2.400 | 0.77615 | 0.74715 | 0.78158 |
| *SC-2* | 45 | 272769.27300 | 0.00000 | 0.000 | 274519.18000 | 270595.46000 | 273193.18000 |
| *GE-1* | 72 | 698944.08000 | 0.00000 | 0.000 | 701211.24000 | 704867.26000 | 690753.74000 |
| *GE-2* | 72 | 321230.40700 | 0.00000 | 0.000 | 326836.28000 | 313643.69000 | 323211.25000 |
| *TB-3* | 159 | 190564.90700 | 0.00000 | 0.000 | 192148.73000 | 190470.17000 | 189075.82000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 17:11:04
Tube Number: 34 Batch: 200341511401A
Sample Number: **1250756** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 810836.34000 | 0.00000 | 0.000 | 806381.78000 | 817734.99000 | 808392.25000 |
| **SC-3** | 45 | 44879.50700 | 0.00000 | 0.000 | 45140.78000 | 45852.15000 | 43645.59000 |
| AL | 27 | 0.56599 | 100.00300 | 205.100 | -0.45385 | 1.82892 | 0.32291 |
| B | 11 | 53.81364 | 21366.50300 | 0.700 | 53.53354 | 53.66202 | 54.24535 |
| BE | 9 | 0.00782 | 12.00000 | 141.900 | 0.01426 | -0.00499 | 0.01420 |
| CA | 44 | 242001.75209 | 941889.88300 | 2.800 | 242196.38019 | 235035.47009 | 248773.40599 |
| CR | 52 | 0.23239 | 1053.40300 | 50.500 | 0.16246 | 0.16670 | 0.36802 |
| FE | 57 | 42.25675 | 1100.08700 | 9.300 | 40.61442 | 46.72530 | 39.43052 |
| K | 39 | 3898.90728 | 328885.70000 | 3.100 | 3914.15908 | 3771.48686 | 4011.07590 |
| MG | 24 | 96537.12148 | 7173199.89300 | 2.800 | 95680.29039 | 94386.95175 | 99544.12230 |
| MN | 55 | 1344.10705 | 792270.95300 | 3.000 | 1331.25843 | 1312.03740 | 1389.02532 |
| NA | 23 | 576933.81074 | 88204505.35000 | 2.700 | 574198.92609 | 562962.90877 | 593639.59737 |
| TI | 47 | -0.00105 | 3.33300 | 0.000 | -0.12598 | 0.24883 | -0.12598 |
| V | 51 | 0.24073 | 1086.75000 | 77.000 | 0.24592 | 0.05278 | 0.42350 |
| **GE-3** | 72 | 128569.98700 | 0.00000 | 0.000 | 127055.50000 | 129590.33000 | 129064.13000 |
| SB | 121 | 0.11151 | 193.34000 | 45.300 | 0.05348 | 0.13540 | 0.14565 |
| **IN-2** | 115 | 298531.02000 | 0.00000 | 0.000 | 302459.84000 | 294941.97000 | 298191.25000 |
| **IN-3** | 115 | 68916.95700 | 0.00000 | 0.000 | 68427.71000 | 69563.38000 | 68759.78000 |
| AG | 107 | -0.02252 | 23.33300 | 0.000 | -0.01390 | -0.03453 | -0.01913 |
| AS | 75 | 4.28977 | 651.35300 | 4.900 | 4.35521 | 4.05343 | 4.46068 |
| BA | 137 | 2352.71831 | 941834.80300 | 0.600 | 2358.90946 | 2337.54038 | 2361.70510 |
| CD | 111 | 0.46889 | 143.33300 | 0.600 | 0.46782 | 0.46663 | 0.47223 |
| CO | 59 | 0.47974 | 833.38700 | 5.300 | 0.50580 | 0.45470 | 0.47872 |
| CU | 63 | 0.44558 | 1753.50700 | 18.900 | 0.52966 | 0.36133 | 0.44575 |
| MO | 98 | 0.06117 | 113.33700 | 39.300 | 0.05869 | 0.03843 | 0.08638 |
| NI | 60 | 1.47743 | 2460.31000 | 4.000 | 1.44570 | 1.54544 | 1.44114 |
| SE | 78 | 0.50234 | 40.00000 | 6.400 | 0.47028 | 0.53409 | 0.50265 |
| SN | 120 | -0.11865 | 810.05300 | 0.000 | -0.18764 | -0.03319 | -0.13511 |
| SR | 88 | 677.40056 | 592595.27700 | 2.200 | 684.69316 | 660.62376 | 686.88477 |
| ZN | 66 | 6.18660 | 6384.95300 | 40.600 | 8.97328 | 4.09886 | 5.48767 |
| **BI-3** | 209 | 142514.35000 | 0.00000 | 0.000 | 139836.77000 | 143806.64000 | 143899.64000 |
| PB | 208 | 159.19191 | 971668.47300 | 0.900 | 160.84561 | 158.04347 | 158.68664 |
| TL | 205 | 0.00262 | 36.66700 | 51.500 | 0.00352 | 0.00107 | 0.00327 |
| U | 238 | 0.09330 | 580.03700 | 6.300 | 0.09997 | 0.08919 | 0.09073 |
| *SC-2* | 45 | 281775.45300 | 0.00000 | 0.000 | 280539.14000 | 280140.41000 | 284646.81000 |
| *GE-1* | 72 | 728234.36700 | 0.00000 | 0.000 | 727709.68000 | 731208.90000 | 725784.52000 |
| *GE-2* | 72 | 336092.22000 | 0.00000 | 0.000 | 333467.92000 | 335345.42000 | 339463.32000 |
| *TB-3* | 159 | 199502.40000 | 0.00000 | 0.000 | 198022.75000 | 198807.03000 | 201677.42000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 17:13:02
Tube Number: 35
Sample Number: **CCV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 799432.09700 | 0.00000 | 0.000 | 813441.86000 | 794625.46000 | 790228.97000 |
| **SC-3** | 45 | 45013.26000 | 0.00000 | 0.000 | 45400.75000 | 44668.82000 | 44970.21000 |
| AL | 27 | 5120.84496 | 151832.62300 | 1.100 | 5101.06130 | 5078.54023 | 5182.93334 |
| B | 11 | 310.90756 | 112368.25700 | 3.300 | 299.35512 | 314.64060 | 318.72697 |
| BE | 9 | 31.21672 | 19377.13000 | 4.800 | 29.50892 | 31.90187 | 32.23936 |
| CA | 44 | 5120.14606 | 20111.10300 | 2.200 | 4990.03941 | 5185.97110 | 5184.42767 |
| CR | 52 | 304.71222 | 310890.10000 | 1.300 | 301.11312 | 304.14779 | 308.87574 |
| FE | 57 | 4997.63217 | 107098.77000 | 1.400 | 4918.83489 | 5013.30366 | 5060.75796 |
| K | 39 | 4987.91057 | 414614.98000 | 1.300 | 4926.94482 | 4981.90165 | 5054.88525 |
| MG | 24 | 5077.48133 | 379164.16000 | 0.900 | 5035.10643 | 5121.75122 | 5075.58634 |
| MN | 55 | 306.43205 | 181383.14700 | 2.600 | 299.28670 | 305.03986 | 314.96959 |
| NA | 23 | 5115.41892 | 831939.21000 | 1.400 | 5073.76615 | 5076.96633 | 5195.52428 |
| TI | 47 | 303.30597 | 7945.77300 | 7.700 | 299.76715 | 328.16401 | 281.98676 |
| V | 51 | 305.97591 | 261141.20000 | 1.100 | 302.58012 | 306.00072 | 309.34690 |
| **GE-3** | 72 | 127899.36300 | 0.00000 | 0.000 | 128548.53000 | 126763.38000 | 128386.18000 |
| SB | 121 | 30.39073 | 32077.73700 | 1.000 | 30.02775 | 30.54743 | 30.59702 |
| **IN-2** | 115 | 307674.58700 | 0.00000 | 0.000 | 304626.17000 | 308480.00000 | 309917.59000 |
| **IN-3** | 115 | 72203.37700 | 0.00000 | 0.000 | 72950.15000 | 71674.46000 | 71985.52000 |
| AG | 107 | 30.45153 | 62375.68700 | 0.500 | 30.32541 | 30.63245 | 30.39673 |
| AS | 75 | 302.91344 | 44728.38000 | 2.300 | 296.27146 | 302.33243 | 310.13642 |
| BA | 137 | 305.43884 | 128137.35000 | 0.300 | 304.45911 | 305.66012 | 306.19729 |
| CD | 111 | 30.06521 | 9373.83000 | 0.400 | 29.92598 | 30.16787 | 30.10179 |
| CO | 59 | 284.72513 | 488394.19700 | 1.400 | 280.68666 | 284.66746 | 288.82127 |
| CU | 63 | 304.90031 | 340509.73300 | 1.900 | 299.02457 | 304.94876 | 310.72760 |
| MO | 98 | 30.39842 | 34035.13000 | 1.700 | 29.97560 | 30.26612 | 30.95355 |
| NI | 60 | 309.33493 | 129651.50700 | 1.800 | 304.31709 | 308.19214 | 315.49556 |
| SE | 78 | 30.72421 | 2484.21700 | 0.100 | 30.74013 | 30.68507 | 30.74743 |
| SN | 120 | 29.87648 | 34687.58000 | 2.500 | 29.00022 | 30.27496 | 30.35425 |
| SR | 88 | 30.75603 | 28265.45700 | 2.100 | 30.00767 | 31.00548 | 31.25494 |
| ZN | 66 | 307.59258 | 61477.93300 | 1.700 | 308.42809 | 301.98974 | 312.35991 |
| **BI-3** | 209 | 150811.37300 | 0.00000 | 0.000 | 151016.10000 | 148409.06000 | 153008.96000 |
| PB | 208 | 31.64455 | 204612.73300 | 0.600 | 31.43346 | 31.74655 | 31.75364 |
| TL | 205 | 30.36335 | 144493.71700 | 1.900 | 30.38457 | 30.92036 | 29.78512 |
| U | 238 | 51.07969 | 334450.84300 | 0.900 | 50.69854 | 51.62550 | 50.91504 |
| *SC-2* | 45 | 276977.38700 | 0.00000 | 0.000 | 277679.25000 | 277135.80000 | 276117.11000 |
| *GE-1* | 72 | 730322.51700 | 0.00000 | 0.000 | 735798.27000 | 728679.29000 | 726489.99000 |
| *GE-2* | 72 | 332304.06000 | 0.00000 | 0.000 | 329658.08000 | 334137.07000 | 333117.03000 |
| *TB-3* | 159 | 205775.34300 | 0.00000 | 0.000 | 206261.85000 | 205573.32000 | 205490.86000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 17:14:55
Tube Number: 36
Sample Number: **CCB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 779273.81700 | 0.00000 | 0.000 | 775126.94000 | 777421.71000 | 785272.80000 |
| **SC-3** | 45 | 44695.45300 | 0.00000 | 0.000 | 45079.92000 | 43284.73000 | 45721.71000 |
| AL | 27 | 0.83605 | 106.67000 | 171.500 | 1.57141 | 1.75275 | -0.81600 |
| B | 11 | 10.04219 | 5374.32300 | 11.300 | 11.09783 | 10.18605 | 8.84270 |
| BE | 9 | 0.03397 | 27.33300 | 60.200 | 0.05184 | 0.03840 | 0.01167 |
| CA | 44 | 23.72370 | 210.01000 | 17.300 | 23.18526 | 28.07551 | 19.91033 |
| CR | 52 | 0.54913 | 1370.11300 | 9.800 | 0.56614 | 0.59246 | 0.48878 |
| FE | 57 | -2.24067 | 150.00700 | 0.000 | -1.33216 | -4.40653 | -0.98332 |
| K | 39 | 14.46850 | 27990.73000 | 58.400 | 18.41877 | 20.22362 | 4.76309 |
| MG | 24 | 4.46864 | 956.72700 | 55.200 | 6.38747 | 5.32997 | 1.68849 |
| MN | 55 | 0.64795 | 563.36700 | 17.300 | 0.70003 | 0.72449 | 0.51933 |
| NA | 23 | 214.54072 | 79897.05700 | 7.200 | 207.52998 | 232.29055 | 203.80164 |
| TI | 47 | -0.12598 | 0.00000 | 0.000 | -0.12598 | -0.12598 | -0.12598 |
| V | 51 | 0.18741 | 1040.07700 | 9.700 | 0.20071 | 0.16671 | 0.19482 |
| **GE-3** | 72 | 129188.21700 | 0.00000 | 0.000 | 128034.92000 | 128266.00000 | 131263.73000 |
| SB | 121 | 0.20782 | 296.68300 | 21.800 | 0.15688 | 0.22276 | 0.24381 |
| **IN-2** | 115 | 306926.38700 | 0.00000 | 0.000 | 305829.80000 | 310133.39000 | 304815.97000 |
| **IN-3** | 115 | 70397.55000 | 0.00000 | 0.000 | 70587.82000 | 70096.53000 | 70508.30000 |
| AG | 107 | -0.00612 | 56.66700 | 0.000 | -0.00453 | -0.00432 | -0.00950 |
| AS | 75 | 0.19128 | 76.00000 | 84.600 | 0.00925 | 0.31893 | 0.24567 |
| BA | 137 | 0.11554 | 83.33300 | 64.600 | 0.18002 | 0.13278 | 0.03382 |
| CD | 111 | 0.01121 | 7.33300 | 123.200 | 0.00674 | 0.02671 | 0.00019 |
| CO | 59 | 0.06018 | 150.00700 | 61.700 | 0.07195 | 0.01860 | 0.08997 |
| CU | 63 | 0.06922 | 1383.44300 | 21.200 | 0.05351 | 0.07160 | 0.08255 |
| MO | 98 | 0.02214 | 73.33300 | 132.800 | 0.00062 | 0.01016 | 0.05563 |
| NI | 60 | 0.61791 | 2166.90000 | 73.500 | 0.83422 | 0.92336 | 0.09614 |
| SE | 78 | 0.04439 | 4.22000 | 84.300 | 0.08330 | 0.04117 | 0.00868 |
| SN | 120 | 0.05989 | 1023.40300 | 73.400 | 0.02718 | 0.04260 | 0.10989 |
| SR | 88 | 0.04265 | 116.67000 | 77.100 | 0.02361 | 0.08060 | 0.02374 |
| ZN | 66 | 3.21611 | 5998.11700 | 16.300 | 3.20063 | 2.70113 | 3.74658 |
| **BI-3** | 209 | 150302.79000 | 0.00000 | 0.000 | 150348.63000 | 148147.74000 | 152412.00000 |
| PB | 208 | 0.57570 | 3950.36300 | 5.800 | 0.60483 | 0.58285 | 0.53942 |
| TL | 205 | 0.02330 | 136.67300 | 38.300 | 0.01343 | 0.03083 | 0.02565 |
| U | 238 | 0.01331 | 90.00300 | 35.600 | 0.00869 | 0.01815 | 0.01310 |
| *SC-2* | 45 | 270380.40700 | 0.00000 | 0.000 | 270626.95000 | 270169.68000 | 270344.59000 |
| *GE-1* | 72 | 725311.28700 | 0.00000 | 0.000 | 722236.00000 | 728436.00000 | 725261.86000 |
| *GE-2* | 72 | 329082.20000 | 0.00000 | 0.000 | 332302.34000 | 329047.53000 | 325896.73000 |
| *TB-3* | 159 | 203661.16300 | 0.00000 | 0.000 | 205541.13000 | 202445.76000 | 202996.60000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 17:16:48
Tube Number: 37 Batch: 200341511401A
Sample Number: **1247553** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 772606.21000 | 0.00000 | 0.000 | 772961.55000 | 774581.94000 | 770275.14000 |
| **SC-3** | 45 | 45036.51300 | 0.00000 | 0.000 | 44598.51000 | 44688.83000 | 45822.20000 |
| AL | 27 | 10.55332 | 396.68700 | 40.000 | 13.19959 | 5.68862 | 12.77174 |
| B | 11 | 3945.08856 | 1356424.08300 | 2.500 | 3832.24295 | 3979.30769 | 4023.71504 |
| BE | 9 | 0.04539 | 34.00000 | 19.800 | 0.03869 | 0.04191 | 0.05558 |
| CA | 44 | 426380.11873 | 1666009.66300 | 1.300 | 420806.52041 | 431823.05527 | 426510.78052 |
| CR | 52 | 6.52424 | 7462.16700 | 5.900 | 6.43473 | 6.94497 | 6.19301 |
| FE | 57 | 47.26041 | 1210.10000 | 12.900 | 40.74959 | 52.89206 | 48.13957 |
| K | 39 | 251916.45174 | 19611025.54300 | 1.700 | 247605.23367 | 256173.80728 | 251970.31427 |
| MG | 24 | 1051922 | 78472624 | 1.200 | 1037107 | 1058443 | 1060215 |
| MN | 55 | 540.11684 | 319736.32300 | 0.700 | 538.55264 | 544.59089 | 537.20699 |
| NA | 23 | 7343541 | 1126576410 | 0.600 | 7310614 | 7391543 | 7328466 |
| TI | 47 | 17.54577 | 463.35700 | 6.200 | 16.44462 | 17.56521 | 18.62748 |
| V | 51 | 10.24303 | 9603.45300 | 4.500 | 10.00715 | 10.77881 | 9.94314 |
| **GE-3** | 72 | 121089.92700 | 0.00000 | 0.000 | 118656.96000 | 123224.05000 | 121388.77000 |
| SB | 121 | 0.62133 | 690.03700 | 11.400 | 0.65598 | 0.66846 | 0.53956 |
| **IN-2** | 115 | 258434.37000 | 0.00000 | 0.000 | 257876.36000 | 260318.65000 | 257108.10000 |
| **IN-3** | 115 | 62409.26000 | 0.00000 | 0.000 | 61906.60000 | 62248.92000 | 63072.26000 |
| AG | 107 | -0.03264 | 3.33300 | 0.000 | -0.03453 | -0.02886 | -0.03453 |
| AS | 75 | 27.24307 | 3516.46000 | 1.800 | 27.70368 | 26.74703 | 27.27849 |
| BA | 137 | 373.72497 | 135520.69300 | 1.100 | 369.42862 | 374.56722 | 377.17905 |
| CD | 111 | 0.00684 | 5.33300 | 62.200 | 0.00950 | 0.00193 | 0.00909 |
| CO | 59 | 0.60041 | 933.40000 | 7.200 | 0.64379 | 0.59950 | 0.55792 |
| CU | 63 | -0.20407 | 963.40300 | 0.000 | -0.23118 | -0.10098 | -0.28006 |
| MO | 98 | 0.52780 | 553.36700 | 10.100 | 0.54953 | 0.56702 | 0.46687 |
| NI | 60 | 2.08145 | 2443.62000 | 17.200 | 2.26956 | 1.66878 | 2.30600 |
| SE | 78 | 100.13385 | 6799.39000 | 3.800 | 104.39966 | 99.05109 | 96.95079 |
| SN | 120 | 0.11449 | 960.08300 | 84.000 | 0.22547 | 0.05489 | 0.06310 |
| SR | 88 | 8244.52199 | 6531522.81700 | 0.600 | 8185.02928 | 8260.30124 | 8288.23547 |
| ZN | 66 | 2.80176 | 5251.11700 | 44.000 | 4.15738 | 2.49763 | 1.75028 |
| **BI-3** | 209 | 115371.65000 | 0.00000 | 0.000 | 114504.51000 | 115411.80000 | 116198.64000 |
| PB | 208 | 0.33681 | 1853.45300 | 8.600 | 0.30642 | 0.36442 | 0.33959 |
| TL | 205 | 0.03474 | 146.67300 | 11.800 | 0.03598 | 0.03016 | 0.03810 |
| U | 238 | 0.15721 | 790.05300 | 11.000 | 0.16645 | 0.13720 | 0.16799 |
| *SC-2* | 45 | 274648.39300 | 0.00000 | 0.000 | 273980.58000 | 272601.40000 | 277363.20000 |
| *GE-1* | 72 | 660287.75000 | 0.00000 | 0.000 | 663716.08000 | 661076.87000 | 656070.30000 |
| *GE-2* | 72 | 306750.62000 | 0.00000 | 0.000 | 304166.97000 | 304756.95000 | 311327.94000 |
| *TB-3* | 159 | 178447.79000 | 0.00000 | 0.000 | 176503.34000 | 180817.69000 | 178022.34000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 17:18:47
Tube Number: 38 Batch: 200341511401A
Sample Number: **1250020** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846-U5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 882643.40000 | 0.00000 | 0.000 | 886276.16000 | 882707.10000 | 878946.94000 |
| **SC-3** | 45 | 47116.68000 | 0.00000 | 0.000 | 47768.87000 | 47076.42000 | 46504.75000 |
| AL | 27 | 6.53553 | 290.01300 | 11.500 | 7.36694 | 5.90296 | 6.33669 |
| B | 11 | 542.26150 | 214848.21300 | 1.300 | 535.14745 | 542.65214 | 548.98490 |
| BE | 9 | 0.01884 | 20.66700 | 47.000 | 0.02067 | 0.02664 | 0.00922 |
| CA | 44 | 64655.66937 | 264394.30000 | 0.500 | 64509.70857 | 64464.85178 | 64992.44778 |
| CR | 52 | 0.44237 | 1330.11000 | 36.500 | 0.25726 | 0.51727 | 0.55259 |
| FE | 57 | 10537.42793 | 236129.11300 | 1.200 | 10450.55228 | 10480.47342 | 10681.25809 |
| K | 39 | 7361.17372 | 627020.59000 | 0.000 | 7360.47114 | 7363.62731 | 7359.42270 |
| MG | 24 | 19243.23864 | 1502323.41300 | 1.100 | 19069.58461 | 19468.49511 | 19191.63622 |
| MN | 55 | 185.00087 | 114702.72300 | 1.000 | 185.14181 | 183.02723 | 186.83355 |
| NA | 23 | 91257.26195 | 14695148.11300 | 0.600 | 90778.27565 | 91186.46874 | 91807.04147 |
| TI | 47 | -0.00606 | 3.33300 | 0.000 | 0.23379 | -0.12598 | -0.12598 |
| V | 51 | 1.75268 | 2490.30300 | 10.000 | 1.73723 | 1.93555 | 1.58525 |
| **GE-3** | 72 | 134554.23700 | 0.00000 | 0.000 | 136521.69000 | 133212.12000 | 133928.90000 |
| SB | 121 | 3.40724 | 3854.01000 | 2.600 | 3.50612 | 3.37611 | 3.33951 |
| **IN-2** | 115 | 320485.28700 | 0.00000 | 0.000 | 320934.72000 | 322086.81000 | 318434.33000 |
| **IN-3** | 115 | 71864.78700 | 0.00000 | 0.000 | 72356.92000 | 71563.38000 | 71674.06000 |
| AG | 107 | -0.02799 | 13.33300 | 0.000 | -0.02477 | -0.02960 | -0.02960 |
| AS | 75 | 39.60742 | 5864.56700 | 1.200 | 39.51561 | 40.13543 | 39.17120 |
| BA | 137 | 161.42069 | 67421.76000 | 0.800 | 162.79698 | 161.07362 | 160.39147 |
| CD | 111 | 0.00210 | 4.66700 | 180.300 | -0.00015 | 0.00647 | -0.00002 |
| CO | 59 | 0.08964 | 203.34300 | 13.000 | 0.09856 | 0.07645 | 0.09390 |
| CU | 63 | -0.03828 | 1293.44300 | 0.000 | 0.02272 | 0.01821 | -0.15576 |
| MO | 98 | 0.02669 | 80.00300 | 99.600 | 0.05307 | 0.02707 | -0.00007 |
| NI | 60 | 0.19064 | 2036.88300 | 134.300 | 0.33459 | 0.34234 | -0.10499 |
| SE | 78 | 3.66592 | 309.33700 | 0.200 | 3.66079 | 3.66338 | 3.67358 |
| SN | 120 | -0.02737 | 946.73000 | 0.000 | 0.00524 | 0.14014 | -0.22750 |
| SR | 88 | 459.75128 | 419478.61300 | 0.500 | 462.41131 | 459.30111 | 457.54143 |
| ZN | 66 | 2.62015 | 6014.77700 | 25.000 | 1.98915 | 2.57316 | 3.29814 |
| **BI-3** | 209 | 149401.54700 | 0.00000 | 0.000 | 151138.00000 | 147829.70000 | 149236.94000 |
| PB | 208 | 0.32540 | 2326.84300 | 4.100 | 0.32486 | 0.31246 | 0.33888 |
| TL | 205 | 0.03545 | 193.34300 | 17.700 | 0.04059 | 0.03734 | 0.02844 |
| U | 238 | 0.00621 | 43.33300 | 72.400 | 0.00102 | 0.00885 | 0.00876 |
| *SC-2* | 45 | 297679.82300 | 0.00000 | 0.000 | 297657.01000 | 299372.50000 | 296009.96000 |
| *GE-1* | 72 | 795942.59300 | 0.00000 | 0.000 | 800380.30000 | 791197.80000 | 796249.68000 |
| *GE-2* | 72 | 360321.17000 | 0.00000 | 0.000 | 364819.14000 | 358400.23000 | 357744.14000 |
| *TB-3* | 159 | 207671.52000 | 0.00000 | 0.000 | 208406.60000 | 208303.49000 | 206304.47000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 17:20:39
Tube Number: 39 Batch: 200341511401A
Sample Number: **1250023** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846-U5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 803216.24000 | 0.00000 | 0.000 | 806838.35000 | 807651.32000 | 795159.05000 |
| **SC-3** | 45 | 45544.49000 | 0.00000 | 0.000 | 45550.95000 | 46674.61000 | 44407.91000 |
| AL | 27 | 10.21262 | 390.01700 | 16.500 | 8.52904 | 10.20907 | 11.89974 |
| B | 11 | 27.57479 | 11801.35000 | 3.300 | 28.42841 | 27.69172 | 26.60423 |
| BE | 9 | 0.01006 | 13.33300 | 65.000 | 0.00786 | 0.01741 | 0.00490 |
| CA | 44 | 157.68715 | 743.37700 | 2.200 | 156.75911 | 154.72029 | 161.58206 |
| CR | 52 | 0.35579 | 1200.09000 | 51.200 | 0.20229 | 0.55710 | 0.30799 |
| FE | 57 | 0.81164 | 216.67300 | 551.800 | 2.74340 | -4.30876 | 4.00027 |
| K | 39 | 38.04912 | 30365.21300 | 56.700 | 54.76789 | 13.71240 | 45.66708 |
| MG | 24 | 54.36747 | 4740.91000 | 13.500 | 62.84547 | 50.12898 | 50.12796 |
| MN | 55 | 0.40516 | 430.02300 | 7.000 | 0.42217 | 0.42079 | 0.37253 |
| NA | 23 | 899.97189 | 187744.86000 | 7.600 | 975.94550 | 842.17026 | 881.79991 |
| TI | 47 | 0.00302 | 3.33300 | 7407.100 | -0.12598 | -0.12598 | 0.26102 |
| V | 51 | 1.20036 | 1930.19300 | 8.400 | 1.12898 | 1.15608 | 1.31600 |
| **GE-3** | 72 | 131971.02300 | 0.00000 | 0.000 | 130142.89000 | 133253.18000 | 132517.00000 |
| SB | 121 | 0.15265 | 243.34700 | 53.300 | 0.06920 | 0.15708 | 0.23167 |
| **IN-2** | 115 | 312233.52300 | 0.00000 | 0.000 | 311748.49000 | 310752.44000 | 314199.64000 |
| **IN-3** | 115 | 72196.47300 | 0.00000 | 0.000 | 72648.78000 | 72658.86000 | 71281.78000 |
| AG | 107 | -0.02481 | 20.00000 | 0.000 | -0.01996 | -0.01996 | -0.03453 |
| AS | 75 | 0.35387 | 102.00000 | 22.400 | 0.29587 | 0.44399 | 0.32175 |
| BA | 137 | 0.25337 | 143.34300 | 13.300 | 0.29091 | 0.24347 | 0.22573 |
| CD | 111 | 0.00209 | 4.66700 | 478.800 | -0.00020 | -0.00658 | 0.01305 |
| CO | 59 | 0.01346 | 73.33300 | 178.100 | -0.01205 | 0.01691 | 0.03552 |
| CU | 63 | -0.08574 | 1246.76300 | 0.000 | -0.08051 | -0.04492 | -0.13178 |
| MO | 98 | -0.01527 | 33.33300 | 0.000 | -0.03623 | -0.00068 | -0.00888 |
| NI | 60 | 0.19204 | 2046.89700 | 148.300 | 0.50682 | -0.04776 | 0.11707 |
| SE | 78 | 1.08926 | 89.99700 | 3.800 | 1.13157 | 1.08623 | 1.04999 |
| SN | 120 | 0.00732 | 990.07300 | 245.700 | 0.00173 | -0.00721 | 0.02742 |
| SR | 88 | 0.39873 | 446.69000 | 24.700 | 0.47593 | 0.43247 | 0.28780 |
| ZN | 66 | 2.81830 | 6081.48700 | 76.100 | 3.00715 | 4.86210 | 0.58564 |
| **BI-3** | 209 | 153205.43000 | 0.00000 | 0.000 | 154154.19000 | 152989.63000 | 152472.47000 |
| PB | 208 | 0.25849 | 1946.79700 | 11.800 | 0.26776 | 0.22430 | 0.28339 |
| TL | 205 | 0.03443 | 193.34300 | 42.100 | 0.03558 | 0.04832 | 0.01940 |
| U | 238 | 0.00150 | 13.33300 | 115.600 | 0.00249 | -0.00050 | 0.00252 |
| *SC-2* | 45 | 281324.02000 | 0.00000 | 0.000 | 280903.47000 | 281283.18000 | 281785.41000 |
| *GE-1* | 72 | 743517.54300 | 0.00000 | 0.000 | 747381.79000 | 743165.15000 | 740005.69000 |
| *GE-2* | 72 | 346055.42300 | 0.00000 | 0.000 | 346583.82000 | 349814.45000 | 341768.00000 |
| *TB-3* | 159 | 204046.75000 | 0.00000 | 0.000 | 203978.38000 | 206822.22000 | 201339.65000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 17:22:34
Tube Number: 40 Batch: 200341511401A
Sample Number: **1251072** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846-U5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 797646.73300 | 0.00000 | 0.000 | 802107.33000 | 794009.52000 | 796823.35000 |
| **SC-3** | 45 | 44648.61300 | 0.00000 | 0.000 | 44558.28000 | 44548.34000 | 44839.22000 |
| AL | 27 | 1.49839 | 126.67000 | 72.300 | 1.96360 | 0.25943 | 2.27212 |
| B | 11 | 323.40770 | 116579.42300 | 3.000 | 314.70104 | 321.88389 | 333.63817 |
| BE | 9 | 0.00808 | 12.00000 | 1.200 | 0.00797 | 0.00817 | 0.00810 |
| CA | 44 | 65337.38911 | 253190.35300 | 0.600 | 65705.73200 | 65341.99380 | 64964.44153 |
| CR | 52 | 0.23269 | 1050.08000 | 14.200 | 0.23473 | 0.26475 | 0.19860 |
| FE | 57 | 29299.64142 | 621876.36700 | 0.400 | 29420.77231 | 29291.20295 | 29186.94901 |
| K | 39 | 11005.79933 | 875047.90300 | 0.800 | 11014.66735 | 11094.22526 | 10908.50538 |
| MG | 24 | 17703.17926 | 1309770.52700 | 1.000 | 17595.03363 | 17915.46688 | 17599.03727 |
| MN | 55 | 707.51469 | 415185.94300 | 0.300 | 709.67512 | 705.07478 | 707.79417 |
| NA | 23 | 139388.72747 | 21245783.01300 | 0.900 | 139075.41358 | 140806.81963 | 138283.94920 |
| TI | 47 | -0.12598 | 0.00000 | 0.000 | -0.12598 | -0.12598 | -0.12598 |
| V | 51 | 0.61664 | 1400.11300 | 60.100 | 0.89231 | 0.76206 | 0.19557 |
| **GE-3** | 72 | 129202.05300 | 0.00000 | 0.000 | 129779.08000 | 129204.78000 | 128622.30000 |
| SB | 121 | 0.30535 | 400.02000 | 12.900 | 0.26613 | 0.30523 | 0.34470 |
| **IN-2** | 115 | 302756.24000 | 0.00000 | 0.000 | 297801.17000 | 310205.74000 | 300261.81000 |
| **IN-3** | 115 | 69301.79300 | 0.00000 | 0.000 | 68508.19000 | 70396.79000 | 69000.40000 |
| AG | 107 | -0.02947 | 10.00000 | 0.000 | -0.02938 | -0.02450 | -0.03453 |
| AS | 75 | 132.53229 | 18813.64700 | 1.100 | 132.19904 | 134.12989 | 131.26793 |
| BA | 137 | 339.75313 | 136792.31700 | 1.500 | 345.51511 | 337.80143 | 335.94284 |
| CD | 111 | 0.00261 | 4.66700 | 138.500 | 0.00057 | 0.00679 | 0.00048 |
| CO | 59 | 0.12050 | 246.67700 | 69.500 | 0.19792 | 0.13202 | 0.03157 |
| CU | 63 | 0.01191 | 1300.10700 | 532.000 | 0.07280 | -0.05371 | 0.01666 |
| MO | 98 | 0.98616 | 1106.74700 | 1.200 | 0.97303 | 0.99160 | 0.99385 |
| NI | 60 | 0.00866 | 1890.19300 | 6049.400 | 0.57015 | -0.46770 | -0.07646 |
| SE | 78 | 0.77091 | 62.00000 | 5.600 | 0.73338 | 0.81822 | 0.76115 |
| SN | 120 | -0.11081 | 823.38700 | 0.000 | -0.17911 | -0.02493 | -0.12838 |
| SR | 88 | 435.93834 | 383541.28300 | 1.200 | 441.98489 | 434.40509 | 431.42503 |
| ZN | 66 | 1.30163 | 5571.29700 | 105.500 | 2.02352 | 2.16391 | -0.28254 |
| **BI-3** | 209 | 150817.22700 | 0.00000 | 0.000 | 149771.38000 | 152614.75000 | 150065.55000 |
| PB | 208 | 0.17584 | 1383.41000 | 11.900 | 0.18004 | 0.19434 | 0.15316 |
| TL | 205 | 0.01898 | 116.67000 | 56.100 | 0.00927 | 0.01730 | 0.03036 |
| U | 238 | 0.00457 | 33.33300 | 49.700 | 0.00257 | 0.00704 | 0.00410 |
| *SC-2* | 45 | 272203.61700 | 0.00000 | 0.000 | 273336.28000 | 272267.89000 | 271006.68000 |
| *GE-1* | 72 | 735544.00300 | 0.00000 | 0.000 | 738818.04000 | 732016.79000 | 735797.18000 |
| *GE-2* | 72 | 331963.69300 | 0.00000 | 0.000 | 328583.67000 | 334901.36000 | 332406.05000 |
| *TB-3* | 159 | 202028.39300 | 0.00000 | 0.000 | 202326.34000 | 202467.61000 | 201291.23000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 17:24:27
Tube Number: 41 Batch: 200341511401A
Sample Number: **1251074** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846-U5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 785426.81300 | 0.00000 | 0.000 | 790420.93000 | 786562.18000 | 779297.33000 |
| **SC-3** | 45 | 44013.25000 | 0.00000 | 0.000 | 43825.94000 | 44548.11000 | 43665.70000 |
| AL | 27 | 2.83985 | 163.34000 | 59.300 | 3.42975 | 0.94141 | 4.14839 |
| B | 11 | 329.00777 | 116742.41700 | 2.100 | 322.71665 | 327.65896 | 336.64771 |
| BE | 9 | 0.00402 | 9.33300 | 126.100 | 0.00500 | -0.00147 | 0.00854 |
| CA | 44 | 64440.81501 | 246128.14700 | 2.200 | 65181.07941 | 62782.55118 | 65358.81443 |
| CR | 52 | 0.30135 | 1103.41000 | 29.800 | 0.40355 | 0.26475 | 0.23575 |
| FE | 57 | 29213.66206 | 611160.47000 | 1.700 | 29409.11123 | 28656.11276 | 29575.76218 |
| K | 39 | 11014.81283 | 863276.42000 | 0.300 | 11026.73656 | 10973.12599 | 11044.57594 |
| MG | 24 | 17691.14654 | 1290220.19000 | 0.900 | 17860.19139 | 17554.09868 | 17659.14954 |
| MN | 55 | 713.86451 | 412913.95000 | 1.300 | 713.31287 | 704.93378 | 723.34690 |
| NA | 23 | 138433.21234 | 20799547.60700 | 1.100 | 140017.63083 | 137134.28777 | 138147.71841 |
| TI | 47 | 0.00261 | 3.33300 | 8532.100 | -0.12598 | 0.25980 | -0.12598 |
| V | 51 | 0.36299 | 1170.08700 | 22.700 | 0.44160 | 0.37000 | 0.27737 |
| **GE-3** | 72 | 129023.76700 | 0.00000 | 0.000 | 128650.16000 | 128448.39000 | 129972.75000 |
| SB | 121 | 0.28389 | 376.68700 | 8.400 | 0.29741 | 0.29799 | 0.25628 |
| **IN-2** | 115 | 298994.87700 | 0.00000 | 0.000 | 300260.87000 | 298646.60000 | 298077.16000 |
| **IN-3** | 115 | 69439.18300 | 0.00000 | 0.000 | 68728.95000 | 69362.33000 | 70226.27000 |
| AG | 107 | -0.02772 | 13.33300 | 0.000 | -0.01912 | -0.03453 | -0.02950 |
| AS | 75 | 130.60114 | 18575.32300 | 1.400 | 131.83052 | 128.51779 | 131.45510 |
| BA | 137 | 335.32953 | 135280.45000 | 1.500 | 340.98813 | 331.26019 | 333.74028 |
| CD | 111 | 0.00032 | 4.00000 | 3581.900 | -0.00621 | -0.00627 | 0.01344 |
| CO | 59 | 0.12615 | 256.68000 | 22.600 | 0.10531 | 0.15871 | 0.11443 |
| CU | 63 | 0.16163 | 1463.46000 | 6.800 | 0.17259 | 0.15064 | 0.16168 |
| MO | 98 | 1.01245 | 1136.75000 | 8.000 | 1.01675 | 1.09085 | 0.92973 |
| NI | 60 | 0.24597 | 1990.21300 | 108.200 | 0.32389 | -0.05045 | 0.46447 |
| SE | 78 | 0.55224 | 44.00000 | 14.800 | 0.55833 | 0.46784 | 0.63054 |
| SN | 120 | -0.22196 | 703.37300 | 0.000 | -0.19065 | -0.22453 | -0.25070 |
| SR | 88 | 426.75293 | 376201.60700 | 0.900 | 430.26320 | 427.64986 | 422.34575 |
| ZN | 66 | 3.38336 | 5944.79700 | 20.800 | 3.65369 | 3.91357 | 2.58282 |
| **BI-3** | 209 | 151849.62700 | 0.00000 | 0.000 | 152059.20000 | 152896.85000 | 150592.83000 |
| PB | 208 | 0.17193 | 1366.74700 | 4.500 | 0.16293 | 0.17711 | 0.17575 |
| TL | 205 | 0.01252 | 86.66700 | 40.900 | 0.01322 | 0.01726 | 0.00708 |
| U | 238 | 0.00659 | 46.66700 | 48.900 | 0.00556 | 0.00402 | 0.01020 |
| *SC-2* | 45 | 269380.90000 | 0.00000 | 0.000 | 270201.13000 | 268143.41000 | 269798.16000 |
| *GE-1* | 72 | 725086.78700 | 0.00000 | 0.000 | 729435.15000 | 726649.36000 | 719175.85000 |
| *GE-2* | 72 | 328795.07300 | 0.00000 | 0.000 | 328696.01000 | 331076.05000 | 326613.16000 |
| *TB-3* | 159 | 203690.49000 | 0.00000 | 0.000 | 203404.41000 | 206437.28000 | 201229.78000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 17:26:21
Tube Number: 42 Batch: 200341511401A
Sample Number: **1251078** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846-U5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 771041.02700 | 0.00000 | 0.000 | 780067.33000 | 761021.39000 | 772034.36000 |
| **SC-3** | 45 | 44327.48300 | 0.00000 | 0.000 | 43785.78000 | 44207.04000 | 44989.63000 |
| AL | 27 | 0.37650 | 93.33700 | 365.500 | -0.72787 | -0.06048 | 1.91784 |
| B | 11 | 15.09045 | 7049.68000 | 3.200 | 15.57554 | 15.09675 | 14.59907 |
| BE | 9 | 0.00537 | 10.00000 | 105.000 | 0.00852 | -0.00114 | 0.00872 |
| CA | 44 | 62.08823 | 356.68300 | 40.300 | 61.63165 | 37.28322 | 87.34981 |
| CR | 52 | 0.26046 | 1070.07300 | 35.300 | 0.23291 | 0.36308 | 0.18538 |
| FE | 57 | 2.28162 | 243.34300 | 41.000 | 2.74705 | 1.20455 | 2.89327 |
| K | 39 | 74.49486 | 32349.62000 | 30.300 | 100.46407 | 63.48060 | 59.53991 |
| MG | 24 | 16.72271 | 1850.17700 | 1.700 | 17.03228 | 16.65232 | 16.48354 |
| MN | 55 | 0.42598 | 430.02000 | 25.600 | 0.43443 | 0.53062 | 0.31291 |
| NA | 23 | 411.31515 | 108969.32000 | 4.400 | 426.07024 | 416.50526 | 391.36996 |
| TI | 47 | 0.00135 | 3.33300 | 16354.800 | -0.12598 | -0.12598 | 0.25601 |
| V | 51 | 0.34445 | 1163.43000 | 31.400 | 0.32210 | 0.24923 | 0.46202 |
| **GE-3** | 72 | 129276.33300 | 0.00000 | 0.000 | 129447.74000 | 128641.10000 | 129740.16000 |
| SB | 121 | 0.04201 | 120.00700 | 45.900 | 0.04181 | 0.06140 | 0.02282 |
| **IN-2** | 115 | 304663.00300 | 0.00000 | 0.000 | 301223.26000 | 309150.46000 | 303615.29000 |
| **IN-3** | 115 | 70722.59700 | 0.00000 | 0.000 | 70065.87000 | 70749.33000 | 71352.59000 |
| AG | 107 | -0.02955 | 10.00000 | 0.000 | -0.02949 | -0.03453 | -0.02464 |
| AS | 75 | 0.14759 | 70.00000 | 64.600 | 0.24936 | 0.13299 | 0.06041 |
| BA | 137 | 0.08223 | 70.00000 | 78.900 | 0.13287 | 0.00907 | 0.10476 |
| CD | 111 | 0.01770 | 9.33300 | 78.800 | 0.03334 | 0.01324 | 0.00653 |
| CO | 59 | -0.00759 | 36.66700 | 0.000 | -0.00541 | -0.00564 | -0.01174 |
| CU | 63 | -0.02873 | 1283.43000 | 0.000 | -0.06681 | -0.05029 | 0.03091 |
| MO | 98 | -0.01468 | 33.33300 | 0.000 | -0.01747 | -0.00861 | -0.01797 |
| NI | 60 | -0.13374 | 1873.51700 | 0.000 | -0.42243 | 0.20324 | -0.18204 |
| SE | 78 | 0.30880 | 25.33300 | 8.500 | 0.32908 | 0.27931 | 0.31802 |
| SN | 120 | -0.08917 | 863.39000 | 0.000 | -0.11228 | -0.04723 | -0.10800 |
| SR | 88 | 0.17203 | 233.34300 | 44.200 | 0.14814 | 0.25721 | 0.11076 |
| ZN | 66 | 1.67881 | 5751.33300 | 38.000 | 2.09167 | 2.00017 | 0.94460 |
| **BI-3** | 209 | 153138.07300 | 0.00000 | 0.000 | 151613.77000 | 153808.08000 | 153992.37000 |
| PB | 208 | 0.17537 | 1400.08300 | 14.500 | 0.20050 | 0.17583 | 0.14979 |
| TL | 205 | 0.00479 | 50.00000 | 154.400 | 0.00282 | -0.00142 | 0.01298 |
| U | 238 | 0.00000 | 3.33300 | 0.000 | -0.00050 | 0.00099 | -0.00050 |
| *SC-2* | 45 | 269658.69000 | 0.00000 | 0.000 | 264612.79000 | 272890.39000 | 271472.89000 |
| *GE-1* | 72 | 716932.51700 | 0.00000 | 0.000 | 724428.82000 | 707469.83000 | 718898.90000 |
| *GE-2* | 72 | 330284.85000 | 0.00000 | 0.000 | 320865.15000 | 335890.50000 | 334098.90000 |
| *TB-3* | 159 | 205742.14000 | 0.00000 | 0.000 | 205929.45000 | 205642.58000 | 205654.39000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 17:28:16
Tube Number: 43
Sample Number: **CCV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 781189.49300 | 0.00000 | 0.000 | 770404.75000 | 787637.18000 | 785526.55000 |
| **SC-3** | 45 | 44578.24000 | 0.00000 | 0.000 | 44548.03000 | 44307.28000 | 44879.41000 |
| AL | 27 | 5052.31304 | 148348.22700 | 1.400 | 5121.89608 | 5051.14962 | 4983.89341 |
| B | 11 | 318.87776 | 112623.40700 | 2.200 | 311.80567 | 319.00797 | 325.81963 |
| BE | 9 | 30.76363 | 18673.59300 | 3.500 | 29.68194 | 30.76741 | 31.84153 |
| CA | 44 | 5221.82499 | 20311.35700 | 1.200 | 5277.87954 | 5236.39887 | 5151.19655 |
| CR | 52 | 303.15077 | 306303.36700 | 1.400 | 303.79791 | 307.16280 | 298.49159 |
| FE | 57 | 5005.86733 | 106243.87700 | 0.400 | 5029.42470 | 4996.47392 | 4991.70337 |
| K | 39 | 4955.46215 | 408122.13000 | 0.600 | 4986.37064 | 4946.65206 | 4933.36373 |
| MG | 24 | 5044.67277 | 373075.06000 | 1.200 | 5043.69507 | 5107.41566 | 4982.90760 |
| MN | 55 | 305.22190 | 178923.23300 | 1.300 | 305.16168 | 309.16409 | 301.33992 |
| NA | 23 | 4834.19068 | 781202.40700 | 0.400 | 4857.48857 | 4821.76987 | 4823.31359 |
| TI | 47 | 303.46812 | 7875.68700 | 4.700 | 288.52046 | 305.22502 | 316.65887 |
| V | 51 | 304.27943 | 257195.78300 | 0.800 | 307.12492 | 303.12192 | 302.59145 |
| **GE-3** | 72 | 127343.06000 | 0.00000 | 0.000 | 128276.25000 | 125998.66000 | 127754.27000 |
| SB | 121 | 30.65304 | 32214.72700 | 0.800 | 30.90783 | 30.59808 | 30.45321 |
| **IN-2** | 115 | 302034.26300 | 0.00000 | 0.000 | 303840.07000 | 299179.70000 | 303083.02000 |
| **IN-3** | 115 | 70548.01700 | 0.00000 | 0.000 | 71041.01000 | 70768.52000 | 69834.52000 |
| AG | 107 | 27.78100 | 55607.46300 | 1.100 | 27.97825 | 27.42010 | 27.94465 |
| AS | 75 | 309.12810 | 44602.65700 | 0.400 | 310.07687 | 307.71847 | 309.58897 |
| BA | 137 | 308.59916 | 126485.13300 | 1.500 | 304.20659 | 307.92644 | 313.66446 |
| CD | 111 | 30.35640 | 9246.42300 | 2.900 | 30.11064 | 29.63038 | 31.32817 |
| CO | 59 | 287.62452 | 482055.45000 | 1.100 | 285.77916 | 285.84384 | 291.25054 |
| CU | 63 | 307.75871 | 335819.68300 | 1.100 | 304.14456 | 308.47746 | 310.65411 |
| MO | 98 | 31.06375 | 33984.97700 | 0.700 | 31.26561 | 31.11145 | 30.81420 |
| NI | 60 | 309.92893 | 126928.16300 | 0.600 | 308.84765 | 311.97758 | 308.96158 |
| SE | 78 | 30.41610 | 2414.20700 | 1.500 | 30.78636 | 30.55335 | 29.90860 |
| SN | 120 | 30.62135 | 34720.64300 | 1.100 | 30.95864 | 30.63719 | 30.26822 |
| SR | 88 | 30.98217 | 27817.67300 | 3.600 | 30.54927 | 30.13196 | 32.26527 |
| ZN | 66 | 306.44614 | 59861.16700 | 0.900 | 303.21775 | 308.56182 | 307.55885 |
| **BI-3** | 209 | 152443.37000 | 0.00000 | 0.000 | 152050.91000 | 152736.63000 | 152542.57000 |
| PB | 208 | 30.05445 | 196447.11000 | 0.600 | 30.02804 | 29.90335 | 30.23196 |
| TL | 205 | 29.90499 | 143878.95700 | 1.000 | 30.00235 | 29.57183 | 30.14078 |
| U | 238 | 50.48902 | 334187.47000 | 0.600 | 50.24987 | 50.36979 | 50.84741 |
| *SC-2* | 45 | 270743.24300 | 0.00000 | 0.000 | 270484.08000 | 269568.92000 | 272176.73000 |
| *GE-1* | 72 | 714905.95300 | 0.00000 | 0.000 | 710830.07000 | 720161.24000 | 713726.55000 |
| *GE-2* | 72 | 322870.40700 | 0.00000 | 0.000 | 326708.49000 | 321186.60000 | 320716.13000 |
| *TB-3* | 159 | 206514.05000 | 0.00000 | 0.000 | 209380.56000 | 205675.13000 | 204486.46000 |

Run Name: 2003506E07 Date/Time: 02/04/2020 17:30:10
Tube Number: 44
Sample Number: **CCB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 763630.85000 | 0.00000 | 0.000 | 758029.13000 | 765328.82000 | 767534.60000 |
| **SC-3** | 45 | 43602.22700 | 0.00000 | 0.000 | 43525.30000 | 43575.53000 | 43705.85000 |
| AL | 27 | 0.55945 | 96.67000 | 294.800 | -0.01743 | 2.41983 | -0.72406 |
| B | 11 | 15.65145 | 7170.41000 | 5.900 | 16.64513 | 15.47508 | 14.83415 |
| BE | 9 | 0.02352 | 20.66700 | 70.000 | 0.01589 | 0.01226 | 0.04240 |
| CA | 44 | 16.19145 | 176.67700 | 9.000 | 14.50983 | 17.10325 | 16.96126 |
| CR | 52 | 0.45022 | 1240.09000 | 30.100 | 0.46273 | 0.30898 | 0.57896 |
| FE | 57 | -0.90212 | 173.34000 | 0.000 | 0.88512 | -2.99027 | -0.60120 |
| K | 39 | 14.89558 | 27346.09700 | 91.100 | 27.78424 | 16.16595 | 0.73655 |
| MG | 24 | 6.75839 | 1100.08700 | 56.600 | 9.69322 | 8.14802 | 2.43392 |
| MN | 55 | 0.26871 | 333.34700 | 25.800 | 0.22902 | 0.22840 | 0.34871 |
| NA | 23 | 154.87716 | 69123.91000 | 1.700 | 157.29914 | 155.33999 | 151.99234 |
| TI | 47 | -0.12598 | 0.00000 | 0.000 | -0.12598 | -0.12598 | -0.12598 |
| V | 51 | 0.26710 | 1080.07700 | 34.000 | 0.17219 | 0.35297 | 0.27615 |
| **GE-3** | 72 | 127692.17300 | 0.00000 | 0.000 | 126432.14000 | 128640.63000 | 128003.75000 |
| SB | 121 | 0.25244 | 340.01300 | 20.400 | 0.20780 | 0.24078 | 0.30876 |
| **IN-2** | 115 | 303554.57300 | 0.00000 | 0.000 | 297639.60000 | 306356.66000 | 306667.46000 |
| **IN-3** | 115 | 69817.68000 | 0.00000 | 0.000 | 69954.85000 | 69181.64000 | 70316.55000 |
| AG | 107 | 0.02778 | 123.33700 | 57.900 | 0.04619 | 0.01648 | 0.02068 |
| AS | 75 | 0.10204 | 62.66700 | 37.500 | 0.06836 | 0.14365 | 0.09412 |
| BA | 137 | 0.05145 | 56.66700 | 72.700 | 0.01018 | 0.06105 | 0.08312 |
| CD | 111 | 0.02026 | 10.00000 | 33.800 | 0.01354 | 0.02723 | 0.01999 |
| CO | 59 | 0.03287 | 103.33300 | 28.100 | 0.04277 | 0.03141 | 0.02444 |
| CU | 63 | -0.00639 | 1290.10300 | 0.000 | -0.14851 | 0.14480 | -0.01547 |
| MO | 98 | 0.02262 | 73.33300 | 169.400 | 0.06566 | -0.00778 | 0.00998 |
| NI | 60 | 0.23757 | 1996.87700 | 122.500 | 0.33472 | 0.46761 | -0.08962 |
| SE | 78 | 0.23777 | 19.55300 | 21.100 | 0.29042 | 0.23224 | 0.19066 |
| SN | 120 | -0.00236 | 946.73000 | 0.000 | -0.04703 | 0.06393 | -0.02396 |
| SR | 88 | 0.09624 | 163.34300 | 40.400 | 0.05842 | 0.09422 | 0.13609 |
| ZN | 66 | 3.74180 | 6041.47000 | 46.100 | 2.03020 | 3.71594 | 5.47925 |
| **BI-3** | 209 | 151246.82000 | 0.00000 | 0.000 | 150773.14000 | 151391.58000 | 151575.74000 |
| PB | 208 | 0.14136 | 1163.40000 | 12.800 | 0.13212 | 0.16228 | 0.12968 |
| TL | 205 | 0.03637 | 200.01000 | 25.200 | 0.04070 | 0.02586 | 0.04255 |
| U | 238 | 0.00863 | 60.00000 | 17.400 | 0.00714 | 0.00863 | 0.01013 |
| *SC-2* | 45 | 268777.86300 | 0.00000 | 0.000 | 267774.53000 | 269530.74000 | 269028.32000 |
| *GE-1* | 72 | 713348.95000 | 0.00000 | 0.000 | 707564.29000 | 719675.38000 | 712807.18000 |
| *GE-2* | 72 | 323072.51300 | 0.00000 | 0.000 | 321100.11000 | 321932.20000 | 326185.23000 |
| *TB-3* | 159 | 204514.91300 | 0.00000 | 0.000 | 204843.32000 | 205076.70000 | 203624.72000 |

# US EPA Tune Check Report

| | |
|---|---|
| **Operator Name** | us19_usr_ins03786 |
| **Acq/Data Batch** | C:\Agilent\ICPMH\1\DATA\~EPATune.b |
| **Acq. Date-Time** | 2/4/2020 8:28:45 AM |
| **Report Comment** | --- |
| **Instrument Name** | G8403A SG18254097 |

**[No Gas]**

**Sensitivity**

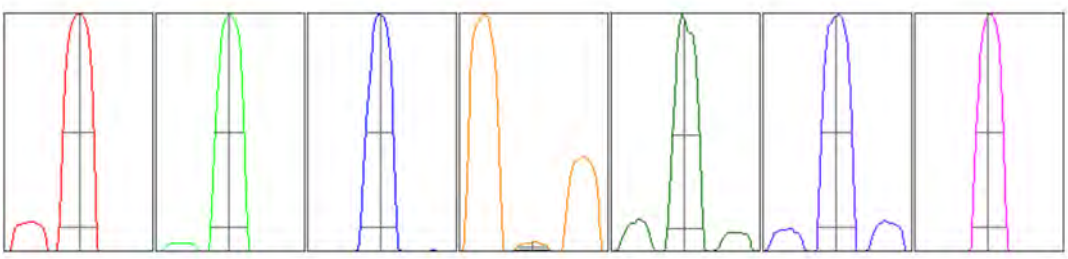
| Mass | Conc. [ug/l] | Count | CPS | Resp (Required) [cps/ug/l] | Resp (Flag) | RSD% | RSD% (Required) |
|---|---|---|---|---|---|---|---|
| 7 | 10.00 | 2707 | 27070.38 | | | 1.047 | 5.000 |
| 89 | 10.00 | 6887 | 68873.99 | | | 0.349 | 5.000 |
| 205 | 10.00 | 3124 | 31236.57 | | | 0.648 | 5.000 |
| 69 | | 19 | 185.51 | | | 3.897 | |
| 138 | | 78 | 775.06 | | | 2.788 | |
| 70 | | 209 | 2085.50 | | | 2.883 | |
| 140 | | 5693 | 56925.86 | | | 0.342 | |

| Mass | RSD% (Flag) |
|---|---|
| 7 | |
| 89 | |
| 205 | |
| 69 | |
| 138 | |
| 70 | |
| 140 | |

| Mass | Rep#1 Count | Rep#2 Count | Rep#3 Count | Rep#4 Count | Rep#5 Count |
|---|---|---|---|---|---|
| 7 | 2701 | 2697 | 2697 | 2756 | 2684 |
| 89 | 6895 | 6887 | 6888 | 6850 | 6917 |
| 205 | 3144 | 3105 | 3131 | 3099 | 3139 |
| 69 | 20 | 19 | 19 | 18 | 18 |
| 138 | 81 | 76 | 79 | 75 | 77 |
| 70 | 215 | 200 | 210 | 205 | 212 |
| 140 | 5692 | 5706 | 5674 | 5673 | 5718 |

Integration Time [sec] 0.1

**Resolution/Axis**



# US EPA Tune Check Report

| Mass | Peak Height | Axis | Axis (Required) | Axis (Flag) |
|---|---|---|---|---|
| 7 | 4456.46 | 7.05 | 6.90 - 7.10 | |
| 89 | 12104.04 | 89.00 | 88.90 - 89.10 | |
| 205 | 5758.16 | 205.00 | 204.90 - 205.10 | |
| 69 | 31.25 | 69.00 | - | |
| 138 | 145.06 | 138.00 | - | |
| 70 | 345.80 | 70.00 | - | |
| 140 | 10585.35 | 140.00 | - | |

| Mass | W-50% | W-10% | W-10% (Required) | W-10% (Flag) |
|---|---|---|---|---|
| 7 | 0.63 | 0.754 | 0.800 | |
| 89 | 0.60 | 0.750 | 0.800 | |
| 205 | 0.57 | 0.741 | 0.800 | |
| 69 | 0.62 | 0.732 | | |
| 138 | 0.56 | 0.723 | | |
| 70 | 0.62 | 0.763 | | |
| 140 | 0.56 | 0.708 | | |

| | |
|---|---|
| Integration Time [sec] | 0.1 |
| Acquisition Time [sec] | 223 |
| Y Axis | Linear |

## Tune Parameters

### Plasma Parameters

| | | | | | |
|---|---|---|---|---|---|
| Plasma Mode | General Purpose | Nebulizer Gas | 1.06 L/min | Makeup Gas | 0.00 L/min |
| RF Power | 1550 W | Option Gas | --- | Auxiliary Gas | 0.90 L/min |
| RF Matching | 1.10 V | Nebulizer Pump | 0.10 rps | Plasma Gas | 15.0 L/min |
| Sample Depth | 10.0 mm | S/C Temp | 2 °C | | |

### Lens Parameters

| | | | | | |
|---|---|---|---|---|---|
| Extract 1 | 0.0 V | Omega Lens | 8.4 V | Deflect | 10.0 V |
| Extract 2 | -175.0 V | Cell Entrance | -30 V | Plate Bias | -35 V |
| Omega Bias | -85 V | Cell Exit | -50 V | | |

### Cell Parameters

| | | | | | |
|---|---|---|---|---|---|
| Use Gas | No | 3rd Gas Flow | --- | Energy Discrimination | 5.0 V |
| He Flow | 0.0 mL/min | OctP Bias | -8.0 V | | |
| H2 Flow | 0.0 mL/min | OctP RF | 150 V | | |

### QP Parameters

| | | | | | |
|---|---|---|---|---|---|
| Mass Gain | 122 | Axis Gain | 0.9986 | QP Bias | -3.0 V |
| Mass Offset | 125 | Axis Offset | 0.09 | | |

## Hardware Settings

### Torch

| | | | |
|---|---|---|---|
| Torch H | 0.4 mm | Torch V | -0.2 mm |

### EM

| | | | | | |
|---|---|---|---|---|---|
| Discriminator | 4.3 mV | Analog HV | 2186 V | Pulse HV | 1388 V |

eurofins | Lancaster Laboratories Environmental

# ICP-MS Run Data Report

Method Reference Name(s):

Date File Name: 20B04F02.E07

Run Name: 2003507E07

Analyst: 25839

Reviewed By: Huyen Dao-Kendig

Reviewed Date: 02/04/2020 19:56

Verified By: Parker D Lindstrom

Verified Date: 02/06/2020 15:49

Instrument Parameters:

Rinse Time (sec): 25.00

| INTERNAL STD. | ELEMENT | MASS |
|---|---|---|
| **SC-1** | | 45 |
| | BE | 9 |
| | B | 11 |
| **SC-3** | | 45 |
| | NA | 23 |
| | MG | 24 |
| | AL | 27 |
| | K | 39 |
| | CA | 44 |
| | TI | 47 |
| | V | 51 |
| | CR | 52 |
| | MN | 55 |
| | FE | 57 |
| **GE-3** | | 72 |
| | SB | 121 |
| **IN-2** | | 115 |
| | SE | 78 |
| **IN-3** | | 115 |
| | CO | 59 |
| | NI | 60 |
| | CU | 63 |
| | ZN | 66 |
| | AS | 75 |
| | SR | 88 |
| | MO | 98 |
| | AG | 107 |
| | CD | 111 |
| | SN | 120 |
| | BA | 137 |
| **BI-3** | | 209 |
| | TL | 205 |
| | PB | 208 |
| | U | 238 |

Run Name: 2003507E07 Date/Time: 02/04/2020 16:06:56
Tube Number: 1
Sample Number: **S0**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| *BE* | 9 | 0.00000 | 7.33300 | 0.000 | -0.00208 | 0.00113 | 0.00095 |
| *B* | 11 | 0.00000 | 2037.48300 | 0.000 | -0.21849 | 0.25137 | -0.03287 |
| *NA* | 23 | 0.00000 | 47864.35700 | 0.000 | -2.01348 | 8.41817 | -6.40469 |
| *MG* | 24 | 0.00000 | 636.70700 | 0.000 | -0.24718 | -0.67183 | 0.91900 |
| *AL* | 27 | 0.00000 | 83.33300 | 0.000 | -0.47096 | 0.98149 | -0.51052 |
| *K* | 39 | 0.00000 | 27215.86700 | 0.000 | 4.15404 | 8.19917 | -12.35321 |
| *CA* | 44 | 0.00000 | 120.00300 | 0.000 | -2.62970 | -1.74777 | 4.37747 |
| *SC-1* | 45 | 836573.16300 | 0.00000 | 0.000 | 838927.72000 | 829053.35000 | 841738.42000 |
| *SC-2* | 45 | 280350.86300 | 0.00000 | 0.000 | 278161.97000 | 282421.13000 | 280469.49000 |
| *SC-3* | 45 | 45267.35000 | 0.00000 | 0.000 | 45471.19000 | 44077.16000 | 46253.70000 |
| *TI* | 47 | 0.00000 | 3.33300 | 0.000 | 0.25197 | -0.12598 | -0.12598 |
| *V* | 51 | 0.00000 | 893.39300 | 0.000 | 0.17836 | -0.10719 | -0.07117 |
| *CR* | 52 | 0.00000 | 826.71300 | 0.000 | 0.01921 | -0.01485 | -0.00435 |
| *MN* | 55 | 0.00000 | 186.67700 | 0.000 | -0.07876 | -0.01954 | 0.09830 |
| *FE* | 57 | 0.00000 | 200.01000 | 0.000 | -3.25152 | -0.67421 | 3.92573 |
| *CO* | 59 | 0.00000 | 50.00000 | 0.000 | 0.01774 | -0.01185 | -0.00589 |
| *NI* | 60 | 0.00000 | 1950.20000 | 0.000 | 0.08571 | 0.08215 | -0.16786 |
| *CU* | 63 | 0.00000 | 1330.11000 | 0.000 | -0.07871 | 0.01426 | 0.06445 |
| *ZN* | 66 | 0.00000 | 5517.92000 | 0.000 | 0.59750 | 0.52898 | -1.12648 |
| *GE-1* | 72 | 773127.90300 | 0.00000 | 0.000 | 770763.66000 | 772728.50000 | 775891.55000 |
| *GE-2* | 72 | 339303.91700 | 0.00000 | 0.000 | 335716.48000 | 339998.20000 | 342197.07000 |
| *GE-3* | 72 | 131016.08700 | 0.00000 | 0.000 | 128944.32000 | 131951.19000 | 132152.75000 |
| *AS* | 75 | 0.00000 | 49.33300 | 0.000 | -0.02204 | -0.03748 | 0.05952 |
| *SE* | 78 | 0.00000 | 0.66700 | 0.000 | 0.00798 | -0.00005 | -0.00792 |
| *SR* | 88 | 0.00000 | 80.00300 | 0.000 | -0.01074 | 0.05467 | -0.04393 |
| *MO* | 98 | 0.00000 | 50.00000 | 0.000 | 0.00011 | -0.00015 | 0.00003 |
| *AG* | 107 | 0.00000 | 70.00000 | 0.000 | 0.00502 | -0.00504 | 0.00001 |
| *CD* | 111 | 0.00000 | 4.00000 | 0.000 | -0.00646 | -0.00650 | 0.01296 |
| *IN-2* | 115 | 320867.95300 | 0.00000 | 0.000 | 318374.45000 | 324015.74000 | 320213.67000 |
| *IN-3* | 115 | 71563.07300 | 0.00000 | 0.000 | 71381.91000 | 71794.40000 | 71512.91000 |
| *SN* | 120 | 0.00000 | 973.40000 | 0.000 | 0.02616 | 0.04775 | -0.07392 |
| *SB* | 121 | 0.00000 | 76.67000 | 0.000 | -0.03311 | -0.02477 | 0.05788 |
| *BA* | 137 | 0.00000 | 36.66700 | 0.000 | 0.05644 | -0.01633 | -0.04012 |
| *TB-3* | 159 | 205866.35300 | 0.00000 | 0.000 | 206465.27000 | 205755.02000 | 205378.77000 |
| *TL* | 205 | 0.00000 | 26.66700 | 0.000 | 0.00068 | 0.00072 | -0.00140 |
| *PB* | 208 | 0.00000 | 250.00700 | 0.000 | 0.00302 | -0.00287 | -0.00015 |
| *BI-3* | 209 | 152585.04000 | 0.00000 | 0.000 | 152768.42000 | 151775.76000 | 153210.94000 |
| *U* | 238 | 0.00000 | 3.33300 | 0.000 | 0.00101 | -0.00050 | -0.00050 |

Run Name: 2003507E07 Date/Time: 02/04/2020 16:09:04
Tube Number: 2
Sample Number: **S1**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 819553.81300 | 0.00000 | 0.000 | 810362.25000 | 827411.55000 | 820887.64000 |
| **SC-3** | 45 | 45023.20700 | 0.00000 | 0.000 | 44759.19000 | 45079.88000 | 45230.55000 |
| AL | 27 | 10000.00000 | 296468.12700 | 1.800 | 10122.94004 | 10081.12196 | 9795.93800 |
| B | 11 | 1000.00000 | 366240.93700 | 1.300 | 985.33230 | 1002.91502 | 1011.75268 |
| BE | 9 | 100.00000 | 63652.08000 | 0.600 | 99.44733 | 99.97993 | 100.57275 |
| CA | 44 | 10000.00000 | 39179.74700 | 1.600 | 9815.22052 | 10119.50477 | 10065.27472 |
| CR | 52 | 1000.00000 | 1018669.62000 | 0.300 | 996.42835 | 1001.06931 | 1002.50234 |
| FE | 57 | 10000.00000 | 214162.36700 | 0.800 | 9942.38620 | 10087.14509 | 9970.46871 |
| K | 39 | 10000.00000 | 804233.53000 | 0.600 | 10003.11559 | 10056.21456 | 9940.66985 |
| MG | 24 | 10000.00000 | 746335.53700 | 0.600 | 10047.21463 | 9938.23375 | 10014.55162 |
| MN | 55 | 1000.00000 | 591659.24700 | 0.500 | 1005.55031 | 997.71370 | 996.73599 |
| NA | 23 | 10000.00000 | 1581192.16300 | 1.300 | 10046.27927 | 10099.10956 | 9854.61117 |
| TI | 47 | 1000.00000 | 26197.55700 | 4.900 | 1053.33880 | 957.60396 | 989.05725 |
| V | 51 | 1000.00000 | 851665.43000 | 0.400 | 1004.40870 | 995.75680 | 999.83450 |
| **GE-3** | 72 | 128727.84700 | 0.00000 | 0.000 | 127692.03000 | 131808.14000 | 126683.37000 |
| SB | 121 | 100.00000 | 106051.33700 | 1.000 | 100.27993 | 98.92025 | 100.79981 |
| **IN-2** | 115 | 320315.09300 | 0.00000 | 0.000 | 324427.87000 | 320130.74000 | 316386.67000 |
| **IN-3** | 115 | 72001.87300 | 0.00000 | 0.000 | 72427.54000 | 72045.13000 | 71532.95000 |
| AG | 107 | 100.00000 | 204097.79000 | 1.500 | 98.31182 | 100.64648 | 101.04169 |
| AS | 75 | 1000.00000 | 147144.02300 | 0.800 | 991.01917 | 1003.61318 | 1005.36765 |
| BA | 137 | 1000.00000 | 418255.11000 | 0.900 | 993.03378 | 996.61477 | 1010.35145 |
| CD | 111 | 100.00000 | 31082.22300 | 0.600 | 99.28216 | 100.54423 | 100.17361 |
| CO | 59 | 1000.00000 | 1710424.50700 | 1.300 | 989.98598 | 995.87541 | 1014.13861 |
| CU | 63 | 1000.00000 | 1110683.26300 | 1.300 | 986.11253 | 1010.90821 | 1002.97926 |
| MO | 98 | 100.00000 | 111540.38000 | 0.400 | 99.66813 | 99.95355 | 100.37832 |
| NI | 60 | 1000.00000 | 413590.78700 | 0.900 | 990.80236 | 999.68212 | 1009.51552 |
| SE | 78 | 100.00000 | 8416.23700 | 0.500 | 100.26881 | 99.45770 | 100.27349 |
| SN | 120 | 100.00000 | 113496.09700 | 0.600 | 100.05037 | 99.35968 | 100.58994 |
| SR | 88 | 100.00000 | 91473.33000 | 0.900 | 99.83565 | 99.24362 | 100.92072 |
| ZN | 66 | 1000.00000 | 186796.33700 | 1.800 | 979.25635 | 1013.32629 | 1007.41736 |
| **BI-3** | 209 | 152220.94700 | 0.00000 | 0.000 | 150440.28000 | 153232.11000 | 152990.45000 |
| PB | 208 | 100.00000 | 652081.09700 | 0.500 | 100.59017 | 99.58254 | 99.82729 |
| TL | 205 | 100.00000 | 480306.20300 | 1.700 | 101.86402 | 98.54621 | 99.58977 |
| U | 238 | 100.00000 | 660878.27000 | 1.200 | 101.34024 | 99.48438 | 99.17538 |
| *SC-2* | 45 | 279488.62700 | 0.00000 | 0.000 | 283025.39000 | 277340.46000 | 278100.03000 |
| *GE-1* | 72 | 754460.84700 | 0.00000 | 0.000 | 751837.18000 | 759213.50000 | 752331.86000 |
| *GE-2* | 72 | 337624.52700 | 0.00000 | 0.000 | 342809.68000 | 335840.39000 | 334223.51000 |
| *TB-3* | 159 | 207044.30300 | 0.00000 | 0.000 | 207520.47000 | 208648.30000 | 204964.14000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 16:11:23
Tube Number: 3
Sample Number: **ICV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 806572.15000 | 0.00000 | 0.000 | 808540.61000 | 806715.85000 | 804459.99000 |
| **SC-3** | 45 | 44775.87300 | 0.00000 | 0.000 | 44427.87000 | 44638.57000 | 45261.18000 |
| AL | 27 | 4923.76603 | 145214.96300 | 1.800 | 4884.42793 | 5025.31506 | 4861.55510 |
| B | 11 | 334.08424 | 121714.58000 | 1.300 | 330.11433 | 333.54352 | 338.59486 |
| BE | 9 | 30.35633 | 19020.03000 | 3.500 | 29.15528 | 31.11993 | 30.79377 |
| CA | 44 | 5053.18148 | 19747.17000 | 0.100 | 5045.36632 | 5060.20167 | 5053.97644 |
| CR | 52 | 303.49552 | 308020.04700 | 1.200 | 301.85085 | 307.66868 | 300.96702 |
| FE | 57 | 4928.03139 | 105061.46700 | 0.500 | 4929.91972 | 4900.92337 | 4953.25109 |
| K | 39 | 4865.02117 | 402924.38300 | 1.200 | 4864.69057 | 4921.40782 | 4808.96511 |
| MG | 24 | 4959.11959 | 368390.15300 | 0.700 | 4967.24506 | 4988.63483 | 4921.47889 |
| MN | 55 | 304.05287 | 179032.40000 | 0.600 | 305.86382 | 303.91871 | 302.37608 |
| NA | 23 | 4642.51254 | 755399.07700 | 1.000 | 4644.05936 | 4687.08688 | 4596.39138 |
| TI | 47 | 294.09927 | 7665.57000 | 1.600 | 298.59190 | 289.47616 | 294.22975 |
| V | 51 | 298.22841 | 253218.82000 | 0.900 | 295.87652 | 301.15810 | 297.65060 |
| **GE-3** | 72 | 129233.07000 | 0.00000 | 0.000 | 127058.05000 | 130335.67000 | 130305.49000 |
| SB | 121 | 31.32789 | 33407.56000 | 1.100 | 31.63621 | 31.37087 | 30.97660 |
| **IN-2** | 115 | 312510.10000 | 0.00000 | 0.000 | 309426.97000 | 312671.79000 | 315431.54000 |
| **IN-3** | 115 | 71167.86700 | 0.00000 | 0.000 | 70929.92000 | 71060.85000 | 71512.83000 |
| AG | 107 | 30.63827 | 61856.62300 | 1.600 | 31.11957 | 30.66299 | 30.13224 |
| AS | 75 | 301.24167 | 43848.33000 | 0.300 | 300.06863 | 301.73953 | 301.91685 |
| BA | 137 | 303.09315 | 125328.81700 | 1.800 | 301.05716 | 309.25614 | 298.96615 |
| CD | 111 | 30.08371 | 9245.08700 | 1.200 | 30.06633 | 30.45449 | 29.73031 |
| CO | 59 | 282.30501 | 477334.77300 | 0.500 | 281.58667 | 281.49317 | 283.83520 |
| CU | 63 | 307.12306 | 338085.39700 | 0.800 | 309.47566 | 307.09452 | 304.79901 |
| MO | 98 | 30.74467 | 33931.28300 | 0.900 | 30.52011 | 30.67343 | 31.04047 |
| NI | 60 | 307.80123 | 127180.00000 | 1.000 | 306.07925 | 305.95593 | 311.36850 |
| SE | 78 | 29.65608 | 2435.54300 | 0.100 | 29.68899 | 29.66481 | 29.61443 |
| SN | 120 | 29.71271 | 34012.06300 | 1.000 | 30.00438 | 29.71281 | 29.42095 |
| SR | 88 | 30.30156 | 27453.84300 | 1.200 | 30.02997 | 30.14097 | 30.73373 |
| ZN | 66 | 306.67265 | 60430.18300 | 1.300 | 308.40873 | 302.17086 | 309.43836 |
| **BI-3** | 209 | 154675.08700 | 0.00000 | 0.000 | 155476.33000 | 154454.95000 | 154093.98000 |
| PB | 208 | 29.59404 | 196271.50300 | 0.500 | 29.50205 | 29.53031 | 29.74975 |
| TL | 205 | 29.93127 | 146116.96300 | 0.500 | 30.10806 | 29.82567 | 29.86008 |
| U | 238 | 49.65914 | 333506.16700 | 0.700 | 49.61357 | 50.03463 | 49.32921 |
| *SC-2* | 45 | 275307.80300 | 0.00000 | 0.000 | 273802.93000 | 274336.28000 | 277784.20000 |
| *GE-1* | 72 | 749505.61300 | 0.00000 | 0.000 | 756046.94000 | 748661.71000 | 743808.19000 |
| *GE-2* | 72 | 327536.72300 | 0.00000 | 0.000 | 321931.66000 | 327483.59000 | 333194.92000 |
| *TB-3* | 159 | 207275.69300 | 0.00000 | 0.000 | 205869.18000 | 209054.47000 | 206903.43000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 16:13:17
Tube Number: 4
Sample Number: **ICB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 809126.52300 | 0.00000 | 0.000 | 810584.52000 | 814165.61000 | 802629.44000 |
| **SC-3** | 45 | 44585.21000 | 0.00000 | 0.000 | 45431.14000 | 43896.39000 | 44428.10000 |
| AL | 27 | 2.65905 | 160.01000 | 69.900 | 1.53755 | 4.80391 | 1.63569 |
| B | 11 | 15.18782 | 7433.86700 | 6.200 | 15.76040 | 15.70016 | 14.10291 |
| BE | 9 | 0.04173 | 33.33300 | 30.400 | 0.05543 | 0.03932 | 0.03042 |
| CA | 44 | 21.30165 | 200.01000 | 63.000 | 7.54649 | 22.00714 | 34.35132 |
| CR | 52 | 0.58171 | 1400.12000 | 20.000 | 0.50683 | 0.52254 | 0.71574 |
| FE | 57 | 0.00031 | 196.67700 | 901264.800 | 2.31190 | 0.79929 | -3.11026 |
| K | 39 | 9.33419 | 27533.10000 | 93.600 | 8.93748 | 18.25978 | 0.80531 |
| MG | 24 | 6.33945 | 1093.40700 | 19.200 | 4.94343 | 6.92586 | 7.14904 |
| MN | 55 | 0.18029 | 290.01300 | 85.000 | 0.35709 | 0.08571 | 0.09807 |
| NA | 23 | 55.30417 | 55538.05700 | 25.400 | 39.10803 | 62.41614 | 64.38833 |
| TI | 47 | 0.38850 | 13.33300 | 57.800 | 0.25230 | 0.26553 | 0.64766 |
| V | 51 | -0.09457 | 800.05000 | 0.000 | -0.06520 | -0.15157 | -0.06694 |
| **GE-3** | 72 | 129830.50000 | 0.00000 | 0.000 | 129517.06000 | 129658.56000 | 130315.88000 |
| SB | 121 | 0.20671 | 296.68000 | 43.000 | 0.11677 | 0.29454 | 0.20881 |
| **IN-2** | 115 | 313470.52300 | 0.00000 | 0.000 | 312852.18000 | 312022.03000 | 315537.36000 |
| **IN-3** | 115 | 71060.30700 | 0.00000 | 0.000 | 69502.39000 | 71211.31000 | 72467.22000 |
| AG | 107 | 0.02499 | 120.00300 | 30.100 | 0.02132 | 0.01999 | 0.03365 |
| AS | 75 | 0.08909 | 62.00000 | 64.700 | 0.02875 | 0.14369 | 0.09482 |
| BA | 137 | 0.09011 | 73.33300 | 59.600 | 0.13467 | 0.10514 | 0.03052 |
| CD | 111 | 0.00649 | 6.00000 | 167.400 | 0.00038 | 0.00006 | 0.01902 |
| CO | 59 | 0.11707 | 246.68000 | 23.200 | 0.14622 | 0.11244 | 0.09255 |
| CU | 63 | 0.05051 | 1376.77300 | 219.900 | 0.04516 | -0.05779 | 0.16416 |
| MO | 98 | 0.05803 | 113.33300 | 21.100 | 0.06638 | 0.06370 | 0.04400 |
| NI | 60 | 0.10453 | 1980.20700 | 230.200 | -0.08517 | 0.02360 | 0.37514 |
| SE | 78 | 0.03529 | 3.55700 | 35.400 | 0.04889 | 0.03270 | 0.02428 |
| SN | 120 | -0.00051 | 966.73300 | 0.000 | 0.00437 | -0.13346 | 0.12754 |
| SR | 88 | 0.09277 | 163.34000 | 52.300 | 0.04803 | 0.14434 | 0.08596 |
| ZN | 66 | 1.98668 | 5831.36000 | 64.700 | 3.44324 | 1.50929 | 1.00751 |
| **BI-3** | 209 | 151775.76700 | 0.00000 | 0.000 | 150330.11000 | 154566.94000 | 150430.25000 |
| PB | 208 | 0.02318 | 400.01700 | 52.600 | 0.02233 | 0.03578 | 0.01142 |
| TL | 205 | 0.03002 | 170.01000 | 20.100 | 0.03451 | 0.02316 | 0.03238 |
| U | 238 | 0.01875 | 126.67300 | 13.800 | 0.02095 | 0.01589 | 0.01940 |
| *SC-2* | 45 | 274964.23300 | 0.00000 | 0.000 | 273977.75000 | 273689.62000 | 277225.33000 |
| *GE-1* | 72 | 754470.74300 | 0.00000 | 0.000 | 754254.13000 | 756283.58000 | 752874.52000 |
| *GE-2* | 72 | 332823.65300 | 0.00000 | 0.000 | 330912.22000 | 335139.33000 | 332419.41000 |
| *TB-3* | 159 | 204933.23700 | 0.00000 | 0.000 | 204303.26000 | 206589.25000 | 203907.20000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 16:15:11
Tube Number: 5
Sample Number: **LLC**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 820479.39000 | 0.00000 | 0.000 | 824539.21000 | 816619.28000 | 820279.68000 |
| **SC-3** | 45 | 44962.93300 | 0.00000 | 0.000 | 44568.51000 | 45270.20000 | 45050.09000 |
| AL | 27 | 28.27190 | 920.06300 | 14.400 | 26.50351 | 25.37774 | 32.93444 |
| B | 11 | 9.21923 | 5360.31300 | 2.400 | 9.37264 | 9.31826 | 8.96679 |
| BE | 9 | 0.49105 | 320.00700 | 6.300 | 0.46348 | 0.52487 | 0.48480 |
| CA | 44 | 125.83316 | 610.03300 | 17.700 | 109.15711 | 117.17735 | 151.16501 |
| CR | 52 | 2.62632 | 3490.51000 | 6.400 | 2.70625 | 2.73976 | 2.43296 |
| FE | 57 | 53.89128 | 1350.11300 | 9.100 | 48.33752 | 57.67259 | 55.66372 |
| K | 39 | 202.42814 | 42749.33000 | 8.200 | 221.60345 | 194.02922 | 191.65176 |
| MG | 24 | 57.64105 | 4924.30000 | 1.100 | 56.96411 | 57.68339 | 58.27563 |
| MN | 55 | 2.13562 | 1446.79000 | 5.800 | 2.04397 | 2.27650 | 2.08639 |
| NA | 23 | 236.47787 | 83785.39000 | 3.200 | 228.51435 | 243.56263 | 237.35662 |
| TI | 47 | 9.93515 | 263.34300 | 8.900 | 9.12891 | 10.88359 | 9.79294 |
| V | 51 | 0.29877 | 1140.08300 | 44.600 | 0.45247 | 0.23055 | 0.21328 |
| **GE-3** | 72 | 129769.46300 | 0.00000 | 0.000 | 129426.18000 | 129043.92000 | 130838.29000 |
| SB | 121 | 1.00572 | 1150.08700 | 13.700 | 0.86766 | 1.14341 | 1.00608 |
| **IN-2** | 115 | 315257.83300 | 0.00000 | 0.000 | 312267.50000 | 317012.12000 | 316493.88000 |
| **IN-3** | 115 | 72015.16000 | 0.00000 | 0.000 | 72688.57000 | 71421.63000 | 71935.28000 |
| AG | 107 | 0.57935 | 1253.43300 | 12.000 | 0.61606 | 0.49913 | 0.62287 |
| AS | 75 | 2.00081 | 344.01000 | 15.500 | 1.84440 | 1.80086 | 2.35716 |
| BA | 137 | 2.00075 | 873.39700 | 9.300 | 1.80661 | 2.17771 | 2.01791 |
| CD | 111 | 0.42670 | 136.66700 | 1.100 | 0.42688 | 0.42171 | 0.43149 |
| CO | 59 | 0.56488 | 1016.73700 | 1.500 | 0.56710 | 0.57177 | 0.55578 |
| CU | 63 | 0.99629 | 2443.63300 | 13.600 | 0.89228 | 0.94770 | 1.14889 |
| MO | 98 | 0.52252 | 633.37300 | 28.400 | 0.64792 | 0.56074 | 0.35890 |
| NI | 60 | 1.50738 | 2583.63700 | 27.700 | 1.89980 | 1.55264 | 1.06970 |
| SE | 78 | 0.99001 | 82.66700 | 11.100 | 0.95098 | 0.90457 | 1.11448 |
| SN | 120 | 1.90000 | 3117.16000 | 6.600 | 1.85032 | 2.04205 | 1.80762 |
| SR | 88 | 1.17793 | 1156.75300 | 8.800 | 1.06092 | 1.21369 | 1.25917 |
| ZN | 66 | 11.17283 | 7578.93000 | 12.600 | 11.29994 | 9.70615 | 12.51240 |
| **BI-3** | 209 | 151887.60000 | 0.00000 | 0.000 | 150199.70000 | 152272.27000 | 153190.83000 |
| PB | 208 | 0.52714 | 3677.00000 | 2.100 | 0.54016 | 0.52001 | 0.52124 |
| TL | 205 | 0.50220 | 2433.67000 | 8.700 | 0.48191 | 0.55229 | 0.47240 |
| U | 238 | 0.96472 | 6365.09000 | 4.600 | 0.95812 | 1.01167 | 0.92437 |
| *SC-2* | 45 | 279004.35700 | 0.00000 | 0.000 | 278021.40000 | 281180.31000 | 277811.36000 |
| *GE-1* | 72 | 761317.46000 | 0.00000 | 0.000 | 762221.47000 | 762733.27000 | 758997.64000 |
| *GE-2* | 72 | 334699.63000 | 0.00000 | 0.000 | 329804.49000 | 339975.03000 | 334319.37000 |
| *TB-3* | 159 | 206242.52700 | 0.00000 | 0.000 | 207021.87000 | 206335.56000 | 205370.15000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 16:17:06
Tube Number: 6
Sample Number: **ICSA**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 776793.03700 | 0.00000 | 0.000 | 766830.54000 | 787855.46000 | 775693.11000 |
| **SC-3** | 45 | 43234.48700 | 0.00000 | 0.000 | 43916.63000 | 43525.16000 | 42261.67000 |
| AL | 27 | 100645.72272 | 2863721.52000 | 2.600 | 99136.35896 | 99075.72223 | 103725.08696 |
| B | 11 | 12.14580 | 6083.92700 | 3.600 | 12.39271 | 11.64145 | 12.40324 |
| BE | 9 | 0.02953 | 24.66700 | 31.100 | 0.01894 | 0.03447 | 0.03519 |
| CA | 44 | 287987.74707 | 1079814.33000 | 3.200 | 279725.98855 | 286485.13744 | 297752.11522 |
| CR | 52 | 0.88009 | 1650.14700 | 5.400 | 0.93495 | 0.85914 | 0.84617 |
| FE | 57 | 240492.60605 | 4939953.26300 | 2.200 | 236683.65702 | 238328.79801 | 246465.36313 |
| K | 39 | 98290.23152 | 7359109.47300 | 2.300 | 97107.95455 | 96917.48744 | 100845.25258 |
| MG | 24 | 96475.71568 | 6906583.64700 | 2.700 | 94586.00457 | 95372.30350 | 99468.83897 |
| MN | 55 | 3.61925 | 2233.61300 | 1.300 | 3.58719 | 3.67472 | 3.59585 |
| NA | 23 | 222781.94499 | 32841489.51000 | 3.100 | 219108.09521 | 218601.38597 | 230636.35380 |
| TI | 47 | 1959.93655 | 49294.05000 | 2.400 | 1915.15665 | 1955.73736 | 2008.91564 |
| V | 51 | -0.19109 | 696.70700 | 0.000 | -0.06762 | -0.33850 | -0.16714 |
| **GE-3** | 72 | 123348.37700 | 0.00000 | 0.000 | 123305.38000 | 123849.02000 | 122890.73000 |
| SB | 121 | 0.52987 | 610.03300 | 14.500 | 0.61873 | 0.48821 | 0.48268 |
| **IN-2** | 115 | 286599.67000 | 0.00000 | 0.000 | 282353.28000 | 289943.02000 | 287502.71000 |
| **IN-3** | 115 | 66498.44300 | 0.00000 | 0.000 | 65293.36000 | 66799.68000 | 67402.29000 |
| AG | 107 | 0.05581 | 170.01000 | 35.400 | 0.06276 | 0.07113 | 0.03354 |
| AS | 75 | 0.54060 | 119.33300 | 6.500 | 0.50215 | 0.57115 | 0.54850 |
| BA | 137 | 1.43231 | 586.70000 | 16.300 | 1.54658 | 1.58700 | 1.16336 |
| CD | 111 | 0.62113 | 182.00000 | 5.400 | 0.63282 | 0.58358 | 0.64699 |
| CO | 59 | 1.21378 | 1960.20300 | 18.100 | 1.46645 | 1.11128 | 1.06360 |
| CU | 63 | 1.05556 | 2316.93700 | 14.200 | 1.14983 | 0.88294 | 1.13392 |
| MO | 98 | 2162.33484 | 2226304.91300 | 1.200 | 2191.36747 | 2155.82254 | 2139.81450 |
| NI | 60 | 0.68233 | 2070.22300 | 76.200 | 0.91325 | 1.04707 | 0.08667 |
| SE | 78 | 0.05408 | 4.66700 | 58.800 | 0.04600 | 0.02713 | 0.08912 |
| SN | 120 | -0.00821 | 896.72300 | 0.000 | -0.06667 | -0.05605 | 0.09809 |
| SR | 88 | 9.07175 | 7729.02300 | 3.200 | 9.39857 | 8.97220 | 8.84448 |
| ZN | 66 | 5.95316 | 6121.49700 | 22.300 | 7.40481 | 5.65472 | 4.79996 |
| **BI-3** | 209 | 141143.58700 | 0.00000 | 0.000 | 142200.10000 | 140434.41000 | 140796.25000 |
| PB | 208 | 0.12718 | 1000.05000 | 5.900 | 0.13418 | 0.12804 | 0.11932 |
| TL | 205 | 0.01319 | 83.33700 | 84.400 | 0.00560 | 0.00800 | 0.02597 |
| U | 238 | 0.01365 | 86.66700 | 25.200 | 0.01084 | 0.01262 | 0.01749 |
| *SC-2* | 45 | 261976.52700 | 0.00000 | 0.000 | 264822.03000 | 260377.73000 | 260729.82000 |
| *GE-1* | 72 | 728559.23700 | 0.00000 | 0.000 | 723172.65000 | 730207.57000 | 732297.49000 |
| *GE-2* | 72 | 314415.41300 | 0.00000 | 0.000 | 315265.56000 | 313347.05000 | 314633.63000 |
| *TB-3* | 159 | 200082.05300 | 0.00000 | 0.000 | 199522.71000 | 198367.54000 | 202355.91000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 16:19:06
Tube Number: 7
Sample Number: **ICSAB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 768512.17300 | 0.00000 | 0.000 | 763189.44000 | 773902.25000 | 768444.83000 |
| **SC-3** | 45 | 42529.13700 | 0.00000 | 0.000 | 42753.05000 | 42673.16000 | 42161.20000 |
| AL | 27 | 102333.73799 | 2865184.95700 | 0.400 | 102330.64322 | 101937.08026 | 102733.49048 |
| B | 11 | 9.91542 | 5258.27700 | 2.900 | 9.94141 | 9.61740 | 10.18746 |
| BE | 9 | 0.02668 | 22.66700 | 18.500 | 0.02583 | 0.03197 | 0.02222 |
| CA | 44 | 292685.12620 | 1079924.49000 | 1.100 | 289297.54202 | 293422.71127 | 295335.12530 |
| CR | 52 | 195.10543 | 188341.46300 | 2.100 | 192.48619 | 193.00637 | 199.82373 |
| FE | 57 | 244226.58369 | 4935892.21700 | 1.500 | 240602.53497 | 244180.10676 | 247897.10933 |
| K | 39 | 99671.59874 | 7342571.55700 | 0.100 | 99763.46615 | 99654.21971 | 99597.11036 |
| MG | 24 | 98347.57504 | 6928110.31300 | 0.300 | 98073.72216 | 98291.36393 | 98677.63904 |
| MN | 55 | 196.09266 | 109727.81700 | 1.400 | 193.60193 | 195.51317 | 199.16287 |
| NA | 23 | 226090.10492 | 32796747.01000 | 0.700 | 224282.77794 | 226669.66089 | 227317.87594 |
| TI | 47 | 1991.57250 | 49283.69000 | 1.700 | 1970.49618 | 1973.77426 | 2030.44705 |
| V | 51 | 195.68013 | 158088.50300 | 1.400 | 192.89958 | 195.79221 | 198.34861 |
| **GE-3** | 72 | 123838.34700 | 0.00000 | 0.000 | 121670.45000 | 124735.69000 | 125108.90000 |
| SB | 121 | 0.50892 | 590.03300 | 27.800 | 0.63798 | 0.35765 | 0.53113 |
| **IN-2** | 115 | 286778.46300 | 0.00000 | 0.000 | 288727.71000 | 286625.97000 | 284981.71000 |
| **IN-3** | 115 | 66421.21300 | 0.00000 | 0.000 | 65604.22000 | 67322.18000 | 66337.24000 |
| AG | 107 | 48.69004 | 91688.17700 | 2.900 | 49.98843 | 47.16583 | 48.91585 |
| AS | 75 | 102.06957 | 13894.05700 | 1.900 | 103.88530 | 99.97375 | 102.34966 |
| BA | 137 | 1.15632 | 480.02700 | 10.800 | 1.27639 | 1.16485 | 1.02772 |
| CD | 111 | 99.90007 | 28641.09300 | 1.600 | 101.03855 | 98.01856 | 100.64309 |
| CO | 59 | 182.60863 | 288167.39300 | 0.800 | 183.02491 | 180.97303 | 183.82796 |
| CU | 63 | 192.36298 | 198064.26300 | 2.000 | 196.47695 | 188.78703 | 191.82496 |
| MO | 98 | 2170.27248 | 2231989.86000 | 1.000 | 2189.74107 | 2147.62709 | 2173.44927 |
| NI | 60 | 193.55386 | 75309.08700 | 1.500 | 195.71754 | 194.65033 | 190.29371 |
| SE | 78 | 100.37019 | 7562.87700 | 0.300 | 100.06681 | 100.57023 | 100.47352 |
| SN | 120 | -0.01593 | 886.72700 | 0.000 | 0.03684 | -0.00533 | -0.07931 |
| SR | 88 | 8.68825 | 7398.78000 | 1.000 | 8.74076 | 8.58576 | 8.73821 |
| ZN | 66 | 103.53415 | 22434.57000 | 2.600 | 100.86888 | 103.54049 | 106.19307 |
| **BI-3** | 209 | 143633.38000 | 0.00000 | 0.000 | 143909.06000 | 144131.96000 | 142859.12000 |
| PB | 208 | 0.11947 | 970.05300 | 7.800 | 0.12727 | 0.10919 | 0.12195 |
| TL | 205 | 0.00477 | 46.66700 | 142.400 | -0.00114 | 0.00325 | 0.01221 |
| U | 238 | 0.01127 | 73.33300 | 36.300 | 0.00750 | 0.01068 | 0.01562 |
| *SC-2* | 45 | 265481.53000 | 0.00000 | 0.000 | 263386.79000 | 265334.23000 | 267723.57000 |
| *GE-1* | 72 | 719168.27000 | 0.00000 | 0.000 | 710691.63000 | 719618.50000 | 727194.68000 |
| *GE-2* | 72 | 316438.40700 | 0.00000 | 0.000 | 315883.88000 | 316067.85000 | 317363.49000 |
| *TB-3* | 159 | 199124.99000 | 0.00000 | 0.000 | 199624.63000 | 201187.34000 | 196563.00000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 16:21:06
Tube Number: 8
Sample Number: **LRS3**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 788601.08300 | 0.00000 | 0.000 | 786588.27000 | 793469.68000 | 785745.30000 |
| **SC-3** | 45 | 44554.85700 | 0.00000 | 0.000 | 43935.97000 | 44568.48000 | 45160.12000 |
| AL | 27 | 52373.11461 | 1536196.59300 | 0.600 | 52708.29142 | 52281.76828 | 52129.28414 |
| B | 11 | 501.62066 | 177718.50300 | 2.700 | 488.34753 | 501.28811 | 515.22635 |
| BE | 9 | 494.67354 | 302940.58700 | 2.600 | 481.75295 | 494.49602 | 507.77166 |
| CA | 44 | 49770.55930 | 192480.76000 | 0.700 | 50197.16354 | 49568.06782 | 49546.44654 |
| CR | 52 | 494.56746 | 498962.92300 | 0.600 | 493.26615 | 497.88045 | 492.55578 |
| FE | 57 | 48423.23275 | 1025460.61000 | 0.300 | 48572.13698 | 48439.47881 | 48258.08246 |
| K | 39 | 50406.00625 | 3903278.06700 | 0.300 | 50576.71774 | 50390.98193 | 50250.31908 |
| MG | 24 | 50034.10690 | 3692745.46700 | 0.500 | 50289.81149 | 50003.81974 | 49808.68946 |
| MN | 55 | 497.54643 | 291414.14000 | 0.400 | 496.07014 | 500.04550 | 496.52367 |
| NA | 23 | 45544.38584 | 6959403.02000 | 0.400 | 45347.93380 | 45646.60280 | 45638.62093 |
| TI | 47 | 512.22371 | 13286.40700 | 3.300 | 501.57129 | 503.32827 | 531.77157 |
| V | 51 | 495.39254 | 417985.69700 | 0.700 | 494.55352 | 492.29938 | 499.32473 |
| **GE-3** | 72 | 128071.72700 | 0.00000 | 0.000 | 124786.76000 | 127025.44000 | 132402.98000 |
| SB | 121 | 477.13737 | 502975.94300 | 2.400 | 485.67408 | 481.47009 | 464.26794 |
| **IN-2** | 115 | 319520.38300 | 0.00000 | 0.000 | 321232.71000 | 317780.52000 | 319547.92000 |
| **IN-3** | 115 | 73864.87700 | 0.00000 | 0.000 | 73342.32000 | 73171.10000 | 75081.21000 |
| AG | 107 | 601.25803 | 1258411.23300 | 1.900 | 601.07933 | 612.58256 | 590.11219 |
| AS | 75 | 481.39058 | 72688.53300 | 1.200 | 479.62450 | 487.98106 | 476.56617 |
| BA | 137 | 475.10138 | 203856.23300 | 1.400 | 477.53949 | 480.00096 | 467.76368 |
| CD | 111 | 476.45849 | 151894.80000 | 1.600 | 474.49341 | 484.77427 | 470.10780 |
| CO | 59 | 441.10917 | 773983.50700 | 1.300 | 441.51163 | 446.74412 | 435.07177 |
| CU | 63 | 478.28329 | 545645.93000 | 1.200 | 477.96334 | 484.05738 | 472.82916 |
| MO | 98 | 482.88960 | 552304.60000 | 1.300 | 482.43543 | 489.31412 | 476.91924 |
| NI | 60 | 472.45542 | 201515.57000 | 1.400 | 468.32195 | 479.85055 | 469.19376 |
| SE | 78 | 476.37605 | 39990.70000 | 0.300 | 475.01155 | 476.40915 | 477.70746 |
| SN | 120 | 477.95168 | 552651.49000 | 1.200 | 476.86219 | 484.05330 | 472.93953 |
| SR | 88 | 482.84277 | 452756.51700 | 1.000 | 482.37092 | 488.12003 | 478.03736 |
| ZN | 66 | 471.18950 | 93306.74300 | 1.200 | 466.58770 | 477.63464 | 469.34617 |
| **BI-3** | 209 | 148613.90700 | 0.00000 | 0.000 | 148639.84000 | 150583.64000 | 146618.24000 |
| PB | 208 | 502.48199 | 3197489.38700 | 2.200 | 497.39247 | 494.63709 | 515.41641 |
| TL | 205 | 523.16118 | 2453140.43300 | 1.900 | 514.44675 | 521.45339 | 533.58341 |
| U | 238 | 6.07250 | 39186.74000 | 0.200 | 6.08284 | 6.06407 | 6.07059 |
| *SC-2* | 45 | 268368.40300 | 0.00000 | 0.000 | 268202.54000 | 267476.09000 | 269426.58000 |
| *GE-1* | 72 | 731682.72300 | 0.00000 | 0.000 | 728500.38000 | 733892.49000 | 732655.30000 |
| *GE-2* | 72 | 319383.30700 | 0.00000 | 0.000 | 323598.04000 | 314972.63000 | 319579.25000 |
| *TB-3* | 159 | 205082.08000 | 0.00000 | 0.000 | 203016.48000 | 206121.17000 | 206108.59000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 16:22:59
Tube Number: 9
Sample Number: **CCS**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 806051.42300 | 0.00000 | 0.000 | 807133.43000 | 817597.80000 | 793423.04000 |
| **SC-3** | 45 | 45595.01300 | 0.00000 | 0.000 | 46394.06000 | 44578.69000 | 45812.29000 |
| AL | 27 | 15.06127 | 536.69700 | 30.300 | 19.12859 | 15.93268 | 10.12254 |
| B | 11 | 14.69885 | 7229.77000 | 7.200 | 15.90143 | 14.25649 | 13.93864 |
| BE | 9 | 0.33935 | 219.33300 | 13.400 | 0.38119 | 0.29111 | 0.34577 |
| CA | 44 | 48.78003 | 313.35300 | 11.300 | 44.02811 | 54.82109 | 47.49090 |
| CR | 52 | 0.50660 | 1353.44700 | 27.600 | 0.34605 | 0.57166 | 0.60211 |
| FE | 57 | 21.23832 | 660.04000 | 22.800 | 21.12257 | 26.13690 | 16.45549 |
| K | 39 | 16.06346 | 28695.42300 | 62.200 | 27.29158 | 12.77659 | 8.12221 |
| MG | 24 | 13.33525 | 1650.15000 | 20.100 | 15.98826 | 10.61816 | 13.39932 |
| MN | 55 | 0.13176 | 266.67700 | 27.400 | 0.12987 | 0.09668 | 0.16873 |
| NA | 23 | -11.82993 | 46376.35700 | 0.000 | -16.90874 | -2.57011 | -16.01092 |
| TI | 47 | 0.36949 | 13.33300 | 153.000 | 0.98531 | -0.12598 | 0.24915 |
| V | 51 | -0.02159 | 880.06300 | 0.000 | -0.06268 | 0.03662 | -0.03870 |
| **GE-3** | 72 | 129616.66700 | 0.00000 | 0.000 | 129801.40000 | 129681.45000 | 129367.15000 |
| SB | 121 | 6.36337 | 6865.30700 | 18.700 | 5.14218 | 6.43065 | 7.51730 |
| **IN-2** | 115 | 312638.94300 | 0.00000 | 0.000 | 313561.26000 | 309510.13000 | 314845.44000 |
| **IN-3** | 115 | 72364.26300 | 0.00000 | 0.000 | 71392.77000 | 72940.32000 | 72759.70000 |
| AG | 107 | 0.46478 | 1023.40300 | 8.000 | 0.49934 | 0.42511 | 0.46991 |
| AS | 75 | 0.09508 | 64.00000 | 60.900 | 0.04648 | 0.15912 | 0.07963 |
| BA | 137 | 0.11008 | 83.33300 | 45.200 | 0.12876 | 0.14776 | 0.05370 |
| CD | 111 | 0.07906 | 28.66700 | 50.000 | 0.11685 | 0.08233 | 0.03799 |
| CO | 59 | 0.07515 | 180.01000 | 40.000 | 0.05312 | 0.06291 | 0.10942 |
| CU | 63 | 0.17268 | 1536.81000 | 57.300 | 0.26663 | 0.18198 | 0.06944 |
| MO | 98 | 0.77292 | 916.73300 | 19.900 | 0.74192 | 0.63667 | 0.94018 |
| NI | 60 | 0.46126 | 2160.23300 | 178.400 | 1.40817 | 0.05393 | -0.07834 |
| SE | 78 | 0.20301 | 17.33300 | 9.800 | 0.19443 | 0.18884 | 0.22576 |
| SN | 120 | 1.70143 | 2907.36000 | 16.100 | 1.79287 | 1.39340 | 1.91803 |
| SR | 88 | 0.03553 | 113.33300 | 51.000 | 0.05546 | 0.02001 | 0.03111 |
| ZN | 66 | 3.00523 | 6124.87300 | 73.900 | 4.99101 | 3.41764 | 0.60702 |
| **BI-3** | 209 | 154013.54700 | 0.00000 | 0.000 | 154494.79000 | 152565.39000 | 154980.46000 |
| PB | 208 | 0.10131 | 920.04700 | 33.600 | 0.13104 | 0.10869 | 0.06421 |
| TL | 205 | 0.10905 | 556.70000 | 25.600 | 0.13600 | 0.11079 | 0.08035 |
| U | 238 | 0.00747 | 53.33300 | 30.100 | 0.00546 | 0.00705 | 0.00990 |
| *SC-2* | 45 | 276312.36000 | 0.00000 | 0.000 | 277820.02000 | 273183.26000 | 277933.80000 |
| *GE-1* | 72 | 751723.81700 | 0.00000 | 0.000 | 751734.75000 | 762007.88000 | 741428.82000 |
| *GE-2* | 72 | 331290.52700 | 0.00000 | 0.000 | 330029.64000 | 329245.54000 | 334596.40000 |
| *TB-3* | 159 | 206630.26000 | 0.00000 | 0.000 | 206292.46000 | 207698.30000 | 205900.02000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 16:24:54
Tube Number: 10
Sample Number: **CCS**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 812126.68000 | 0.00000 | 0.000 | 814948.89000 | 809243.19000 | 812187.96000 |
| **SC-3** | 45 | 44414.75700 | 0.00000 | 0.000 | 44147.49000 | 43414.85000 | 45681.93000 |
| AL | 27 | 8.64722 | 333.35000 | 38.300 | 10.26613 | 10.83667 | 4.83885 |
| B | 11 | 4.31173 | 3534.43300 | 5.800 | 4.38259 | 4.51889 | 4.03370 |
| BE | 9 | 0.10498 | 73.33300 | 16.600 | 0.09616 | 0.09373 | 0.12506 |
| CA | 44 | 45.78876 | 293.34700 | 26.000 | 55.65459 | 49.14076 | 32.57094 |
| CR | 52 | 0.77333 | 1586.80700 | 9.200 | 0.71539 | 0.85320 | 0.75140 |
| FE | 57 | 9.74591 | 400.02000 | 43.300 | 13.13525 | 11.08987 | 5.01259 |
| K | 39 | 21.22916 | 28321.37300 | 116.200 | 46.15668 | 20.72271 | -3.19192 |
| MG | 24 | 5.67552 | 1040.07300 | 36.000 | 7.93246 | 5.14965 | 3.94444 |
| MN | 55 | 0.08249 | 230.01000 | 123.800 | 0.16965 | 0.10767 | -0.02985 |
| NA | 23 | -11.60489 | 45209.32700 | 0.000 | -9.23875 | -6.79807 | -18.77785 |
| TI | 47 | 0.26987 | 10.00000 | 254.100 | -0.12598 | 1.06157 | -0.12598 |
| V | 51 | -0.18569 | 720.04000 | 0.000 | -0.13267 | -0.21481 | -0.20961 |
| **GE-3** | 72 | 129165.92000 | 0.00000 | 0.000 | 128761.91000 | 128671.81000 | 130064.04000 |
| SB | 121 | 1.57413 | 1750.17700 | 17.400 | 1.26873 | 1.65669 | 1.79699 |
| **IN-2** | 115 | 316678.27700 | 0.00000 | 0.000 | 315746.87000 | 318234.88000 | 316053.08000 |
| **IN-3** | 115 | 71653.70000 | 0.00000 | 0.000 | 71402.03000 | 72950.65000 | 70608.42000 |
| AG | 107 | 0.21558 | 506.69300 | 24.000 | 0.22742 | 0.15897 | 0.26036 |
| AS | 75 | 0.03564 | 54.66700 | 323.900 | 0.15611 | 0.02486 | -0.07404 |
| BA | 137 | 0.02394 | 46.66700 | 155.900 | -0.01593 | 0.02973 | 0.05803 |
| CD | 111 | 0.04525 | 18.00000 | 76.000 | 0.08439 | 0.03151 | 0.01986 |
| CO | 59 | 0.04495 | 126.67300 | 52.500 | 0.01773 | 0.05712 | 0.05999 |
| CU | 63 | 0.18971 | 1540.13700 | 54.500 | 0.27552 | 0.07500 | 0.21863 |
| MO | 98 | 0.27040 | 350.02000 | 9.000 | 0.29859 | 0.25589 | 0.25672 |
| NI | 60 | 0.38153 | 2106.89700 | 126.500 | 0.28035 | -0.04268 | 0.90693 |
| SE | 78 | 0.05616 | 5.33300 | 24.500 | 0.04030 | 0.06384 | 0.06433 |
| SN | 120 | 0.27624 | 1283.43700 | 22.200 | 0.33962 | 0.21744 | 0.27165 |
| SR | 88 | 0.01865 | 96.66700 | 196.100 | 0.04441 | -0.02320 | 0.03474 |
| ZN | 66 | 3.62885 | 6178.20000 | 26.200 | 2.92641 | 3.24924 | 4.71091 |
| **BI-3** | 209 | 152645.59300 | 0.00000 | 0.000 | 153251.49000 | 152819.00000 | 151866.29000 |
| PB | 208 | 0.04077 | 516.69000 | 11.200 | 0.04403 | 0.04274 | 0.03556 |
| TL | 205 | 0.03945 | 216.67700 | 18.600 | 0.03168 | 0.04630 | 0.04037 |
| U | 238 | 0.00503 | 36.66700 | 75.400 | 0.00100 | 0.00854 | 0.00556 |
| *SC-2* | 45 | 280141.59300 | 0.00000 | 0.000 | 280803.77000 | 281541.13000 | 278079.88000 |
| *GE-1* | 72 | 754683.94300 | 0.00000 | 0.000 | 760182.64000 | 745034.36000 | 758834.83000 |
| *GE-2* | 72 | 336573.77300 | 0.00000 | 0.000 | 336333.32000 | 334857.89000 | 338530.11000 |
| *TB-3* | 159 | 205633.62700 | 0.00000 | 0.000 | 203401.05000 | 205856.38000 | 207643.45000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 16:26:49
Tube Number: 11
Sample Number: **CCV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 821206.13300 | 0.00000 | 0.000 | 824396.00000 | 828086.32000 | 811136.08000 |
| **SC-3** | 45 | 45685.24700 | 0.00000 | 0.000 | 45250.83000 | 45320.74000 | 46484.17000 |
| AL | 27 | 4960.83658 | 149264.31300 | 1.500 | 5016.58106 | 4986.46966 | 4879.45903 |
| B | 11 | 301.77297 | 112114.88300 | 3.100 | 292.47901 | 301.65746 | 311.18245 |
| BE | 9 | 30.16320 | 19240.30000 | 2.300 | 29.49826 | 30.11421 | 30.87714 |
| CA | 44 | 5023.45388 | 20031.01300 | 2.900 | 4874.01052 | 5161.92011 | 5034.43101 |
| CR | 52 | 301.53964 | 312198.00300 | 2.200 | 304.58744 | 305.96990 | 294.06159 |
| FE | 57 | 4939.25700 | 107418.75300 | 2.500 | 4901.84702 | 5074.94065 | 4840.98334 |
| K | 39 | 4936.01434 | 416628.01700 | 2.500 | 5017.80249 | 4996.31841 | 4793.92212 |
| MG | 24 | 4961.62319 | 376040.92000 | 0.900 | 4990.92156 | 4984.49605 | 4909.45197 |
| MN | 55 | 299.87526 | 180142.01000 | 1.700 | 299.59750 | 305.17143 | 294.85684 |
| NA | 23 | 4631.88486 | 769042.49000 | 1.100 | 4653.27705 | 4668.35551 | 4574.02204 |
| TI | 47 | 297.54098 | 7905.73000 | 9.600 | 304.93956 | 321.54302 | 266.14036 |
| V | 51 | 301.40606 | 261082.52700 | 0.800 | 302.99286 | 302.64632 | 298.57901 |
| **GE-3** | 72 | 130065.98300 | 0.00000 | 0.000 | 131020.82000 | 129679.74000 | 129497.39000 |
| SB | 121 | 30.93678 | 33203.66700 | 3.700 | 30.26847 | 30.29086 | 32.25102 |
| **IN-2** | 115 | 315320.88700 | 0.00000 | 0.000 | 312870.97000 | 316474.08000 | 316617.61000 |
| **IN-3** | 115 | 71777.83300 | 0.00000 | 0.000 | 71723.74000 | 70237.08000 | 73372.68000 |
| AG | 107 | 31.06473 | 63249.36000 | 1.100 | 31.31847 | 31.18962 | 30.68611 |
| AS | 75 | 308.56715 | 45284.72700 | 2.000 | 308.51700 | 314.83137 | 302.35309 |
| BA | 137 | 307.76383 | 128311.30300 | 2.300 | 306.43992 | 315.40493 | 301.44665 |
| CD | 111 | 30.36237 | 9408.51300 | 1.800 | 30.28279 | 30.93071 | 29.87362 |
| CO | 59 | 289.63147 | 493725.01700 | 2.700 | 286.94880 | 298.58379 | 283.36181 |
| CU | 63 | 308.52614 | 342406.97300 | 2.700 | 308.48384 | 316.92062 | 300.17396 |
| MO | 98 | 30.95771 | 34442.90000 | 3.100 | 30.75108 | 32.00153 | 30.12052 |
| NI | 60 | 309.91245 | 129104.28700 | 1.800 | 306.70267 | 316.38407 | 306.65061 |
| SE | 78 | 29.61597 | 2454.21300 | 0.700 | 29.40261 | 29.82161 | 29.62368 |
| SN | 120 | 30.57197 | 35255.49700 | 3.900 | 31.63978 | 30.79329 | 29.28285 |
| SR | 88 | 31.26900 | 28566.16300 | 0.900 | 31.16045 | 31.58564 | 31.06092 |
| ZN | 66 | 310.32659 | 61588.49700 | 2.300 | 309.99618 | 317.71747 | 303.26612 |
| **BI-3** | 209 | 153595.20000 | 0.00000 | 0.000 | 152006.13000 | 155163.59000 | 153615.88000 |
| PB | 208 | 30.07507 | 198050.75000 | 1.300 | 30.37969 | 29.64430 | 30.20122 |
| TL | 205 | 30.11729 | 145985.53700 | 1.500 | 30.27254 | 29.62142 | 30.45791 |
| U | 238 | 50.21338 | 334836.28300 | 1.600 | 50.96901 | 49.36530 | 50.30582 |
| *SC-2* | 45 | 278076.97300 | 0.00000 | 0.000 | 277839.82000 | 276872.22000 | 279518.88000 |
| *GE-1* | 72 | 753803.37300 | 0.00000 | 0.000 | 753247.10000 | 759772.33000 | 748390.69000 |
| *GE-2* | 72 | 330316.04000 | 0.00000 | 0.000 | 329803.32000 | 329837.30000 | 331307.50000 |
| *TB-3* | 159 | 207213.13000 | 0.00000 | 0.000 | 206648.32000 | 208321.95000 | 206669.12000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 16:28:43
Tube Number: 12
Sample Number: **CCB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 815519.59300 | 0.00000 | 0.000 | 814268.89000 | 813564.36000 | 818725.53000 |
| **SC-3** | 45 | 45170.09700 | 0.00000 | 0.000 | 45551.46000 | 44768.78000 | 45190.05000 |
| AL | 27 | 2.78727 | 166.67300 | 55.200 | 4.52729 | 1.60152 | 2.23301 |
| B | 11 | 10.18593 | 5677.76300 | 5.700 | 10.62707 | 10.40860 | 9.52212 |
| BE | 9 | 0.06767 | 50.00000 | 8.500 | 0.07094 | 0.07102 | 0.06106 |
| CA | 44 | 18.86815 | 193.34300 | 82.900 | 20.09879 | 33.85770 | 2.64794 |
| CR | 52 | 0.68103 | 1520.13000 | 4.700 | 0.67817 | 0.71403 | 0.65087 |
| FE | 57 | 1.77224 | 236.67700 | 174.200 | 0.43350 | 5.30340 | -0.42020 |
| K | 39 | 6.85396 | 27710.13000 | 270.800 | 27.99670 | -0.68350 | -6.75133 |
| MG | 24 | 0.57382 | 676.70700 | 269.600 | -0.65945 | 2.30965 | 0.07125 |
| MN | 55 | -0.04880 | 156.67300 | 0.000 | -0.07917 | 0.02693 | -0.09416 |
| NA | 23 | -28.62167 | 43370.35300 | 0.000 | -39.40533 | -24.53626 | -21.92342 |
| TI | 47 | -0.12598 | 0.00000 | 0.000 | -0.12598 | -0.12598 | -0.12598 |
| V | 51 | -0.17728 | 740.04700 | 0.000 | -0.07941 | -0.27534 | -0.17709 |
| **GE-3** | 72 | 131384.22700 | 0.00000 | 0.000 | 130233.26000 | 131869.19000 | 132050.23000 |
| SB | 121 | 0.55413 | 676.71000 | 23.700 | 0.41418 | 0.57395 | 0.67426 |
| **IN-2** | 115 | 315992.28000 | 0.00000 | 0.000 | 311645.09000 | 321024.37000 | 315307.38000 |
| **IN-3** | 115 | 71227.89300 | 0.00000 | 0.000 | 70869.35000 | 71824.25000 | 70990.08000 |
| AG | 107 | 0.20170 | 476.69300 | 6.500 | 0.20948 | 0.18657 | 0.20906 |
| AS | 75 | 0.11606 | 66.00000 | 19.600 | 0.13219 | 0.12595 | 0.09003 |
| BA | 137 | -0.01574 | 30.00000 | 0.000 | 0.00890 | -0.01636 | -0.03976 |
| CD | 111 | 0.02823 | 12.66700 | 26.300 | 0.03281 | 0.03220 | 0.01968 |
| CO | 59 | 0.06711 | 163.34300 | 13.900 | 0.07748 | 0.06434 | 0.05951 |
| CU | 63 | 0.16664 | 1506.80300 | 28.500 | 0.11263 | 0.18547 | 0.20182 |
| MO | 98 | 0.10889 | 170.01000 | 32.400 | 0.10980 | 0.14371 | 0.07315 |
| NI | 60 | 0.36389 | 2090.22000 | 163.800 | 0.31830 | 0.98134 | -0.20796 |
| SE | 78 | 0.03203 | 3.33300 | 64.000 | 0.01650 | 0.05527 | 0.02431 |
| SN | 120 | 0.12667 | 1110.08700 | 76.600 | 0.01458 | 0.18105 | 0.18437 |
| SR | 88 | -0.03634 | 46.66700 | 0.000 | -0.02130 | -0.04412 | -0.04360 |
| ZN | 66 | 2.75722 | 5988.13700 | 74.700 | 1.88897 | 5.10887 | 1.27381 |
| **BI-3** | 209 | 152455.91000 | 0.00000 | 0.000 | 152745.41000 | 152292.59000 | 152329.73000 |
| PB | 208 | 0.01382 | 340.01700 | 58.200 | 0.01984 | 0.00468 | 0.01694 |
| TL | 205 | 0.02494 | 146.67700 | 17.100 | 0.02973 | 0.02359 | 0.02151 |
| U | 238 | 0.00907 | 63.33300 | 34.700 | 0.01005 | 0.01160 | 0.00555 |
| *SC-2* | 45 | 279452.97300 | 0.00000 | 0.000 | 276053.49000 | 279371.23000 | 282934.20000 |
| *GE-1* | 72 | 754622.59300 | 0.00000 | 0.000 | 752065.30000 | 753574.05000 | 758228.43000 |
| *GE-2* | 72 | 336535.11300 | 0.00000 | 0.000 | 330725.78000 | 339903.39000 | 338976.17000 |
| *TB-3* | 159 | 206308.90700 | 0.00000 | 0.000 | 206304.65000 | 206084.14000 | 206537.93000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 17:28:16
Tube Number: 13
Sample Number: **CCV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 781189.49300 | 0.00000 | 0.000 | 770404.75000 | 787637.18000 | 785526.55000 |
| **SC-3** | 45 | 44578.24000 | 0.00000 | 0.000 | 44548.03000 | 44307.28000 | 44879.41000 |
| AL | 27 | 5052.31304 | 148348.22700 | 1.400 | 5121.89608 | 5051.14962 | 4983.89341 |
| B | 11 | 318.87776 | 112623.40700 | 2.200 | 311.80567 | 319.00797 | 325.81963 |
| BE | 9 | 30.76363 | 18673.59300 | 3.500 | 29.68194 | 30.76741 | 31.84153 |
| CA | 44 | 5221.82499 | 20311.35700 | 1.200 | 5277.87954 | 5236.39887 | 5151.19655 |
| CR | 52 | 303.15077 | 306303.36700 | 1.400 | 303.79791 | 307.16280 | 298.49159 |
| FE | 57 | 5005.86733 | 106243.87700 | 0.400 | 5029.42470 | 4996.47392 | 4991.70337 |
| K | 39 | 4955.46215 | 408122.13000 | 0.600 | 4986.37064 | 4946.65206 | 4933.36373 |
| MG | 24 | 5044.67277 | 373075.06000 | 1.200 | 5043.69507 | 5107.41566 | 4982.90760 |
| MN | 55 | 305.22190 | 178923.23300 | 1.300 | 305.16168 | 309.16409 | 301.33992 |
| NA | 23 | 4834.19068 | 781202.40700 | 0.400 | 4857.48857 | 4821.76987 | 4823.31359 |
| TI | 47 | 303.46812 | 7875.68700 | 4.700 | 288.52046 | 305.22502 | 316.65887 |
| V | 51 | 304.27943 | 257195.78300 | 0.800 | 307.12492 | 303.12192 | 302.59145 |
| **GE-3** | 72 | 127343.06000 | 0.00000 | 0.000 | 128276.25000 | 125998.66000 | 127754.27000 |
| SB | 121 | 30.65304 | 32214.72700 | 0.800 | 30.90783 | 30.59808 | 30.45321 |
| **IN-2** | 115 | 302034.26300 | 0.00000 | 0.000 | 303840.07000 | 299179.70000 | 303083.02000 |
| **IN-3** | 115 | 70548.01700 | 0.00000 | 0.000 | 71041.01000 | 70768.52000 | 69834.52000 |
| AG | 107 | 27.78100 | 55607.46300 | 1.100 | 27.97825 | 27.42010 | 27.94465 |
| AS | 75 | 309.12810 | 44602.65700 | 0.400 | 310.07687 | 307.71847 | 309.58897 |
| BA | 137 | 308.59916 | 126485.13300 | 1.500 | 304.20659 | 307.92644 | 313.66446 |
| CD | 111 | 30.35640 | 9246.42300 | 2.900 | 30.11064 | 29.63038 | 31.32817 |
| CO | 59 | 287.62452 | 482055.45000 | 1.100 | 285.77916 | 285.84384 | 291.25054 |
| CU | 63 | 307.75871 | 335819.68300 | 1.100 | 304.14456 | 308.47746 | 310.65411 |
| MO | 98 | 31.06375 | 33984.97700 | 0.700 | 31.26561 | 31.11145 | 30.81420 |
| NI | 60 | 309.92893 | 126928.16300 | 0.600 | 308.84765 | 311.97758 | 308.96158 |
| SE | 78 | 30.41610 | 2414.20700 | 1.500 | 30.78636 | 30.55335 | 29.90860 |
| SN | 120 | 30.62135 | 34720.64300 | 1.100 | 30.95864 | 30.63719 | 30.26822 |
| SR | 88 | 30.98217 | 27817.67300 | 3.600 | 30.54927 | 30.13196 | 32.26527 |
| ZN | 66 | 306.44614 | 59861.16700 | 0.900 | 303.21775 | 308.56182 | 307.55885 |
| **BI-3** | 209 | 152443.37000 | 0.00000 | 0.000 | 152050.91000 | 152736.63000 | 152542.57000 |
| PB | 208 | 30.05445 | 196447.11000 | 0.600 | 30.02804 | 29.90335 | 30.23196 |
| TL | 205 | 29.90499 | 143878.95700 | 1.000 | 30.00235 | 29.57183 | 30.14078 |
| U | 238 | 50.48902 | 334187.47000 | 0.600 | 50.24987 | 50.36979 | 50.84741 |
| *SC-2* | 45 | 270743.24300 | 0.00000 | 0.000 | 270484.08000 | 269568.92000 | 272176.73000 |
| *GE-1* | 72 | 714905.95300 | 0.00000 | 0.000 | 710830.07000 | 720161.24000 | 713726.55000 |
| *GE-2* | 72 | 322870.40700 | 0.00000 | 0.000 | 326708.49000 | 321186.60000 | 320716.13000 |
| *TB-3* | 159 | 206514.05000 | 0.00000 | 0.000 | 209380.56000 | 205675.13000 | 204486.46000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 17:30:10
Tube Number: 14
Sample Number: **CCB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 763630.85000 | 0.00000 | 0.000 | 758029.13000 | 765328.82000 | 767534.60000 |
| **SC-3** | 45 | 43602.22700 | 0.00000 | 0.000 | 43525.30000 | 43575.53000 | 43705.85000 |
| AL | 27 | 0.55945 | 96.67000 | 294.800 | -0.01743 | 2.41983 | -0.72406 |
| B | 11 | 15.65145 | 7170.41000 | 5.900 | 16.64513 | 15.47508 | 14.83415 |
| BE | 9 | 0.02352 | 20.66700 | 70.000 | 0.01589 | 0.01226 | 0.04240 |
| CA | 44 | 16.19145 | 176.67700 | 9.000 | 14.50983 | 17.10325 | 16.96126 |
| CR | 52 | 0.45022 | 1240.09000 | 30.100 | 0.46273 | 0.30898 | 0.57896 |
| FE | 57 | -0.90212 | 173.34000 | 0.000 | 0.88512 | -2.99027 | -0.60120 |
| K | 39 | 14.89558 | 27346.09700 | 91.100 | 27.78424 | 16.16595 | 0.73655 |
| MG | 24 | 6.75839 | 1100.08700 | 56.600 | 9.69322 | 8.14802 | 2.43392 |
| MN | 55 | 0.26871 | 333.34700 | 25.800 | 0.22902 | 0.22840 | 0.34871 |
| NA | 23 | 154.87716 | 69123.91000 | 1.700 | 157.29914 | 155.33999 | 151.99234 |
| TI | 47 | -0.12598 | 0.00000 | 0.000 | -0.12598 | -0.12598 | -0.12598 |
| V | 51 | 0.26710 | 1080.07700 | 34.000 | 0.17219 | 0.35297 | 0.27615 |
| **GE-3** | 72 | 127692.17300 | 0.00000 | 0.000 | 126432.14000 | 128640.63000 | 128003.75000 |
| SB | 121 | 0.25244 | 340.01300 | 20.400 | 0.20780 | 0.24078 | 0.30876 |
| **IN-2** | 115 | 303554.57300 | 0.00000 | 0.000 | 297639.60000 | 306356.66000 | 306667.46000 |
| **IN-3** | 115 | 69817.68000 | 0.00000 | 0.000 | 69954.85000 | 69181.64000 | 70316.55000 |
| AG | 107 | 0.02778 | 123.33700 | 57.900 | 0.04619 | 0.01648 | 0.02068 |
| AS | 75 | 0.10204 | 62.66700 | 37.500 | 0.06836 | 0.14365 | 0.09412 |
| BA | 137 | 0.05145 | 56.66700 | 72.700 | 0.01018 | 0.06105 | 0.08312 |
| CD | 111 | 0.02026 | 10.00000 | 33.800 | 0.01354 | 0.02723 | 0.01999 |
| CO | 59 | 0.03287 | 103.33300 | 28.100 | 0.04277 | 0.03141 | 0.02444 |
| CU | 63 | -0.00639 | 1290.10300 | 0.000 | -0.14851 | 0.14480 | -0.01547 |
| MO | 98 | 0.02262 | 73.33300 | 169.400 | 0.06566 | -0.00778 | 0.00998 |
| NI | 60 | 0.23757 | 1996.87700 | 122.500 | 0.33472 | 0.46761 | -0.08962 |
| SE | 78 | 0.23777 | 19.55300 | 21.100 | 0.29042 | 0.23224 | 0.19066 |
| SN | 120 | -0.00236 | 946.73000 | 0.000 | -0.04703 | 0.06393 | -0.02396 |
| SR | 88 | 0.09624 | 163.34300 | 40.400 | 0.05842 | 0.09422 | 0.13609 |
| ZN | 66 | 3.74180 | 6041.47000 | 46.100 | 2.03020 | 3.71594 | 5.47925 |
| **BI-3** | 209 | 151246.82000 | 0.00000 | 0.000 | 150773.14000 | 151391.58000 | 151575.74000 |
| PB | 208 | 0.14136 | 1163.40000 | 12.800 | 0.13212 | 0.16228 | 0.12968 |
| TL | 205 | 0.03637 | 200.01000 | 25.200 | 0.04070 | 0.02586 | 0.04255 |
| U | 238 | 0.00863 | 60.00000 | 17.400 | 0.00714 | 0.00863 | 0.01013 |
| *SC-2* | 45 | 268777.86300 | 0.00000 | 0.000 | 267774.53000 | 269530.74000 | 269028.32000 |
| *GE-1* | 72 | 713348.95000 | 0.00000 | 0.000 | 707564.29000 | 719675.38000 | 712807.18000 |
| *GE-2* | 72 | 323072.51300 | 0.00000 | 0.000 | 321100.11000 | 321932.20000 | 326185.23000 |
| *TB-3* | 159 | 204514.91300 | 0.00000 | 0.000 | 204843.32000 | 205076.70000 | 203624.72000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 17:32:04
Tube Number: 15 Batch: 200351511401A
Sample Number: **PBW** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846-U345

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 789150.69300 | 0.00000 | 0.000 | 790040.54000 | 787190.77000 | 790220.77000 |
| **SC-3** | 45 | 43906.34300 | 0.00000 | 0.000 | 43956.44000 | 43585.65000 | 44176.94000 |
| AL | 27 | 2.49215 | 153.34000 | 41.500 | 3.41123 | 1.37274 | 2.69249 |
| B | 11 | 6.48865 | 4197.94300 | 2.500 | 6.63084 | 6.52602 | 6.30910 |
| BE | 9 | 0.01482 | 16.00000 | 0.400 | 0.01479 | 0.01488 | 0.01478 |
| CA | 44 | 0.19549 | 116.67000 | 9069.000 | -4.29116 | 19.73689 | -14.85926 |
| CR | 52 | 0.16942 | 970.07300 | 23.400 | 0.17855 | 0.12604 | 0.20367 |
| FE | 57 | -0.32320 | 186.67700 | 0.000 | -2.08676 | -0.09451 | 1.21168 |
| K | 39 | 16.32328 | 27643.37000 | 132.100 | 37.16968 | 17.68042 | -5.88028 |
| MG | 24 | 5.91773 | 1046.73700 | 16.500 | 5.25629 | 7.03570 | 5.46120 |
| MN | 55 | 0.25993 | 330.01300 | 82.900 | 0.15444 | 0.50772 | 0.11764 |
| NA | 23 | 142.50012 | 67751.16700 | 4.500 | 141.77136 | 149.28230 | 136.44670 |
| TI | 47 | 0.13512 | 6.66700 | 167.400 | -0.12598 | 0.26832 | 0.26304 |
| V | 51 | 0.14957 | 990.07000 | 78.800 | 0.01579 | 0.19479 | 0.23812 |
| **GE-3** | 72 | 131123.04700 | 0.00000 | 0.000 | 130468.58000 | 130991.89000 | 131908.67000 |
| SB | 121 | 0.02188 | 100.00300 | 86.000 | 0.02230 | 0.04048 | 0.00287 |
| **IN-2** | 115 | 304567.74700 | 0.00000 | 0.000 | 301538.35000 | 305607.51000 | 306557.38000 |
| **IN-3** | 115 | 71341.99000 | 0.00000 | 0.000 | 71975.05000 | 71432.65000 | 70618.27000 |
| AG | 107 | 0.05772 | 186.67700 | 24.700 | 0.07334 | 0.05440 | 0.04543 |
| AS | 75 | 0.22509 | 82.00000 | 3.700 | 0.23379 | 0.22442 | 0.21704 |
| BA | 137 | 0.00011 | 36.66700 | 45959.400 | -0.01651 | 0.05634 | -0.03951 |
| CD | 111 | 0.01301 | 8.00000 | 49.000 | 0.01923 | 0.00651 | 0.01329 |
| CO | 59 | 0.00208 | 53.33300 | 447.300 | -0.00019 | -0.00587 | 0.01229 |
| CU | 63 | 0.02449 | 1353.44000 | 346.500 | 0.10138 | 0.03861 | -0.06653 |
| MO | 98 | -0.00899 | 40.00000 | 0.000 | 0.00871 | -0.01800 | -0.01769 |
| NI | 60 | -0.00823 | 1940.21000 | 0.000 | -0.31890 | 0.13126 | 0.16295 |
| SE | 78 | 0.16131 | 13.55700 | 33.700 | 0.13509 | 0.12497 | 0.22388 |
| SN | 120 | -0.13183 | 823.38700 | 0.000 | -0.13238 | -0.12678 | -0.13632 |
| SR | 88 | 0.03703 | 113.33300 | 66.000 | 0.06524 | 0.02229 | 0.02356 |
| ZN | 66 | 2.25584 | 5904.72700 | 101.300 | 2.65926 | -0.20334 | 4.31159 |
| **BI-3** | 209 | 153079.92000 | 0.00000 | 0.000 | 151877.54000 | 152834.94000 | 154527.28000 |
| PB | 208 | 0.12135 | 1046.72300 | 11.300 | 0.11551 | 0.11149 | 0.13705 |
| TL | 205 | 0.01238 | 86.66700 | 33.400 | 0.00906 | 0.01105 | 0.01702 |
| U | 238 | 0.00151 | 13.33300 | 115.400 | 0.00253 | 0.00251 | -0.00050 |
| *SC-2* | 45 | 270118.00700 | 0.00000 | 0.000 | 268855.43000 | 272549.92000 | 268948.67000 |
| *GE-1* | 72 | 733885.27700 | 0.00000 | 0.000 | 739026.94000 | 727828.43000 | 734800.46000 |
| *GE-2* | 72 | 329281.72000 | 0.00000 | 0.000 | 327508.65000 | 331115.66000 | 329220.85000 |
| *TB-3* | 159 | 204071.15700 | 0.00000 | 0.000 | 203908.22000 | 205210.29000 | 203094.96000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 17:33:58
Tube Number: 16 Batch: 200351511401A
Sample Number: **LCSW** Class: **********

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol: SW846-U345

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 792671.08300 | 0.00000 | 0.000 | 791667.49000 | 798051.16000 | 788294.60000 |
| **SC-3** | 45 | 44026.94000 | 0.00000 | 0.000 | 43956.58000 | 43715.99000 | 44408.25000 |
| AL | 27 | 224.21345 | 6578.34300 | 5.000 | 224.63231 | 235.27129 | 212.73675 |
| B | 11 | 282.91572 | 101591.55000 | 2.100 | 276.97846 | 283.15664 | 288.61206 |
| BE | 9 | 4.20003 | 2592.23700 | 3.300 | 4.05232 | 4.21993 | 4.32786 |
| CA | 44 | 4267.91608 | 16416.38000 | 1.400 | 4256.98836 | 4333.39470 | 4213.36520 |
| CR | 52 | 52.92163 | 53475.18300 | 0.900 | 53.20046 | 53.19317 | 52.37127 |
| FE | 57 | 309.77519 | 6675.08000 | 3.700 | 297.18707 | 319.58222 | 312.55628 |
| K | 39 | 10459.88615 | 821385.48300 | 0.900 | 10567.50002 | 10407.86741 | 10404.29103 |
| MG | 24 | 2116.45706 | 154957.15300 | 1.100 | 2136.91038 | 2090.67499 | 2121.78581 |
| MN | 55 | 52.34873 | 30459.29300 | 0.200 | 52.24756 | 52.44968 | 52.34895 |
| NA | 23 | 10520.02613 | 1624175.91300 | 0.700 | 10547.30239 | 10572.96742 | 10439.80857 |
| TI | 47 | 262.59975 | 6731.80700 | 3.500 | 262.28651 | 253.50436 | 272.00839 |
| V | 51 | 53.52831 | 45401.28000 | 0.400 | 53.76020 | 53.49086 | 53.33388 |
| **GE-3** | 72 | 131032.59000 | 0.00000 | 0.000 | 130335.15000 | 131104.80000 | 131657.82000 |
| SB | 121 | 6.08770 | 6645.13000 | 3.800 | 5.86657 | 6.06344 | 6.33307 |
| **IN-2** | 115 | 311017.35000 | 0.00000 | 0.000 | 311646.85000 | 310742.26000 | 310662.94000 |
| **IN-3** | 115 | 71697.08700 | 0.00000 | 0.000 | 71794.00000 | 70296.29000 | 73000.97000 |
| AG | 107 | 50.16840 | 101971.59000 | 2.300 | 50.51582 | 51.11279 | 48.87659 |
| AS | 75 | 10.72111 | 1619.43700 | 3.600 | 11.08999 | 10.76242 | 10.31094 |
| BA | 137 | 52.03843 | 21704.31700 | 1.700 | 51.82105 | 53.00090 | 51.29333 |
| CD | 111 | 5.33374 | 1654.11000 | 2.900 | 5.39577 | 5.44510 | 5.16036 |
| CO | 59 | 244.55581 | 416552.59700 | 0.600 | 243.90754 | 246.25623 | 243.50366 |
| CU | 63 | 53.71717 | 60661.20000 | 1.700 | 53.97400 | 54.45458 | 52.72294 |
| MO | 98 | 51.35441 | 57055.34000 | 1.200 | 51.13303 | 52.04839 | 50.88181 |
| NI | 60 | 52.53708 | 23482.93000 | 2.600 | 53.29080 | 53.35734 | 50.96310 |
| SE | 78 | 10.37814 | 848.69300 | 2.000 | 10.60980 | 10.22425 | 10.30037 |
| SN | 120 | 52.18794 | 59430.63300 | 2.300 | 52.34905 | 53.31770 | 50.89707 |
| SR | 88 | 42.25227 | 38539.64300 | 1.900 | 42.94283 | 41.37702 | 42.43698 |
| ZN | 66 | 539.27052 | 102827.00300 | 2.800 | 544.21177 | 551.44403 | 522.15576 |
| **BI-3** | 209 | 152810.30700 | 0.00000 | 0.000 | 153697.25000 | 152502.81000 | 152230.86000 |
| PB | 208 | 5.28474 | 34829.11700 | 3.000 | 5.11661 | 5.31179 | 5.42582 |
| TL | 205 | 2.05738 | 9947.36700 | 1.600 | 2.05718 | 2.08999 | 2.02497 |
| U | 238 | 0.00302 | 23.33300 | 29.100 | 0.00249 | 0.00403 | 0.00252 |
| *SC-2* | 45 | 274715.85300 | 0.00000 | 0.000 | 277627.59000 | 270585.07000 | 275934.90000 |
| *GE-1* | 72 | 738483.55700 | 0.00000 | 0.000 | 733108.35000 | 745746.00000 | 736596.32000 |
| *GE-2* | 72 | 335036.53000 | 0.00000 | 0.000 | 336055.46000 | 331399.96000 | 337654.17000 |
| *TB-3* | 159 | 205603.04300 | 0.00000 | 0.000 | 204680.23000 | 206192.54000 | 205936.36000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 17:35:52
Tube Number: 17 Batch: 200351511401A
Sample Number: **1251892** Class: U*********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846-U5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 792818.40000 | 0.00000 | 0.000 | 789717.96000 | 778855.77000 | 809881.47000 |
| **SC-3** | 45 | 44973.37300 | 0.00000 | 0.000 | 44969.81000 | 45120.51000 | 44829.80000 |
| AL | 27 | 3.83386 | 196.67700 | 28.400 | 2.59549 | 4.26070 | 4.64539 |
| B | 11 | 314.58978 | 112774.80300 | 1.600 | 308.88096 | 317.90807 | 316.98032 |
| BE | 9 | 0.00823 | 12.00000 | 42.200 | 0.01154 | 0.00855 | 0.00461 |
| CA | 44 | 22632.91454 | 88421.92300 | 0.600 | 22795.32969 | 22531.53918 | 22571.87473 |
| CR | 52 | 0.30034 | 1126.75000 | 34.300 | 0.22519 | 0.41782 | 0.25801 |
| FE | 57 | 258.26555 | 5717.99000 | 1.800 | 262.65856 | 258.95495 | 253.18314 |
| K | 39 | 3025.12924 | 261891.01300 | 0.500 | 3042.96402 | 3014.64909 | 3017.77461 |
| MG | 24 | 7479.70689 | 557783.67700 | 0.100 | 7489.88372 | 7474.23823 | 7474.99873 |
| MN | 55 | 106.48917 | 63100.54700 | 1.700 | 104.78967 | 106.21729 | 108.46056 |
| NA | 23 | 51047.12203 | 7867569.05000 | 0.200 | 51034.13944 | 51145.07812 | 50962.14852 |
| TI | 47 | 0.00098 | 3.33300 | 22458.800 | -0.12598 | 0.25490 | -0.12598 |
| V | 51 | 0.47450 | 1290.10000 | 40.300 | 0.67451 | 0.29342 | 0.45557 |
| **GE-3** | 72 | 131944.27700 | 0.00000 | 0.000 | 132194.23000 | 131679.32000 | 131959.28000 |
| SB | 121 | 1.04316 | 1210.10000 | 8.600 | 1.03179 | 1.13757 | 0.96010 |
| **IN-2** | 115 | 305243.21300 | 0.00000 | 0.000 | 303071.38000 | 308064.57000 | 304593.69000 |
| **IN-3** | 115 | 71050.76000 | 0.00000 | 0.000 | 70306.60000 | 72015.77000 | 70829.91000 |
| AG | 107 | 0.12794 | 326.68300 | 32.000 | 0.12610 | 0.08798 | 0.16975 |
| AS | 75 | 0.67299 | 146.66700 | 5.100 | 0.65115 | 0.65487 | 0.71295 |
| BA | 137 | 27.74008 | 11485.17300 | 0.700 | 27.54503 | 27.72627 | 27.94895 |
| CD | 111 | 0.04576 | 18.00000 | 14.900 | 0.05295 | 0.04495 | 0.03938 |
| CO | 59 | 0.34813 | 636.70300 | 13.700 | 0.40168 | 0.30960 | 0.33311 |
| CU | 63 | 5.13242 | 6938.55300 | 2.600 | 5.09125 | 5.02295 | 5.28306 |
| MO | 98 | 1.01378 | 1163.42300 | 19.600 | 1.08479 | 0.78891 | 1.16763 |
| NI | 60 | 0.93995 | 2320.27300 | 73.800 | 0.23456 | 1.62200 | 0.96327 |
| SE | 78 | 0.39950 | 32.66700 | 4.800 | 0.40237 | 0.37917 | 0.41694 |
| SN | 120 | 0.18316 | 1170.09000 | 50.200 | 0.08539 | 0.19601 | 0.26808 |
| SR | 88 | 174.72798 | 157638.07300 | 1.900 | 177.64405 | 171.08374 | 175.45614 |
| ZN | 66 | 6.68569 | 6675.09300 | 25.900 | 7.40614 | 7.93827 | 4.71267 |
| **BI-3** | 209 | 152204.04000 | 0.00000 | 0.000 | 149730.99000 | 152596.10000 | 154285.03000 |
| PB | 208 | 0.25669 | 1923.46000 | 6.400 | 0.23937 | 0.25865 | 0.27205 |
| TL | 205 | 0.02222 | 133.34000 | 44.000 | 0.02621 | 0.01107 | 0.02938 |
| U | 238 | 0.27191 | 1800.19700 | 5.200 | 0.26717 | 0.28781 | 0.26076 |
| *SC-2* | 45 | 271277.89000 | 0.00000 | 0.000 | 269697.95000 | 271776.70000 | 272359.02000 |
| *GE-1* | 72 | 738760.19700 | 0.00000 | 0.000 | 732211.16000 | 737698.97000 | 746370.46000 |
| *GE-2* | 72 | 333444.73700 | 0.00000 | 0.000 | 333025.39000 | 333330.74000 | 333978.08000 |
| *TB-3* | 159 | 206464.01000 | 0.00000 | 0.000 | 204204.63000 | 206457.32000 | 208730.08000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 17:37:47
Tube Number: 18 Batch: 200351511401A
Sample Number: **1251892** Class: UP********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846-U5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 780809.70000 | 0.00000 | 0.000 | 776488.89000 | 786808.74000 | 779131.47000 |
| **SC-3** | 45 | 44086.96700 | 0.00000 | 0.000 | 44598.39000 | 44649.02000 | 43013.49000 |
| AL | 27 | 45.81681 | 1410.11700 | 8.600 | 46.92164 | 41.42088 | 49.10790 |
| B | 11 | 317.22628 | 111982.43700 | 2.400 | 309.68831 | 317.02525 | 324.96529 |
| BE | 9 | 0.93190 | 572.01700 | 7.200 | 0.85441 | 0.96418 | 0.97710 |
| CA | 44 | 23061.06998 | 88295.01700 | 2.200 | 23146.82647 | 22515.42144 | 23520.96203 |
| CR | 52 | 1.76646 | 2563.64300 | 7.900 | 1.68210 | 1.68916 | 1.92810 |
| FE | 57 | 331.87578 | 7142.00700 | 6.600 | 309.76874 | 332.51525 | 353.34336 |
| K | 39 | 3353.20042 | 281608.25300 | 2.700 | 3348.21976 | 3265.11188 | 3446.26961 |
| MG | 24 | 7601.79317 | 555528.82000 | 2.300 | 7514.25062 | 7491.66525 | 7799.46364 |
| MN | 55 | 110.94679 | 64426.17300 | 2.500 | 112.17802 | 107.82278 | 112.83956 |
| NA | 23 | 51298.32832 | 7748320.72000 | 1.900 | 51195.93055 | 50387.21865 | 52311.83577 |
| TI | 47 | 18.61612 | 480.02300 | 12.500 | 18.37140 | 16.42588 | 21.05108 |
| V | 51 | 1.52037 | 2133.55300 | 14.500 | 1.41275 | 1.37439 | 1.77396 |
| **GE-3** | 72 | 130718.61000 | 0.00000 | 0.000 | 131272.80000 | 131536.69000 | 129346.34000 |
| SB | 121 | 2.44335 | 2707.03000 | 7.200 | 2.59413 | 2.48719 | 2.24874 |
| **IN-2** | 115 | 306804.21300 | 0.00000 | 0.000 | 308494.31000 | 304034.43000 | 307883.90000 |
| **IN-3** | 115 | 70732.78300 | 0.00000 | 0.000 | 70880.16000 | 70859.69000 | 70458.50000 |
| AG | 107 | 0.81391 | 1700.16700 | 12.700 | 0.76711 | 0.74243 | 0.93219 |
| AS | 75 | 3.81990 | 600.68700 | 6.300 | 3.70944 | 3.65534 | 4.09490 |
| BA | 137 | 31.43124 | 12949.77300 | 1.800 | 31.52692 | 30.83071 | 31.93608 |
| CD | 111 | 0.86920 | 269.33300 | 0.800 | 0.87609 | 0.86981 | 0.86169 |
| CO | 59 | 1.06163 | 1833.50700 | 4.500 | 1.10500 | 1.06968 | 1.01021 |
| CU | 63 | 6.81353 | 8739.54700 | 5.600 | 6.37788 | 6.96660 | 7.09612 |
| MO | 98 | 1.51049 | 1703.50300 | 8.600 | 1.39458 | 1.48616 | 1.65072 |
| NI | 60 | 2.89233 | 3097.09700 | 10.200 | 2.56358 | 3.13349 | 2.97992 |
| SE | 78 | 2.02434 | 163.78000 | 4.700 | 2.02379 | 2.12032 | 1.92891 |
| SN | 120 | 3.33108 | 4644.25300 | 5.900 | 3.55433 | 3.18518 | 3.25374 |
| SR | 88 | 173.33420 | 155704.97300 | 0.700 | 174.15905 | 171.96256 | 173.88100 |
| ZN | 66 | 24.36771 | 9793.58700 | 10.200 | 24.37010 | 26.85444 | 21.87858 |
| **BI-3** | 209 | 152449.00300 | 0.00000 | 0.000 | 155123.03000 | 152047.96000 | 150176.02000 |
| PB | 208 | 1.08469 | 7324.42000 | 8.700 | 0.97651 | 1.12608 | 1.15148 |
| TL | 205 | 0.88313 | 4277.53300 | 7.200 | 0.95280 | 0.82833 | 0.86827 |
| U | 238 | 2.00770 | 13293.94000 | 1.800 | 2.04066 | 1.96971 | 2.01272 |
| *SC-2* | 45 | 271142.34000 | 0.00000 | 0.000 | 272063.41000 | 272143.61000 | 269220.00000 |
| *GE-1* | 72 | 735508.16300 | 0.00000 | 0.000 | 730208.74000 | 737884.75000 | 738431.00000 |
| *GE-2* | 72 | 333518.23700 | 0.00000 | 0.000 | 337867.73000 | 331030.15000 | 331656.83000 |
| *TB-3* | 159 | 205494.41300 | 0.00000 | 0.000 | 209641.62000 | 203258.26000 | 203583.36000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 17:39:42
Tube Number: 19 Batch: 200351511401A
Sample Number: **1251892** Class: D*********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846-U5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 781175.45700 | 0.00000 | 0.000 | 783918.43000 | 773226.08000 | 786381.86000 |
| **SC-3** | 45 | 44237.40300 | 0.00000 | 0.000 | 43705.74000 | 44618.36000 | 44388.11000 |
| AL | 27 | 1.42504 | 123.33700 | 11.900 | 1.36125 | 1.61673 | 1.29714 |
| B | 11 | 318.95859 | 112634.66000 | 1.700 | 313.20779 | 319.47242 | 324.19557 |
| BE | 9 | -0.00144 | 6.00000 | 0.000 | -0.00144 | -0.00796 | 0.00508 |
| CA | 44 | 22820.33090 | 87698.66300 | 0.800 | 22622.77756 | 22879.22267 | 22958.99245 |
| CR | 52 | 0.27900 | 1086.73700 | 22.000 | 0.30565 | 0.32255 | 0.20881 |
| FE | 57 | 260.15319 | 5664.62300 | 6.400 | 250.77856 | 250.17620 | 279.50481 |
| K | 39 | 3072.26764 | 261191.07000 | 1.700 | 3088.06102 | 3013.54196 | 3115.19994 |
| MG | 24 | 7516.20961 | 551296.53000 | 1.000 | 7579.98281 | 7438.67722 | 7529.96878 |
| MN | 55 | 108.28982 | 63110.51300 | 1.200 | 109.64837 | 107.10750 | 108.11359 |
| NA | 23 | 51470.61157 | 7801936.34000 | 1.300 | 52110.13106 | 50815.58169 | 51486.12197 |
| TI | 47 | 0.00241 | 3.33300 | 9234.900 | -0.12598 | 0.25919 | -0.12598 |
| V | 51 | 0.68245 | 1443.45700 | 22.200 | 0.62734 | 0.85412 | 0.56588 |
| **GE-3** | 72 | 129090.53000 | 0.00000 | 0.000 | 128538.40000 | 129043.68000 | 129689.51000 |
| SB | 121 | 0.88241 | 1013.40700 | 9.600 | 0.81745 | 0.85163 | 0.97814 |
| **IN-2** | 115 | 302084.73300 | 0.00000 | 0.000 | 302714.53000 | 303195.89000 | 300343.78000 |
| **IN-3** | 115 | 70461.26300 | 0.00000 | 0.000 | 69663.85000 | 70427.89000 | 71292.05000 |
| AG | 107 | 0.09060 | 250.01300 | 18.700 | 0.08705 | 0.07571 | 0.10903 |
| AS | 75 | 0.48270 | 118.00000 | 12.300 | 0.53380 | 0.49654 | 0.41778 |
| BA | 137 | 28.27077 | 11605.25000 | 2.000 | 28.91274 | 28.05971 | 27.83986 |
| CD | 111 | 0.03976 | 16.00000 | 45.200 | 0.06021 | 0.02652 | 0.03254 |
| CO | 59 | 0.34105 | 620.03300 | 15.500 | 0.38148 | 0.28139 | 0.36028 |
| CU | 63 | 5.23383 | 6991.90700 | 1.400 | 5.24255 | 5.15416 | 5.30476 |
| MO | 98 | 0.88482 | 1013.40700 | 16.500 | 1.01178 | 0.91776 | 0.72491 |
| NI | 60 | 1.07861 | 2353.61300 | 34.900 | 1.51123 | 0.89664 | 0.82797 |
| SE | 78 | 0.41764 | 33.77700 | 17.000 | 0.34414 | 0.48581 | 0.42295 |
| SN | 120 | -0.10455 | 843.39000 | 0.000 | -0.13546 | -0.07982 | -0.09838 |
| SR | 88 | 174.37451 | 156018.89000 | 1.600 | 177.34080 | 174.17018 | 171.61257 |
| ZN | 66 | 6.13418 | 6521.70300 | 29.100 | 4.56249 | 8.07440 | 5.76564 |
| **BI-3** | 209 | 152423.21000 | 0.00000 | 0.000 | 152047.70000 | 153547.35000 | 151674.58000 |
| PB | 208 | 0.23855 | 1806.78000 | 2.500 | 0.23207 | 0.24007 | 0.24351 |
| TL | 205 | 0.01523 | 100.00300 | 35.100 | 0.01322 | 0.02129 | 0.01117 |
| U | 238 | 0.27949 | 1853.53000 | 7.900 | 0.28733 | 0.29652 | 0.25463 |
| *SC-2* | 45 | 266898.93300 | 0.00000 | 0.000 | 269308.53000 | 267460.15000 | 263928.12000 |
| *GE-1* | 72 | 728206.60300 | 0.00000 | 0.000 | 732730.69000 | 719697.65000 | 732191.47000 |
| *GE-2* | 72 | 329285.54300 | 0.00000 | 0.000 | 328732.69000 | 329719.96000 | 329403.98000 |
| *TB-3* | 159 | 204372.60700 | 0.00000 | 0.000 | 204649.31000 | 204103.10000 | 204365.41000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 17:41:36
Tube Number: 20 Batch: 200351511401A
Sample Number: **1251892** Class: R*********

Initial Vol: 50.00 Final Vol: 52.00 DF: 1.00 Protocol: SW846-U5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 780735.82000 | 0.00000 | 0.000 | 777977.33000 | 785285.69000 | 778944.44000 |
| **SC-3** | 45 | 45200.30700 | 0.00000 | 0.000 | 44769.09000 | 45731.54000 | 45100.29000 |
| AL | 27 | 212.38195 | 6401.60300 | 4.400 | 222.88229 | 205.17107 | 209.09250 |
| B | 11 | 569.69392 | 199570.54000 | 2.500 | 555.12150 | 570.99326 | 582.96699 |
| BE | 9 | 4.12696 | 2508.89300 | 2.900 | 4.05430 | 4.06238 | 4.26420 |
| CA | 44 | 26380.65489 | 103557.15000 | 0.900 | 26549.81045 | 26093.84314 | 26498.31110 |
| CR | 52 | 51.81676 | 53769.72300 | 1.600 | 51.84362 | 50.97823 | 52.62842 |
| FE | 57 | 560.12765 | 12228.84700 | 2.300 | 570.53722 | 545.90018 | 563.94554 |
| K | 39 | 12212.34419 | 979934.07700 | 1.300 | 12287.46661 | 12033.98860 | 12315.57736 |
| MG | 24 | 9317.20315 | 698091.42000 | 1.600 | 9371.40509 | 9145.14193 | 9435.06243 |
| MN | 55 | 155.06161 | 92261.67000 | 2.300 | 152.72136 | 153.28954 | 159.17394 |
| NA | 23 | 58622.89738 | 9072867.57000 | 1.200 | 59111.89864 | 57807.88385 | 58948.90965 |
| TI | 47 | 248.84561 | 6548.32700 | 0.600 | 247.15358 | 249.09071 | 250.29255 |
| V | 51 | 52.09640 | 45387.90300 | 2.000 | 51.46087 | 51.55179 | 53.27655 |
| **GE-3** | 72 | 129649.70000 | 0.00000 | 0.000 | 129052.92000 | 127824.29000 | 132071.89000 |
| SB | 121 | 6.72701 | 7255.44000 | 3.700 | 6.49990 | 6.99095 | 6.69018 |
| **IN-2** | 115 | 306151.96700 | 0.00000 | 0.000 | 304564.82000 | 305514.68000 | 308376.40000 |
| **IN-3** | 115 | 71158.03700 | 0.00000 | 0.000 | 70477.93000 | 70829.66000 | 72166.52000 |
| AG | 107 | 46.89386 | 94624.58000 | 1.400 | 47.62830 | 46.37817 | 46.67511 |
| AS | 75 | 10.76197 | 1613.43300 | 1.700 | 10.73381 | 10.95526 | 10.59684 |
| BA | 137 | 78.10633 | 32318.58000 | 0.800 | 78.14721 | 78.73198 | 77.43980 |
| CD | 111 | 5.24419 | 1615.43700 | 6.700 | 4.85241 | 5.35817 | 5.52198 |
| CO | 59 | 239.29379 | 404537.73000 | 0.700 | 241.29192 | 238.47449 | 238.11498 |
| CU | 63 | 56.98823 | 63797.79000 | 1.300 | 57.80724 | 56.74025 | 56.41721 |
| MO | 98 | 51.58322 | 56881.64700 | 1.400 | 52.42026 | 51.26288 | 51.06652 |
| NI | 60 | 51.26296 | 22795.21000 | 3.600 | 49.40412 | 53.11696 | 51.26779 |
| SE | 78 | 10.41484 | 838.25000 | 2.900 | 10.56513 | 10.61523 | 10.06416 |
| SN | 120 | 52.02624 | 58831.29700 | 2.500 | 50.60706 | 52.31115 | 53.16051 |
| SR | 88 | 210.33655 | 190046.23000 | 2.200 | 208.59428 | 215.67331 | 206.74206 |
| ZN | 66 | 524.41074 | 99419.96300 | 1.800 | 519.12392 | 535.09299 | 519.01530 |
| **BI-3** | 209 | 152095.62000 | 0.00000 | 0.000 | 154072.67000 | 149398.03000 | 152816.16000 |
| PB | 208 | 5.19393 | 34078.22000 | 1.200 | 5.14498 | 5.17425 | 5.26254 |
| TL | 205 | 1.87352 | 9016.64300 | 2.100 | 1.86278 | 1.91699 | 1.84080 |
| U | 238 | 0.28768 | 1903.53700 | 3.800 | 0.30000 | 0.28318 | 0.27985 |
| *SC-2* | 45 | 267993.52300 | 0.00000 | 0.000 | 265467.93000 | 267664.21000 | 270848.43000 |
| *GE-1* | 72 | 725550.12000 | 0.00000 | 0.000 | 723262.57000 | 724754.13000 | 728633.66000 |
| *GE-2* | 72 | 328614.57300 | 0.00000 | 0.000 | 327266.03000 | 329091.56000 | 329486.13000 |
| *TB-3* | 159 | 204574.59300 | 0.00000 | 0.000 | 203998.63000 | 204262.87000 | 205462.28000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 17:43:30
Tube Number: 21 Batch: 200351511401A
Sample Number: **1251892** Class: M*********

Initial Vol: 50.00 Final Vol: 52.00 DF: 1.00 Protocol: SW846-U5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 783801.16000 | 0.00000 | 0.000 | 793827.72000 | 775236.16000 | 782339.60000 |
| **SC-3** | 45 | 44458.30700 | 0.00000 | 0.000 | 44959.69000 | 44989.76000 | 43425.47000 |
| AL | 27 | 227.43488 | 6738.42300 | 4.800 | 215.83865 | 237.65246 | 228.81354 |
| B | 11 | 603.37135 | 212051.41300 | 2.500 | 587.07166 | 605.73209 | 617.31031 |
| BE | 9 | 4.66940 | 2848.95300 | 0.200 | 4.65780 | 4.67341 | 4.67698 |
| CA | 44 | 27228.97886 | 105121.67000 | 1.100 | 26966.15450 | 27174.91572 | 27545.86637 |
| CR | 52 | 55.02245 | 56101.69700 | 1.800 | 55.11637 | 53.97364 | 55.97735 |
| FE | 57 | 590.57891 | 12669.23700 | 2.800 | 590.56401 | 573.78166 | 607.39105 |
| K | 39 | 13412.31369 | 1055744.46300 | 2.100 | 13156.62325 | 13365.86927 | 13714.44855 |
| MG | 24 | 9550.93701 | 703709.23700 | 2.200 | 9390.16044 | 9474.43009 | 9788.22050 |
| MN | 55 | 160.58961 | 93938.77700 | 3.200 | 156.28277 | 159.19074 | 166.29532 |
| NA | 23 | 60712.72079 | 9238918.19700 | 1.800 | 60067.62383 | 60083.02014 | 61987.51839 |
| TI | 47 | 275.59903 | 7132.00700 | 0.900 | 275.17114 | 273.45839 | 278.16757 |
| V | 51 | 55.17350 | 47210.46300 | 3.100 | 53.64718 | 54.81431 | 57.05900 |
| **GE-3** | 72 | 129202.07700 | 0.00000 | 0.000 | 128912.06000 | 130669.04000 | 128025.13000 |
| SB | 121 | 7.24470 | 7782.47300 | 0.900 | 7.30848 | 7.24641 | 7.17921 |
| **IN-2** | 115 | 304722.08700 | 0.00000 | 0.000 | 302886.54000 | 304930.23000 | 306349.49000 |
| **IN-3** | 115 | 71137.78700 | 0.00000 | 0.000 | 70477.36000 | 72649.24000 | 70286.76000 |
| AG | 107 | 51.57368 | 104009.97700 | 2.100 | 51.94930 | 50.33689 | 52.43486 |
| AS | 75 | 11.59426 | 1733.44700 | 3.200 | 11.65074 | 11.19802 | 11.93402 |
| BA | 137 | 80.14892 | 33153.87300 | 0.900 | 80.98707 | 79.79900 | 79.66070 |
| CD | 111 | 5.66312 | 1742.11700 | 5.800 | 6.03599 | 5.40864 | 5.54472 |
| CO | 59 | 255.36648 | 431485.28000 | 2.400 | 255.99563 | 249.05336 | 261.05044 |
| CU | 63 | 60.51574 | 67641.16700 | 2.100 | 59.87891 | 59.72233 | 61.94598 |
| MO | 98 | 54.63198 | 60208.55700 | 2.800 | 55.06152 | 52.93151 | 55.90292 |
| NI | 60 | 55.51931 | 24521.15000 | 2.000 | 54.25132 | 56.20054 | 56.10607 |
| SE | 78 | 11.07778 | 887.58300 | 2.900 | 10.72425 | 11.34296 | 11.16613 |
| SN | 120 | 55.17751 | 62299.57300 | 1.100 | 55.16681 | 54.55393 | 55.81178 |
| SR | 88 | 214.43248 | 193691.03700 | 1.200 | 213.11395 | 212.79822 | 217.38526 |
| ZN | 66 | 558.68160 | 105516.90000 | 2.100 | 553.02122 | 550.83383 | 572.18975 |
| **BI-3** | 209 | 151398.80300 | 0.00000 | 0.000 | 152159.06000 | 151605.89000 | 150431.46000 |
| PB | 208 | 5.64928 | 36874.62700 | 1.400 | 5.60195 | 5.74285 | 5.60304 |
| TL | 205 | 2.09472 | 10034.14700 | 2.500 | 2.07387 | 2.15470 | 2.05560 |
| U | 238 | 0.26621 | 1753.52000 | 15.200 | 0.30529 | 0.22436 | 0.26899 |
| *SC-2* | 45 | 270714.52700 | 0.00000 | 0.000 | 269627.67000 | 268670.39000 | 273845.52000 |
| *GE-1* | 72 | 734680.56300 | 0.00000 | 0.000 | 743129.68000 | 728589.44000 | 732322.57000 |
| *GE-2* | 72 | 330450.16300 | 0.00000 | 0.000 | 328673.82000 | 328940.19000 | 333736.48000 |
| *TB-3* | 159 | 206182.59000 | 0.00000 | 0.000 | 206762.15000 | 206648.55000 | 205137.07000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 17:45:24
Tube Number: 22 Batch: 200351511401A
Sample Number: **1251892** Class: UL********

Initial Vol: 50.00 Final Vol: 51.50 DF: 5.00 Protocol: SW846-U5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 777504.59700 | 0.00000 | 0.000 | 772917.02000 | 782391.08000 | 777205.69000 |
| **SC-3** | 45 | 44190.85700 | 0.00000 | 0.000 | 44127.53000 | 43876.50000 | 44568.54000 |
| AL | 27 | 2.46622 | 153.34300 | 36.700 | 2.35442 | 3.42256 | 1.62168 |
| B | 11 | 83.48998 | 30741.97300 | 0.400 | 83.85168 | 83.21926 | 83.39901 |
| BE | 9 | 0.01742 | 17.33300 | 39.800 | 0.01537 | 0.01175 | 0.02516 |
| CA | 44 | 4841.19380 | 18679.06700 | 2.700 | 4844.51305 | 4706.68521 | 4972.38315 |
| CR | 52 | 0.51693 | 1323.43000 | 6.100 | 0.54565 | 0.48281 | 0.52233 |
| FE | 57 | 51.52944 | 1276.77300 | 1.200 | 52.25216 | 51.16489 | 51.17127 |
| K | 39 | 635.84349 | 75071.27300 | 5.700 | 668.91232 | 641.83314 | 596.78500 |
| MG | 24 | 1536.77726 | 113097.70300 | 0.600 | 1535.08430 | 1546.82884 | 1528.41865 |
| MN | 55 | 21.85366 | 12869.50700 | 1.200 | 21.60446 | 21.81665 | 22.13985 |
| NA | 23 | 11084.54273 | 1715193.10000 | 0.700 | 11127.74753 | 11133.15442 | 10992.72624 |
| TI | 47 | 0.26293 | 10.00000 | 1.200 | 0.26347 | 0.26570 | 0.25962 |
| V | 51 | 0.15425 | 1000.07000 | 112.300 | 0.34750 | 0.10214 | 0.01311 |
| **GE-3** | 72 | 128243.44000 | 0.00000 | 0.000 | 127611.54000 | 127832.30000 | 129286.48000 |
| SB | 121 | 0.30491 | 396.68700 | 12.600 | 0.27185 | 0.34727 | 0.29560 |
| **IN-2** | 115 | 304201.08000 | 0.00000 | 0.000 | 300754.88000 | 305282.10000 | 306566.26000 |
| **IN-3** | 115 | 70779.18700 | 0.00000 | 0.000 | 69904.75000 | 70698.54000 | 71734.27000 |
| AG | 107 | 0.02522 | 120.00300 | 36.500 | 0.01595 | 0.02537 | 0.03435 |
| AS | 75 | 0.14665 | 70.00000 | 41.200 | 0.11067 | 0.21641 | 0.11288 |
| BA | 137 | 6.04083 | 2520.31300 | 6.100 | 6.14325 | 5.63490 | 6.34433 |
| CD | 111 | 0.01760 | 9.33300 | 21.500 | 0.02019 | 0.01326 | 0.01934 |
| CO | 59 | 0.14504 | 293.35000 | 43.900 | 0.18736 | 0.07179 | 0.17596 |
| CU | 63 | 0.89107 | 2286.92300 | 3.800 | 0.92942 | 0.87789 | 0.86590 |
| MO | 98 | 0.24059 | 313.34300 | 13.400 | 0.20432 | 0.26546 | 0.25198 |
| NI | 60 | 0.42032 | 2096.88300 | 141.500 | 1.06413 | 0.30580 | -0.10895 |
| SE | 78 | 0.15902 | 13.33300 | 11.500 | 0.17773 | 0.15827 | 0.14106 |
| SN | 120 | 0.22555 | 1213.57000 | 115.800 | -0.05559 | 0.46068 | 0.27156 |
| SR | 88 | 35.08130 | 31595.66700 | 1.700 | 34.89810 | 35.75640 | 34.58941 |
| ZN | 66 | 3.13827 | 6014.79000 | 54.500 | 5.06664 | 1.79880 | 2.54938 |
| **BI-3** | 209 | 152706.26000 | 0.00000 | 0.000 | 153444.79000 | 154454.62000 | 150219.37000 |
| PB | 208 | 0.08557 | 810.03700 | 6.400 | 0.08350 | 0.09177 | 0.08145 |
| TL | 205 | 0.00622 | 56.66700 | 69.000 | 0.01098 | 0.00267 | 0.00501 |
| U | 238 | 0.06277 | 420.02300 | 15.600 | 0.05804 | 0.07406 | 0.05623 |
| *SC-2* | 45 | 268801.96700 | 0.00000 | 0.000 | 269363.53000 | 266141.44000 | 270900.93000 |
| *GE-1* | 72 | 726668.84300 | 0.00000 | 0.000 | 728512.49000 | 731735.93000 | 719758.11000 |
| *GE-2* | 72 | 328512.98700 | 0.00000 | 0.000 | 327484.06000 | 327432.83000 | 330622.07000 |
| *TB-3* | 159 | 203608.87700 | 0.00000 | 0.000 | 205362.89000 | 203918.84000 | 201544.90000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 17:47:18
Tube Number: 23 Batch: 200351511401A
Sample Number: **1251908** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846-U5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 784636.47300 | 0.00000 | 0.000 | 787664.05000 | 780076.79000 | 786168.58000 |
| **SC-3** | 45 | 43481.91300 | 0.00000 | 0.000 | 42522.26000 | 43194.49000 | 44728.99000 |
| AL | 27 | 11.14988 | 400.02000 | 11.300 | 9.69421 | 11.96128 | 11.79415 |
| B | 11 | 85.90307 | 31865.64700 | 2.000 | 84.28589 | 85.73132 | 87.69199 |
| BE | 9 | 0.00841 | 12.00000 | 117.000 | -0.00148 | 0.00852 | 0.01819 |
| CA | 44 | 64035.87207 | 241586.22000 | 2.200 | 65581.78522 | 63650.06734 | 62875.76366 |
| CR | 52 | 0.26341 | 1050.07700 | 63.100 | 0.40948 | 0.29836 | 0.08239 |
| FE | 57 | 619.29035 | 12979.47300 | 4.000 | 638.81168 | 627.75431 | 591.30508 |
| K | 39 | 2406.51602 | 206708.41700 | 2.200 | 2450.96611 | 2419.08819 | 2349.49375 |
| MG | 24 | 37565.20112 | 2704923.71000 | 2.300 | 38381.63542 | 37649.25482 | 36664.71311 |
| MN | 55 | 273.59085 | 156413.52000 | 1.900 | 277.79891 | 275.00506 | 267.96858 |
| NA | 23 | 15149.90704 | 2288881.58000 | 2.500 | 15500.80064 | 15206.86559 | 14742.05489 |
| TI | 47 | 0.13471 | 6.66700 | 167.700 | -0.12598 | 0.27189 | 0.25824 |
| V | 51 | 0.72426 | 1450.12000 | 36.700 | 0.72363 | 0.99020 | 0.45894 |
| **GE-3** | 72 | 128779.33000 | 0.00000 | 0.000 | 127290.28000 | 127238.42000 | 131809.29000 |
| SB | 121 | 0.11812 | 200.01000 | 43.800 | 0.08188 | 0.17740 | 0.09508 |
| **IN-2** | 115 | 303527.07300 | 0.00000 | 0.000 | 301582.55000 | 303037.07000 | 305961.60000 |
| **IN-3** | 115 | 69941.55000 | 0.00000 | 0.000 | 69955.21000 | 70296.36000 | 69573.08000 |
| AG | 107 | -0.01097 | 46.66700 | 0.000 | 0.00078 | -0.01947 | -0.01424 |
| AS | 75 | 4.34394 | 668.68700 | 11.400 | 4.46265 | 3.79875 | 4.77043 |
| BA | 137 | 230.93890 | 93858.41000 | 1.700 | 235.45170 | 228.51679 | 228.84820 |
| CD | 111 | 0.01134 | 7.33300 | 33.800 | 0.00692 | 0.01341 | 0.01369 |
| CO | 59 | 0.16727 | 326.68000 | 15.200 | 0.16313 | 0.14423 | 0.19444 |
| CU | 63 | 0.01543 | 1316.77300 | 1032.400 | -0.14850 | 0.16955 | 0.02523 |
| MO | 98 | 1.01090 | 1143.42000 | 7.000 | 1.01661 | 0.93795 | 1.07813 |
| NI | 60 | 0.21117 | 1990.21300 | 136.100 | 0.48474 | -0.08828 | 0.23703 |
| SE | 78 | 1.04825 | 84.22300 | 12.800 | 1.15319 | 0.89642 | 1.09515 |
| SN | 120 | -0.08024 | 863.39300 | 0.000 | -0.12937 | -0.10565 | -0.00571 |
| SR | 88 | 668.13074 | 593234.31300 | 0.500 | 668.52330 | 664.76237 | 671.10655 |
| ZN | 66 | 0.34613 | 5454.55000 | 384.600 | 0.83669 | 1.36238 | -1.16068 |
| **BI-3** | 209 | 152201.32000 | 0.00000 | 0.000 | 154120.94000 | 149916.64000 | 152566.38000 |
| PB | 208 | 0.07001 | 706.70700 | 34.300 | 0.07387 | 0.04430 | 0.09186 |
| TL | 205 | 0.00694 | 60.00000 | 28.700 | 0.00680 | 0.00503 | 0.00900 |
| U | 238 | 6.08140 | 40179.85300 | 3.200 | 5.91892 | 6.29607 | 6.02922 |
| *SC-2* | 45 | 268200.15000 | 0.00000 | 0.000 | 268976.71000 | 267648.26000 | 267975.48000 |
| *GE-1* | 72 | 732494.72700 | 0.00000 | 0.000 | 740261.47000 | 731173.50000 | 726049.21000 |
| *GE-2* | 72 | 331004.99000 | 0.00000 | 0.000 | 330460.31000 | 327216.89000 | 335337.77000 |
| *TB-3* | 159 | 205556.85700 | 0.00000 | 0.000 | 206140.86000 | 204185.08000 | 206344.63000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 17:49:11
Tube Number: 24 Batch: 200351511401A
Sample Number: **1251906** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846-U5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 782815.50700 | 0.00000 | 0.000 | 786650.22000 | 783763.11000 | 778033.19000 |
| **SC-3** | 45 | 43986.64300 | 0.00000 | 0.000 | 44588.51000 | 43274.57000 | 44096.85000 |
| AL | 27 | 2.95230 | 166.67300 | 20.700 | 2.30069 | 3.50925 | 3.04695 |
| B | 11 | 20.57631 | 9066.10000 | 3.300 | 21.29513 | 20.50319 | 19.93060 |
| BE | 9 | 0.01282 | 14.66700 | 64.100 | 0.01163 | 0.02157 | 0.00526 |
| CA | 44 | 40910.22436 | 156197.16000 | 2.000 | 40061.66309 | 41661.24333 | 41007.76667 |
| CR | 52 | 0.27481 | 1076.74700 | 19.800 | 0.33323 | 0.26565 | 0.22556 |
| FE | 57 | 8.86858 | 380.01700 | 62.600 | 15.27378 | 5.80653 | 5.52544 |
| K | 39 | 1359.04265 | 129659.56000 | 1.500 | 1370.87367 | 1335.58205 | 1370.67223 |
| MG | 24 | 8207.98816 | 598501.41000 | 2.100 | 8008.00069 | 8314.74455 | 8301.21924 |
| MN | 55 | 26.65940 | 15578.81300 | 5.200 | 25.15423 | 27.89980 | 26.92417 |
| NA | 23 | 6388.68344 | 1003601.62700 | 1.500 | 6298.16302 | 6488.69918 | 6379.18812 |
| TI | 47 | -0.12598 | 0.00000 | 0.000 | -0.12598 | -0.12598 | -0.12598 |
| V | 51 | 0.39298 | 1193.42300 | 34.400 | 0.38060 | 0.53390 | 0.26445 |
| **GE-3** | 72 | 130113.09700 | 0.00000 | 0.000 | 128791.55000 | 131111.61000 | 130436.13000 |
| SB | 121 | 0.16246 | 250.01000 | 14.100 | 0.14611 | 0.18859 | 0.15269 |
| **IN-2** | 115 | 308846.43000 | 0.00000 | 0.000 | 306043.78000 | 310703.78000 | 309791.73000 |
| **IN-3** | 115 | 70876.72700 | 0.00000 | 0.000 | 69462.82000 | 71855.24000 | 71312.12000 |
| AG | 107 | 0.01512 | 100.00300 | 82.000 | 0.00103 | 0.02441 | 0.01991 |
| AS | 75 | 0.30749 | 93.33300 | 45.300 | 0.31082 | 0.16662 | 0.44502 |
| BA | 137 | 287.66109 | 118448.76000 | 1.600 | 290.94086 | 282.58326 | 289.45915 |
| CD | 111 | 0.01556 | 8.66700 | 101.200 | 0.03374 | 0.00639 | 0.00654 |
| CO | 59 | 0.08534 | 193.34300 | 5.800 | 0.07965 | 0.08773 | 0.08863 |
| CU | 63 | 2.18815 | 3707.28300 | 5.200 | 2.17667 | 2.30797 | 2.07982 |
| MO | 98 | 0.42598 | 516.69700 | 16.500 | 0.43836 | 0.35035 | 0.48922 |
| NI | 60 | 0.49254 | 2130.23000 | 36.200 | 0.69826 | 0.39454 | 0.38482 |
| SE | 78 | 0.15367 | 13.11000 | 8.500 | 0.15786 | 0.13908 | 0.16409 |
| SN | 120 | -0.09599 | 856.72300 | 0.000 | -0.01356 | -0.15787 | -0.11654 |
| SR | 88 | 204.15232 | 183715.03700 | 1.700 | 208.07407 | 202.80533 | 201.57755 |
| ZN | 66 | 3.42358 | 6074.82700 | 15.700 | 3.86337 | 2.82550 | 3.58186 |
| **BI-3** | 209 | 153474.56700 | 0.00000 | 0.000 | 152532.82000 | 153333.86000 | 154557.02000 |
| PB | 208 | 0.06116 | 653.37300 | 3.700 | 0.05973 | 0.06379 | 0.05996 |
| TL | 205 | 0.00271 | 40.00000 | 74.700 | 0.00277 | 0.00066 | 0.00471 |
| U | 238 | 0.69830 | 4657.69000 | 7.100 | 0.64136 | 0.73115 | 0.72238 |
| *SC-2* | 45 | 272075.04700 | 0.00000 | 0.000 | 273456.30000 | 271511.87000 | 271256.97000 |
| *GE-1* | 72 | 731768.19300 | 0.00000 | 0.000 | 739424.13000 | 729247.65000 | 726632.80000 |
| *GE-2* | 72 | 334642.24700 | 0.00000 | 0.000 | 336876.36000 | 331471.99000 | 335578.39000 |
| *TB-3* | 159 | 206310.69300 | 0.00000 | 0.000 | 204924.57000 | 206629.10000 | 207378.41000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 17:51:05
Tube Number: 25
Sample Number: **CCV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 777273.79000 | 0.00000 | 0.000 | 780937.88000 | 771346.55000 | 779536.94000 |
| **SC-3** | 45 | 44244.35000 | 0.00000 | 0.000 | 43605.49000 | 44347.91000 | 44779.65000 |
| AL | 27 | 5123.13846 | 149294.71700 | 0.900 | 5155.98606 | 5141.61977 | 5071.80957 |
| B | 11 | 318.96730 | 112067.65000 | 2.600 | 309.36791 | 322.56662 | 324.96736 |
| BE | 9 | 31.04727 | 18746.32700 | 2.000 | 30.35781 | 31.24025 | 31.54375 |
| CA | 44 | 5056.55741 | 19526.89700 | 1.200 | 5037.89036 | 5007.69804 | 5124.08384 |
| CR | 52 | 305.52509 | 306362.78300 | 1.500 | 310.78881 | 303.50931 | 302.27715 |
| FE | 57 | 4943.26509 | 104114.96300 | 1.900 | 5043.98076 | 4921.63724 | 4864.17728 |
| K | 39 | 4991.47594 | 407773.77000 | 1.700 | 5039.29706 | 5042.28491 | 4892.84583 |
| MG | 24 | 5031.38644 | 369262.00300 | 2.000 | 5136.14181 | 5017.46694 | 4940.55057 |
| MN | 55 | 303.01617 | 176302.12000 | 0.600 | 304.94301 | 302.33360 | 301.77191 |
| NA | 23 | 4769.27219 | 765478.71000 | 1.600 | 4858.37576 | 4709.46515 | 4739.97565 |
| TI | 47 | 297.21936 | 7652.25000 | 4.500 | 308.16679 | 301.06927 | 282.42202 |
| V | 51 | 303.94359 | 254944.59300 | 2.000 | 310.87416 | 301.92481 | 299.03180 |
| **GE-3** | 72 | 127335.59300 | 0.00000 | 0.000 | 127519.16000 | 127036.67000 | 127450.95000 |
| SB | 121 | 30.16435 | 31699.97700 | 0.500 | 30.13691 | 30.04064 | 30.31549 |
| **IN-2** | 115 | 303649.62000 | 0.00000 | 0.000 | 307189.06000 | 302836.21000 | 300923.59000 |
| **IN-3** | 115 | 69533.36300 | 0.00000 | 0.000 | 69121.49000 | 69121.10000 | 70357.50000 |
| AG | 107 | 30.25131 | 59670.69300 | 1.400 | 30.59136 | 30.38142 | 29.78114 |
| AS | 75 | 308.72759 | 43902.59300 | 0.700 | 308.55346 | 311.02615 | 306.60316 |
| BA | 137 | 313.60744 | 126687.32700 | 1.500 | 317.33082 | 315.21986 | 308.27164 |
| CD | 111 | 30.86857 | 9268.42700 | 1.700 | 30.39039 | 31.41012 | 30.80520 |
| CO | 59 | 290.95633 | 480613.13000 | 1.500 | 291.02317 | 295.29078 | 286.55503 |
| CU | 63 | 312.55381 | 336112.69000 | 1.500 | 316.60676 | 313.69462 | 307.36006 |
| MO | 98 | 31.11521 | 33546.92300 | 1.600 | 31.59141 | 31.14184 | 30.61239 |
| NI | 60 | 314.58820 | 126940.42700 | 1.600 | 315.69155 | 319.11339 | 308.95966 |
| SE | 78 | 30.27822 | 2415.76700 | 3.400 | 29.26921 | 31.34933 | 30.21612 |
| SN | 120 | 30.73532 | 34336.57700 | 4.400 | 32.27911 | 30.18145 | 29.74540 |
| SR | 88 | 30.79898 | 27260.05700 | 1.800 | 31.44598 | 30.40692 | 30.54404 |
| ZN | 66 | 315.11119 | 60513.86300 | 2.200 | 323.10417 | 311.62559 | 310.60380 |
| **BI-3** | 209 | 151121.90000 | 0.00000 | 0.000 | 148975.74000 | 151601.86000 | 152788.10000 |
| PB | 208 | 30.30284 | 196343.31700 | 0.500 | 30.46138 | 30.29689 | 30.15024 |
| TL | 205 | 30.36163 | 144783.49700 | 2.200 | 31.03485 | 30.36008 | 29.68996 |
| U | 238 | 50.83163 | 333494.74700 | 1.500 | 51.65849 | 50.64870 | 50.18771 |
| *SC-2* | 45 | 266743.78700 | 0.00000 | 0.000 | 268918.94000 | 269360.33000 | 261952.09000 |
| *GE-1* | 72 | 713463.69000 | 0.00000 | 0.000 | 715128.43000 | 711736.79000 | 713525.85000 |
| *GE-2* | 72 | 320977.09700 | 0.00000 | 0.000 | 321730.37000 | 322022.51000 | 319178.41000 |
| *TB-3* | 159 | 204051.73300 | 0.00000 | 0.000 | 206173.00000 | 202164.20000 | 203818.00000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 17:52:59
Tube Number: 26
Sample Number: **CCB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 776363.76700 | 0.00000 | 0.000 | 779208.35000 | 773827.41000 | 776055.54000 |
| **SC-3** | 45 | 44668.88300 | 0.00000 | 0.000 | 44177.41000 | 45280.73000 | 44548.51000 |
| AL | 27 | 1.71824 | 133.34000 | 73.300 | 0.28520 | 2.22291 | 2.64660 |
| B | 11 | 14.88832 | 7028.33700 | 3.600 | 15.47163 | 14.79691 | 14.39641 |
| BE | 9 | 0.02962 | 24.66700 | 28.100 | 0.02837 | 0.02199 | 0.03849 |
| CA | 44 | 15.08622 | 176.67700 | 65.200 | 8.62666 | 10.21862 | 26.41338 |
| CR | 52 | 0.65119 | 1473.46300 | 6.300 | 0.60422 | 0.66752 | 0.68183 |
| FE | 57 | -0.63603 | 183.34300 | 0.000 | -0.21739 | 0.49151 | -2.18220 |
| K | 39 | 16.15427 | 28100.96300 | 151.900 | 44.44284 | 0.51186 | 3.50813 |
| MG | 24 | 5.98863 | 1070.07700 | 34.000 | 5.05118 | 4.58788 | 8.32683 |
| MN | 55 | 0.48789 | 470.02300 | 27.900 | 0.39334 | 0.42656 | 0.64377 |
| NA | 23 | 122.38322 | 65863.17000 | 25.300 | 105.27512 | 103.80022 | 158.07433 |
| TI | 47 | 0.51598 | 16.66700 | 86.500 | 0.26303 | 0.25356 | 1.03135 |
| V | 51 | 0.14424 | 1003.40300 | 80.500 | 0.01049 | 0.21855 | 0.20367 |
| **GE-3** | 72 | 129051.02700 | 0.00000 | 0.000 | 130658.04000 | 129629.47000 | 126865.57000 |
| SB | 121 | 0.20579 | 293.34700 | 24.800 | 0.17090 | 0.18219 | 0.26429 |
| **IN-2** | 115 | 305643.79700 | 0.00000 | 0.000 | 306251.87000 | 302829.70000 | 307849.82000 |
| **IN-3** | 115 | 70846.37300 | 0.00000 | 0.000 | 71010.51000 | 71372.47000 | 70156.14000 |
| AG | 107 | 0.01540 | 100.00000 | 132.300 | 0.01517 | -0.00486 | 0.03589 |
| AS | 75 | 0.10929 | 64.66700 | 50.500 | 0.04854 | 0.15632 | 0.12301 |
| BA | 137 | 0.06551 | 63.33700 | 92.100 | 0.00871 | 0.12885 | 0.05897 |
| CD | 111 | 0.01754 | 9.33300 | 41.800 | 0.01315 | 0.02600 | 0.01346 |
| CO | 59 | 0.05950 | 150.00700 | 54.400 | 0.06542 | 0.08853 | 0.02456 |
| CU | 63 | -0.00884 | 1306.77300 | 0.000 | 0.10086 | -0.13312 | 0.00575 |
| MO | 98 | 0.02494 | 76.66700 | 150.400 | -0.00874 | 0.01822 | 0.06534 |
| NI | 60 | -0.16509 | 1863.51300 | 0.000 | 0.01249 | -0.40391 | -0.10386 |
| SE | 78 | 0.06135 | 5.55700 | 21.700 | 0.05832 | 0.07591 | 0.04982 |
| SN | 120 | -0.08098 | 873.38700 | 0.000 | -0.19446 | -0.09029 | 0.04183 |
| SR | 88 | 0.06772 | 140.01000 | 17.000 | 0.07843 | 0.05551 | 0.06923 |
| ZN | 66 | 2.90954 | 5981.45700 | 23.700 | 3.67112 | 2.32813 | 2.72938 |
| **BI-3** | 209 | 150864.49000 | 0.00000 | 0.000 | 150460.89000 | 151085.51000 | 151047.07000 |
| PB | 208 | 0.06906 | 693.37000 | 20.500 | 0.06108 | 0.06067 | 0.08543 |
| TL | 205 | 0.01897 | 116.67000 | 27.900 | 0.01973 | 0.01334 | 0.02383 |
| U | 238 | 0.01069 | 73.33300 | 16.600 | 0.01174 | 0.00864 | 0.01170 |
| *SC-2* | 45 | 269596.65000 | 0.00000 | 0.000 | 267809.20000 | 268630.91000 | 272349.84000 |
| *GE-1* | 72 | 721763.45000 | 0.00000 | 0.000 | 723961.08000 | 717040.69000 | 724288.58000 |
| *GE-2* | 72 | 327796.83300 | 0.00000 | 0.000 | 328525.93000 | 322332.50000 | 332532.07000 |
| *TB-3* | 159 | 203285.30300 | 0.00000 | 0.000 | 201419.45000 | 204303.06000 | 204133.40000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 17:54:52
Tube Number: 27 Batch: 200351511401A
Sample Number: **1251880** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846-U5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 795816.57300 | 0.00000 | 0.000 | 796653.89000 | 795414.83000 | 795381.00000 |
| **SC-3** | 45 | 44441.62700 | 0.00000 | 0.000 | 45050.06000 | 44127.27000 | 44147.55000 |
| AL | 27 | 22.51084 | 740.05000 | 14.500 | 18.77154 | 24.04277 | 24.71823 |
| B | 11 | 6.30325 | 4167.93300 | 6.700 | 6.73936 | 6.27737 | 5.89301 |
| BE | 9 | 0.01891 | 18.66700 | 35.600 | 0.02104 | 0.02433 | 0.01137 |
| CA | 44 | 183.13244 | 823.38000 | 14.000 | 171.63499 | 212.43894 | 165.32339 |
| CR | 52 | 0.36477 | 1176.75000 | 45.000 | 0.18405 | 0.40531 | 0.50495 |
| FE | 57 | -0.29650 | 190.00700 | 0.000 | 3.34405 | -3.54562 | -0.68791 |
| K | 39 | 26.58805 | 28778.75000 | 48.900 | 41.46571 | 20.94420 | 17.35423 |
| MG | 24 | 15.30179 | 1750.15300 | 5.200 | 14.57350 | 16.15046 | 15.18141 |
| MN | 55 | 0.26365 | 336.68300 | 20.600 | 0.24448 | 0.22163 | 0.32485 |
| NA | 23 | 559.14205 | 131650.52000 | 0.500 | 557.01948 | 562.61986 | 557.78680 |
| TI | 47 | 0.39318 | 13.33300 | 114.400 | -0.12598 | 0.65294 | 0.65258 |
| V | 51 | 0.10783 | 966.73000 | 47.700 | 0.04880 | 0.13162 | 0.14306 |
| **GE-3** | 72 | 130611.08000 | 0.00000 | 0.000 | 129337.34000 | 131201.91000 | 131293.99000 |
| SB | 121 | 0.04680 | 126.67000 | 98.500 | 0.00433 | 0.09584 | 0.04021 |
| **IN-2** | 115 | 308995.03000 | 0.00000 | 0.000 | 306420.41000 | 311721.64000 | 308843.04000 |
| **IN-3** | 115 | 70849.40000 | 0.00000 | 0.000 | 71542.31000 | 71342.21000 | 69663.68000 |
| AG | 107 | 0.02690 | 123.33700 | 9.700 | 0.02466 | 0.02978 | 0.02626 |
| AS | 75 | 0.16886 | 73.33300 | 50.400 | 0.26461 | 0.10164 | 0.14032 |
| BA | 137 | 0.41310 | 206.67700 | 25.200 | 0.41710 | 0.51504 | 0.30716 |
| CD | 111 | 0.00884 | 6.66700 | 111.900 | 0.00000 | 0.01952 | 0.00700 |
| CO | 59 | 0.04779 | 130.00700 | 61.500 | 0.07648 | 0.01777 | 0.04912 |
| CU | 63 | -0.00705 | 1310.11300 | 0.000 | 0.09115 | 0.00382 | -0.11613 |
| MO | 98 | -0.01157 | 36.66700 | 0.000 | -0.03609 | 0.00014 | 0.00123 |
| NI | 60 | 0.15392 | 1993.53300 | 119.000 | 0.09923 | 0.35813 | 0.00440 |
| SE | 78 | 0.06615 | 6.00000 | 55.100 | 0.10797 | 0.04910 | 0.04137 |
| SN | 120 | 1.03201 | 2107.49300 | 11.700 | 1.14312 | 1.04983 | 0.90307 |
| SR | 88 | 0.33827 | 383.35300 | 19.800 | 0.27542 | 0.40895 | 0.33045 |
| ZN | 66 | 2.19138 | 5851.37300 | 88.900 | 2.63835 | 0.05779 | 3.87802 |
| **BI-3** | 209 | 155011.17000 | 0.00000 | 0.000 | 155288.04000 | 154698.93000 | 155046.54000 |
| PB | 208 | 0.05512 | 620.03000 | 47.600 | 0.08205 | 0.02967 | 0.05362 |
| TL | 205 | 0.00331 | 43.33300 | 128.200 | 0.00466 | -0.00144 | 0.00672 |
| U | 238 | 0.00198 | 16.66700 | 43.600 | 0.00098 | 0.00248 | 0.00247 |
| *SC-2* | 45 | 271429.74300 | 0.00000 | 0.000 | 269506.27000 | 272326.56000 | 272456.40000 |
| *GE-1* | 72 | 739648.06000 | 0.00000 | 0.000 | 736835.85000 | 742866.00000 | 739242.33000 |
| *GE-2* | 72 | 331585.77700 | 0.00000 | 0.000 | 328896.48000 | 336751.05000 | 329109.80000 |
| *TB-3* | 159 | 204788.87700 | 0.00000 | 0.000 | 205573.63000 | 204163.55000 | 204629.45000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 17:56:47
Tube Number: 28 Batch: 200351511401A
Sample Number: **1251904** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846-U5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 791471.34300 | 0.00000 | 0.000 | 796204.99000 | 788835.22000 | 789373.82000 |
| **SC-3** | 45 | 44110.71300 | 0.00000 | 0.000 | 44077.63000 | 44107.19000 | 44147.32000 |
| AL | 27 | 1.78303 | 133.34000 | 91.400 | 2.36027 | 3.04558 | -0.05676 |
| B | 11 | 80.38199 | 30199.56000 | 2.000 | 78.57101 | 81.15128 | 81.42369 |
| BE | 9 | 0.03642 | 29.33300 | 13.200 | 0.04046 | 0.03768 | 0.03112 |
| CA | 44 | 261754.45510 | 1001772.09700 | 0.100 | 261361.27131 | 261795.10041 | 262106.99359 |
| CR | 52 | 0.87048 | 1673.49000 | 5.800 | 0.92859 | 0.83715 | 0.84570 |
| FE | 57 | 91394.69519 | 1916057.52300 | 0.200 | 91508.46103 | 91527.70112 | 91147.92341 |
| K | 39 | 4661.68041 | 381476.37700 | 0.600 | 4671.18045 | 4630.67414 | 4683.18663 |
| MG | 24 | 67069.57694 | 4900729.40700 | 1.100 | 66252.36921 | 67247.31090 | 67709.05071 |
| MN | 55 | 33537.62266 | 19435088.46000 | 0.200 | 33592.25856 | 33557.45995 | 33463.14948 |
| NA | 23 | 26087.27694 | 3966334.94000 | 0.800 | 26297.42373 | 25905.52500 | 26058.88210 |
| TI | 47 | 0.00390 | 3.33300 | 5774.100 | -0.12598 | 0.26365 | -0.12598 |
| V | 51 | 4.83199 | 4897.64000 | 2.800 | 4.80433 | 4.98044 | 4.71121 |
| **GE-3** | 72 | 127611.17700 | 0.00000 | 0.000 | 127379.29000 | 125905.57000 | 129548.67000 |
| SB | 121 | 0.67671 | 786.72000 | 19.900 | 0.62528 | 0.57555 | 0.82929 |
| **IN-2** | 115 | 300656.50300 | 0.00000 | 0.000 | 299127.61000 | 303168.00000 | 299673.90000 |
| **IN-3** | 115 | 70343.67700 | 0.00000 | 0.000 | 70980.32000 | 68939.94000 | 71110.77000 |
| AG | 107 | -0.01952 | 30.00000 | 0.000 | -0.01464 | -0.02429 | -0.01964 |
| AS | 75 | 12.19357 | 1800.79000 | 1.600 | 11.97962 | 12.24476 | 12.35633 |
| BA | 137 | 4900.75365 | 2002228.09300 | 1.400 | 4829.32516 | 4967.95544 | 4904.98036 |
| CD | 111 | -0.00195 | 3.33300 | 0.000 | 0.00010 | 0.00049 | -0.00644 |
| CO | 59 | 18.77305 | 31421.37300 | 0.700 | 18.92794 | 18.69988 | 18.69134 |
| CU | 63 | 0.84962 | 2230.25300 | 20.800 | 1.00682 | 0.65797 | 0.88409 |
| MO | 98 | 0.23679 | 306.68300 | 15.400 | 0.20054 | 0.27340 | 0.23643 |
| NI | 60 | 69.02099 | 29671.00000 | 1.600 | 69.36258 | 69.90429 | 67.79610 |
| SE | 78 | 1.43311 | 113.77700 | 11.700 | 1.43413 | 1.26426 | 1.60094 |
| SN | 120 | -0.09351 | 853.39300 | 0.000 | -0.21220 | -0.03491 | -0.03341 |
| SR | 88 | 627.39969 | 560178.65000 | 1.700 | 623.64721 | 639.30437 | 619.24749 |
| ZN | 66 | 14.73603 | 8029.18000 | 13.900 | 14.04490 | 17.03881 | 13.12439 |
| **BI-3** | 209 | 153272.01300 | 0.00000 | 0.000 | 151855.75000 | 154536.76000 | 153423.53000 |
| PB | 208 | 0.10589 | 946.71300 | 19.300 | 0.08323 | 0.11135 | 0.12309 |
| TL | 205 | 0.00270 | 40.00000 | 201.200 | -0.00345 | 0.00471 | 0.00685 |
| U | 238 | 0.00549 | 40.00000 | 71.400 | 0.00405 | 0.00993 | 0.00250 |
| *SC-2* | 45 | 269930.79000 | 0.00000 | 0.000 | 268140.19000 | 271324.49000 | 270327.69000 |
| *GE-1* | 72 | 731021.00700 | 0.00000 | 0.000 | 733524.52000 | 731820.93000 | 727717.57000 |
| *GE-2* | 72 | 324891.94300 | 0.00000 | 0.000 | 323248.47000 | 325624.10000 | 325803.26000 |
| *TB-3* | 159 | 206189.56300 | 0.00000 | 0.000 | 205087.09000 | 206678.32000 | 206803.28000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 17:58:46
Tube Number: 29 Batch: 200351511401A
Sample Number: **1251387** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 781346.13700 | 0.00000 | 0.000 | 782171.24000 | 781487.96000 | 780379.21000 |
| **SC-3** | 45 | 43398.40300 | 0.00000 | 0.000 | 42773.53000 | 43395.02000 | 44026.66000 |
| AL | 27 | 2.20680 | 143.34000 | 87.000 | 3.22813 | -0.00905 | 3.40131 |
| B | 11 | 26.14184 | 10980.71000 | 1.300 | 25.81263 | 26.13973 | 26.47315 |
| BE | 9 | 0.01287 | 14.66700 | 120.900 | 0.02493 | 0.01837 | -0.00469 |
| CA | 44 | 11891.41697 | 44882.72000 | 0.800 | 11910.08514 | 11973.44794 | 11790.71783 |
| CR | 52 | 3.50235 | 4227.41000 | 3.700 | 3.63993 | 3.48442 | 3.38269 |
| FE | 57 | 54.90357 | 1323.43700 | 0.400 | 55.18300 | 54.74486 | 54.78286 |
| K | 39 | 1504.91857 | 138805.48700 | 3.200 | 1556.75098 | 1494.54474 | 1463.45998 |
| MG | 24 | 5449.18394 | 392253.39300 | 1.500 | 5481.84634 | 5507.58461 | 5358.12088 |
| MN | 55 | 9.68702 | 5701.30700 | 1.800 | 9.81500 | 9.49449 | 9.75158 |
| NA | 23 | 16381.98841 | 2467266.99300 | 1.700 | 16528.11377 | 16551.24119 | 16066.61026 |
| TI | 47 | -0.12598 | 0.00000 | 0.000 | -0.12598 | -0.12598 | -0.12598 |
| V | 51 | 27.36233 | 23295.83700 | 1.800 | 27.58413 | 26.79497 | 27.70788 |
| **GE-3** | 72 | 128270.75700 | 0.00000 | 0.000 | 126149.67000 | 129587.54000 | 129075.06000 |
| SB | 121 | 0.26042 | 350.01700 | 25.400 | 0.24694 | 0.33223 | 0.20209 |
| **IN-2** | 115 | 308007.90300 | 0.00000 | 0.000 | 307545.50000 | 308612.53000 | 307865.68000 |
| **IN-3** | 115 | 69472.77700 | 0.00000 | 0.000 | 69915.20000 | 68900.23000 | 69602.90000 |
| AG | 107 | 0.02136 | 110.00300 | 41.600 | 0.02605 | 0.02693 | 0.01110 |
| AS | 75 | 3.40108 | 530.68000 | 7.000 | 3.30315 | 3.22891 | 3.67118 |
| BA | 137 | 17.08273 | 6928.67000 | 1.900 | 16.70987 | 17.33237 | 17.20595 |
| CD | 111 | 0.01820 | 9.33300 | 56.800 | 0.02018 | 0.02740 | 0.00702 |
| CO | 59 | 0.20695 | 390.02000 | 17.800 | 0.16926 | 0.20885 | 0.24273 |
| CU | 63 | 1.93074 | 3357.18000 | 7.200 | 1.85761 | 2.09121 | 1.84340 |
| MO | 98 | 15.92389 | 17177.62700 | 1.300 | 15.75995 | 16.16209 | 15.84964 |
| NI | 60 | 56.86156 | 24474.53000 | 3.900 | 56.60545 | 59.18807 | 54.79115 |
| SE | 78 | 0.12120 | 10.44700 | 24.000 | 0.12413 | 0.09074 | 0.14872 |
| SN | 120 | -0.16372 | 766.72300 | 0.000 | -0.29371 | -0.09944 | -0.09802 |
| SR | 88 | 71.76281 | 63354.78300 | 2.300 | 70.88947 | 73.64644 | 70.75250 |
| ZN | 66 | 4.91790 | 6214.87000 | 57.900 | 4.49256 | 7.95189 | 2.30926 |
| **BI-3** | 209 | 154659.17700 | 0.00000 | 0.000 | 152169.91000 | 156319.56000 | 155488.06000 |
| PB | 208 | 0.14098 | 1186.73300 | 6.400 | 0.14591 | 0.13056 | 0.14648 |
| TL | 205 | 0.00333 | 43.33300 | 32.900 | 0.00279 | 0.00460 | 0.00261 |
| U | 238 | 0.64158 | 4310.88000 | 2.200 | 0.65348 | 0.62580 | 0.64545 |
| *SC-2* | 45 | 264475.81000 | 0.00000 | 0.000 | 263711.23000 | 263429.31000 | 266286.89000 |
| *GE-1* | 72 | 726494.62300 | 0.00000 | 0.000 | 719771.79000 | 732341.00000 | 727371.08000 |
| *GE-2* | 72 | 324426.72000 | 0.00000 | 0.000 | 320947.61000 | 320532.24000 | 331800.31000 |
| *TB-3* | 159 | 203804.88700 | 0.00000 | 0.000 | 202029.65000 | 206520.68000 | 202864.33000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 18:00:41
Tube Number: 30 Batch: 200351511401A
Sample Number: **1251900** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846-U5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 789319.67300 | 0.00000 | 0.000 | 795093.50000 | 788974.05000 | 783891.47000 |
| **SC-3** | 45 | 44849.14700 | 0.00000 | 0.000 | 44799.22000 | 45069.66000 | 44678.56000 |
| AL | 27 | 2.72128 | 163.34000 | 37.500 | 1.59852 | 3.59461 | 2.97070 |
| B | 11 | 94.41225 | 35037.28700 | 2.500 | 91.72304 | 95.51862 | 95.99508 |
| BE | 9 | 0.01370 | 15.33300 | 35.200 | 0.01786 | 0.01482 | 0.00842 |
| CA | 44 | 56765.18688 | 220974.80300 | 0.600 | 57031.04680 | 56380.94490 | 56883.56894 |
| CR | 52 | 0.29063 | 1113.41000 | 25.700 | 0.27849 | 0.22289 | 0.37053 |
| FE | 57 | 8155.94518 | 174030.68700 | 0.700 | 8201.72274 | 8169.06010 | 8097.05271 |
| K | 39 | 1374.67239 | 133394.87700 | 1.800 | 1401.92011 | 1355.87103 | 1366.22603 |
| MG | 24 | 10670.65291 | 793262.62000 | 0.500 | 10692.68805 | 10605.33479 | 10713.93588 |
| MN | 55 | 2189.86108 | 1290401.31000 | 1.100 | 2199.54643 | 2161.51959 | 2208.51722 |
| NA | 23 | 9297.76558 | 1467766.85300 | 1.800 | 9316.88904 | 9122.88673 | 9453.52096 |
| TI | 47 | -0.12598 | 0.00000 | 0.000 | -0.12598 | -0.12598 | -0.12598 |
| V | 51 | -0.02493 | 863.39300 | 0.000 | 0.03130 | -0.05736 | -0.04872 |
| **GE-3** | 72 | 129733.70300 | 0.00000 | 0.000 | 129479.23000 | 129165.08000 | 130556.80000 |
| SB | 121 | 0.10102 | 183.34300 | 62.500 | 0.06992 | 0.17369 | 0.05946 |
| **IN-2** | 115 | 307468.19000 | 0.00000 | 0.000 | 304347.69000 | 313246.03000 | 304810.85000 |
| **IN-3** | 115 | 70494.34700 | 0.00000 | 0.000 | 70477.04000 | 69503.05000 | 71502.95000 |
| AG | 107 | 0.21186 | 493.36000 | 30.900 | 0.18580 | 0.16350 | 0.28628 |
| AS | 75 | 9.38746 | 1400.07700 | 6.200 | 9.91427 | 9.48044 | 8.76765 |
| BA | 137 | 938.12085 | 384129.83700 | 1.300 | 933.90958 | 951.93966 | 928.51330 |
| CD | 111 | 0.00242 | 4.66700 | 166.000 | 0.00019 | 0.00705 | 0.00001 |
| CO | 59 | 0.18193 | 353.35000 | 25.000 | 0.20949 | 0.20678 | 0.12952 |
| CU | 63 | 0.08899 | 1406.78000 | 57.200 | 0.14759 | 0.06384 | 0.05554 |
| MO | 98 | 1.09673 | 1246.76300 | 5.600 | 1.15538 | 1.03280 | 1.10201 |
| NI | 60 | 1.53582 | 2540.31300 | 26.800 | 1.06644 | 1.70194 | 1.83908 |
| SE | 78 | 0.08538 | 7.55300 | 28.200 | 0.05873 | 0.10544 | 0.09197 |
| SN | 120 | -0.14730 | 796.71700 | 0.000 | -0.13486 | -0.17059 | -0.13646 |
| SR | 88 | 165.86811 | 148483.35700 | 1.200 | 165.66796 | 167.95812 | 163.97825 |
| ZN | 66 | 0.98391 | 5611.29000 | 90.800 | 1.56264 | -0.04483 | 1.43393 |
| **BI-3** | 209 | 153967.02700 | 0.00000 | 0.000 | 153628.03000 | 154252.18000 | 154020.87000 |
| PB | 208 | 0.10629 | 953.38300 | 34.000 | 0.06967 | 0.14191 | 0.10730 |
| TL | 205 | 0.00201 | 36.66700 | 59.400 | 0.00271 | 0.00268 | 0.00063 |
| U | 238 | 0.02045 | 140.01000 | 26.600 | 0.02648 | 0.01592 | 0.01894 |
| *SC-2* | 45 | 272868.02300 | 0.00000 | 0.000 | 272746.46000 | 280171.81000 | 265685.80000 |
| *GE-1* | 72 | 738486.73300 | 0.00000 | 0.000 | 742940.30000 | 735739.13000 | 736780.77000 |
| *GE-2* | 72 | 330655.84300 | 0.00000 | 0.000 | 330824.57000 | 334950.11000 | 326192.85000 |
| *TB-3* | 159 | 204961.70000 | 0.00000 | 0.000 | 203563.96000 | 206305.17000 | 205015.97000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 18:02:34
Tube Number: 31 Batch: 200351511401A
Sample Number: **1251379** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 800800.22300 | 0.00000 | 0.000 | 798776.94000 | 805727.41000 | 797896.32000 |
| **SC-3** | 45 | 43324.65700 | 0.00000 | 0.000 | 42953.87000 | 42652.22000 | 44367.88000 |
| AL | 27 | 3.03438 | 166.67700 | 5.200 | 3.20279 | 2.88917 | 3.01118 |
| B | 11 | 92.09633 | 34725.90000 | 1.600 | 90.81734 | 91.82279 | 93.64888 |
| BE | 9 | 0.00160 | 8.00000 | 537.000 | -0.00162 | -0.00490 | 0.01130 |
| CA | 44 | 13776.68686 | 51868.94700 | 3.700 | 13774.10363 | 14292.17192 | 13263.78504 |
| CR | 52 | 2.44432 | 3183.79300 | 4.800 | 2.41605 | 2.57368 | 2.34322 |
| FE | 57 | 0.58774 | 203.34300 | 390.700 | -1.91914 | 1.09295 | 2.58941 |
| K | 39 | 2083.30233 | 181824.58000 | 2.200 | 2131.53398 | 2076.34282 | 2042.03019 |
| MG | 24 | 7985.96153 | 573504.80700 | 2.100 | 8114.28766 | 8047.42172 | 7796.17522 |
| MN | 55 | 12.40848 | 7245.35700 | 6.000 | 12.69780 | 11.55782 | 12.96982 |
| NA | 23 | 12889.31229 | 1947456.53300 | 1.900 | 12952.93398 | 13100.89942 | 12614.10348 |
| TI | 47 | 0.00313 | 3.33300 | 7138.400 | -0.12598 | -0.12598 | 0.26136 |
| V | 51 | 23.31863 | 19940.83300 | 1.700 | 23.33015 | 23.71376 | 22.91197 |
| **GE-3** | 72 | 127719.44700 | 0.00000 | 0.000 | 128318.15000 | 128489.92000 | 126350.27000 |
| SB | 121 | 0.09425 | 173.34300 | 37.100 | 0.09012 | 0.06155 | 0.13108 |
| **IN-2** | 115 | 304874.56700 | 0.00000 | 0.000 | 305786.95000 | 303547.83000 | 305288.92000 |
| **IN-3** | 115 | 70504.46000 | 0.00000 | 0.000 | 69905.07000 | 70909.40000 | 70698.91000 |
| AG | 107 | 0.06561 | 200.01000 | 14.000 | 0.07149 | 0.05506 | 0.07030 |
| AS | 75 | 2.39892 | 394.01000 | 8.000 | 2.61748 | 2.25809 | 2.32121 |
| BA | 137 | 39.52124 | 16220.10700 | 2.900 | 40.49826 | 39.77800 | 38.28745 |
| CD | 111 | 0.00236 | 4.66700 | 421.400 | 0.00030 | 0.01318 | -0.00640 |
| CO | 59 | 0.02424 | 90.00000 | 47.700 | 0.01271 | 0.03586 | 0.02415 |
| CU | 63 | 0.01201 | 1323.44000 | 495.700 | -0.00846 | -0.03459 | 0.07907 |
| MO | 98 | 0.45264 | 543.36000 | 11.200 | 0.45377 | 0.40116 | 0.50298 |
| NI | 60 | 0.04849 | 1940.19300 | 699.500 | 0.43846 | -0.17808 | -0.11491 |
| SE | 78 | 0.11136 | 9.55700 | 23.800 | 0.09999 | 0.09239 | 0.14169 |
| SN | 120 | -0.19262 | 746.71300 | 0.000 | -0.17461 | -0.13934 | -0.26389 |
| SR | 88 | 92.79021 | 83113.05300 | 1.900 | 94.83515 | 91.78162 | 91.75384 |
| ZN | 66 | 1.49012 | 5701.32300 | 47.400 | 0.74584 | 2.15060 | 1.57394 |
| **BI-3** | 209 | 156172.62700 | 0.00000 | 0.000 | 157077.19000 | 155751.71000 | 155688.98000 |
| PB | 208 | 0.05548 | 626.70000 | 16.600 | 0.04500 | 0.05920 | 0.06224 |
| TL | 205 | 0.00327 | 43.33300 | 130.300 | -0.00151 | 0.00667 | 0.00464 |
| U | 238 | 0.19713 | 1340.11700 | 10.200 | 0.19746 | 0.17696 | 0.21698 |
| *SC-2* | 45 | 268987.40700 | 0.00000 | 0.000 | 267510.84000 | 269425.62000 | 270025.76000 |
| *GE-1* | 72 | 735564.10300 | 0.00000 | 0.000 | 729766.08000 | 734846.71000 | 742079.52000 |
| *GE-2* | 72 | 326737.64300 | 0.00000 | 0.000 | 321810.64000 | 332167.22000 | 326235.07000 |
| *TB-3* | 159 | 205625.27700 | 0.00000 | 0.000 | 204967.34000 | 204704.25000 | 207204.24000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 18:04:29
Tube Number: 32 Batch: 200351511401A
Sample Number: **1251383** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 803342.41000 | 0.00000 | 0.000 | 802162.88000 | 816928.97000 | 790935.38000 |
| **SC-3** | 45 | 44204.02300 | 0.00000 | 0.000 | 42723.04000 | 45250.12000 | 44638.91000 |
| AL | 27 | 3.49047 | 183.34300 | 13.500 | 3.59082 | 3.90476 | 2.97584 |
| B | 11 | 35.77383 | 14727.90300 | 1.800 | 35.08916 | 35.86678 | 36.36555 |
| BE | 9 | 0.01214 | 14.66700 | 63.200 | 0.01118 | 0.02023 | 0.00499 |
| CA | 44 | 17570.61086 | 67458.84000 | 3.200 | 18055.80673 | 16953.57821 | 17702.44762 |
| CR | 52 | 7.32090 | 8122.50700 | 5.300 | 7.24982 | 6.97598 | 7.73691 |
| FE | 57 | 2.11851 | 240.01300 | 97.500 | 0.09071 | 4.21881 | 2.04602 |
| K | 39 | 2756.59617 | 236769.29300 | 3.600 | 2870.24141 | 2679.57819 | 2719.96891 |
| MG | 24 | 8608.95255 | 630574.90000 | 2.800 | 8881.93748 | 8445.70011 | 8499.22005 |
| MN | 55 | 2.74494 | 1776.83700 | 3.200 | 2.64473 | 2.78240 | 2.80770 |
| NA | 23 | 15385.66947 | 2362072.57000 | 2.900 | 15898.82622 | 15100.29510 | 15157.88710 |
| TI | 47 | 0.13068 | 6.66700 | 340.200 | -0.12598 | -0.12598 | 0.64401 |
| V | 51 | 31.25527 | 26962.28000 | 3.500 | 32.51904 | 30.72653 | 30.52024 |
| **GE-3** | 72 | 129098.04300 | 0.00000 | 0.000 | 129266.58000 | 128681.59000 | 129345.96000 |
| SB | 121 | 0.28983 | 383.35000 | 15.900 | 0.34263 | 0.26899 | 0.25787 |
| **IN-2** | 115 | 312196.27000 | 0.00000 | 0.000 | 316934.51000 | 310204.21000 | 309450.09000 |
| **IN-3** | 115 | 71727.31700 | 0.00000 | 0.000 | 72427.66000 | 70879.24000 | 71875.05000 |
| AG | 107 | 0.04249 | 156.67300 | 45.600 | 0.06292 | 0.04016 | 0.02439 |
| AS | 75 | 9.28446 | 1410.08000 | 1.500 | 9.44894 | 9.22076 | 9.18368 |
| BA | 137 | 13.86920 | 5818.11000 | 7.600 | 15.05679 | 13.03079 | 13.52003 |
| CD | 111 | 0.03651 | 15.33300 | 97.100 | 0.01903 | 0.01319 | 0.07730 |
| CO | 59 | 0.06657 | 163.34000 | 50.700 | 0.02868 | 0.07747 | 0.09356 |
| CU | 63 | 0.59716 | 1993.54700 | 20.200 | 0.57719 | 0.48792 | 0.72637 |
| MO | 98 | 2.08302 | 2363.61700 | 0.200 | 2.07728 | 2.08719 | 2.08459 |
| NI | 60 | 0.34107 | 2093.56000 | 118.000 | 0.23295 | 0.78649 | 0.00377 |
| SE | 78 | 0.14908 | 12.89000 | 11.100 | 0.16826 | 0.13932 | 0.13968 |
| SN | 120 | -0.11742 | 843.38300 | 0.000 | -0.24303 | -0.07583 | -0.03341 |
| SR | 88 | 141.93359 | 129308.94700 | 0.900 | 141.47837 | 140.96156 | 143.36085 |
| ZN | 66 | 3.92680 | 6238.23300 | 31.400 | 3.54867 | 5.30485 | 2.92687 |
| **BI-3** | 209 | 155666.75700 | 0.00000 | 0.000 | 156702.32000 | 154396.77000 | 155901.18000 |
| PB | 208 | 0.06426 | 683.37300 | 9.800 | 0.05861 | 0.06308 | 0.07110 |
| TL | 205 | 0.00532 | 53.33300 | 110.600 | 0.00862 | 0.00883 | -0.00148 |
| U | 238 | 1.70374 | 11518.79300 | 2.400 | 1.67434 | 1.68591 | 1.75096 |
| *SC-2* | 45 | 276409.57300 | 0.00000 | 0.000 | 279050.50000 | 274612.93000 | 275565.29000 |
| *GE-1* | 72 | 744299.60000 | 0.00000 | 0.000 | 737996.79000 | 755176.63000 | 739725.38000 |
| *GE-2* | 72 | 333765.24000 | 0.00000 | 0.000 | 337506.79000 | 331063.04000 | 332725.89000 |
| *TB-3* | 159 | 206835.71300 | 0.00000 | 0.000 | 207105.58000 | 207942.15000 | 205459.41000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 18:06:23
Tube Number: 33 Batch: 200351511401A
Sample Number: **1251902** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846-U5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 798979.62000 | 0.00000 | 0.000 | 795279.83000 | 798747.25000 | 802911.78000 |
| **SC-3** | 45 | 45521.32000 | 0.00000 | 0.000 | 45611.43000 | 45782.18000 | 45170.35000 |
| AL | 27 | 2.30516 | 153.34300 | 32.200 | 1.85339 | 3.16316 | 1.89893 |
| B | 11 | 101.10811 | 37850.09700 | 2.600 | 98.21205 | 101.87356 | 103.23872 |
| BE | 9 | 0.05312 | 40.00000 | 37.400 | 0.03081 | 0.05964 | 0.06890 |
| CA | 44 | 271051.16386 | 1070476.44300 | 1.100 | 268212.71414 | 270629.16029 | 274311.61714 |
| CR | 52 | 0.63744 | 1486.80000 | 13.900 | 0.58893 | 0.58372 | 0.73967 |
| FE | 57 | 141902.48800 | 3069886.51700 | 0.600 | 141387.81320 | 141485.00016 | 142834.65062 |
| K | 39 | 4729.29710 | 398976.26000 | 0.900 | 4748.03524 | 4681.86461 | 4757.99144 |
| MG | 24 | 81224.94819 | 6124313.03300 | 1.300 | 80649.52860 | 80555.18370 | 82470.13226 |
| MN | 55 | 40916.80777 | 24469027.13700 | 0.500 | 40818.56033 | 40782.09915 | 41149.76382 |
| NA | 23 | 30288.20425 | 4744531.38700 | 1.100 | 29906.59741 | 30511.00363 | 30447.01172 |
| TI | 47 | 0.00084 | 3.33300 | 26179.500 | -0.12598 | -0.12598 | 0.25448 |
| V | 51 | 10.97090 | 10333.99700 | 2.400 | 11.00419 | 10.69314 | 11.21538 |
| **GE-3** | 72 | 130847.12300 | 0.00000 | 0.000 | 129377.70000 | 131304.55000 | 131859.12000 |
| SB | 121 | 1.55945 | 1756.84000 | 16.300 | 1.42193 | 1.85335 | 1.40308 |
| **IN-2** | 115 | 302181.14700 | 0.00000 | 0.000 | 303787.57000 | 302132.65000 | 300623.22000 |
| **IN-3** | 115 | 69924.71300 | 0.00000 | 0.000 | 69361.34000 | 70316.97000 | 70095.83000 |
| AG | 107 | -0.01774 | 33.33300 | 0.000 | -0.02435 | -0.00943 | -0.01942 |
| AS | 75 | 15.61250 | 2278.86300 | 3.300 | 15.10444 | 16.11993 | 15.61314 |
| BA | 137 | 5640.49777 | 2291149.86000 | 1.300 | 5558.94826 | 5658.32374 | 5704.22131 |
| CD | 111 | 0.00469 | 5.33300 | 292.000 | 0.00041 | 0.01999 | -0.00634 |
| CO | 59 | 20.81485 | 34625.53300 | 1.400 | 20.64189 | 20.66106 | 21.14158 |
| CU | 63 | 0.56378 | 1906.86700 | 32.600 | 0.54373 | 0.39070 | 0.75690 |
| MO | 98 | 0.81088 | 926.73300 | 6.500 | 0.82083 | 0.75396 | 0.85784 |
| NI | 60 | 73.96146 | 31471.52000 | 1.200 | 74.95921 | 73.65139 | 73.27378 |
| SE | 78 | 1.20715 | 96.44700 | 5.900 | 1.12810 | 1.22667 | 1.26667 |
| SN | 120 | -0.12291 | 816.71300 | 0.000 | -0.11380 | -0.13318 | -0.12174 |
| SR | 88 | 916.55108 | 813569.52000 | 1.300 | 926.00509 | 920.25667 | 903.39147 |
| ZN | 66 | 11.95349 | 7495.55000 | 2.600 | 12.16503 | 12.09205 | 11.60339 |
| **BI-3** | 209 | 153289.27000 | 0.00000 | 0.000 | 153433.99000 | 155872.87000 | 150560.95000 |
| PB | 208 | 0.07739 | 760.04700 | 26.400 | 0.09721 | 0.07861 | 0.05636 |
| TL | 205 | 0.00071 | 30.00000 | 776.700 | 0.00479 | -0.00554 | 0.00288 |
| U | 238 | 0.00450 | 33.33300 | 50.600 | 0.00700 | 0.00393 | 0.00256 |
| *SC-2* | 45 | 272889.77000 | 0.00000 | 0.000 | 271104.10000 | 273512.73000 | 274052.48000 |
| *GE-1* | 72 | 738699.85700 | 0.00000 | 0.000 | 736784.52000 | 737263.19000 | 742051.86000 |
| *GE-2* | 72 | 327391.30000 | 0.00000 | 0.000 | 328502.50000 | 325516.95000 | 328154.45000 |
| *TB-3* | 159 | 205502.25000 | 0.00000 | 0.000 | 204467.75000 | 207003.67000 | 205035.33000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 18:08:23
Tube Number: 34 Batch: 200351511401A
Sample Number: **1251374** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 802233.00700 | 0.00000 | 0.000 | 796240.30000 | 805018.11000 | 805440.61000 |
| **SC-3** | 45 | 43893.13000 | 0.00000 | 0.000 | 43415.01000 | 44027.12000 | 44237.26000 |
| AL | 27 | 0.29894 | 90.00000 | 338.100 | -0.71009 | 0.29577 | 1.31114 |
| B | 11 | 59.68615 | 23233.91700 | 0.400 | 59.44164 | 59.88154 | 59.73526 |
| BE | 9 | 0.00795 | 12.00000 | 79.500 | 0.00165 | 0.00790 | 0.01429 |
| CA | 44 | 36859.65521 | 140484.33000 | 1.500 | 36284.14765 | 36936.80446 | 37358.01351 |
| CR | 52 | 1.46708 | 2256.93000 | 17.100 | 1.45445 | 1.72445 | 1.22235 |
| FE | 57 | 21.12690 | 633.37000 | 26.100 | 25.63182 | 22.75640 | 14.99249 |
| K | 39 | 3309.54195 | 277144.82700 | 0.600 | 3324.75584 | 3287.60448 | 3316.26554 |
| MG | 24 | 20469.66334 | 1488718.10300 | 1.300 | 20610.92671 | 20164.87254 | 20633.19077 |
| MN | 55 | 6.70676 | 4044.03700 | 19.000 | 7.66589 | 7.19168 | 5.26270 |
| NA | 23 | 24971.79226 | 3779921.50700 | 0.600 | 25095.24886 | 24821.12556 | 24999.00236 |
| TI | 47 | 0.00597 | 3.33300 | 3830.300 | 0.26987 | -0.12598 | -0.12598 |
| V | 51 | 24.06343 | 20822.08300 | 3.100 | 24.43836 | 24.55354 | 23.19838 |
| **GE-3** | 72 | 130500.27000 | 0.00000 | 0.000 | 128751.15000 | 131920.30000 | 130829.36000 |
| SB | 121 | 0.51084 | 623.37300 | 47.200 | 0.76882 | 0.47242 | 0.29127 |
| **IN-2** | 115 | 306245.56300 | 0.00000 | 0.000 | 304716.85000 | 305164.51000 | 308855.33000 |
| **IN-3** | 115 | 69724.01000 | 0.00000 | 0.000 | 68809.74000 | 70287.25000 | 70075.04000 |
| AG | 107 | 0.02290 | 113.33700 | 36.800 | 0.03215 | 0.01568 | 0.02087 |
| AS | 75 | 2.24167 | 367.34300 | 2.300 | 2.28038 | 2.18357 | 2.26105 |
| BA | 137 | 73.49960 | 29799.48000 | 2.000 | 74.77670 | 71.92752 | 73.79458 |
| CD | 111 | 0.01807 | 9.33300 | 22.000 | 0.02072 | 0.02001 | 0.01349 |
| CO | 59 | 0.00467 | 56.66700 | 292.100 | -0.01108 | 0.01249 | 0.01261 |
| CU | 63 | 1.41620 | 2817.03300 | 5.900 | 1.43512 | 1.32415 | 1.48933 |
| MO | 98 | 1.20968 | 1353.45000 | 13.000 | 1.39097 | 1.11267 | 1.12540 |
| NI | 60 | 0.75035 | 2200.25300 | 52.000 | 0.31791 | 0.85820 | 1.07494 |
| SE | 78 | 0.17977 | 15.11000 | 13.300 | 0.17532 | 0.15834 | 0.20565 |
| SN | 120 | -0.13685 | 800.05700 | 0.000 | -0.25654 | -0.09645 | -0.05757 |
| SR | 88 | 252.28536 | 223344.14300 | 0.900 | 254.88129 | 250.15910 | 251.81569 |
| ZN | 66 | 5.63696 | 6361.64000 | 51.500 | 8.98474 | 4.13727 | 3.78888 |
| **BI-3** | 209 | 153690.83700 | 0.00000 | 0.000 | 152948.65000 | 152686.47000 | 155437.39000 |
| PB | 208 | 0.10467 | 940.05000 | 17.800 | 0.09916 | 0.12540 | 0.08945 |
| TL | 205 | 0.01441 | 96.67000 | 30.800 | 0.01311 | 0.01937 | 0.01077 |
| U | 238 | 6.93103 | 46253.51300 | 1.300 | 6.85718 | 7.02789 | 6.90804 |
| *SC-2* | 45 | 269758.57700 | 0.00000 | 0.000 | 270538.86000 | 268785.80000 | 269951.07000 |
| *GE-1* | 72 | 742633.08700 | 0.00000 | 0.000 | 740889.36000 | 739477.80000 | 747532.10000 |
| *GE-2* | 72 | 326921.62000 | 0.00000 | 0.000 | 324387.63000 | 326358.02000 | 330019.21000 |
| *TB-3* | 159 | 206436.46000 | 0.00000 | 0.000 | 204558.88000 | 205815.66000 | 208934.84000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 18:10:17
Tube Number: 35 Batch: 200351511401A
Sample Number: **1251898** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846-U5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 800586.05700 | 0.00000 | 0.000 | 808949.44000 | 787963.04000 | 804845.69000 |
| **SC-3** | 45 | 44946.42700 | 0.00000 | 0.000 | 45511.39000 | 44368.05000 | 44959.84000 |
| AL | 27 | -0.66714 | 63.33300 | 0.000 | -0.47303 | -0.07046 | -1.45794 |
| B | 11 | 35.77637 | 14678.52000 | 0.500 | 35.57298 | 35.94036 | 35.81578 |
| BE | 9 | 0.01337 | 15.33300 | 49.600 | 0.00781 | 0.01159 | 0.02071 |
| CA | 44 | 37221.57145 | 145252.91700 | 0.300 | 37288.35367 | 37298.06538 | 37078.29531 |
| CR | 52 | 0.19414 | 1016.73700 | 75.000 | 0.04765 | 0.33889 | 0.19589 |
| FE | 57 | 649.77123 | 14080.56700 | 3.200 | 666.59744 | 626.09857 | 656.61767 |
| K | 39 | 1233.46368 | 122734.33300 | 0.800 | 1243.03769 | 1232.96925 | 1224.38411 |
| MG | 24 | 13681.07730 | 1019001.39000 | 1.200 | 13535.93258 | 13858.42030 | 13648.87901 |
| MN | 55 | 187.62315 | 110960.75700 | 1.800 | 187.04001 | 191.31587 | 184.51356 |
| NA | 23 | 9065.91856 | 1435229.98000 | 2.500 | 8835.50481 | 9297.80300 | 9064.44787 |
| TI | 47 | 0.12730 | 6.66700 | 172.300 | 0.25163 | -0.12598 | 0.25626 |
| V | 51 | -0.15734 | 753.38000 | 0.000 | -0.17159 | -0.31612 | 0.01568 |
| **GE-3** | 72 | 133502.06000 | 0.00000 | 0.000 | 132962.18000 | 133624.30000 | 133919.70000 |
| SB | 121 | 0.20524 | 303.35000 | 25.500 | 0.24893 | 0.14736 | 0.21944 |
| **IN-2** | 115 | 312325.32000 | 0.00000 | 0.000 | 315287.89000 | 309278.02000 | 312410.05000 |
| **IN-3** | 115 | 71178.53300 | 0.00000 | 0.000 | 70156.96000 | 71212.15000 | 72166.49000 |
| AG | 107 | 0.03307 | 136.67300 | 75.500 | 0.00571 | 0.05467 | 0.03883 |
| AS | 75 | 0.31459 | 94.66700 | 36.200 | 0.41604 | 0.33614 | 0.19158 |
| BA | 137 | 461.58238 | 190851.00700 | 1.600 | 467.07184 | 464.76477 | 452.91052 |
| CD | 111 | 0.00444 | 5.33300 | 227.100 | 0.01346 | -0.00645 | 0.00631 |
| CO | 59 | 0.06124 | 153.34000 | 36.400 | 0.07257 | 0.03559 | 0.07556 |
| CU | 63 | -0.02175 | 1300.09700 | 0.000 | -0.20706 | 0.15184 | -0.01004 |
| MO | 98 | 1.24079 | 1416.79000 | 15.400 | 1.39101 | 1.02507 | 1.30627 |
| NI | 60 | -0.07106 | 1910.18000 | 0.000 | 0.14543 | -0.19759 | -0.16104 |
| SE | 78 | 0.09487 | 8.44300 | 18.900 | 0.10471 | 0.07416 | 0.10575 |
| SN | 120 | -0.20733 | 736.71700 | 0.000 | -0.16799 | -0.13346 | -0.32056 |
| SR | 88 | 236.18502 | 213437.90700 | 1.900 | 239.32369 | 238.22358 | 231.00778 |
| ZN | 66 | 0.89379 | 5647.95000 | 186.900 | 0.23644 | 2.79264 | -0.34770 |
| **BI-3** | 209 | 153019.88000 | 0.00000 | 0.000 | 154234.26000 | 153616.14000 | 151209.24000 |
| PB | 208 | 0.03964 | 510.02000 | 23.300 | 0.02988 | 0.04080 | 0.04823 |
| TL | 205 | -0.00003 | 26.66700 | 0.000 | 0.00062 | 0.00065 | -0.00135 |
| U | 238 | 0.91892 | 6108.30000 | 6.400 | 0.86283 | 0.98031 | 0.91363 |
| *SC-2* | 45 | 275844.40700 | 0.00000 | 0.000 | 278652.96000 | 269913.41000 | 278966.85000 |
| *GE-1* | 72 | 752960.95000 | 0.00000 | 0.000 | 755264.83000 | 746326.00000 | 757292.02000 |
| *GE-2* | 72 | 333139.81700 | 0.00000 | 0.000 | 336024.14000 | 327692.85000 | 335702.46000 |
| *TB-3* | 159 | 205795.51700 | 0.00000 | 0.000 | 205804.08000 | 207490.58000 | 204091.89000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 18:12:10
Tube Number: 36 Batch: 200351511401A
Sample Number: **1251381** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 807313.79300 | 0.00000 | 0.000 | 808645.46000 | 805140.46000 | 808155.46000 |
| **SC-3** | 45 | 44274.37700 | 0.00000 | 0.000 | 44017.07000 | 44458.34000 | 44347.72000 |
| AL | 27 | 4.95928 | 226.69000 | 51.700 | 2.02229 | 6.75905 | 6.09651 |
| B | 11 | 88.37557 | 33674.20300 | 0.800 | 88.25896 | 87.69810 | 89.16964 |
| BE | 9 | 0.00891 | 12.66700 | 20.500 | 0.00782 | 0.00790 | 0.01102 |
| CA | 44 | 13916.83076 | 53571.97700 | 1.100 | 13795.62315 | 14087.75783 | 13867.11129 |
| CR | 52 | 2.32327 | 3133.77300 | 1.900 | 2.32813 | 2.27710 | 2.36456 |
| FE | 57 | 2.92167 | 256.68000 | 118.000 | 0.29363 | 6.82556 | 1.64582 |
| K | 39 | 2067.75189 | 184648.36700 | 1.200 | 2096.92499 | 2050.37458 | 2055.95610 |
| MG | 24 | 7919.20638 | 581333.22000 | 0.500 | 7963.62399 | 7887.42435 | 7906.57080 |
| MN | 55 | 14.06057 | 8359.38300 | 3.800 | 14.59853 | 13.54240 | 14.04077 |
| NA | 23 | 12791.03865 | 1975855.33300 | 1.200 | 12825.57053 | 12923.48187 | 12624.06355 |
| TI | 47 | 0.00416 | 3.33300 | 5416.200 | 0.26445 | -0.12598 | -0.12598 |
| V | 51 | 22.89965 | 20030.88700 | 2.400 | 23.17508 | 22.27882 | 23.24505 |
| **GE-3** | 72 | 130227.75000 | 0.00000 | 0.000 | 128499.23000 | 131688.05000 | 130495.97000 |
| SB | 121 | 0.19088 | 280.01300 | 35.700 | 0.26949 | 0.15056 | 0.15259 |
| **IN-2** | 115 | 312489.45300 | 0.00000 | 0.000 | 310357.71000 | 311834.33000 | 315276.32000 |
| **IN-3** | 115 | 70417.37000 | 0.00000 | 0.000 | 69221.43000 | 70628.16000 | 71402.52000 |
| AG | 107 | 0.02885 | 126.67000 | 37.200 | 0.01645 | 0.03542 | 0.03467 |
| AS | 75 | 2.38657 | 392.01000 | 15.400 | 2.15167 | 2.80900 | 2.19903 |
| BA | 137 | 40.46703 | 16590.43000 | 1.300 | 39.85322 | 40.79037 | 40.75750 |
| CD | 111 | 0.03307 | 14.00000 | 38.800 | 0.03390 | 0.01985 | 0.04545 |
| CO | 59 | 0.02619 | 93.33300 | 63.300 | 0.00705 | 0.03612 | 0.03541 |
| CU | 63 | 0.48040 | 1830.17700 | 32.300 | 0.39720 | 0.65938 | 0.38460 |
| MO | 98 | 0.37961 | 463.36000 | 8.600 | 0.34674 | 0.41209 | 0.38000 |
| NI | 60 | 0.21593 | 2006.88000 | 229.200 | 0.13608 | -0.23411 | 0.74580 |
| SE | 78 | 0.10570 | 9.33300 | 33.200 | 0.12293 | 0.06531 | 0.12886 |
| SN | 120 | -0.22522 | 710.04700 | 0.000 | -0.25095 | -0.18173 | -0.24297 |
| SR | 88 | 95.69567 | 85600.10300 | 2.200 | 96.88213 | 96.94955 | 93.25532 |
| ZN | 66 | 2.21917 | 5821.37000 | 42.400 | 3.29466 | 1.54984 | 1.81300 |
| **BI-3** | 209 | 154520.37300 | 0.00000 | 0.000 | 154496.72000 | 156085.68000 | 152978.72000 |
| PB | 208 | 0.05600 | 623.36700 | 12.600 | 0.05697 | 0.04852 | 0.06250 |
| TL | 205 | 0.00197 | 36.66700 | 216.200 | 0.00677 | 0.00055 | -0.00140 |
| U | 238 | 0.18883 | 1270.11000 | 1.800 | 0.18884 | 0.18543 | 0.19222 |
| *SC-2* | 45 | 273193.43000 | 0.00000 | 0.000 | 269557.55000 | 274597.16000 | 275425.58000 |
| *GE-1* | 72 | 743167.04700 | 0.00000 | 0.000 | 748267.18000 | 740260.61000 | 740973.35000 |
| *GE-2* | 72 | 330073.72000 | 0.00000 | 0.000 | 325953.98000 | 331912.69000 | 332354.49000 |
| *TB-3* | 159 | 204935.20000 | 0.00000 | 0.000 | 204191.13000 | 206464.96000 | 204149.51000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 18:14:04
Tube Number: 37
Sample Number: **CCV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 803010.38000 | 0.00000 | 0.000 | 799624.44000 | 807019.21000 | 802387.49000 |
| **SC-3** | 45 | 45210.27300 | 0.00000 | 0.000 | 45240.32000 | 45280.43000 | 45110.07000 |
| AL | 27 | 4960.60903 | 147726.10700 | 0.500 | 4945.16704 | 4945.87206 | 4990.78799 |
| B | 11 | 311.38767 | 113084.56000 | 2.100 | 303.89146 | 313.54023 | 316.73132 |
| BE | 9 | 30.40401 | 18967.97700 | 2.600 | 29.50628 | 31.02201 | 30.68374 |
| CA | 44 | 5089.47158 | 20080.99000 | 0.400 | 5063.94949 | 5102.78771 | 5101.67755 |
| CR | 52 | 302.58813 | 310089.84000 | 0.500 | 304.18984 | 301.01637 | 302.55818 |
| FE | 57 | 4962.81548 | 106824.01700 | 1.200 | 4923.24389 | 4933.36731 | 5031.83525 |
| K | 39 | 4964.07433 | 414584.63000 | 0.200 | 4972.75176 | 4967.61186 | 4951.85938 |
| MG | 24 | 5003.38125 | 375290.85700 | 0.800 | 5038.60883 | 4958.79710 | 5012.73783 |
| MN | 55 | 303.53853 | 180466.02300 | 1.700 | 301.62822 | 299.50205 | 309.48532 |
| NA | 23 | 4732.54900 | 776632.75000 | 0.700 | 4750.82185 | 4751.23750 | 4695.58766 |
| TI | 47 | 285.18619 | 7505.52700 | 3.200 | 293.60686 | 275.49948 | 286.45222 |
| V | 51 | 301.00509 | 258046.36300 | 0.400 | 299.45342 | 301.80789 | 301.75396 |
| **GE-3** | 72 | 128887.28000 | 0.00000 | 0.000 | 130354.80000 | 127281.66000 | 129025.38000 |
| SB | 121 | 30.10411 | 32017.45700 | 2.300 | 29.83480 | 30.89157 | 29.58597 |
| **IN-2** | 115 | 308843.18000 | 0.00000 | 0.000 | 306630.52000 | 311003.67000 | 308895.35000 |
| **IN-3** | 115 | 70172.84000 | 0.00000 | 0.000 | 70105.97000 | 70437.13000 | 69975.42000 |
| AG | 107 | 30.82276 | 61361.31700 | 0.500 | 30.64654 | 30.85961 | 30.96213 |
| AS | 75 | 311.39279 | 44689.66700 | 0.700 | 310.53248 | 309.79635 | 313.84954 |
| BA | 137 | 310.79896 | 126718.16300 | 0.900 | 312.27995 | 307.70330 | 312.41363 |
| CD | 111 | 30.60891 | 9275.10300 | 1.000 | 30.28749 | 30.65844 | 30.88081 |
| CO | 59 | 292.98828 | 488462.07700 | 0.200 | 293.30494 | 292.38460 | 293.27530 |
| CU | 63 | 312.66970 | 339356.96300 | 0.700 | 313.68816 | 310.09296 | 314.22799 |
| MO | 98 | 30.59720 | 33296.63700 | 1.300 | 30.24275 | 31.04652 | 30.50232 |
| NI | 60 | 313.06817 | 127512.72300 | 0.500 | 312.27763 | 314.76808 | 312.15880 |
| SE | 78 | 30.32119 | 2460.88300 | 1.100 | 30.65508 | 30.30555 | 30.00293 |
| SN | 120 | 31.03366 | 34984.76700 | 2.000 | 30.72478 | 30.63041 | 31.74577 |
| SR | 88 | 31.11225 | 27791.14300 | 0.400 | 30.96921 | 31.14822 | 31.21933 |
| ZN | 66 | 317.58988 | 61511.64700 | 1.300 | 320.98564 | 313.21754 | 318.56646 |
| **BI-3** | 209 | 152493.36000 | 0.00000 | 0.000 | 152716.25000 | 151744.03000 | 153019.80000 |
| PB | 208 | 30.03879 | 196405.61000 | 0.800 | 29.85745 | 30.29516 | 29.96376 |
| TL | 205 | 29.99499 | 144355.63300 | 1.300 | 30.07730 | 30.33166 | 29.57601 |
| U | 238 | 49.83322 | 329950.02300 | 0.800 | 49.36744 | 50.13403 | 49.99818 |
| *SC-2* | 45 | 272812.72000 | 0.00000 | 0.000 | 269882.40000 | 275616.66000 | 272939.10000 |
| *GE-1* | 72 | 735487.07000 | 0.00000 | 0.000 | 725902.25000 | 746131.47000 | 734427.49000 |
| *GE-2* | 72 | 326546.28300 | 0.00000 | 0.000 | 324450.87000 | 330326.21000 | 324861.77000 |
| *TB-3* | 159 | 205440.86700 | 0.00000 | 0.000 | 203755.68000 | 206538.84000 | 206028.08000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 18:15:57
Tube Number: 38
Sample Number: **CCB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 795552.90300 | 0.00000 | 0.000 | 799402.80000 | 789773.11000 | 797482.80000 |
| **SC-3** | 45 | 45511.59700 | 0.00000 | 0.000 | 46665.24000 | 44408.64000 | 45460.91000 |
| AL | 27 | 0.09273 | 86.66700 | 623.500 | -0.53080 | 0.61114 | 0.19783 |
| B | 11 | 11.65836 | 6059.91700 | 4.100 | 12.13750 | 11.66255 | 11.17504 |
| BE | 9 | 0.02861 | 24.66700 | 68.600 | 0.04992 | 0.02458 | 0.01131 |
| CA | 44 | 9.28889 | 156.67700 | 79.000 | 1.59959 | 16.20992 | 10.05718 |
| CR | 52 | 0.48287 | 1326.77300 | 24.600 | 0.47206 | 0.60682 | 0.36972 |
| FE | 57 | -0.34343 | 193.34300 | 0.000 | -0.24897 | -2.15988 | 1.37857 |
| K | 39 | 4.60004 | 27746.84300 | 363.300 | 20.75667 | 5.66321 | -12.61977 |
| MG | 24 | 3.63921 | 913.39300 | 24.600 | 3.03573 | 3.21289 | 4.66902 |
| MN | 55 | 0.91412 | 736.71300 | 32.700 | 1.23659 | 0.64679 | 0.85900 |
| NA | 23 | 37.12811 | 53881.45000 | 18.000 | 32.01053 | 44.70368 | 34.67013 |
| TI | 47 | -0.00322 | 3.33300 | 0.000 | 0.24230 | -0.12598 | -0.12598 |
| V | 51 | -0.11025 | 803.38000 | 0.000 | -0.06841 | -0.14994 | -0.11241 |
| **GE-3** | 72 | 128133.94700 | 0.00000 | 0.000 | 127461.22000 | 126735.18000 | 130205.44000 |
| SB | 121 | 0.30491 | 396.68300 | 28.200 | 0.20555 | 0.35089 | 0.35830 |
| **IN-2** | 115 | 309373.03700 | 0.00000 | 0.000 | 308110.11000 | 308426.11000 | 311582.89000 |
| **IN-3** | 115 | 70424.48300 | 0.00000 | 0.000 | 70407.90000 | 70457.74000 | 70407.81000 |
| AG | 107 | 0.00890 | 86.66700 | 130.100 | 0.01559 | -0.00448 | 0.01559 |
| AS | 75 | 0.07494 | 59.33300 | 95.400 | 0.13527 | -0.00400 | 0.09356 |
| BA | 137 | 0.05841 | 60.00000 | 0.100 | 0.05844 | 0.05834 | 0.05844 |
| CD | 111 | 0.01117 | 7.33300 | 90.000 | 0.01337 | 0.00020 | 0.01995 |
| CO | 59 | 0.04628 | 126.67300 | 41.500 | 0.06025 | 0.05421 | 0.02437 |
| CU | 63 | 0.14860 | 1470.12700 | 53.900 | 0.20424 | 0.18482 | 0.05674 |
| MO | 98 | 0.01296 | 63.33300 | 41.000 | 0.00991 | 0.00987 | 0.01908 |
| NI | 60 | -0.03886 | 1903.52300 | 0.000 | -0.07082 | 0.17411 | -0.21987 |
| SE | 78 | 0.03856 | 3.77700 | 25.200 | 0.04977 | 0.03317 | 0.03275 |
| SN | 120 | -0.03434 | 920.07300 | 0.000 | -0.14322 | 0.00161 | 0.03858 |
| SR | 88 | 0.02386 | 100.00300 | 214.600 | 0.01271 | 0.07974 | -0.02086 |
| ZN | 66 | 2.69610 | 5908.05700 | 9.400 | 2.49720 | 2.98119 | 2.60992 |
| **BI-3** | 209 | 151367.22300 | 0.00000 | 0.000 | 152331.19000 | 151682.26000 | 150088.22000 |
| PB | 208 | 0.04041 | 510.02000 | 23.200 | 0.03686 | 0.05104 | 0.03332 |
| TL | 205 | 0.01681 | 106.66700 | 27.000 | 0.01318 | 0.01535 | 0.02191 |
| U | 238 | 0.01012 | 70.00000 | 53.700 | 0.01159 | 0.01468 | 0.00410 |
| *SC-2* | 45 | 274890.89700 | 0.00000 | 0.000 | 275599.96000 | 273893.12000 | 275179.61000 |
| *GE-1* | 72 | 733980.38000 | 0.00000 | 0.000 | 737690.77000 | 732355.85000 | 731894.52000 |
| *GE-2* | 72 | 329654.40000 | 0.00000 | 0.000 | 332530.42000 | 326692.16000 | 329740.62000 |
| *TB-3* | 159 | 204808.48000 | 0.00000 | 0.000 | 202731.38000 | 205501.33000 | 206192.73000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 18:17:51
Tube Number: 39 Batch: 200351511401A
Sample Number: **1251895** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846-U5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 818540.84700 | 0.00000 | 0.000 | 820555.85000 | 817301.16000 | 817765.53000 |
| **SC-3** | 45 | 46096.66300 | 0.00000 | 0.000 | 45752.10000 | 46935.80000 | 45602.09000 |
| AL | 27 | 2.78909 | 170.00700 | 53.800 | 4.16311 | 3.01636 | 1.18782 |
| B | 11 | 4.34145 | 3573.11700 | 5.200 | 4.12320 | 4.57453 | 4.32663 |
| BE | 9 | 0.01808 | 18.66700 | 26.700 | 0.01696 | 0.02337 | 0.01390 |
| CA | 44 | 71.25210 | 406.69000 | 14.600 | 82.86862 | 62.81517 | 68.07252 |
| CR | 52 | 0.29565 | 1150.09000 | 29.400 | 0.37190 | 0.31387 | 0.20116 |
| FE | 57 | -0.15218 | 200.01000 | 0.000 | -1.44875 | 1.49235 | -0.50015 |
| K | 39 | 10.77312 | 28575.16000 | 265.200 | 43.73240 | -4.49937 | -6.91366 |
| MG | 24 | 4.88943 | 1020.07000 | 38.100 | 3.52949 | 4.12720 | 7.01161 |
| MN | 55 | 0.78245 | 663.37000 | 7.700 | 0.85154 | 0.75729 | 0.73851 |
| NA | 23 | 291.91805 | 94565.91000 | 6.600 | 295.04658 | 271.16094 | 309.54662 |
| TI | 47 | -0.12598 | 0.00000 | 0.000 | -0.12598 | -0.12598 | -0.12598 |
| V | 51 | -0.09463 | 826.72000 | 0.000 | 0.00890 | -0.10785 | -0.18493 |
| **GE-3** | 72 | 130752.75000 | 0.00000 | 0.000 | 130386.43000 | 130245.66000 | 131626.16000 |
| SB | 121 | 0.06850 | 150.01000 | 58.900 | 0.02237 | 0.09707 | 0.08608 |
| **IN-2** | 115 | 316294.48700 | 0.00000 | 0.000 | 317235.93000 | 316995.56000 | 314651.97000 |
| **IN-3** | 115 | 71449.25000 | 0.00000 | 0.000 | 71552.87000 | 71914.96000 | 70879.92000 |
| AG | 107 | 0.02820 | 126.67000 | 118.600 | 0.01972 | -0.00018 | 0.06505 |
| AS | 75 | 0.15575 | 72.00000 | 68.400 | 0.27821 | 0.08453 | 0.10450 |
| BA | 137 | 0.10470 | 80.00000 | 41.300 | 0.08016 | 0.07931 | 0.15462 |
| CD | 111 | -0.00002 | 4.00000 | 0.000 | 0.00000 | 0.00638 | -0.00642 |
| CO | 59 | 0.03141 | 103.33300 | 20.400 | 0.03528 | 0.03495 | 0.02401 |
| CU | 63 | 0.03835 | 1370.10700 | 43.600 | 0.05466 | 0.02124 | 0.03915 |
| MO | 98 | -0.02106 | 26.66700 | 0.000 | -0.02707 | -0.00920 | -0.02690 |
| NI | 60 | 0.19427 | 2026.88000 | 134.500 | 0.39193 | 0.29294 | -0.10207 |
| SE | 78 | 0.05891 | 5.55300 | 47.700 | 0.03203 | 0.08813 | 0.05655 |
| SN | 120 | 0.04646 | 1023.40700 | 191.900 | 0.12241 | -0.05168 | 0.06864 |
| SR | 88 | 0.15100 | 216.67700 | 19.100 | 0.12121 | 0.15302 | 0.17877 |
| ZN | 66 | 1.19991 | 5724.68300 | 28.300 | 1.41184 | 0.80833 | 1.37955 |
| **BI-3** | 209 | 153393.66700 | 0.00000 | 0.000 | 154141.23000 | 153615.68000 | 152424.09000 |
| PB | 208 | 0.02367 | 406.68300 | 17.200 | 0.02386 | 0.01951 | 0.02763 |
| TL | 205 | 0.00271 | 40.00000 | 130.300 | 0.00679 | 0.00065 | 0.00070 |
| U | 238 | 0.00349 | 26.66700 | 107.900 | 0.00697 | 0.00400 | -0.00050 |
| *SC-2* | 45 | 278648.94300 | 0.00000 | 0.000 | 278582.20000 | 280203.77000 | 277160.86000 |
| *GE-1* | 72 | 760840.85000 | 0.00000 | 0.000 | 762144.68000 | 759140.77000 | 761237.10000 |
| *GE-2* | 72 | 339937.19700 | 0.00000 | 0.000 | 339972.26000 | 342376.64000 | 337462.69000 |
| *TB-3* | 159 | 203878.42000 | 0.00000 | 0.000 | 204527.95000 | 206120.91000 | 200986.40000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 18:19:46
Tube Number: 40 Batch: 200351511401A
Sample Number: **1251372** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 811895.17300 | 0.00000 | 0.000 | 808584.21000 | 815007.88000 | 812093.43000 |
| **SC-3** | 45 | 44491.34300 | 0.00000 | 0.000 | 45200.07000 | 44117.09000 | 44156.87000 |
| AL | 27 | 2.19013 | 146.67700 | 44.400 | 3.24008 | 2.01133 | 1.31899 |
| B | 11 | 80.64104 | 31074.65700 | 0.700 | 80.01683 | 80.78709 | 81.11921 |
| BE | 9 | 0.01301 | 15.33300 | 122.100 | 0.01100 | 0.02979 | -0.00178 |
| CA | 44 | 64460.53930 | 248886.41000 | 1.500 | 63478.05868 | 65415.44737 | 64488.11185 |
| CR | 52 | 0.31060 | 1123.41700 | 70.000 | 0.14162 | 0.55600 | 0.23417 |
| FE | 57 | 8.72971 | 380.01700 | 32.600 | 5.62991 | 9.33491 | 11.22432 |
| K | 39 | 6646.77962 | 537131.57000 | 1.900 | 6504.95822 | 6744.42612 | 6690.95453 |
| MG | 24 | 34812.25910 | 2565587.41000 | 1.500 | 34208.58754 | 35234.42173 | 34993.76802 |
| MN | 55 | 40.42138 | 23806.74700 | 3.200 | 39.85185 | 39.52405 | 41.88824 |
| NA | 23 | 34058.87534 | 5207994.50700 | 1.500 | 33501.11802 | 34126.00539 | 34549.50262 |
| TI | 47 | 0.00076 | 3.33300 | 29049.300 | 0.25423 | -0.12598 | -0.12598 |
| V | 51 | 18.40203 | 16349.64700 | 1.300 | 18.54352 | 18.53212 | 18.13045 |
| **GE-3** | 72 | 130365.23700 | 0.00000 | 0.000 | 130607.28000 | 130294.41000 | 130194.02000 |
| SB | 121 | 0.13110 | 216.67700 | 18.100 | 0.10590 | 0.13429 | 0.15310 |
| **IN-2** | 115 | 311739.60300 | 0.00000 | 0.000 | 314710.91000 | 311144.41000 | 309363.49000 |
| **IN-3** | 115 | 70347.57000 | 0.00000 | 0.000 | 69855.02000 | 71734.86000 | 69452.83000 |
| AG | 107 | 0.01883 | 106.67000 | 71.400 | 0.01094 | 0.03435 | 0.01120 |
| AS | 75 | 1.35632 | 243.33300 | 12.700 | 1.55445 | 1.25922 | 1.25530 |
| BA | 137 | 110.89067 | 45341.92000 | 1.500 | 110.45335 | 109.43401 | 112.78466 |
| CD | 111 | 0.02659 | 12.00000 | 25.600 | 0.02021 | 0.02580 | 0.03375 |
| CO | 59 | 0.04833 | 130.00300 | 37.100 | 0.06699 | 0.04685 | 0.03117 |
| CU | 63 | 1.84089 | 3303.82300 | 4.600 | 1.82310 | 1.93374 | 1.76583 |
| MO | 98 | 0.47234 | 563.36700 | 7.400 | 0.45413 | 0.45005 | 0.51282 |
| NI | 60 | 0.57393 | 2150.23700 | 89.900 | 0.46723 | 1.13485 | 0.11970 |
| SE | 78 | 0.32576 | 27.33300 | 16.300 | 0.31463 | 0.38353 | 0.27911 |
| SN | 120 | -0.26395 | 666.71000 | 0.000 | -0.28404 | -0.25481 | -0.25301 |
| SR | 88 | 467.90213 | 417817.98000 | 1.600 | 472.98351 | 459.22332 | 471.49956 |
| ZN | 66 | 2.82940 | 5924.75000 | 47.500 | 4.35233 | 2.32744 | 1.80842 |
| **BI-3** | 209 | 151211.93000 | 0.00000 | 0.000 | 150003.67000 | 153514.78000 | 150117.34000 |
| PB | 208 | 0.09873 | 886.71000 | 8.300 | 0.10809 | 0.09257 | 0.09553 |
| TL | 205 | 0.00704 | 60.00000 | 2.300 | 0.00713 | 0.00684 | 0.00712 |
| U | 238 | 17.46378 | 114649.18300 | 1.200 | 17.59138 | 17.22980 | 17.57016 |
| *SC-2* | 45 | 273550.08300 | 0.00000 | 0.000 | 274334.53000 | 273786.21000 | 272529.51000 |
| *GE-1* | 72 | 743398.43000 | 0.00000 | 0.000 | 744011.40000 | 747222.18000 | 738961.71000 |
| *GE-2* | 72 | 331871.10000 | 0.00000 | 0.000 | 332956.67000 | 329775.85000 | 332880.78000 |
| *TB-3* | 159 | 204636.29300 | 0.00000 | 0.000 | 202387.44000 | 206558.94000 | 204962.50000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 18:21:39
Tube Number: 41
Sample Number: **CCV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 799987.23000 | 0.00000 | 0.000 | 797716.94000 | 807105.46000 | 795139.29000 |
| **SC-3** | 45 | 45043.20700 | 0.00000 | 0.000 | 44297.48000 | 45972.77000 | 44859.37000 |
| AL | 27 | 5026.60420 | 149096.36300 | 2.300 | 5151.95203 | 4918.76653 | 5009.09404 |
| B | 11 | 306.76979 | 111011.38300 | 3.200 | 296.30218 | 308.37664 | 315.63055 |
| BE | 9 | 30.37803 | 18877.83300 | 2.200 | 29.90978 | 30.08570 | 31.13863 |
| CA | 44 | 5080.73702 | 19964.19300 | 3.400 | 5240.09342 | 4897.45966 | 5104.65797 |
| CR | 52 | 303.82107 | 310141.57700 | 1.500 | 307.63801 | 298.79748 | 305.02771 |
| FE | 57 | 4959.82257 | 106348.08300 | 1.400 | 5006.75465 | 4877.34680 | 4995.36627 |
| K | 39 | 5010.60135 | 416547.07700 | 2.500 | 5114.13272 | 4872.36997 | 5045.30136 |
| MG | 24 | 5012.45938 | 374469.98000 | 2.400 | 5104.39625 | 4875.06812 | 5057.91376 |
| MN | 55 | 302.59053 | 179198.69000 | 2.100 | 309.48409 | 297.13471 | 301.15279 |
| NA | 23 | 4739.91216 | 774699.15300 | 2.100 | 4803.14533 | 4623.81132 | 4792.77983 |
| TI | 47 | 292.27523 | 7662.30700 | 2.100 | 292.48822 | 285.93606 | 298.40143 |
| V | 51 | 302.21008 | 258080.67700 | 1.200 | 305.18570 | 298.26850 | 303.17603 |
| **GE-3** | 72 | 128664.32300 | 0.00000 | 0.000 | 128984.25000 | 128036.49000 | 128972.23000 |
| SB | 121 | 29.99201 | 31847.22000 | 1.900 | 29.34107 | 30.30986 | 30.32511 |
| **IN-2** | 115 | 310058.63000 | 0.00000 | 0.000 | 312344.08000 | 304326.23000 | 313505.58000 |
| **IN-3** | 115 | 71817.94300 | 0.00000 | 0.000 | 71151.06000 | 71453.02000 | 72849.75000 |
| AG | 107 | 30.24677 | 61618.88700 | 2.000 | 30.32544 | 30.81720 | 29.59768 |
| AS | 75 | 305.04589 | 44801.27300 | 1.900 | 305.13790 | 310.64994 | 299.34985 |
| BA | 137 | 307.16018 | 128160.33000 | 1.500 | 307.54036 | 311.51888 | 302.42129 |
| CD | 111 | 30.64885 | 9504.59300 | 0.500 | 30.76779 | 30.68320 | 30.49556 |
| CO | 59 | 286.98327 | 489655.32000 | 0.800 | 289.66875 | 285.06318 | 286.21788 |
| CU | 63 | 306.08266 | 340001.97300 | 1.100 | 309.43292 | 305.83067 | 302.98439 |
| MO | 98 | 30.31606 | 33767.84300 | 1.700 | 30.24340 | 29.83467 | 30.87011 |
| NI | 60 | 307.37032 | 128154.48300 | 0.800 | 310.34318 | 306.29745 | 305.47033 |
| SE | 78 | 30.13586 | 2455.76700 | 0.900 | 30.28099 | 29.83641 | 30.29018 |
| SN | 120 | 30.73933 | 35472.45300 | 1.500 | 30.72899 | 31.21476 | 30.27425 |
| SR | 88 | 30.96298 | 28305.50300 | 1.300 | 31.40072 | 30.61576 | 30.87247 |
| ZN | 66 | 304.38846 | 60557.18000 | 2.700 | 313.07374 | 303.35524 | 296.73640 |
| **BI-3** | 209 | 152393.07300 | 0.00000 | 0.000 | 150955.92000 | 153192.69000 | 153030.61000 |
| PB | 208 | 30.13858 | 196922.32700 | 1.000 | 30.44851 | 30.11731 | 29.84993 |
| TL | 205 | 30.18785 | 145192.67700 | 0.400 | 30.18830 | 30.07551 | 30.29973 |
| U | 238 | 50.60836 | 334859.73300 | 0.300 | 50.79190 | 50.52137 | 50.51181 |
| *SC-2* | 45 | 273470.39300 | 0.00000 | 0.000 | 274409.59000 | 270025.93000 | 275976.66000 |
| *GE-1* | 72 | 731584.13000 | 0.00000 | 0.000 | 732384.52000 | 734606.47000 | 727761.40000 |
| *GE-2* | 72 | 326724.92300 | 0.00000 | 0.000 | 327298.65000 | 323807.73000 | 329068.39000 |
| *TB-3* | 159 | 206348.39000 | 0.00000 | 0.000 | 206729.22000 | 206315.33000 | 206000.62000 |

Run Name: 2003507E07 Date/Time: 02/04/2020 18:23:33
Tube Number: 42
Sample Number: **CCB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 798518.37300 | 0.00000 | 0.000 | 801857.41000 | 793238.58000 | 800459.13000 |
| **SC-3** | 45 | 45367.57700 | 0.00000 | 0.000 | 46644.86000 | 44367.53000 | 45090.34000 |
| AL | 27 | 1.33378 | 123.33700 | 59.600 | 0.44716 | 1.98412 | 1.57006 |
| B | 11 | 10.68959 | 5739.12300 | 5.400 | 11.35929 | 10.31634 | 10.39316 |
| BE | 9 | 0.02197 | 20.66700 | 80.200 | 0.03367 | 0.00170 | 0.03054 |
| CA | 44 | 20.49518 | 200.01000 | 55.700 | 9.02736 | 31.84178 | 20.61640 |
| CR | 52 | 0.54827 | 1390.11700 | 20.000 | 0.47262 | 0.49846 | 0.67374 |
| FE | 57 | -1.56041 | 166.67700 | 0.000 | 0.20609 | -2.15330 | -2.73402 |
| K | 39 | 2.90884 | 27523.13300 | 458.100 | 13.07771 | 7.82435 | -12.17556 |
| MG | 24 | 2.21793 | 803.38300 | 29.500 | 2.00513 | 2.95156 | 1.69710 |
| MN | 55 | 0.52664 | 500.02300 | 11.500 | 0.48652 | 0.59621 | 0.49721 |
| NA | 23 | 28.13158 | 52302.42300 | 46.100 | 13.65256 | 38.72400 | 32.01818 |
| TI | 47 | 0.25299 | 10.00000 | 3.800 | 0.24246 | 0.26137 | 0.25516 |
| V | 51 | -0.24949 | 680.04300 | 0.000 | -0.31759 | -0.20875 | -0.22212 |
| **GE-3** | 72 | 128596.71700 | 0.00000 | 0.000 | 130759.06000 | 126874.16000 | 128156.93000 |
| SB | 121 | 0.16903 | 253.34300 | 32.900 | 0.11498 | 0.22597 | 0.16614 |
| **IN-2** | 115 | 310928.79300 | 0.00000 | 0.000 | 309265.27000 | 313426.11000 | 310095.00000 |
| **IN-3** | 115 | 69902.21300 | 0.00000 | 0.000 | 71232.34000 | 69161.88000 | 69312.42000 |
| AG | 107 | 0.01937 | 106.67000 | 56.400 | 0.01501 | 0.03181 | 0.01129 |
| AS | 75 | 0.10618 | 63.33300 | 14.400 | 0.08857 | 0.11548 | 0.11450 |
| BA | 137 | 0.04297 | 53.33300 | 64.500 | 0.05675 | 0.06109 | 0.01109 |
| CD | 111 | 0.00260 | 4.66700 | 396.500 | -0.00645 | 0.01384 | 0.00042 |
| CO | 59 | 0.08114 | 183.34300 | 25.500 | 0.06512 | 0.10447 | 0.07381 |
| CU | 63 | -0.02765 | 1270.09700 | 0.000 | 0.05122 | 0.06071 | -0.19489 |
| MO | 98 | 0.04099 | 93.33300 | 44.800 | 0.05461 | 0.04825 | 0.02010 |
| NI | 60 | 0.42814 | 2076.88700 | 48.800 | 0.66072 | 0.36792 | 0.25577 |
| SE | 78 | 0.07093 | 6.44300 | 17.400 | 0.05767 | 0.07308 | 0.08205 |
| SN | 120 | 0.04403 | 1000.07700 | 236.100 | 0.16282 | -0.00057 | -0.03016 |
| SR | 88 | 0.08136 | 150.00700 | 88.500 | 0.05579 | 0.16261 | 0.02567 |
| ZN | 66 | 3.67346 | 6034.77000 | 22.300 | 2.83866 | 4.47283 | 3.70891 |
| **BI-3** | 209 | 152011.87300 | 0.00000 | 0.000 | 153342.80000 | 150502.39000 | 152190.43000 |
| PB | 208 | 0.03240 | 460.02300 | 53.100 | 0.02266 | 0.02226 | 0.05228 |
| TL | 205 | 0.01884 | 116.67300 | 53.700 | 0.01099 | 0.03026 | 0.01528 |
| U | 238 | 0.01614 | 110.00300 | 42.200 | 0.02353 | 0.01480 | 0.01009 |
| *SC-2* | 45 | 274967.59300 | 0.00000 | 0.000 | 276635.89000 | 276803.28000 | 271463.61000 |
| *GE-1* | 72 | 735396.47300 | 0.00000 | 0.000 | 735328.11000 | 727451.32000 | 743409.99000 |
| *GE-2* | 72 | 329394.84700 | 0.00000 | 0.000 | 331245.70000 | 329466.52000 | 327472.32000 |
| *TB-3* | 159 | 203178.46000 | 0.00000 | 0.000 | 204356.19000 | 201045.50000 | 204133.69000 |

# US EPA Tune Check Report

| | |
|---|---|
| **Operator Name** | us19_usr_ins03786 |
| **Acq/Data Batch** | C:\Agilent\ICPMH\1\DATA\~EPATune.b |
| **Acq. Date-Time** | 2/4/2020 8:28:45 AM |
| **Report Comment** | --- |
| **Instrument Name** | G8403A SG18254097 |

**[No Gas]**

**Sensitivity**

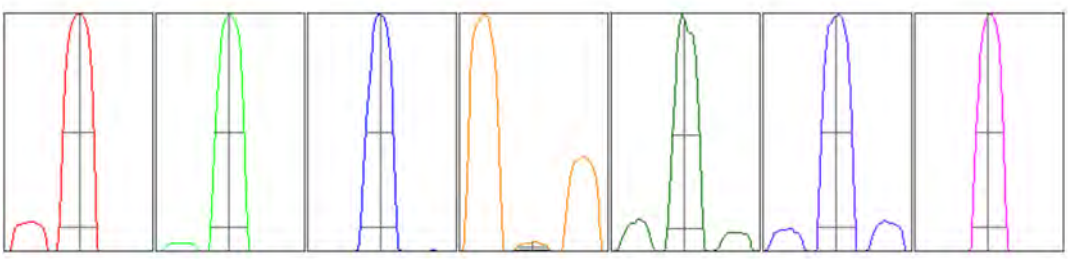
| Mass | Conc. [ug/l] | Count | CPS | Resp (Required) [cps/ug/l] | Resp (Flag) | RSD% | RSD% (Required) |
|---|---|---|---|---|---|---|---|
| 7 | 10.00 | 2707 | 27070.38 | | | 1.047 | 5.000 |
| 89 | 10.00 | 6887 | 68873.99 | | | 0.349 | 5.000 |
| 205 | 10.00 | 3124 | 31236.57 | | | 0.648 | 5.000 |
| 69 | | 19 | 185.51 | | | 3.897 | |
| 138 | | 78 | 775.06 | | | 2.788 | |
| 70 | | 209 | 2085.50 | | | 2.883 | |
| 140 | | 5693 | 56925.86 | | | 0.342 | |

| Mass | RSD% (Flag) |
|---|---|
| 7 | |
| 89 | |
| 205 | |
| 69 | |
| 138 | |
| 70 | |
| 140 | |

| Mass | Rep#1 Count | Rep#2 Count | Rep#3 Count | Rep#4 Count | Rep#5 Count |
|---|---|---|---|---|---|
| 7 | 2701 | 2697 | 2697 | 2756 | 2684 |
| 89 | 6895 | 6887 | 6888 | 6850 | 6917 |
| 205 | 3144 | 3105 | 3131 | 3099 | 3139 |
| 69 | 20 | 19 | 19 | 18 | 18 |
| 138 | 81 | 76 | 79 | 75 | 77 |
| 70 | 215 | 200 | 210 | 205 | 212 |
| 140 | 5692 | 5706 | 5674 | 5673 | 5718 |

Integration Time [sec] 0.1

**Resolution/Axis**



# US EPA Tune Check Report

| Mass | Peak Height | Axis | Axis (Required) | Axis (Flag) |
|---|---|---|---|---|
| 7 | 4456.46 | 7.05 | 6.90 - 7.10 | |
| 89 | 12104.04 | 89.00 | 88.90 - 89.10 | |
| 205 | 5758.16 | 205.00 | 204.90 - 205.10 | |
| 69 | 31.25 | 69.00 | - | |
| 138 | 145.06 | 138.00 | - | |
| 70 | 345.80 | 70.00 | - | |
| 140 | 10585.35 | 140.00 | - | |

| Mass | W-50% | W-10% | W-10% (Required) | W-10% (Flag) |
|---|---|---|---|---|
| 7 | 0.63 | 0.754 | 0.800 | |
| 89 | 0.60 | 0.750 | 0.800 | |
| 205 | 0.57 | 0.741 | 0.800 | |
| 69 | 0.62 | 0.732 | | |
| 138 | 0.56 | 0.723 | | |
| 70 | 0.62 | 0.763 | | |
| 140 | 0.56 | 0.708 | | |

| | |
|---|---|
| Integration Time [sec] | 0.1 |
| Acquisition Time [sec] | 223 |
| Y Axis | Linear |

## Tune Parameters

### Plasma Parameters

| | | | | | |
|---|---|---|---|---|---|
| Plasma Mode | General Purpose | Nebulizer Gas | 1.06 L/min | Makeup Gas | 0.00 L/min |
| RF Power | 1550 W | Option Gas | --- | Auxiliary Gas | 0.90 L/min |
| RF Matching | 1.10 V | Nebulizer Pump | 0.10 rps | Plasma Gas | 15.0 L/min |
| Sample Depth | 10.0 mm | S/C Temp | 2 °C | | |

### Lens Parameters

| | | | | | |
|---|---|---|---|---|---|
| Extract 1 | 0.0 V | Omega Lens | 8.4 V | Deflect | 10.0 V |
| Extract 2 | -175.0 V | Cell Entrance | -30 V | Plate Bias | -35 V |
| Omega Bias | -85 V | Cell Exit | -50 V | | |

### Cell Parameters

| | | | | | |
|---|---|---|---|---|---|
| Use Gas | No | 3rd Gas Flow | --- | Energy Discrimination | 5.0 V |
| He Flow | 0.0 mL/min | OctP Bias | -8.0 V | | |
| H2 Flow | 0.0 mL/min | OctP RF | 150 V | | |

### QP Parameters

| | | | | | |
|---|---|---|---|---|---|
| Mass Gain | 122 | Axis Gain | 0.9986 | QP Bias | -3.0 V |
| Mass Offset | 125 | Axis Offset | 0.09 | | |

## Hardware Settings

### Torch

| | | | |
|---|---|---|---|
| Torch H | 0.4 mm | Torch V | -0.2 mm |

### EM

| | | | | | |
|---|---|---|---|---|---|
| Discriminator | 4.3 mV | Analog HV | 2186 V | Pulse HV | 1388 V |

eurofins | Lancaster Laboratories Environmental

# ICP-MS Run Data Report

Method Reference Name(s):

Date File Name: 20B11B03.E07

Run Name: 2004203E07

Analyst: 29842

| Reviewed By: | Reviewed Date |
|---|---|
| Janeyah Rivers-Hamilton | 02/11/2020 12:54 |
| Parker D Lindstrom | 02/11/2020 15:28 |

| Verified By: | Verified Date |
|---|---|
| Parker D Lindstrom | 02/12/2020 19:32 |

Instrument Parameters:

Rinse Time (sec): 25.00

| INTERNAL STD. | ELEMENT | MASS |
|---|---|---|
| **SC-1** | | 45 |
| | BE | 9 |
| | B | 11 |
| **SC-3** | | 45 |
| | NA | 23 |
| | MG | 24 |
| | AL | 27 |
| | K | 39 |
| | CA | 44 |
| | TI | 47 |
| | V | 51 |
| | CR | 52 |
| | MN | 55 |
| | FE | 57 |
| **GE-3** | | 72 |
| | SB | 121 |
| **IN-2** | | 115 |
| | SE | 78 |
| **IN-3** | | 115 |
| | CO | 59 |
| | NI | 60 |
| | CU | 63 |
| | ZN | 66 |
| | AS | 75 |
| | SR | 88 |
| | MO | 98 |
| | AG | 107 |
| | CD | 111 |
| | SN | 120 |
| | BA | 137 |
| **BI-3** | | 209 |
| | TL | 205 |
| | PB | 208 |
| | U | 238 |

Run Name: 2004203E07 Date/Time: 02/11/2020 9:45:04
Tube Number: 1
Sample Number: **S0**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| *BE* | 9 | 0.00000 | 5.33300 | 0.000 | -0.00149 | -0.00376 | 0.00525 |
| *B* | 11 | 0.00000 | 1302.06300 | 0.000 | -0.02641 | -0.03268 | 0.05910 |
| *NA* | 23 | 0.00000 | 22541.12300 | 0.000 | -1.34460 | -0.48458 | 1.82918 |
| *MG* | 24 | 0.00000 | 333.35000 | 0.000 | 0.57633 | -0.23763 | -0.33870 |
| *AL* | 27 | 0.00000 | 340.01700 | 0.000 | 0.77007 | 0.81551 | -1.58558 |
| *K* | 39 | 0.00000 | 57014.36300 | 0.000 | 6.27517 | -5.89246 | -0.38271 |
| *CA* | 44 | 0.00000 | 593.36700 | 0.000 | -4.83230 | 7.84704 | -3.01475 |
| *SC-1* | 45 | 1269949 | 0 | 0.000 | 1268500 | 1256037 | 1285309 |
| *SC-2* | 45 | 634422.93300 | 0.00000 | 0.000 | 634483.12000 | 634205.65000 | 634580.03000 |
| *SC-3* | 45 | 94543.80300 | 0.00000 | 0.000 | 95600.15000 | 94926.18000 | 93105.08000 |
| *TI* | 47 | 0.00000 | 10.00000 | 0.000 | 0.18352 | 0.00087 | -0.18439 |
| *V* | 51 | 0.00000 | 1370.11700 | 0.000 | 0.01551 | 0.04621 | -0.06172 |
| *CR* | 52 | 0.00000 | 2446.96000 | 0.000 | 0.00823 | -0.00333 | -0.00490 |
| *MN* | 55 | 0.00000 | 330.01700 | 0.000 | 0.01474 | 0.05217 | -0.06692 |
| *FE* | 57 | 0.00000 | 303.34300 | 0.000 | 0.08153 | -0.37398 | 0.29246 |
| *CO* | 59 | 0.00000 | 136.67300 | 0.000 | 0.00056 | 0.00506 | -0.00561 |
| *NI* | 60 | 0.00000 | 896.72700 | 0.000 | -0.05332 | -0.09893 | 0.15225 |
| *CU* | 63 | 0.00000 | 1000.07300 | 0.000 | 0.00397 | -0.00558 | 0.00161 |
| *ZN* | 66 | 0.00000 | 3137.12000 | 0.000 | -0.87375 | 0.80631 | 0.06743 |
| *GE-1* | 72 | 954205.45700 | 0.00000 | 0.000 | 952352.49000 | 952014.05000 | 958249.83000 |
| *GE-2* | 72 | 727299.96700 | 0.00000 | 0.000 | 728300.46000 | 723478.90000 | 730120.54000 |
| *GE-3* | 72 | 234813.84300 | 0.00000 | 0.000 | 235792.28000 | 234118.65000 | 234530.60000 |
| *AS* | 75 | 0.00000 | 108.66700 | 0.000 | 0.00013 | -0.05950 | 0.05937 |
| *SE* | 78 | 0.00000 | 2.44300 | 0.000 | -0.00273 | 0.00563 | -0.00289 |
| *SR* | 88 | 0.00000 | 76.66700 | 0.000 | -0.00429 | -0.00919 | 0.01347 |
| *MO* | 98 | 0.00000 | 126.67000 | 0.000 | 0.00688 | -0.03252 | 0.02565 |
| *AG* | 107 | 0.00000 | 13.33300 | 0.000 | -0.00450 | -0.00111 | 0.00561 |
| *CD* | 111 | 0.00000 | 2.66700 | 0.000 | 0.00268 | 0.00286 | -0.00555 |
| *IN-2* | 115 | 557622.06300 | 0.00000 | 0.000 | 555236.91000 | 555145.38000 | 562483.90000 |
| *IN-3* | 115 | 126572.13000 | 0.00000 | 0.000 | 128122.75000 | 125409.65000 | 126183.99000 |
| *SN* | 120 | 0.00000 | 1670.16300 | 0.000 | -0.00042 | 0.07923 | -0.07880 |
| *SB* | 121 | 0.00000 | 150.00700 | 0.000 | -0.01781 | 0.00607 | 0.01174 |
| *BA* | 137 | 0.00000 | 33.33300 | 0.000 | 0.00932 | -0.01955 | 0.01023 |
| *TB-3* | 159 | 307094.96300 | 0.00000 | 0.000 | 306089.12000 | 311328.98000 | 303866.79000 |
| *TL* | 205 | 0.00000 | 136.67300 | 0.000 | -0.00442 | -0.00624 | 0.01066 |
| *PB* | 208 | 0.00000 | 353.34000 | 0.000 | 0.00096 | -0.00796 | 0.00700 |
| *BI-3* | 209 | 200065.01700 | 0.00000 | 0.000 | 199367.99000 | 200911.09000 | 199915.97000 |
| *U* | 238 | 0.00000 | 23.33300 | 0.000 | -0.00041 | 0.00082 | -0.00041 |

Run Name: 2004203E07 Date/Time: 02/11/2020 9:47:12
Tube Number: 2
Sample Number: **S1**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1258523 | 0 | 0.000 | 1269854 | 1276179 | 1229536 |
| **SC-3** | 45 | 96905.75700 | 0.00000 | 0.000 | 96133.70000 | 96818.15000 | 97765.42000 |
| AL | 27 | 10000.00000 | 618164.27700 | 0.400 | 10028.08428 | 10011.50638 | 9960.40934 |
| B | 11 | 1000.00000 | 538885.37700 | 3.800 | 964.22645 | 995.16715 | 1040.60640 |
| BE | 9 | 100.00000 | 86440.84300 | 3.100 | 96.99062 | 99.85250 | 103.15688 |
| CA | 44 | 10000.00000 | 84301.30700 | 1.800 | 10064.29384 | 10139.37208 | 9796.33408 |
| CR | 52 | 1000.00000 | 1985131.53300 | 1.000 | 989.64083 | 1009.88110 | 1000.47808 |
| FE | 57 | 10000.00000 | 399557.03700 | 0.900 | 10046.20609 | 9900.71509 | 10053.07882 |
| K | 39 | 10000.00000 | 1867295.96300 | 1.300 | 10137.22866 | 9989.78148 | 9872.98986 |
| MG | 24 | 10000.00000 | 1468246.59300 | 1.400 | 10059.22323 | 9838.43337 | 10102.34339 |
| MN | 55 | 1000.00000 | 1158553.75700 | 0.600 | 1005.54839 | 1001.27558 | 993.17603 |
| NA | 23 | 10000.00000 | 2730493.19000 | 1.300 | 10143.11992 | 9907.56852 | 9949.31156 |
| TI | 47 | 1000.00000 | 55111.37000 | 0.700 | 1008.06489 | 994.19706 | 997.73805 |
| V | 51 | 1000.00000 | 1661932.58000 | 0.900 | 1005.34544 | 1005.60923 | 989.04533 |
| **GE-3** | 72 | 235845.61700 | 0.00000 | 0.000 | 238403.30000 | 233211.21000 | 235922.34000 |
| SB | 121 | 100.00000 | 172461.34000 | 1.300 | 98.66873 | 101.25326 | 100.07801 |
| **IN-2** | 115 | 573424.97700 | 0.00000 | 0.000 | 586161.20000 | 569361.75000 | 564751.98000 |
| **IN-3** | 115 | 130355.40700 | 0.00000 | 0.000 | 131210.63000 | 129070.08000 | 130785.51000 |
| AG | 107 | 100.00000 | 306793.34700 | 1.600 | 101.26383 | 100.49826 | 98.23791 |
| AS | 75 | 1000.00000 | 273247.60300 | 0.600 | 994.39169 | 1006.57255 | 999.03576 |
| BA | 137 | 1000.00000 | 689500.46000 | 1.400 | 988.96117 | 1015.33809 | 995.70074 |
| CD | 111 | 100.00000 | 49457.05300 | 0.800 | 100.03656 | 100.80674 | 99.15669 |
| CO | 59 | 1000.00000 | 2994707.45700 | 0.600 | 993.54496 | 1002.18964 | 1004.26540 |
| CU | 63 | 1000.00000 | 2006354.29300 | 1.400 | 989.91259 | 1016.31353 | 993.77388 |
| MO | 98 | 100.00000 | 176964.67000 | 1.400 | 99.89865 | 101.45216 | 98.64919 |
| NI | 60 | 1000.00000 | 720371.42300 | 0.400 | 996.44974 | 1004.78653 | 998.76373 |
| SE | 78 | 100.00000 | 16444.24000 | 1.000 | 99.21689 | 99.70430 | 101.07881 |
| SN | 120 | 100.00000 | 178934.47000 | 0.700 | 99.80330 | 100.77620 | 99.42050 |
| SR | 88 | 100.00000 | 180718.01700 | 0.800 | 99.61200 | 100.95923 | 99.42877 |
| ZN | 66 | 1000.00000 | 325903.93300 | 0.400 | 995.67546 | 1003.34610 | 1000.97844 |
| **BI-3** | 209 | 200310.81000 | 0.00000 | 0.000 | 203661.05000 | 197944.55000 | 199326.83000 |
| PB | 208 | 100.00000 | 813353.18300 | 2.000 | 97.74754 | 101.14556 | 101.10690 |
| TL | 205 | 100.00000 | 595851.97000 | 1.900 | 97.86446 | 101.53362 | 100.60192 |
| U | 238 | 100.00000 | 803230.30000 | 1.600 | 98.11765 | 101.09556 | 100.78679 |
| *SC-2* | 45 | 655983.42700 | 0.00000 | 0.000 | 661882.33000 | 656213.19000 | 649854.76000 |
| *GE-1* | 72 | 944716.75700 | 0.00000 | 0.000 | 942189.44000 | 954810.69000 | 937150.14000 |
| *GE-2* | 72 | 746969.28700 | 0.00000 | 0.000 | 755692.10000 | 741536.32000 | 743679.44000 |
| *TB-3* | 159 | 309156.91000 | 0.00000 | 0.000 | 309834.74000 | 309159.45000 | 308476.54000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 9:49:35
Tube Number: 3
Sample Number: **ICV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1264767 | 0 | 0.000 | 1260468 | 1247290 | 1286542 |
| **SC-3** | 45 | 95881.83000 | 0.00000 | 0.000 | 95720.93000 | 95449.03000 | 96475.53000 |
| AL | 27 | 5021.07734 | 307278.88300 | 0.400 | 5032.20450 | 5030.76492 | 5000.26259 |
| B | 11 | 326.93344 | 177991.72000 | 1.900 | 320.67072 | 333.35454 | 326.77506 |
| BE | 9 | 29.85182 | 25940.26700 | 2.400 | 29.33312 | 30.68821 | 29.53414 |
| CA | 44 | 5050.04546 | 42421.99300 | 1.400 | 5041.42544 | 5122.90628 | 4985.80465 |
| CR | 52 | 288.14453 | 567709.19700 | 0.600 | 286.50836 | 289.84340 | 288.08184 |
| FE | 57 | 5086.43928 | 201233.86300 | 0.500 | 5060.28731 | 5112.08313 | 5086.94741 |
| K | 39 | 4636.97946 | 887776.21000 | 0.300 | 4655.05480 | 4632.10447 | 4623.77910 |
| MG | 24 | 4778.03318 | 694288.92300 | 0.200 | 4768.57797 | 4774.23080 | 4791.29075 |
| MN | 55 | 307.87433 | 353166.21700 | 0.400 | 306.49490 | 308.30752 | 308.82057 |
| NA | 23 | 5097.24459 | 1388345.39700 | 1.900 | 5001.21478 | 5195.04969 | 5095.46928 |
| TI | 47 | 299.58592 | 16346.27700 | 6.100 | 281.43746 | 299.21162 | 318.10869 |
| V | 51 | 285.18504 | 469984.17000 | 1.100 | 284.69156 | 282.40031 | 288.46324 |
| **GE-3** | 72 | 236225.36700 | 0.00000 | 0.000 | 234552.65000 | 236999.82000 | 237123.63000 |
| SB | 121 | 31.01780 | 53683.88300 | 2.400 | 31.85729 | 30.76269 | 30.43342 |
| **IN-2** | 115 | 560717.39000 | 0.00000 | 0.000 | 554074.84000 | 558310.85000 | 569766.48000 |
| **IN-3** | 115 | 128127.95000 | 0.00000 | 0.000 | 127344.79000 | 128554.58000 | 128484.48000 |
| AG | 107 | 30.89426 | 93174.66300 | 1.300 | 30.59587 | 30.74728 | 31.33964 |
| AS | 75 | 304.54233 | 81872.97000 | 0.500 | 304.29752 | 303.07302 | 306.25645 |
| BA | 137 | 302.97299 | 205364.16300 | 1.000 | 305.78170 | 299.93427 | 303.20301 |
| CD | 111 | 30.82974 | 14990.02000 | 1.400 | 30.35773 | 30.95877 | 31.17273 |
| CO | 59 | 288.62294 | 849698.24300 | 0.800 | 286.96422 | 287.52972 | 291.37490 |
| CU | 63 | 298.40551 | 589219.04000 | 0.900 | 301.07395 | 296.00850 | 298.13408 |
| MO | 98 | 30.67274 | 53444.94700 | 0.400 | 30.62169 | 30.82781 | 30.56872 |
| NI | 60 | 314.36874 | 223222.04300 | 0.600 | 313.56451 | 313.17139 | 316.37033 |
| SE | 78 | 30.94599 | 4978.64700 | 2.100 | 30.25054 | 31.56631 | 31.02113 |
| SN | 120 | 31.29341 | 56204.10700 | 1.300 | 30.83771 | 31.56665 | 31.47586 |
| SR | 88 | 30.30257 | 53878.99000 | 2.500 | 31.02362 | 29.52540 | 30.35869 |
| ZN | 66 | 314.88454 | 103048.71700 | 0.400 | 313.61891 | 315.00343 | 316.03129 |
| **BI-3** | 209 | 198888.04300 | 0.00000 | 0.000 | 197977.99000 | 198861.79000 | 199824.35000 |
| PB | 208 | 30.52956 | 246839.77700 | 0.200 | 30.58508 | 30.44352 | 30.56007 |
| TL | 205 | 31.08738 | 184045.70300 | 0.900 | 31.35083 | 30.77579 | 31.13553 |
| U | 238 | 51.14663 | 407995.26700 | 1.000 | 50.87763 | 50.80183 | 51.76042 |
| *SC-2* | 45 | 640927.55700 | 0.00000 | 0.000 | 634846.40000 | 636993.39000 | 650942.88000 |
| *GE-1* | 72 | 944192.09700 | 0.00000 | 0.000 | 946662.02000 | 941612.72000 | 944301.55000 |
| *GE-2* | 72 | 727055.80000 | 0.00000 | 0.000 | 722261.32000 | 726263.04000 | 732643.04000 |
| *TB-3* | 159 | 309067.10300 | 0.00000 | 0.000 | 308480.58000 | 307293.37000 | 311427.36000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 9:51:29
Tube Number: 4
Sample Number: **ICB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1256130 | 0 | 0.000 | 1281003 | 1272868 | 1214519 |
| **SC-3** | 45 | 95583.83300 | 0.00000 | 0.000 | 95329.59000 | 95791.42000 | 95630.49000 |
| AL | 27 | 1.54026 | 436.69300 | 133.600 | 3.91470 | 0.26608 | 0.44001 |
| B | 11 | 11.89431 | 7673.99000 | 1.100 | 11.96279 | 11.97361 | 11.74653 |
| BE | 9 | 0.00867 | 12.66700 | 46.000 | 0.00756 | 0.00536 | 0.01310 |
| CA | 44 | -6.85301 | 543.36300 | 0.000 | -16.78599 | -1.34180 | -2.43125 |
| CR | 52 | 0.40058 | 3257.14000 | 37.100 | 0.45289 | 0.51607 | 0.23277 |
| FE | 57 | -0.17038 | 300.01300 | 0.000 | -0.15075 | -1.20113 | 0.84073 |
| K | 39 | 10.23322 | 59460.67000 | 149.600 | 27.40960 | 5.27718 | -1.98711 |
| MG | 24 | 0.64550 | 430.02300 | 87.100 | 0.16905 | 0.50162 | 1.26582 |
| MN | 55 | 0.07021 | 413.35300 | 74.700 | 0.07705 | 0.11894 | 0.01465 |
| NA | 23 | 0.90238 | 23035.03700 | 326.100 | -2.27338 | 1.44273 | 3.53778 |
| TI | 47 | 0.06079 | 13.33300 | 173.800 | 0.00009 | 0.18279 | -0.00049 |
| V | 51 | 0.11325 | 1570.14000 | 51.900 | 0.05468 | 0.17220 | 0.11288 |
| **GE-3** | 72 | 233409.45300 | 0.00000 | 0.000 | 233446.05000 | 232298.04000 | 234484.27000 |
| SB | 121 | 0.26049 | 593.37300 | 30.100 | 0.17051 | 0.31319 | 0.29777 |
| **IN-2** | 115 | 551035.18700 | 0.00000 | 0.000 | 544381.83000 | 557054.91000 | 551668.82000 |
| **IN-3** | 115 | 127846.01300 | 0.00000 | 0.000 | 126356.43000 | 130239.49000 | 126942.12000 |
| AG | 107 | 0.03749 | 126.67300 | 42.700 | 0.01904 | 0.04771 | 0.04572 |
| AS | 75 | 0.12051 | 142.00000 | 31.000 | 0.08895 | 0.11073 | 0.16184 |
| BA | 137 | 0.07853 | 86.66700 | 39.900 | 0.05503 | 0.06643 | 0.11412 |
| CD | 111 | 0.01374 | 9.33300 | 64.000 | 0.02366 | 0.01065 | 0.00691 |
| CO | 59 | 0.08585 | 390.02000 | 8.700 | 0.09424 | 0.08000 | 0.08330 |
| CU | 63 | 0.05160 | 1110.08000 | 253.100 | 0.20155 | -0.00944 | -0.03732 |
| MO | 98 | 0.01289 | 150.01000 | 53.400 | 0.01384 | 0.00557 | 0.01925 |
| NI | 60 | 0.39771 | 1186.75300 | 30.300 | 0.26502 | 0.42755 | 0.50056 |
| SE | 78 | 0.01140 | 4.22300 | 40.800 | 0.00604 | 0.01394 | 0.01423 |
| SN | 120 | 0.12614 | 1906.88000 | 18.900 | 0.10048 | 0.14762 | 0.13031 |
| SR | 88 | 0.00329 | 83.33300 | 186.000 | -0.00374 | 0.00615 | 0.00745 |
| ZN | 66 | 0.65558 | 3377.18700 | 57.400 | 0.59728 | 0.31181 | 1.05764 |
| **BI-3** | 209 | 197341.09000 | 0.00000 | 0.000 | 197186.99000 | 196881.77000 | 197954.51000 |
| PB | 208 | 0.01472 | 466.68000 | 48.800 | 0.01769 | 0.00653 | 0.01995 |
| TL | 205 | 0.01335 | 213.34300 | 76.200 | 0.01454 | 0.00264 | 0.02288 |
| U | 238 | 0.01309 | 126.67000 | 27.500 | 0.01100 | 0.01102 | 0.01725 |
| *SC-2* | 45 | 628274.21300 | 0.00000 | 0.000 | 621845.54000 | 631039.80000 | 631937.30000 |
| *GE-1* | 72 | 944821.10700 | 0.00000 | 0.000 | 956329.67000 | 939670.85000 | 938462.80000 |
| *GE-2* | 72 | 720650.07000 | 0.00000 | 0.000 | 712496.71000 | 723685.15000 | 725768.35000 |
| *TB-3* | 159 | 305506.98300 | 0.00000 | 0.000 | 301921.81000 | 309740.84000 | 304858.30000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 9:53:24
Tube Number: 5
Sample Number: **LLC**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1279852 | 0 | 0.000 | 1295247 | 1292856 | 1251452 |
| **SC-3** | 45 | 95881.89000 | 0.00000 | 0.000 | 95579.26000 | 96033.60000 | 96032.81000 |
| AL | 27 | 26.48689 | 1963.53700 | 12.500 | 23.42039 | 29.98034 | 26.05994 |
| B | 11 | 3.29999 | 3116.33700 | 3.000 | 3.29623 | 3.20175 | 3.40200 |
| BE | 9 | 0.49502 | 440.67700 | 1.300 | 0.50187 | 0.49380 | 0.48940 |
| CA | 44 | 120.56357 | 1600.14700 | 1.100 | 121.17479 | 121.46337 | 119.05255 |
| CR | 52 | 1.95414 | 6314.94300 | 2.500 | 1.90130 | 1.96270 | 1.99841 |
| FE | 57 | 50.86275 | 2316.94000 | 12.000 | 50.37193 | 45.04054 | 57.17578 |
| K | 39 | 280.73503 | 108060.90700 | 6.100 | 300.19818 | 274.09140 | 267.91552 |
| MG | 24 | 47.86163 | 7288.68700 | 2.500 | 48.45718 | 48.62953 | 46.49817 |
| MN | 55 | 2.16067 | 2810.37700 | 2.700 | 2.13344 | 2.22658 | 2.12200 |
| NA | 23 | 235.34731 | 85910.14000 | 1.900 | 238.98359 | 230.32351 | 236.73485 |
| TI | 47 | 9.96672 | 553.36700 | 7.900 | 10.85623 | 9.70505 | 9.33887 |
| V | 51 | 0.41473 | 2070.21000 | 10.300 | 0.41870 | 0.37020 | 0.45528 |
| **GE-3** | 72 | 234060.84700 | 0.00000 | 0.000 | 231358.86000 | 236283.00000 | 234540.68000 |
| SB | 121 | 1.03378 | 1916.86700 | 6.700 | 1.08393 | 0.95523 | 1.06219 |
| **IN-2** | 115 | 555372.11700 | 0.00000 | 0.000 | 547726.32000 | 554790.66000 | 563599.37000 |
| **IN-3** | 115 | 127136.27300 | 0.00000 | 0.000 | 127051.57000 | 128415.05000 | 125942.20000 |
| AG | 107 | 0.55803 | 1683.50000 | 3.700 | 0.55072 | 0.58124 | 0.54212 |
| AS | 75 | 2.16497 | 686.02300 | 10.200 | 1.92686 | 2.36292 | 2.20512 |
| BA | 137 | 1.83958 | 1270.10300 | 6.500 | 1.76580 | 1.77596 | 1.97697 |
| CD | 111 | 0.52942 | 258.00300 | 2.200 | 0.52555 | 0.51993 | 0.54278 |
| CO | 59 | 0.51336 | 1636.81000 | 2.600 | 0.52521 | 0.51574 | 0.49914 |
| CU | 63 | 1.10103 | 3157.13000 | 10.300 | 1.00613 | 1.07098 | 1.22599 |
| MO | 98 | 0.55259 | 1080.08300 | 8.300 | 0.50075 | 0.56927 | 0.58775 |
| NI | 60 | 1.29481 | 1810.18000 | 29.600 | 1.66856 | 1.31263 | 0.90322 |
| SE | 78 | 1.00880 | 163.11000 | 2.800 | 1.01613 | 0.97785 | 1.03243 |
| SN | 120 | 2.00459 | 5144.46000 | 8.400 | 1.92456 | 2.19755 | 1.89165 |
| SR | 88 | 1.03552 | 1900.20700 | 11.900 | 0.97872 | 0.95101 | 1.17684 |
| ZN | 66 | 12.45849 | 7075.30300 | 7.000 | 12.97669 | 12.95271 | 11.44608 |
| **BI-3** | 209 | 199114.44300 | 0.00000 | 0.000 | 198585.68000 | 198525.72000 | 200231.93000 |
| PB | 208 | 0.51247 | 4493.81700 | 3.100 | 0.53088 | 0.50375 | 0.50278 |
| TL | 205 | 0.50003 | 3097.15000 | 4.600 | 0.50869 | 0.51732 | 0.47408 |
| U | 238 | 1.03613 | 8296.32000 | 3.700 | 1.02581 | 1.07891 | 1.00366 |
| *SC-2* | 45 | 632386.53000 | 0.00000 | 0.000 | 628627.26000 | 622788.12000 | 645744.21000 |
| *GE-1* | 72 | 951972.48300 | 0.00000 | 0.000 | 950680.45000 | 958692.95000 | 946544.05000 |
| *GE-2* | 72 | 729031.32000 | 0.00000 | 0.000 | 725683.43000 | 721923.43000 | 739487.10000 |
| *TB-3* | 159 | 307232.28000 | 0.00000 | 0.000 | 308410.33000 | 305615.11000 | 307671.40000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 9:55:18
Tube Number: 6
Sample Number: **ICSA**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1214840 | 0 | 0.000 | 1218946 | 1235568 | 1190006 |
| **SC-3** | 45 | 94124.51000 | 0.00000 | 0.000 | 94785.98000 | 95247.68000 | 92339.87000 |
| AL | 27 | 97750.23835 | 5864926.99700 | 2.300 | 95898.57992 | 97092.68313 | 100259.45201 |
| B | 11 | 8.60771 | 5711.78000 | 5.800 | 8.16143 | 8.51954 | 9.14217 |
| BE | 9 | 0.00430 | 8.66700 | 127.900 | 0.01064 | 0.00099 | 0.00126 |
| CA | 44 | 298167.29365 | 2424424.91300 | 0.900 | 295697.44087 | 297863.97960 | 300940.46047 |
| CR | 52 | 0.83001 | 4034.02700 | 11.700 | 0.72067 | 0.90611 | 0.86326 |
| FE | 57 | 244534.62577 | 9480737.35700 | 2.200 | 241488.85247 | 241461.49551 | 250653.52934 |
| K | 39 | 93425.23668 | 16467977.67000 | 2.500 | 91771.12847 | 92444.71107 | 96059.87050 |
| MG | 24 | 90928.42569 | 12961271.89300 | 2.300 | 89354.82638 | 90098.14792 | 93332.30278 |
| MN | 55 | 3.94540 | 4760.95000 | 11.600 | 3.76950 | 3.60044 | 4.46626 |
| NA | 23 | 228444.88691 | 60082742.43700 | 2.600 | 224490.34119 | 225697.74038 | 235146.57916 |
| TI | 47 | 1963.86212 | 105112.05300 | 1.400 | 1933.09940 | 1978.77144 | 1979.71550 |
| V | 51 | -0.20148 | 1036.74000 | 0.000 | -0.22955 | -0.27543 | -0.09947 |
| **GE-3** | 72 | 234724.45700 | 0.00000 | 0.000 | 235437.01000 | 234755.58000 | 233980.78000 |
| SB | 121 | 0.46647 | 950.07000 | 8.900 | 0.49969 | 0.41977 | 0.47995 |
| **IN-2** | 115 | 515132.44300 | 0.00000 | 0.000 | 511846.83000 | 514757.34000 | 518793.16000 |
| **IN-3** | 115 | 123814.22700 | 0.00000 | 0.000 | 123794.88000 | 124135.85000 | 123511.95000 |
| AG | 107 | 0.10421 | 316.68300 | 13.500 | 0.11221 | 0.08793 | 0.11248 |
| AS | 75 | 0.47714 | 230.00000 | 26.500 | 0.49248 | 0.34391 | 0.59501 |
| BA | 137 | 1.41116 | 956.73300 | 4.200 | 1.47755 | 1.36673 | 1.38921 |
| CD | 111 | 0.60749 | 288.00300 | 7.200 | 0.59062 | 0.65695 | 0.57491 |
| CO | 59 | 1.10888 | 3287.16000 | 13.200 | 1.02561 | 1.02266 | 1.27836 |
| CU | 63 | 0.98982 | 2863.73300 | 1.900 | 0.97257 | 1.01038 | 0.98652 |
| MO | 98 | 2120.12505 | 3561344.01000 | 0.800 | 2101.42840 | 2131.44454 | 2127.50222 |
| NI | 60 | 1.24278 | 1726.83300 | 23.700 | 1.13144 | 1.57732 | 1.01958 |
| SE | 78 | 0.03437 | 7.33300 | 34.900 | 0.03015 | 0.04791 | 0.02504 |
| SN | 120 | 0.15614 | 1896.87700 | 50.700 | 0.24745 | 0.11370 | 0.10728 |
| SR | 88 | 9.17759 | 15822.60000 | 2.300 | 9.33492 | 9.26251 | 8.93535 |
| ZN | 66 | 3.61088 | 4177.41300 | 13.700 | 3.06925 | 4.04254 | 3.72084 |
| **BI-3** | 209 | 183059.50700 | 0.00000 | 0.000 | 184200.15000 | 181850.19000 | 183128.18000 |
| PB | 208 | 0.13226 | 1306.74300 | 13.100 | 0.14104 | 0.11227 | 0.14347 |
| TL | 205 | -0.00586 | 93.33700 | 0.000 | 0.00258 | -0.01003 | -0.01012 |
| U | 238 | 0.01206 | 110.00300 | 38.300 | 0.01740 | 0.00943 | 0.00935 |
| *SC-2* | 45 | 624644.84300 | 0.00000 | 0.000 | 626972.37000 | 620919.83000 | 626042.33000 |
| *GE-1* | 72 | 935668.47300 | 0.00000 | 0.000 | 936582.95000 | 938443.81000 | 931978.66000 |
| *GE-2* | 72 | 709727.12700 | 0.00000 | 0.000 | 704723.04000 | 712009.60000 | 712448.74000 |
| *TB-3* | 159 | 300119.82000 | 0.00000 | 0.000 | 299402.77000 | 300507.81000 | 300448.88000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 9:57:19
Tube Number: 7
Sample Number: **ICSAB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1255571 | 0 | 0.000 | 1287846 | 1255020 | 1223847 |
| **SC-3** | 45 | 94000.72700 | 0.00000 | 0.000 | 92914.25000 | 94554.12000 | 94533.81000 |
| AL | 27 | 97780.29508 | 5859980.33000 | 1.300 | 98931.59729 | 96420.97645 | 97988.31150 |
| B | 11 | 6.59900 | 4826.80000 | 2.300 | 6.52043 | 6.50009 | 6.77647 |
| BE | 9 | 0.00316 | 8.00000 | 141.300 | 0.00749 | -0.00144 | 0.00344 |
| CA | 44 | 296758.55418 | 2409804.86300 | 1.600 | 300835.12581 | 291636.63287 | 297803.90385 |
| CR | 52 | 184.12436 | 356498.40700 | 1.400 | 186.91426 | 182.04622 | 183.41261 |
| FE | 57 | 248929.90923 | 9640138.40000 | 1.000 | 251586.39104 | 246881.93151 | 248321.40513 |
| K | 39 | 94559.61063 | 16648318.91700 | 1.200 | 95886.03269 | 94004.67466 | 93788.12455 |
| MG | 24 | 90753.81649 | 12922078.97700 | 0.800 | 91286.48836 | 89956.83523 | 91018.12588 |
| MN | 55 | 198.44772 | 223264.78300 | 1.800 | 202.42580 | 197.50593 | 195.41145 |
| NA | 23 | 228771.83466 | 60101972.43700 | 1.000 | 231432.45731 | 226819.25942 | 228063.78726 |
| TI | 47 | 1995.27260 | 106653.82300 | 0.700 | 2011.32160 | 1989.20279 | 1985.29340 |
| V | 51 | 185.61676 | 300326.42000 | 1.600 | 189.02523 | 184.01906 | 183.80598 |
| **GE-3** | 72 | 236109.77000 | 0.00000 | 0.000 | 235637.91000 | 233686.79000 | 239004.61000 |
| SB | 121 | 0.48242 | 983.40300 | 4.500 | 0.49338 | 0.45723 | 0.49665 |
| **IN-2** | 115 | 514070.94300 | 0.00000 | 0.000 | 518910.27000 | 511715.85000 | 511586.71000 |
| **IN-3** | 115 | 122929.70000 | 0.00000 | 0.000 | 122442.03000 | 123369.90000 | 122977.17000 |
| AG | 107 | 49.09716 | 142054.20300 | 0.100 | 49.05317 | 49.06025 | 49.17807 |
| AS | 75 | 104.53207 | 27032.00300 | 0.900 | 103.80149 | 105.53690 | 104.25780 |
| BA | 137 | 1.05253 | 716.71300 | 4.700 | 1.07751 | 1.08435 | 0.99572 |
| CD | 111 | 99.90254 | 46594.64300 | 1.200 | 101.30878 | 99.28167 | 99.11715 |
| CO | 59 | 182.72475 | 516139.50000 | 1.000 | 184.67424 | 181.04427 | 182.45574 |
| CU | 63 | 185.64793 | 352070.88300 | 0.700 | 187.19520 | 184.55613 | 185.19247 |
| MO | 98 | 2162.10739 | 3605837.76000 | 0.800 | 2177.75776 | 2143.55942 | 2165.00499 |
| NI | 60 | 194.55877 | 132876.21300 | 0.300 | 193.94620 | 194.77452 | 194.95558 |
| SE | 78 | 104.93932 | 15470.94700 | 1.000 | 103.69459 | 105.53930 | 105.58407 |
| SN | 120 | 0.04856 | 1703.50300 | 53.000 | 0.04459 | 0.02503 | 0.07606 |
| SR | 88 | 8.71734 | 14924.91700 | 4.200 | 8.57124 | 8.44790 | 9.13288 |
| ZN | 66 | 100.19228 | 33536.21000 | 1.000 | 101.33510 | 99.90559 | 99.33615 |
| **BI-3** | 209 | 180775.95300 | 0.00000 | 0.000 | 180167.36000 | 180267.79000 | 181892.71000 |
| PB | 208 | 0.14722 | 1400.08300 | 11.600 | 0.12877 | 0.15054 | 0.16235 |
| TL | 205 | -0.01306 | 53.33300 | 0.000 | -0.01551 | -0.01178 | -0.01188 |
| U | 238 | 0.00676 | 70.00000 | 54.600 | 0.00955 | 0.00816 | 0.00258 |
| *SC-2* | 45 | 624439.93700 | 0.00000 | 0.000 | 621464.52000 | 629380.26000 | 622475.03000 |
| *GE-1* | 72 | 944534.54300 | 0.00000 | 0.000 | 947663.50000 | 939985.69000 | 945954.44000 |
| *GE-2* | 72 | 716220.48300 | 0.00000 | 0.000 | 714750.38000 | 721810.30000 | 712100.77000 |
| *TB-3* | 159 | 300873.02300 | 0.00000 | 0.000 | 297762.52000 | 306132.34000 | 298724.21000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 9:59:20
Tube Number: 8
Sample Number: **LRS3**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1297148 | 0 | 0.000 | 1293365 | 1293994 | 1304084 |
| **SC-3** | 45 | 98087.51000 | 0.00000 | 0.000 | 97181.93000 | 97724.49000 | 99356.11000 |
| AL | 27 | 48641.14702 | 3041917.45300 | 1.200 | 48926.91851 | 49043.18448 | 47953.33807 |
| B | 11 | 463.54992 | 258299.31000 | 1.100 | 457.44632 | 466.03642 | 467.16702 |
| BE | 9 | 457.26736 | 407516.00300 | 0.900 | 453.06255 | 461.56852 | 457.17102 |
| CA | 44 | 48503.63627 | 411510.43700 | 1.200 | 48618.73993 | 49018.16679 | 47874.00210 |
| CR | 52 | 454.43920 | 914419.31000 | 1.000 | 456.85088 | 457.05022 | 449.41648 |
| FE | 57 | 50171.25184 | 2027608.87700 | 1.200 | 50608.53820 | 50425.10803 | 49480.10929 |
| K | 39 | 46120.51259 | 8503408.62000 | 1.200 | 46225.05914 | 46626.43637 | 45510.04226 |
| MG | 24 | 44828.14327 | 6659961.36000 | 1.700 | 45320.67907 | 45202.05150 | 43961.69923 |
| MN | 55 | 490.54204 | 575403.65000 | 1.200 | 490.86104 | 496.38012 | 484.38497 |
| NA | 23 | 45924.05370 | 12608784.81000 | 0.300 | 46090.13117 | 45880.40950 | 45801.62042 |
| TI | 47 | 488.24720 | 27239.31300 | 3.500 | 480.18087 | 507.98133 | 476.57940 |
| V | 51 | 454.96996 | 766128.40000 | 0.600 | 457.50639 | 455.14849 | 452.25500 |
| **GE-3** | 72 | 238576.54000 | 0.00000 | 0.000 | 237785.06000 | 239166.13000 | 238778.43000 |
| SB | 121 | 478.72653 | 834669.41700 | 0.700 | 482.45138 | 477.24386 | 476.48434 |
| **IN-2** | 115 | 583737.08700 | 0.00000 | 0.000 | 583271.05000 | 586910.30000 | 581029.91000 |
| **IN-3** | 115 | 132786.37300 | 0.00000 | 0.000 | 134652.24000 | 134846.25000 | 128860.63000 |
| AG | 107 | 1063.50126 | 3322307.35000 | 2.100 | 1050.58180 | 1050.83754 | 1089.08446 |
| AS | 75 | 490.21750 | 136442.10000 | 3.000 | 483.29449 | 480.28365 | 507.07436 |
| BA | 137 | 475.60386 | 333968.14700 | 2.100 | 470.40046 | 469.15531 | 487.25580 |
| CD | 111 | 484.61130 | 244035.87300 | 2.600 | 476.32951 | 478.61841 | 498.88596 |
| CO | 59 | 445.59396 | 1358831.59300 | 2.600 | 436.95782 | 441.30891 | 458.51516 |
| CU | 63 | 458.83558 | 937984.12700 | 2.900 | 446.24048 | 457.48634 | 472.77991 |
| MO | 98 | 481.83882 | 867739.44300 | 2.700 | 472.65241 | 476.09478 | 496.76928 |
| NI | 60 | 481.83777 | 353925.09700 | 2.400 | 476.71076 | 473.50798 | 495.29458 |
| SE | 78 | 484.69888 | 81137.69000 | 0.800 | 479.99515 | 487.51503 | 486.58648 |
| SN | 120 | 487.75795 | 881954.28000 | 2.300 | 478.16652 | 485.04177 | 500.06556 |
| SR | 88 | 492.96147 | 906820.77000 | 2.500 | 486.65002 | 485.00140 | 507.23297 |
| ZN | 66 | 487.56949 | 163495.69000 | 2.300 | 477.61773 | 485.24401 | 499.84672 |
| **BI-3** | 209 | 190824.22700 | 0.00000 | 0.000 | 188420.84000 | 192923.84000 | 191128.00000 |
| PB | 208 | 507.95784 | 3935248.95000 | 0.200 | 507.02894 | 508.80888 | 508.03570 |
| TL | 205 | 526.46062 | 2988383.60300 | 0.300 | 525.44649 | 525.53478 | 528.40058 |
| U | 238 | 10.63915 | 81439.35700 | 0.800 | 10.66872 | 10.54460 | 10.70414 |
| *SC-2* | 45 | 641868.92300 | 0.00000 | 0.000 | 643820.54000 | 645159.48000 | 636626.75000 |
| *GE-1* | 72 | 960313.86700 | 0.00000 | 0.000 | 964394.36000 | 956468.50000 | 960078.74000 |
| *GE-2* | 72 | 741009.10700 | 0.00000 | 0.000 | 737576.79000 | 746599.13000 | 738851.40000 |
| *TB-3* | 159 | 306887.16300 | 0.00000 | 0.000 | 305805.95000 | 306743.75000 | 308111.79000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:01:16
Tube Number: 9
Sample Number: **CCS**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1267154 | 0 | 0.000 | 1267718 | 1275842 | 1257902 |
| **SC-3** | 45 | 96022.91700 | 0.00000 | 0.000 | 96303.79000 | 94081.05000 | 97683.91000 |
| AL | 27 | 13.65278 | 1180.09300 | 7.900 | 12.45086 | 14.54551 | 13.96199 |
| B | 11 | 10.40149 | 6932.31000 | 9.600 | 11.53340 | 10.05012 | 9.62094 |
| BE | 9 | 0.13707 | 124.66700 | 21.000 | 0.16844 | 0.13082 | 0.11195 |
| CA | 44 | 25.15742 | 810.05000 | 61.100 | 11.50431 | 41.79924 | 22.16871 |
| CR | 52 | 0.44282 | 3353.84000 | 23.900 | 0.54213 | 0.45492 | 0.33142 |
| FE | 57 | 26.37854 | 1350.11300 | 15.900 | 29.01132 | 28.59105 | 21.53324 |
| K | 39 | 20.92751 | 61629.42300 | 79.700 | 33.47124 | 27.31173 | 1.99955 |
| MG | 24 | 12.28550 | 2126.90700 | 11.400 | 11.38757 | 11.57111 | 13.89784 |
| MN | 55 | 0.02807 | 366.68700 | 179.100 | 0.08201 | 0.01969 | -0.01749 |
| NA | 23 | 39.85427 | 33578.49300 | 8.800 | 40.26541 | 43.15644 | 36.14096 |
| TI | 47 | 0.36059 | 30.00000 | 98.900 | 0.36345 | 0.00253 | 0.71578 |
| V | 51 | -0.04081 | 1323.45300 | 0.000 | -0.03320 | -0.03262 | -0.05661 |
| **GE-3** | 72 | 237302.93300 | 0.00000 | 0.000 | 238940.80000 | 237314.84000 | 235653.16000 |
| SB | 121 | 6.34552 | 11144.89700 | 18.500 | 5.14384 | 6.40898 | 7.48373 |
| **IN-2** | 115 | 561906.54000 | 0.00000 | 0.000 | 562217.41000 | 554641.16000 | 568861.05000 |
| **IN-3** | 115 | 128956.31300 | 0.00000 | 0.000 | 129605.49000 | 129039.01000 | 128224.44000 |
| AG | 107 | 0.54900 | 1680.15700 | 6.100 | 0.58241 | 0.54876 | 0.51582 |
| AS | 75 | 0.12565 | 144.66700 | 67.900 | 0.10591 | 0.21912 | 0.05191 |
| BA | 137 | 0.05788 | 73.33300 | 53.200 | 0.02323 | 0.08216 | 0.06825 |
| CD | 111 | 0.09390 | 48.66700 | 15.000 | 0.09207 | 0.10884 | 0.08079 |
| CO | 59 | 0.06553 | 333.35000 | 26.600 | 0.05039 | 0.08456 | 0.06163 |
| CU | 63 | 0.05790 | 1133.41700 | 77.400 | 0.00807 | 0.07082 | 0.09481 |
| MO | 98 | 0.67710 | 1313.43700 | 8.500 | 0.63731 | 0.74326 | 0.65072 |
| NI | 60 | 0.28043 | 1113.41000 | 20.800 | 0.32407 | 0.30304 | 0.21420 |
| SE | 78 | 0.16548 | 29.11000 | 14.600 | 0.14182 | 0.19012 | 0.16451 |
| SN | 120 | 1.98871 | 5184.50700 | 32.000 | 1.44741 | 1.82866 | 2.69006 |
| SR | 88 | 0.06635 | 196.67700 | 31.900 | 0.05094 | 0.09050 | 0.05759 |
| ZN | 66 | 2.12612 | 3877.33700 | 39.400 | 3.01255 | 1.34744 | 2.01838 |
| **BI-3** | 209 | 197590.78300 | 0.00000 | 0.000 | 199297.61000 | 196890.17000 | 196584.57000 |
| PB | 208 | 0.10107 | 1160.07000 | 13.300 | 0.10852 | 0.10913 | 0.08556 |
| TL | 205 | 0.12445 | 866.73300 | 11.400 | 0.13560 | 0.10851 | 0.12924 |
| U | 238 | 0.00172 | 36.66700 | 41.700 | 0.00210 | 0.00089 | 0.00217 |
| *SC-2* | 45 | 640562.80300 | 0.00000 | 0.000 | 637155.62000 | 637973.27000 | 646559.52000 |
| *GE-1* | 72 | 951003.84300 | 0.00000 | 0.000 | 957093.35000 | 947212.80000 | 948705.38000 |
| *GE-2* | 72 | 742844.36000 | 0.00000 | 0.000 | 737887.25000 | 738879.36000 | 751766.47000 |
| *TB-3* | 159 | 305632.43000 | 0.00000 | 0.000 | 305674.10000 | 309665.09000 | 301558.10000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:03:12
Tube Number: 10
Sample Number: **CCS**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1256600 | 0 | 0.000 | 1259231 | 1274893 | 1235677 |
| **SC-3** | 45 | 96224.66300 | 0.00000 | 0.000 | 96123.72000 | 96315.81000 | 96234.46000 |
| AL | 27 | 6.32569 | 733.38000 | 6.700 | 6.77315 | 5.93401 | 6.26992 |
| B | 11 | 1.89165 | 2302.85300 | 11.400 | 1.93504 | 1.65784 | 2.08205 |
| BE | 9 | 0.03336 | 34.00000 | 19.500 | 0.03785 | 0.02589 | 0.03633 |
| CA | 44 | 3.14757 | 630.03700 | 150.500 | -1.58833 | 7.88763 | 3.14341 |
| CR | 52 | 0.47071 | 3417.17300 | 26.200 | 0.34206 | 0.58759 | 0.48246 |
| FE | 57 | 9.70199 | 693.37700 | 22.000 | 12.16022 | 8.59207 | 8.35369 |
| K | 39 | 14.20901 | 60575.42000 | 105.800 | 30.56216 | 0.97891 | 11.08596 |
| MG | 24 | 4.46815 | 990.07000 | 15.000 | 3.72008 | 4.66770 | 5.01668 |
| MN | 55 | 0.00405 | 340.01300 | 365.900 | -0.00433 | 0.02115 | -0.00467 |
| NA | 23 | 20.22844 | 28384.30300 | 3.600 | 20.50073 | 20.77405 | 19.41056 |
| TI | 47 | 0.18096 | 20.00000 | 174.700 | -0.00144 | 0.54597 | -0.00165 |
| V | 51 | -0.18414 | 1090.08000 | 0.000 | -0.11061 | -0.18479 | -0.25701 |
| **GE-3** | 72 | 238154.83300 | 0.00000 | 0.000 | 240251.64000 | 235657.77000 | 238555.09000 |
| SB | 121 | 1.42738 | 2633.69700 | 25.100 | 1.02918 | 1.52725 | 1.72571 |
| **IN-2** | 115 | 564626.92000 | 0.00000 | 0.000 | 560100.07000 | 567112.18000 | 566668.51000 |
| **IN-3** | 115 | 128041.36000 | 0.00000 | 0.000 | 128789.13000 | 129030.12000 | 126304.83000 |
| AG | 107 | 0.22132 | 680.04300 | 10.300 | 0.22647 | 0.19639 | 0.24111 |
| AS | 75 | 0.09773 | 136.00000 | 74.500 | 0.02024 | 0.10821 | 0.16472 |
| BA | 137 | 0.08880 | 93.33700 | 98.500 | 0.03837 | 0.03821 | 0.18980 |
| CD | 111 | 0.02189 | 13.33300 | 9.500 | 0.02311 | 0.02305 | 0.01950 |
| CO | 59 | 0.02221 | 203.34300 | 53.100 | 0.01383 | 0.01709 | 0.03571 |
| CU | 63 | -0.01905 | 973.40300 | 0.000 | -0.03405 | -0.05510 | 0.03200 |
| MO | 98 | 0.16260 | 410.02000 | 19.300 | 0.16100 | 0.13200 | 0.19480 |
| NI | 60 | 0.12348 | 993.40300 | 152.900 | 0.05288 | -0.01986 | 0.33740 |
| SE | 78 | 0.06428 | 12.88700 | 6.500 | 0.05942 | 0.06668 | 0.06674 |
| SN | 120 | 0.34960 | 2296.94000 | 36.700 | 0.22305 | 0.34625 | 0.47951 |
| SR | 88 | 0.02200 | 116.67000 | 144.300 | 0.05715 | -0.00456 | 0.01342 |
| ZN | 66 | 1.52793 | 3660.58300 | 47.900 | 2.37341 | 1.12890 | 1.08148 |
| **BI-3** | 209 | 196939.41300 | 0.00000 | 0.000 | 195513.32000 | 197792.58000 | 197512.34000 |
| PB | 208 | 0.03403 | 620.03000 | 28.800 | 0.03082 | 0.02623 | 0.04504 |
| TL | 205 | 0.02878 | 303.35000 | 27.100 | 0.02002 | 0.03142 | 0.03490 |
| U | 238 | 0.00047 | 26.66700 | 156.800 | 0.00092 | 0.00088 | -0.00038 |
| *SC-2* | 45 | 639960.42000 | 0.00000 | 0.000 | 626197.30000 | 643006.90000 | 650677.06000 |
| *GE-1* | 72 | 943806.83300 | 0.00000 | 0.000 | 935650.61000 | 952782.56000 | 942987.33000 |
| *GE-2* | 72 | 740281.16000 | 0.00000 | 0.000 | 730447.80000 | 748443.74000 | 741951.94000 |
| *TB-3* | 159 | 304042.08000 | 0.00000 | 0.000 | 302261.25000 | 307552.77000 | 302312.22000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:05:07
Tube Number: 11
Sample Number: **CCV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1285316 | 0 | 0.000 | 1294050 | 1283979 | 1277919 |
| **SC-3** | 45 | 96811.94300 | 0.00000 | 0.000 | 95298.74000 | 97049.99000 | 98087.10000 |
| AL | 27 | 4958.23723 | 306365.68000 | 1.000 | 5008.49683 | 4910.46014 | 4955.75473 |
| B | 11 | 288.87971 | 159982.79700 | 1.800 | 282.92460 | 291.43652 | 292.27800 |
| BE | 9 | 28.84995 | 25479.47700 | 1.900 | 28.24724 | 28.98213 | 29.32047 |
| CA | 44 | 4940.77809 | 41917.36000 | 1.100 | 4994.67383 | 4945.09480 | 4882.56563 |
| CR | 52 | 284.33342 | 565581.03300 | 1.800 | 288.56313 | 285.73085 | 278.70628 |
| FE | 57 | 5061.71154 | 202160.32000 | 2.100 | 5162.27542 | 5074.05781 | 4948.80138 |
| K | 39 | 4639.94861 | 896822.80000 | 1.300 | 4708.25679 | 4622.74029 | 4588.84874 |
| MG | 24 | 4648.18543 | 681938.97300 | 0.600 | 4679.92264 | 4634.96032 | 4629.67333 |
| MN | 55 | 303.05341 | 350988.14700 | 0.700 | 304.96253 | 303.52193 | 300.67577 |
| NA | 23 | 5090.39840 | 1399752.58300 | 1.900 | 5173.49936 | 5110.34418 | 4987.35165 |
| TI | 47 | 299.14116 | 16476.40300 | 1.300 | 303.00716 | 295.17840 | 299.23793 |
| V | 51 | 283.22383 | 471230.25000 | 1.100 | 286.66425 | 280.85805 | 282.14919 |
| **GE-3** | 72 | 236866.55300 | 0.00000 | 0.000 | 236382.97000 | 238089.55000 | 236127.14000 |
| SB | 121 | 30.92650 | 53673.61300 | 2.000 | 31.04041 | 30.25197 | 31.48711 |
| **IN-2** | 115 | 564236.17700 | 0.00000 | 0.000 | 558910.46000 | 566868.94000 | 566929.13000 |
| **IN-3** | 115 | 130484.14000 | 0.00000 | 0.000 | 131058.48000 | 130403.43000 | 129990.51000 |
| AG | 107 | 30.55402 | 93839.18300 | 0.900 | 30.46975 | 30.32432 | 30.86801 |
| AS | 75 | 302.04835 | 82694.96700 | 0.700 | 299.48664 | 303.20854 | 303.44985 |
| BA | 137 | 301.61620 | 208206.82000 | 1.000 | 298.56749 | 304.65866 | 301.62245 |
| CD | 111 | 30.48147 | 15092.80000 | 0.900 | 30.58051 | 30.68565 | 30.17824 |
| CO | 59 | 283.91597 | 851192.77300 | 0.600 | 282.39302 | 285.56948 | 283.78542 |
| CU | 63 | 289.27955 | 581741.47700 | 0.800 | 286.71488 | 291.38992 | 289.73384 |
| MO | 98 | 30.51785 | 54150.94700 | 1.500 | 30.02276 | 30.56597 | 30.96481 |
| NI | 60 | 306.50103 | 221659.49300 | 0.000 | 306.67159 | 306.38010 | 306.45140 |
| SE | 78 | 30.23342 | 4894.39300 | 1.000 | 30.01782 | 30.58077 | 30.10167 |
| SN | 120 | 30.95550 | 56636.09700 | 0.300 | 31.01298 | 30.99827 | 30.85524 |
| SR | 88 | 30.66863 | 55535.33700 | 0.500 | 30.60747 | 30.56126 | 30.83716 |
| ZN | 66 | 305.43179 | 101891.14700 | 1.300 | 306.15739 | 308.98926 | 301.14872 |
| **BI-3** | 209 | 198939.90000 | 0.00000 | 0.000 | 198848.63000 | 200929.76000 | 197041.31000 |
| PB | 208 | 30.46647 | 246375.50300 | 1.300 | 30.63412 | 30.02006 | 30.74522 |
| TL | 205 | 30.41881 | 180126.27300 | 1.200 | 30.25143 | 30.15869 | 30.84632 |
| U | 238 | 50.34471 | 401690.75000 | 0.300 | 50.18906 | 50.38255 | 50.46252 |
| *SC-2* | 45 | 640399.53300 | 0.00000 | 0.000 | 632746.08000 | 642057.26000 | 646395.26000 |
| *GE-1* | 72 | 947785.53300 | 0.00000 | 0.000 | 954996.24000 | 953616.16000 | 934744.20000 |
| *GE-2* | 72 | 734444.26000 | 0.00000 | 0.000 | 725966.55000 | 734404.68000 | 742961.55000 |
| *TB-3* | 159 | 308945.45000 | 0.00000 | 0.000 | 306426.93000 | 311596.01000 | 308813.41000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:07:01
Tube Number: 12
Sample Number: **CCB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1257078 | 0 | 0.000 | 1278207 | 1263455 | 1229573 |
| **SC-3** | 45 | 96114.14300 | 0.00000 | 0.000 | 96657.64000 | 95439.79000 | 96245.00000 |
| AL | 27 | 3.72503 | 573.36300 | 18.800 | 4.10812 | 2.91729 | 4.14970 |
| B | 11 | 6.86112 | 4976.18300 | 4.500 | 7.21400 | 6.68893 | 6.68043 |
| BE | 9 | 0.01779 | 20.66700 | 24.600 | 0.02125 | 0.01927 | 0.01286 |
| CA | 44 | 6.04838 | 653.37000 | 165.200 | 13.59184 | 9.84001 | -5.28672 |
| CR | 52 | 0.40001 | 3273.81300 | 16.100 | 0.41413 | 0.45604 | 0.32987 |
| FE | 57 | 4.67693 | 493.35700 | 52.700 | 4.51577 | 7.21625 | 2.29878 |
| K | 39 | 19.28187 | 61425.39000 | 99.600 | 40.29090 | 14.94066 | 2.61405 |
| MG | 24 | 2.26013 | 666.70700 | 50.500 | 1.22767 | 3.48664 | 2.06609 |
| MN | 55 | 0.07096 | 416.69000 | 90.100 | 0.07198 | 0.00649 | 0.13440 |
| NA | 23 | 14.81945 | 26898.25000 | 18.100 | 12.20061 | 14.68442 | 17.57332 |
| TI | 47 | 0.18234 | 20.00000 | 101.700 | -0.00245 | 0.36841 | 0.18106 |
| V | 51 | -0.00282 | 1386.77700 | 0.000 | -0.09656 | 0.10868 | -0.02058 |
| **GE-3** | 72 | 236198.61700 | 0.00000 | 0.000 | 236418.77000 | 235970.07000 | 236207.01000 |
| SB | 121 | 0.48239 | 983.41000 | 23.800 | 0.35831 | 0.50417 | 0.58470 |
| **IN-2** | 115 | 560451.56700 | 0.00000 | 0.000 | 554422.37000 | 564497.18000 | 562435.15000 |
| **IN-3** | 115 | 129050.74700 | 0.00000 | 0.000 | 127547.77000 | 130150.59000 | 129453.88000 |
| AG | 107 | 0.13387 | 420.02000 | 11.400 | 0.14209 | 0.11631 | 0.14322 |
| AS | 75 | -0.00291 | 110.00000 | 0.000 | -0.01299 | 0.02308 | -0.01883 |
| BA | 137 | 0.06242 | 76.67000 | 57.900 | 0.02441 | 0.06650 | 0.09635 |
| CD | 111 | 0.01216 | 8.66700 | 69.700 | 0.01512 | 0.01876 | 0.00260 |
| CO | 59 | 0.04402 | 270.01000 | 18.500 | 0.03490 | 0.04664 | 0.05051 |
| CU | 63 | 0.04218 | 1103.41000 | 118.300 | 0.02158 | 0.00589 | 0.09907 |
| MO | 98 | 0.08421 | 276.68000 | 26.400 | 0.05926 | 0.10191 | 0.09147 |
| NI | 60 | 0.23732 | 1083.41000 | 48.500 | 0.19373 | 0.15028 | 0.36794 |
| SE | 78 | 0.00955 | 4.00000 | 84.500 | 0.00150 | 0.01763 | 0.00951 |
| SN | 120 | 0.14434 | 1956.87000 | 108.300 | 0.05585 | 0.05228 | 0.32490 |
| SR | 88 | 0.01794 | 110.00300 | 116.400 | 0.04116 | 0.00064 | 0.01203 |
| ZN | 66 | 1.02082 | 3527.24000 | 62.900 | 0.52989 | 0.78468 | 1.74791 |
| **BI-3** | 209 | 197800.99300 | 0.00000 | 0.000 | 197500.06000 | 195498.88000 | 200404.04000 |
| PB | 208 | 0.01672 | 483.35700 | 86.100 | 0.03257 | 0.01318 | 0.00442 |
| TL | 205 | 0.00537 | 166.67700 | 42.200 | 0.00426 | 0.00798 | 0.00387 |
| U | 238 | 0.00549 | 66.66700 | 24.600 | 0.00467 | 0.00475 | 0.00705 |
| *SC-2* | 45 | 643989.37700 | 0.00000 | 0.000 | 640609.01000 | 655783.19000 | 635575.93000 |
| *GE-1* | 72 | 950280.35000 | 0.00000 | 0.000 | 944394.75000 | 951353.97000 | 955092.33000 |
| *GE-2* | 72 | 748344.75300 | 0.00000 | 0.000 | 740631.86000 | 755635.38000 | 748767.02000 |
| *TB-3* | 159 | 305254.30000 | 0.00000 | 0.000 | 306085.68000 | 305842.85000 | 303834.37000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:16:36
Tube Number: 13
Sample Number: **CCV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1288661 | 0 | 0.000 | 1310476 | 1288103 | 1267405 |
| **SC-3** | 45 | 97646.99000 | 0.00000 | 0.000 | 96083.85000 | 98176.81000 | 98680.31000 |
| AL | 27 | 4900.46052 | 305402.11700 | 1.100 | 4961.42283 | 4853.46144 | 4886.49730 |
| B | 11 | 291.16967 | 161610.57300 | 3.400 | 280.48119 | 292.65491 | 300.37291 |
| BE | 9 | 29.05851 | 25726.53700 | 2.500 | 28.22688 | 29.53450 | 29.41414 |
| CA | 44 | 4986.22484 | 42662.68300 | 2.000 | 5061.97756 | 4873.29353 | 5023.40342 |
| CR | 52 | 284.60086 | 571025.44700 | 1.100 | 288.04744 | 284.10862 | 281.64651 |
| FE | 57 | 5030.17957 | 202641.62300 | 2.100 | 5144.64123 | 4939.04752 | 5006.84997 |
| K | 39 | 4603.94318 | 898016.52300 | 1.100 | 4662.23208 | 4580.84662 | 4568.75084 |
| MG | 24 | 4625.15693 | 684392.85300 | 1.200 | 4681.63953 | 4570.20065 | 4623.63060 |
| MN | 55 | 303.54714 | 354582.45300 | 1.300 | 307.47631 | 299.58912 | 303.57598 |
| NA | 23 | 5009.76661 | 1390059.25000 | 0.600 | 5018.76051 | 4975.57105 | 5034.96826 |
| TI | 47 | 296.22348 | 16453.14000 | 3.300 | 307.12951 | 288.74192 | 292.79901 |
| V | 51 | 280.66874 | 471044.08300 | 0.500 | 282.03561 | 279.32694 | 280.64367 |
| **GE-3** | 72 | 238064.99000 | 0.00000 | 0.000 | 236947.77000 | 235528.65000 | 241718.55000 |
| SB | 121 | 30.59128 | 53362.55300 | 0.800 | 30.45588 | 30.87359 | 30.44436 |
| **IN-2** | 115 | 570066.85300 | 0.00000 | 0.000 | 561572.41000 | 574734.80000 | 573893.35000 |
| **IN-3** | 115 | 129299.51300 | 0.00000 | 0.000 | 128858.07000 | 129524.53000 | 129515.94000 |
| AG | 107 | 30.58146 | 93069.94300 | 1.200 | 31.01324 | 30.36796 | 30.36319 |
| AS | 75 | 306.36218 | 83114.66300 | 0.300 | 306.05270 | 305.76555 | 307.26829 |
| BA | 137 | 304.44251 | 208251.15000 | 0.500 | 306.10763 | 304.26568 | 302.95423 |
| CD | 111 | 31.16169 | 15289.69000 | 3.200 | 30.59506 | 30.56387 | 32.32614 |
| CO | 59 | 285.86042 | 849254.41300 | 0.400 | 284.57658 | 286.27939 | 286.72530 |
| CU | 63 | 293.76480 | 585394.78700 | 0.900 | 292.84989 | 291.83490 | 296.60962 |
| MO | 98 | 31.17430 | 54813.52300 | 1.700 | 31.03078 | 30.74525 | 31.74687 |
| NI | 60 | 308.41672 | 221016.12300 | 0.600 | 306.67354 | 310.20402 | 308.37262 |
| SE | 78 | 30.16781 | 4933.96000 | 1.400 | 30.29369 | 30.50594 | 29.70381 |
| SN | 120 | 31.76048 | 57537.23000 | 2.900 | 31.56496 | 32.76755 | 30.94894 |
| SR | 88 | 30.83893 | 55337.84300 | 1.000 | 30.49566 | 30.91442 | 31.10671 |
| ZN | 66 | 307.02186 | 101474.50300 | 0.700 | 304.63827 | 308.76960 | 307.65771 |
| **BI-3** | 209 | 200490.44000 | 0.00000 | 0.000 | 201579.96000 | 199429.68000 | 200461.68000 |
| PB | 208 | 30.20437 | 246178.36000 | 0.500 | 30.10357 | 30.36389 | 30.14563 |
| TL | 205 | 30.49758 | 182011.62000 | 0.400 | 30.37735 | 30.50549 | 30.60990 |
| U | 238 | 49.96155 | 401740.29000 | 0.900 | 49.63155 | 49.76496 | 50.48813 |
| *SC-2* | 45 | 643631.23000 | 0.00000 | 0.000 | 635580.93000 | 645312.30000 | 650000.46000 |
| *GE-1* | 72 | 952959.70000 | 0.00000 | 0.000 | 959239.05000 | 951540.92000 | 948099.13000 |
| *GE-2* | 72 | 739883.92300 | 0.00000 | 0.000 | 729877.02000 | 742933.82000 | 746840.93000 |
| *TB-3* | 159 | 310531.22000 | 0.00000 | 0.000 | 309650.89000 | 308260.84000 | 313681.93000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:18:29
Tube Number: 14
Sample Number: **CCB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1304849 | 0 | 0.000 | 1310979 | 1318245 | 1285323 |
| **SC-3** | 45 | 96557.27000 | 0.00000 | 0.000 | 94796.77000 | 97523.71000 | 97351.33000 |
| AL | 27 | 1.90188 | 463.35300 | 28.500 | 2.31343 | 1.28719 | 2.10501 |
| B | 11 | 6.52811 | 4979.52300 | 7.800 | 7.07012 | 6.44974 | 6.06445 |
| BE | 9 | 0.00875 | 13.33300 | 62.200 | 0.00947 | 0.01380 | 0.00298 |
| CA | 44 | -1.22119 | 596.70000 | 0.000 | -14.02932 | -0.23417 | 10.59991 |
| CR | 52 | 0.51461 | 3517.20300 | 17.300 | 0.42645 | 0.60475 | 0.51264 |
| FE | 57 | 1.68877 | 376.68700 | 54.200 | 2.70895 | 1.41985 | 0.93750 |
| K | 39 | 15.44765 | 60970.16000 | 135.700 | 39.64949 | 3.91372 | 2.77972 |
| MG | 24 | 1.21013 | 516.69700 | 20.400 | 1.36704 | 0.92535 | 1.33799 |
| MN | 55 | 0.06916 | 416.68700 | 44.400 | 0.03499 | 0.09449 | 0.07799 |
| NA | 23 | 5.11592 | 24407.33000 | 17.800 | 4.28181 | 4.97491 | 6.09103 |
| TI | 47 | -0.00050 | 10.00000 | 0.000 | 0.18664 | -0.18439 | -0.00374 |
| V | 51 | -0.12428 | 1193.42300 | 0.000 | -0.15574 | -0.10918 | -0.10790 |
| **GE-3** | 72 | 236189.08700 | 0.00000 | 0.000 | 235262.30000 | 236568.30000 | 236736.66000 |
| SB | 121 | 0.25033 | 583.36700 | 41.700 | 0.13360 | 0.28281 | 0.33458 |
| **IN-2** | 115 | 561413.31300 | 0.00000 | 0.000 | 558381.01000 | 560793.04000 | 565065.89000 |
| **IN-3** | 115 | 128486.25000 | 0.00000 | 0.000 | 128496.15000 | 127598.13000 | 129364.47000 |
| AG | 107 | 0.02200 | 80.00300 | 40.500 | 0.02526 | 0.02881 | 0.01193 |
| AS | 75 | 0.05095 | 124.00000 | 126.600 | 0.12522 | 0.00929 | 0.01833 |
| BA | 137 | 0.02884 | 53.33300 | 212.400 | 0.09743 | 0.00956 | -0.02047 |
| CD | 111 | 0.00539 | 5.33300 | 42.900 | 0.00676 | 0.00272 | 0.00668 |
| CO | 59 | 0.03541 | 243.34300 | 38.000 | 0.02074 | 0.03828 | 0.04721 |
| CU | 63 | 0.10059 | 1213.42700 | 61.400 | 0.08341 | 0.16911 | 0.04924 |
| MO | 98 | 0.03150 | 183.34300 | 89.700 | 0.06401 | 0.01299 | 0.01751 |
| NI | 60 | 0.00380 | 913.39300 | 3224.900 | -0.05688 | -0.07668 | 0.14497 |
| SE | 78 | 0.01788 | 5.33300 | 81.300 | 0.03467 | 0.00958 | 0.00939 |
| SN | 120 | 0.18633 | 2020.22700 | 65.700 | 0.15707 | 0.32067 | 0.08126 |
| SR | 88 | -0.00069 | 76.66700 | 0.000 | 0.01245 | -0.01544 | 0.00091 |
| ZN | 66 | 0.09044 | 3213.81300 | 1103.000 | 0.07461 | 1.09574 | -0.89904 |
| **BI-3** | 209 | 199254.28700 | 0.00000 | 0.000 | 198426.95000 | 199054.86000 | 200281.05000 |
| PB | 208 | 0.01130 | 443.34700 | 36.800 | 0.01607 | 0.00846 | 0.00937 |
| TL | 205 | 0.01188 | 206.67700 | 64.100 | 0.00753 | 0.00743 | 0.02067 |
| U | 238 | 0.00919 | 96.66700 | 20.600 | 0.00715 | 0.01087 | 0.00954 |
| *SC-2* | 45 | 639939.82300 | 0.00000 | 0.000 | 627651.40000 | 648114.21000 | 644053.86000 |
| *GE-1* | 72 | 956332.45700 | 0.00000 | 0.000 | 971024.67000 | 949206.31000 | 948766.39000 |
| *GE-2* | 72 | 742304.75300 | 0.00000 | 0.000 | 730922.02000 | 745696.08000 | 750296.16000 |
| *TB-3* | 159 | 308146.10700 | 0.00000 | 0.000 | 307084.62000 | 309927.10000 | 307426.60000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:20:24
Tube Number: 15 Batch: 200371511402A
Sample Number: **PBW** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846-U345

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1296275 | 0 | 0.000 | 1289375 | 1289979 | 1309472 |
| **SC-3** | 45 | 96419.30000 | 0.00000 | 0.000 | 96475.60000 | 97161.77000 | 95620.53000 |
| AL | 27 | 1.79671 | 456.69300 | 37.600 | 1.85022 | 2.44313 | 1.09678 |
| B | 11 | 0.91820 | 1836.79000 | 24.300 | 1.00968 | 1.08064 | 0.66427 |
| BE | 9 | 0.00367 | 8.66700 | 142.800 | 0.00070 | 0.00972 | 0.00059 |
| CA | 44 | -0.20796 | 603.36300 | 0.000 | -1.84753 | 1.22720 | -0.00355 |
| CR | 52 | 5.22294 | 12799.35300 | 3.900 | 5.43609 | 5.20747 | 5.02526 |
| FE | 57 | 77.76531 | 3397.18700 | 8.600 | 78.77051 | 70.66380 | 83.86162 |
| K | 39 | 18.10318 | 61398.78300 | 140.700 | 47.22233 | -0.01362 | 7.10083 |
| MG | 24 | 1.39926 | 543.36000 | 41.400 | 1.43966 | 0.80150 | 1.95661 |
| MN | 55 | 0.42886 | 830.05300 | 9.800 | 0.45428 | 0.38012 | 0.45219 |
| NA | 23 | 4.76019 | 24273.73700 | 27.000 | 5.99306 | 3.42850 | 4.85902 |
| TI | 47 | -0.00199 | 10.00000 | 0.000 | -0.00210 | -0.00339 | -0.00047 |
| V | 51 | -0.02820 | 1350.11300 | 0.000 | -0.04674 | -0.00434 | -0.03350 |
| **GE-3** | 72 | 238073.03700 | 0.00000 | 0.000 | 238354.96000 | 237479.49000 | 238384.66000 |
| SB | 121 | 0.06773 | 270.01000 | 28.900 | 0.07905 | 0.04509 | 0.07903 |
| **IN-2** | 115 | 570036.57700 | 0.00000 | 0.000 | 566004.91000 | 572400.73000 | 571704.09000 |
| **IN-3** | 115 | 129659.13700 | 0.00000 | 0.000 | 129635.14000 | 128999.06000 | 130343.21000 |
| AG | 107 | 0.01844 | 70.00000 | 0.600 | 0.01845 | 0.01856 | 0.01832 |
| AS | 75 | 0.01962 | 116.66700 | 362.300 | 0.06898 | -0.06185 | 0.05173 |
| BA | 137 | 0.01364 | 43.33300 | 328.700 | 0.02322 | 0.05289 | -0.03520 |
| CD | 111 | 0.00259 | 4.00000 | 1.600 | 0.00259 | 0.00263 | 0.00254 |
| CO | 59 | 0.02796 | 223.34300 | 17.000 | 0.02687 | 0.02386 | 0.03314 |
| CU | 63 | 0.12492 | 1273.43300 | 19.300 | 0.11827 | 0.15163 | 0.10487 |
| MO | 98 | 0.51004 | 1026.74000 | 12.200 | 0.43811 | 0.54922 | 0.54279 |
| NI | 60 | 0.22070 | 1076.74000 | 28.300 | 0.21187 | 0.16307 | 0.28716 |
| SE | 78 | 0.01590 | 5.11000 | 114.800 | -0.00297 | 0.03345 | 0.01722 |
| SN | 120 | -0.07986 | 1570.14300 | 0.000 | -0.13092 | -0.00703 | -0.10161 |
| SR | 88 | -0.00664 | 66.66700 | 0.000 | 0.00639 | -0.02134 | -0.00496 |
| ZN | 66 | -0.76566 | 2970.42000 | 0.000 | -0.17001 | -1.59349 | -0.53348 |
| **BI-3** | 209 | 200604.93700 | 0.00000 | 0.000 | 201995.56000 | 199466.97000 | 200352.28000 |
| PB | 208 | 0.00274 | 376.68300 | 116.200 | 0.00282 | 0.00588 | -0.00049 |
| TL | 205 | -0.01405 | 53.33300 | 0.000 | -0.01132 | -0.01960 | -0.01123 |
| U | 238 | 0.00247 | 43.33300 | 125.200 | 0.00573 | -0.00041 | 0.00207 |
| *SC-2* | 45 | 650159.74300 | 0.00000 | 0.000 | 640224.33000 | 659287.49000 | 650967.41000 |
| *GE-1* | 72 | 959299.83000 | 0.00000 | 0.000 | 962299.20000 | 959874.60000 | 955725.69000 |
| *GE-2* | 72 | 748623.66000 | 0.00000 | 0.000 | 741186.86000 | 752291.16000 | 752392.96000 |
| *TB-3* | 159 | 309863.95000 | 0.00000 | 0.000 | 307968.26000 | 309601.54000 | 312022.05000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:22:18
Tube Number: 16 Batch: 200371511402A
Sample Number: **LCSW** Class: **********

Initial Vol: 50.00 Final Vol: 50.00 DF: 1.00 Protocol: SW846-U345

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1306167 | 0 | 0.000 | 1332602 | 1275494 | 1310404 |
| **SC-3** | 45 | 98090.80700 | 0.00000 | 0.000 | 98801.96000 | 96558.59000 | 98911.87000 |
| AL | 27 | 205.93449 | 13232.95700 | 3.900 | 215.30275 | 201.25197 | 201.24875 |
| B | 11 | 252.17294 | 142036.87700 | 3.700 | 241.55150 | 258.16634 | 256.80098 |
| BE | 9 | 4.11304 | 3695.80700 | 2.000 | 4.02265 | 4.13225 | 4.18421 |
| CA | 44 | 4029.88795 | 34752.01000 | 3.600 | 3864.57169 | 4129.07955 | 4096.01261 |
| CR | 52 | 50.00977 | 102870.91300 | 3.100 | 49.00859 | 51.81369 | 49.20704 |
| FE | 57 | 331.16619 | 13693.56300 | 3.900 | 321.31761 | 345.57616 | 326.60480 |
| K | 39 | 10271.75825 | 1939760.33300 | 1.600 | 10235.73543 | 10456.19304 | 10123.34628 |
| MG | 24 | 1906.47853 | 283577.29300 | 1.700 | 1909.46303 | 1938.19545 | 1871.77712 |
| MN | 55 | 51.68287 | 60927.71300 | 1.500 | 51.28490 | 52.57861 | 51.18509 |
| NA | 23 | 10168.51211 | 2809999.12700 | 1.400 | 10245.02076 | 10258.71541 | 10001.80014 |
| TI | 47 | 259.40111 | 14474.26000 | 3.600 | 251.63062 | 269.88101 | 256.69170 |
| V | 51 | 48.84468 | 83511.86700 | 1.800 | 48.21034 | 49.82375 | 48.49996 |
| **GE-3** | 72 | 242923.89000 | 0.00000 | 0.000 | 240760.68000 | 245876.23000 | 242134.76000 |
| SB | 121 | 6.30633 | 11345.02000 | 4.800 | 6.58917 | 5.98227 | 6.34756 |
| **IN-2** | 115 | 575084.41700 | 0.00000 | 0.000 | 572607.53000 | 578407.88000 | 574237.84000 |
| **IN-3** | 115 | 133171.62000 | 0.00000 | 0.000 | 133663.11000 | 133309.88000 | 132541.87000 |
| AG | 107 | 52.08797 | 163260.66700 | 0.500 | 51.94256 | 51.93268 | 52.38866 |
| AS | 75 | 10.18233 | 2955.65700 | 0.500 | 10.16009 | 10.24541 | 10.14149 |
| BA | 137 | 51.30426 | 36174.83300 | 0.900 | 51.03567 | 51.85270 | 51.02441 |
| CD | 111 | 5.26291 | 2661.60700 | 4.200 | 5.01161 | 5.36902 | 5.40810 |
| CO | 59 | 240.67835 | 736443.84300 | 0.800 | 238.59603 | 241.97237 | 241.46666 |
| CU | 63 | 50.91725 | 105371.65000 | 0.200 | 50.85564 | 50.84899 | 51.04713 |
| MO | 98 | 51.18512 | 92605.08700 | 0.900 | 50.82712 | 51.03426 | 51.69397 |
| NI | 60 | 52.07226 | 39217.00300 | 0.600 | 51.77635 | 52.42115 | 52.01928 |
| SE | 78 | 10.39367 | 1716.54700 | 0.400 | 10.42788 | 10.40756 | 10.34557 |
| SN | 120 | 51.66585 | 95298.62300 | 0.900 | 52.10237 | 51.16529 | 51.72988 |
| SR | 88 | 40.85026 | 75467.05300 | 1.400 | 40.59167 | 40.43243 | 41.52667 |
| ZN | 66 | 533.32563 | 179110.37300 | 0.600 | 529.41234 | 535.38252 | 535.18204 |
| **BI-3** | 209 | 202247.73300 | 0.00000 | 0.000 | 200880.88000 | 202250.76000 | 203611.56000 |
| PB | 208 | 5.18851 | 42958.56300 | 1.500 | 5.12994 | 5.15582 | 5.27977 |
| TL | 205 | 1.97673 | 12029.24300 | 1.400 | 2.00640 | 1.97436 | 1.94944 |
| U | 238 | 0.00243 | 43.33300 | 77.100 | 0.00082 | 0.00449 | 0.00199 |
| *SC-2* | 45 | 649417.71000 | 0.00000 | 0.000 | 641561.63000 | 653657.02000 | 653034.48000 |
| *GE-1* | 72 | 976572.80000 | 0.00000 | 0.000 | 980716.39000 | 970786.63000 | 978215.38000 |
| *GE-2* | 72 | 749551.23700 | 0.00000 | 0.000 | 736816.08000 | 754296.86000 | 757540.77000 |
| *TB-3* | 159 | 311783.15300 | 0.00000 | 0.000 | 309149.47000 | 311559.74000 | 314640.25000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:24:12
Tube Number: 17 Batch: 200371511402A
Sample Number: **1251397** Class: U*********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1338924 | 0 | 0.000 | 1350958 | 1336341 | 1329473 |
| **SC-3** | 45 | 94869.74300 | 0.00000 | 0.000 | 94775.29000 | 95711.92000 | 94122.02000 |
| AL | 27 | 4.73065 | 626.70300 | 7.000 | 4.79799 | 5.02371 | 4.37026 |
| B | 11 | 27.76597 | 17260.58700 | 0.900 | 28.02425 | 27.50844 | 27.76522 |
| BE | 9 | 0.00190 | 7.33300 | 133.100 | 0.00039 | 0.00481 | 0.00049 |
| CA | 44 | 36032.74216 | 295839.77000 | 0.800 | 36175.51004 | 35688.36942 | 36234.34702 |
| CR | 52 | 2.91481 | 8112.50300 | 2.200 | 2.98595 | 2.86771 | 2.89076 |
| FE | 57 | 28.62423 | 1423.45700 | 3.500 | 28.83651 | 29.49274 | 27.54343 |
| K | 39 | 2840.60123 | 560244.34000 | 1.100 | 2856.79092 | 2803.53708 | 2861.47568 |
| MG | 24 | 19016.67901 | 2732966.31300 | 1.300 | 18832.00702 | 18925.79986 | 19292.23015 |
| MN | 55 | 0.19057 | 546.70000 | 17.600 | 0.22929 | 0.17174 | 0.17068 |
| NA | 23 | 15952.83983 | 4250949.41700 | 1.100 | 16096.92654 | 15765.85635 | 15995.73659 |
| TI | 47 | 0.18715 | 20.00000 | 262.200 | 0.74340 | -0.18439 | 0.00245 |
| V | 51 | 22.96015 | 38695.54700 | 3.800 | 22.27470 | 22.65370 | 23.95204 |
| **GE-3** | 72 | 240061.80000 | 0.00000 | 0.000 | 237885.13000 | 240854.57000 | 241445.70000 |
| SB | 121 | 0.13857 | 396.68700 | 15.900 | 0.11391 | 0.14552 | 0.15628 |
| **IN-2** | 115 | 566898.24700 | 0.00000 | 0.000 | 563159.91000 | 572458.12000 | 565076.71000 |
| **IN-3** | 115 | 128825.02000 | 0.00000 | 0.000 | 127818.18000 | 130352.89000 | 128303.99000 |
| AG | 107 | 0.02742 | 96.66700 | 19.300 | 0.02875 | 0.02158 | 0.03193 |
| AS | 75 | 2.25311 | 718.69000 | 10.800 | 2.49535 | 2.25577 | 2.00820 |
| BA | 137 | 61.00987 | 41606.79000 | 0.300 | 61.14339 | 60.82699 | 61.05922 |
| CD | 111 | 0.04077 | 22.66700 | 21.900 | 0.03570 | 0.05107 | 0.03554 |
| CO | 59 | 0.04537 | 273.34300 | 12.400 | 0.05175 | 0.04316 | 0.04120 |
| CU | 63 | 0.28547 | 1583.47300 | 15.700 | 0.33069 | 0.28436 | 0.24136 |
| MO | 98 | 0.93917 | 1770.17300 | 3.400 | 0.96448 | 0.94994 | 0.90309 |
| NI | 60 | 0.18361 | 1043.41000 | 52.800 | 0.24732 | 0.23145 | 0.07205 |
| SE | 78 | 0.15684 | 27.99700 | 11.100 | 0.15394 | 0.17556 | 0.14103 |
| SN | 120 | 0.15818 | 1976.88000 | 61.600 | 0.26089 | 0.14663 | 0.06702 |
| SR | 88 | 252.49493 | 450830.96700 | 0.700 | 254.49840 | 251.10341 | 251.88297 |
| ZN | 66 | 0.06973 | 3217.15000 | 719.100 | 0.50761 | 0.17883 | -0.47725 |
| **BI-3** | 209 | 204174.99000 | 0.00000 | 0.000 | 204278.20000 | 204504.49000 | 203742.28000 |
| PB | 208 | 0.02043 | 530.02700 | 56.400 | 0.00713 | 0.02755 | 0.02661 |
| TL | 205 | -0.01529 | 46.66700 | 0.000 | -0.01474 | -0.01640 | -0.01472 |
| U | 238 | 7.07267 | 57937.01700 | 0.700 | 7.12217 | 7.02000 | 7.07585 |
| *SC-2* | 45 | 651296.52700 | 0.00000 | 0.000 | 647975.46000 | 658491.32000 | 647422.80000 |
| *GE-1* | 72 | 978967.95300 | 0.00000 | 0.000 | 980641.08000 | 974785.61000 | 981477.17000 |
| *GE-2* | 72 | 749839.36700 | 0.00000 | 0.000 | 747644.60000 | 754927.18000 | 746946.32000 |
| *TB-3* | 159 | 310792.30700 | 0.00000 | 0.000 | 308735.89000 | 313144.84000 | 310496.19000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:26:06
Tube Number: 18 Batch: 200371511402A
Sample Number: **1251397** Class: UP********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1331446 | 0 | 0.000 | 1345233 | 1329290 | 1319817 |
| **SC-3** | 45 | 95681.15000 | 0.00000 | 0.000 | 94472.34000 | 95410.96000 | 97160.15000 |
| AL | 27 | 44.63941 | 3067.09700 | 4.700 | 45.01610 | 42.38044 | 46.52168 |
| B | 11 | 22.65541 | 14253.45300 | 2.800 | 22.02437 | 22.64148 | 23.30036 |
| BE | 9 | 0.80312 | 740.02000 | 5.100 | 0.75783 | 0.83707 | 0.81445 |
| CA | 44 | 35215.63070 | 291627.96000 | 0.100 | 35253.39536 | 35206.80581 | 35186.69093 |
| CR | 52 | 4.62114 | 11521.58000 | 4.800 | 4.81692 | 4.37768 | 4.66882 |
| FE | 57 | 108.81954 | 4597.57700 | 8.800 | 99.88156 | 118.92740 | 107.64965 |
| K | 39 | 3029.89696 | 598841.71000 | 0.700 | 3044.78395 | 3039.54630 | 3005.36063 |
| MG | 24 | 18710.68909 | 2711895.79700 | 2.300 | 18573.58808 | 19184.29935 | 18374.17985 |
| MN | 55 | 3.68142 | 4540.86000 | 7.000 | 3.94245 | 3.67274 | 3.42906 |
| NA | 23 | 15870.72779 | 4264985.04000 | 1.600 | 15972.49414 | 16059.25965 | 15580.42958 |
| TI | 47 | 15.07827 | 830.05300 | 4.500 | 15.82597 | 14.93099 | 14.47786 |
| V | 51 | 23.36964 | 39701.46300 | 0.600 | 23.54419 | 23.28580 | 23.27893 |
| **GE-3** | 72 | 239816.58300 | 0.00000 | 0.000 | 235461.79000 | 241627.81000 | 242360.15000 |
| SB | 121 | 1.68757 | 3110.47000 | 0.800 | 1.67978 | 1.70264 | 1.68029 |
| **IN-2** | 115 | 562472.91000 | 0.00000 | 0.000 | 564539.68000 | 563766.09000 | 559112.96000 |
| **IN-3** | 115 | 128324.40000 | 0.00000 | 0.000 | 128475.19000 | 127497.58000 | 129000.43000 |
| AG | 107 | 0.83319 | 2530.32700 | 5.000 | 0.83237 | 0.79212 | 0.87509 |
| AS | 75 | 5.66982 | 1634.77300 | 4.200 | 5.43017 | 5.67708 | 5.90220 |
| BA | 137 | 62.40742 | 42392.55700 | 1.500 | 61.59790 | 63.42405 | 62.20029 |
| CD | 111 | 0.85327 | 418.01000 | 6.900 | 0.82332 | 0.92063 | 0.81586 |
| CO | 59 | 0.77181 | 2413.61300 | 3.000 | 0.77980 | 0.78956 | 0.74606 |
| CU | 63 | 1.95592 | 4874.31700 | 6.900 | 1.98120 | 2.07682 | 1.80974 |
| MO | 98 | 1.64435 | 2990.42000 | 5.600 | 1.69944 | 1.69569 | 1.53791 |
| NI | 60 | 1.86054 | 2226.93000 | 7.300 | 1.70639 | 1.91410 | 1.96113 |
| SE | 78 | 1.73019 | 281.55700 | 4.900 | 1.82550 | 1.66720 | 1.69786 |
| SN | 120 | 3.22074 | 7312.21000 | 4.600 | 3.04956 | 3.31707 | 3.29560 |
| SR | 88 | 247.90645 | 440917.36300 | 1.100 | 248.01568 | 250.66693 | 245.03673 |
| ZN | 66 | 18.75943 | 9139.83300 | 7.300 | 17.88147 | 20.34674 | 18.05009 |
| **BI-3** | 209 | 202390.45700 | 0.00000 | 0.000 | 203904.31000 | 202426.48000 | 200840.58000 |
| PB | 208 | 0.82451 | 7131.03700 | 2.000 | 0.81194 | 0.81819 | 0.84339 |
| TL | 205 | 0.77399 | 4797.70000 | 0.800 | 0.77190 | 0.76939 | 0.78068 |
| U | 238 | 8.58635 | 69714.82700 | 2.300 | 8.41947 | 8.80904 | 8.53053 |
| *SC-2* | 45 | 638829.52000 | 0.00000 | 0.000 | 639698.58000 | 638465.73000 | 638324.25000 |
| *GE-1* | 72 | 977348.47700 | 0.00000 | 0.000 | 985879.52000 | 976579.44000 | 969586.47000 |
| *GE-2* | 72 | 739745.82300 | 0.00000 | 0.000 | 738615.07000 | 742829.75000 | 737792.65000 |
| *TB-3* | 159 | 312019.14000 | 0.00000 | 0.000 | 312641.26000 | 310273.59000 | 313142.57000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:28:00
Tube Number: 19 Batch: 200371511402A
Sample Number: **1251397** Class: D*********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1331890 | 0 | 0.000 | 1353365 | 1350481 | 1291825 |
| **SC-3** | 45 | 93637.73700 | 0.00000 | 0.000 | 92801.93000 | 93818.61000 | 94292.67000 |
| AL | 27 | 4.65096 | 613.36700 | 33.700 | 5.35774 | 5.74006 | 2.85508 |
| B | 11 | 22.64097 | 14249.44300 | 1.600 | 22.65983 | 22.27976 | 22.98333 |
| BE | 9 | -0.00095 | 4.66700 | 0.000 | 0.00038 | -0.00392 | 0.00068 |
| CA | 44 | 36056.26729 | 292188.55700 | 1.600 | 36547.85658 | 35427.98259 | 36192.96270 |
| CR | 52 | 11.36445 | 24194.02300 | 2.700 | 11.29684 | 11.70341 | 11.09310 |
| FE | 57 | 96.19119 | 4010.70000 | 5.800 | 101.29677 | 90.28009 | 96.99672 |
| K | 39 | 2813.28236 | 548185.94000 | 1.500 | 2861.50198 | 2788.07243 | 2790.27267 |
| MG | 24 | 19225.76860 | 2727132.46000 | 1.700 | 19515.79438 | 18863.58821 | 19297.92324 |
| MN | 55 | 0.75044 | 1166.76000 | 14.100 | 0.67315 | 0.70729 | 0.87087 |
| NA | 23 | 16082.24070 | 4229724.10300 | 1.100 | 16068.81557 | 16264.87909 | 15913.02744 |
| TI | 47 | 0.12871 | 16.66700 | 302.900 | 0.00511 | 0.56541 | -0.18439 |
| V | 51 | 23.39321 | 38889.15700 | 2.100 | 23.97037 | 23.07154 | 23.13771 |
| **GE-3** | 72 | 236611.43700 | 0.00000 | 0.000 | 236166.38000 | 235192.97000 | 238474.96000 |
| SB | 121 | 0.08594 | 300.01300 | 46.000 | 0.04583 | 0.08711 | 0.12489 |
| **IN-2** | 115 | 563981.46300 | 0.00000 | 0.000 | 557864.25000 | 558422.41000 | 575657.73000 |
| **IN-3** | 115 | 128048.29000 | 0.00000 | 0.000 | 127819.47000 | 127174.05000 | 129151.35000 |
| AG | 107 | 0.00656 | 33.33300 | 27.900 | 0.00548 | 0.00553 | 0.00866 |
| AS | 75 | 2.35125 | 740.69000 | 6.800 | 2.53266 | 2.28487 | 2.23622 |
| BA | 137 | 59.35536 | 40236.21000 | 1.400 | 60.25314 | 58.71032 | 59.10260 |
| CD | 111 | 0.02326 | 14.00000 | 35.200 | 0.03157 | 0.01518 | 0.02303 |
| CO | 59 | 0.01532 | 183.34300 | 46.600 | 0.00748 | 0.02145 | 0.01703 |
| CU | 63 | 0.38508 | 1770.17000 | 25.600 | 0.49853 | 0.31964 | 0.33707 |
| MO | 98 | 0.93195 | 1746.84300 | 2.800 | 0.90679 | 0.95815 | 0.93092 |
| NI | 60 | 0.47019 | 1240.10000 | 33.200 | 0.47413 | 0.31208 | 0.62437 |
| SE | 78 | 0.20034 | 34.89000 | 5.500 | 0.20143 | 0.18873 | 0.21085 |
| SN | 120 | -0.07844 | 1553.48300 | 0.000 | -0.08445 | -0.08574 | -0.06511 |
| SR | 88 | 249.42455 | 442654.34000 | 1.400 | 252.16997 | 250.59558 | 245.50811 |
| ZN | 66 | 0.96457 | 3480.53300 | 61.700 | 0.72861 | 1.64115 | 0.52394 |
| **BI-3** | 209 | 205571.54300 | 0.00000 | 0.000 | 205092.16000 | 205115.70000 | 206506.77000 |
| PB | 208 | 0.01323 | 473.35300 | 119.400 | 0.00813 | 0.03094 | 0.00062 |
| TL | 205 | -0.01589 | 43.33300 | 0.000 | -0.01969 | -0.01478 | -0.01320 |
| U | 238 | 7.08628 | 58445.73300 | 1.600 | 7.19890 | 6.96739 | 7.09254 |
| *SC-2* | 45 | 642006.54000 | 0.00000 | 0.000 | 633740.89000 | 643070.81000 | 649207.92000 |
| *GE-1* | 72 | 972097.14700 | 0.00000 | 0.000 | 985344.52000 | 972663.50000 | 958283.42000 |
| *GE-2* | 72 | 736008.81700 | 0.00000 | 0.000 | 722822.02000 | 737780.69000 | 747423.74000 |
| *TB-3* | 159 | 309710.33300 | 0.00000 | 0.000 | 309374.51000 | 306827.22000 | 312929.27000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:29:54
Tube Number: 20 Batch: 200371511402A
Sample Number: **1251397** Class: R*********

Initial Vol: 50.00 Final Vol: 52.00 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1339123 | 0 | 0.000 | 1353025 | 1342462 | 1321882 |
| **SC-3** | 45 | 96828.77000 | 0.00000 | 0.000 | 95208.57000 | 98277.45000 | 97000.29000 |
| AL | 27 | 200.38014 | 12715.82300 | 2.800 | 205.66715 | 200.82912 | 194.64413 |
| B | 11 | 268.78401 | 155167.13000 | 2.400 | 261.47638 | 271.44285 | 273.43281 |
| BE | 9 | 3.90398 | 3596.45000 | 3.800 | 3.73372 | 3.97137 | 4.00685 |
| CA | 44 | 38849.22318 | 325469.15700 | 1.500 | 39499.79966 | 38451.97149 | 38595.89840 |
| CR | 52 | 49.19253 | 99936.94000 | 1.900 | 50.18771 | 48.37053 | 49.01936 |
| FE | 57 | 314.33214 | 12852.76000 | 2.000 | 309.24461 | 321.34621 | 312.40561 |
| K | 39 | 12693.79644 | 2352833.97300 | 0.200 | 12719.78166 | 12691.67281 | 12669.93486 |
| MG | 24 | 20462.31251 | 3001207.03700 | 1.300 | 20655.60004 | 20170.05713 | 20561.28036 |
| MN | 55 | 49.64055 | 57788.49000 | 2.000 | 50.09022 | 50.31228 | 48.51914 |
| NA | 23 | 24801.08297 | 6732754.69000 | 0.600 | 24711.62880 | 24721.44029 | 24970.17982 |
| TI | 47 | 248.05321 | 13670.07700 | 1.600 | 243.75565 | 251.90071 | 248.50327 |
| V | 51 | 70.48594 | 118340.31700 | 1.500 | 71.67992 | 69.58347 | 70.19444 |
| **GE-3** | 72 | 237767.94300 | 0.00000 | 0.000 | 236798.84000 | 235733.43000 | 240771.56000 |
| SB | 121 | 6.22232 | 10961.34000 | 2.200 | 6.37687 | 6.16205 | 6.12806 |
| **IN-2** | 115 | 562563.81700 | 0.00000 | 0.000 | 560279.44000 | 565643.19000 | 561768.82000 |
| **IN-3** | 115 | 128613.57000 | 0.00000 | 0.000 | 127083.69000 | 129766.63000 | 128990.39000 |
| AG | 107 | 51.72469 | 156573.36700 | 1.100 | 52.01149 | 52.10594 | 51.05664 |
| AS | 75 | 13.16290 | 3657.15000 | 3.600 | 13.61459 | 13.20692 | 12.66718 |
| BA | 137 | 109.44933 | 74487.43300 | 1.100 | 110.82403 | 108.76598 | 108.75797 |
| CD | 111 | 5.15250 | 2516.91000 | 1.500 | 5.11786 | 5.10131 | 5.23832 |
| CO | 59 | 235.75508 | 696664.96700 | 0.700 | 237.79142 | 234.65028 | 234.82353 |
| CU | 63 | 49.82627 | 99601.36700 | 0.800 | 50.24408 | 49.44196 | 49.79276 |
| MO | 98 | 51.10850 | 89300.74300 | 0.600 | 51.46583 | 51.03459 | 50.82509 |
| NI | 60 | 52.41678 | 38117.57300 | 0.900 | 52.72226 | 51.88578 | 52.64232 |
| SE | 78 | 10.69193 | 1727.22000 | 1.800 | 10.91497 | 10.58938 | 10.57145 |
| SN | 120 | 52.23267 | 93029.51000 | 0.700 | 51.94228 | 52.09229 | 52.66345 |
| SR | 88 | 291.91556 | 520327.66300 | 1.200 | 295.03934 | 287.94087 | 292.76648 |
| ZN | 66 | 524.52442 | 170167.48300 | 2.200 | 527.51695 | 511.99639 | 534.05992 |
| **BI-3** | 209 | 202052.06300 | 0.00000 | 0.000 | 200098.61000 | 203196.27000 | 202861.31000 |
| PB | 208 | 4.97180 | 41136.41300 | 0.200 | 4.98124 | 4.97146 | 4.96272 |
| TL | 205 | 2.00878 | 12209.40000 | 2.500 | 2.06144 | 1.96174 | 2.00317 |
| U | 238 | 7.18458 | 58238.57300 | 1.700 | 7.24979 | 7.04185 | 7.26210 |
| *SC-2* | 45 | 636456.95700 | 0.00000 | 0.000 | 634012.61000 | 642992.49000 | 632365.77000 |
| *GE-1* | 72 | 984489.36300 | 0.00000 | 0.000 | 984150.38000 | 991536.47000 | 977781.24000 |
| *GE-2* | 72 | 731341.78700 | 0.00000 | 0.000 | 730732.33000 | 736111.40000 | 727181.63000 |
| *TB-3* | 159 | 306987.69700 | 0.00000 | 0.000 | 304528.80000 | 307696.93000 | 308737.36000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:31:47
Tube Number: 21 Batch: 200371511402A
Sample Number: **1251397** Class: M*********

Initial Vol: 50.00 Final Vol: 52.00 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1340558 | 0 | 0.000 | 1364838 | 1335082 | 1321754 |
| **SC-3** | 45 | 94647.83000 | 0.00000 | 0.000 | 94372.42000 | 93859.89000 | 95711.18000 |
| AL | 27 | 203.06494 | 12589.13300 | 5.000 | 207.04381 | 210.71445 | 191.43657 |
| B | 11 | 271.53115 | 156875.07300 | 3.300 | 261.83170 | 272.98622 | 279.77553 |
| BE | 9 | 3.86053 | 3559.78000 | 3.600 | 3.70562 | 3.90175 | 3.97421 |
| CA | 44 | 39756.63317 | 325594.89000 | 0.400 | 39758.73608 | 39917.26575 | 39593.89768 |
| CR | 52 | 50.74479 | 100696.41000 | 2.200 | 51.33852 | 51.44123 | 49.45460 |
| FE | 57 | 323.87880 | 12932.82000 | 2.900 | 313.60087 | 332.43469 | 325.60083 |
| K | 39 | 13020.98766 | 2357493.35000 | 1.300 | 13007.11957 | 13192.21231 | 12863.63111 |
| MG | 24 | 20830.51722 | 2986450.68300 | 1.500 | 20864.09050 | 21129.17740 | 20498.28376 |
| MN | 55 | 50.92326 | 57928.66000 | 2.500 | 51.75608 | 51.55685 | 49.45685 |
| NA | 23 | 25540.54614 | 6775446.14700 | 2.700 | 25441.25927 | 26282.27716 | 24898.10199 |
| TI | 47 | 260.31880 | 14017.12300 | 3.200 | 259.72076 | 268.82923 | 252.40640 |
| V | 51 | 70.73266 | 116089.45300 | 1.300 | 69.87323 | 71.72605 | 70.59868 |
| **GE-3** | 72 | 236838.26700 | 0.00000 | 0.000 | 235181.23000 | 236107.97000 | 239225.60000 |
| SB | 121 | 6.26494 | 10991.29300 | 2.600 | 6.38058 | 6.33774 | 6.07652 |
| **IN-2** | 115 | 564110.85000 | 0.00000 | 0.000 | 564908.86000 | 561232.41000 | 566191.28000 |
| **IN-3** | 115 | 129642.84000 | 0.00000 | 0.000 | 130290.90000 | 129596.12000 | 129041.50000 |
| AG | 107 | 50.46710 | 153987.96300 | 0.700 | 50.11501 | 50.46987 | 50.81642 |
| AS | 75 | 12.61844 | 3539.12700 | 1.100 | 12.58794 | 12.76813 | 12.49924 |
| BA | 137 | 108.87355 | 74695.51300 | 1.500 | 108.66431 | 110.58193 | 107.37441 |
| CD | 111 | 5.01879 | 2470.89700 | 4.500 | 4.79343 | 5.01445 | 5.24850 |
| CO | 59 | 232.90078 | 693766.31700 | 0.800 | 232.63242 | 231.21690 | 234.85303 |
| CU | 63 | 49.39475 | 99544.50000 | 1.300 | 49.89380 | 48.63846 | 49.65200 |
| MO | 98 | 51.15453 | 90095.83300 | 1.600 | 50.22017 | 51.70882 | 51.53460 |
| NI | 60 | 50.44417 | 37011.35300 | 1.700 | 49.46854 | 51.03091 | 50.83307 |
| SE | 78 | 9.95587 | 1612.98300 | 0.500 | 9.91992 | 9.93939 | 10.00828 |
| SN | 120 | 52.02971 | 93411.93300 | 1.100 | 51.79885 | 51.63045 | 52.65982 |
| SR | 88 | 288.20848 | 517866.68700 | 0.400 | 286.73914 | 288.78188 | 289.10441 |
| ZN | 66 | 514.82136 | 168425.94000 | 0.800 | 514.06105 | 511.39008 | 519.01296 |
| **BI-3** | 209 | 201789.88000 | 0.00000 | 0.000 | 201528.59000 | 201478.32000 | 202362.73000 |
| PB | 208 | 5.06719 | 41864.10300 | 1.800 | 5.00923 | 5.17216 | 5.02016 |
| TL | 205 | 2.03230 | 12336.20000 | 2.100 | 2.08001 | 2.00041 | 2.01648 |
| U | 238 | 7.21410 | 58405.44700 | 0.700 | 7.22568 | 7.16148 | 7.25516 |
| *SC-2* | 45 | 632291.03300 | 0.00000 | 0.000 | 620832.06000 | 636113.94000 | 639927.10000 |
| *GE-1* | 72 | 984676.73000 | 0.00000 | 0.000 | 994308.66000 | 983277.95000 | 976443.58000 |
| *GE-2* | 72 | 731048.81700 | 0.00000 | 0.000 | 724913.27000 | 725203.19000 | 743029.99000 |
| *TB-3* | 159 | 311930.77700 | 0.00000 | 0.000 | 307312.89000 | 313410.99000 | 315068.45000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:33:40
Tube Number: 22 Batch: 200371511402A
Sample Number: **1251397** Class: UL********

Initial Vol: 50.00 Final Vol: 51.50 DF: 5.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1292696 | 0 | 0.000 | 1262738 | 1331859 | 1283492 |
| **SC-3** | 45 | 95141.45000 | 0.00000 | 0.000 | 96718.33000 | 93880.17000 | 94825.85000 |
| AL | 27 | 3.33628 | 543.35700 | 37.100 | 2.15563 | 3.22634 | 4.62686 |
| B | 11 | 11.54844 | 7700.67000 | 4.300 | 12.10746 | 11.16476 | 11.37310 |
| BE | 9 | -0.00235 | 3.33300 | 0.000 | -0.00608 | -0.00171 | 0.00073 |
| CA | 44 | 7101.10576 | 58945.59300 | 1.400 | 7001.88402 | 7108.07365 | 7193.35961 |
| CR | 52 | 0.98930 | 4387.52300 | 9.800 | 0.92872 | 0.93775 | 1.10142 |
| FE | 57 | 4.29465 | 473.35300 | 21.500 | 3.25325 | 4.62127 | 5.00944 |
| K | 39 | 554.51516 | 155852.80000 | 2.000 | 556.26987 | 564.85431 | 542.42130 |
| MG | 24 | 3613.03428 | 520924.08000 | 2.000 | 3529.20370 | 3663.26264 | 3646.63652 |
| MN | 55 | 0.04845 | 386.68700 | 24.300 | 0.05445 | 0.05600 | 0.03489 |
| NA | 23 | 3021.84717 | 825831.78300 | 1.600 | 2965.66140 | 3058.42975 | 3041.45035 |
| TI | 47 | 0.49266 | 36.66700 | 20.300 | 0.54293 | 0.37759 | 0.55745 |
| V | 51 | 5.31487 | 10040.46700 | 5.900 | 5.22684 | 5.66537 | 5.05241 |
| **GE-3** | 72 | 238226.58000 | 0.00000 | 0.000 | 238709.18000 | 238446.13000 | 237524.43000 |
| SB | 121 | 0.06003 | 256.67700 | 43.600 | 0.06161 | 0.03307 | 0.08540 |
| **IN-2** | 115 | 560590.76000 | 0.00000 | 0.000 | 557745.89000 | 564457.45000 | 559568.94000 |
| **IN-3** | 115 | 128018.45000 | 0.00000 | 0.000 | 127548.05000 | 128445.50000 | 128061.80000 |
| AG | 107 | 0.01433 | 56.66700 | 48.700 | 0.02215 | 0.00874 | 0.01209 |
| AS | 75 | 0.55218 | 258.00000 | 2.400 | 0.54077 | 0.54899 | 0.56677 |
| BA | 137 | 11.50175 | 7822.52700 | 6.000 | 11.58939 | 12.14136 | 10.77450 |
| CD | 111 | 0.00819 | 6.66700 | 77.400 | 0.01512 | 0.00677 | 0.00269 |
| CO | 59 | 0.03574 | 243.34300 | 24.200 | 0.03490 | 0.02755 | 0.04477 |
| CU | 63 | 0.06211 | 1133.41700 | 143.800 | 0.16429 | 0.02291 | -0.00087 |
| MO | 98 | 0.27559 | 606.70300 | 16.600 | 0.22686 | 0.28216 | 0.31776 |
| NI | 60 | 0.13158 | 1000.06700 | 141.400 | -0.00516 | 0.05644 | 0.34345 |
| SE | 78 | 0.04836 | 10.22300 | 30.900 | 0.06393 | 0.03413 | 0.04703 |
| SN | 120 | 0.10363 | 1870.20300 | 74.600 | 0.02125 | 0.17470 | 0.11493 |
| SR | 88 | 49.13654 | 87246.75000 | 2.000 | 50.27221 | 48.75619 | 48.38122 |
| ZN | 66 | 1.16540 | 3543.89700 | 39.900 | 1.70208 | 0.89648 | 0.89764 |
| **BI-3** | 209 | 203903.55000 | 0.00000 | 0.000 | 202273.96000 | 202717.42000 | 206719.27000 |
| PB | 208 | -0.00123 | 350.01300 | 0.000 | 0.00763 | -0.00949 | -0.00181 |
| TL | 205 | -0.00756 | 93.33700 | 0.000 | 0.00030 | -0.01302 | -0.00996 |
| U | 238 | 1.39021 | 11392.03000 | 3.000 | 1.35247 | 1.43447 | 1.38370 |
| *SC-2* | 45 | 633726.43700 | 0.00000 | 0.000 | 622728.51000 | 639570.97000 | 638879.83000 |
| *GE-1* | 72 | 972712.17000 | 0.00000 | 0.000 | 974244.28000 | 969561.70000 | 974330.53000 |
| *GE-2* | 72 | 738168.53000 | 0.00000 | 0.000 | 724124.75000 | 743957.49000 | 746423.35000 |
| *TB-3* | 159 | 307586.66300 | 0.00000 | 0.000 | 308225.23000 | 304722.83000 | 309811.93000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:35:36
Tube Number: 23 Batch: 200371511402A
Sample Number: **1251377** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1345715 | 0 | 0.000 | 1357900 | 1345541 | 1333704 |
| **SC-3** | 45 | 96114.86700 | 0.00000 | 0.000 | 96356.31000 | 95450.21000 | 96538.08000 |
| AL | 27 | 4.16231 | 600.03300 | 13.600 | 3.65006 | 4.06680 | 4.77007 |
| B | 11 | 30.44012 | 18883.21300 | 2.200 | 29.79765 | 30.41370 | 31.10900 |
| BE | 9 | -0.00249 | 3.33300 | 0.000 | 0.00035 | -0.00175 | -0.00608 |
| CA | 44 | 34241.50458 | 284869.75300 | 0.400 | 34301.85769 | 34095.24597 | 34327.41008 |
| CR | 52 | 2.61015 | 7618.95000 | 6.400 | 2.63707 | 2.76123 | 2.43215 |
| FE | 57 | 17.21252 | 990.06700 | 11.600 | 15.13514 | 17.38736 | 19.11507 |
| K | 39 | 2964.71905 | 589882.22000 | 1.000 | 2977.07734 | 2985.03330 | 2932.04650 |
| MG | 24 | 17627.52339 | 2566645.89700 | 0.800 | 17546.07503 | 17783.62310 | 17552.87204 |
| MN | 55 | 0.27448 | 650.03700 | 21.900 | 0.28153 | 0.33079 | 0.21111 |
| NA | 23 | 20888.70985 | 5631986.58300 | 2.000 | 20846.08810 | 21326.68415 | 20493.35729 |
| TI | 47 | -0.06156 | 6.66700 | 0.000 | -0.18439 | 0.18410 | -0.18439 |
| V | 51 | 24.61629 | 41930.82300 | 3.800 | 24.67636 | 25.53211 | 23.64039 |
| **GE-3** | 72 | 238044.15000 | 0.00000 | 0.000 | 236953.04000 | 237428.59000 | 239750.82000 |
| SB | 121 | 0.11180 | 346.68300 | 14.700 | 0.10892 | 0.09700 | 0.12947 |
| **IN-2** | 115 | 565702.54300 | 0.00000 | 0.000 | 568399.21000 | 564224.68000 | 564483.74000 |
| **IN-3** | 115 | 128889.19300 | 0.00000 | 0.000 | 129645.79000 | 127648.56000 | 129373.23000 |
| AG | 107 | 0.01201 | 50.00000 | 48.100 | 0.00534 | 0.01548 | 0.01521 |
| AS | 75 | 2.48035 | 780.69000 | 9.700 | 2.75625 | 2.36458 | 2.32022 |
| BA | 137 | 61.00428 | 41623.56700 | 1.800 | 59.84220 | 61.12088 | 62.04975 |
| CD | 111 | 0.01215 | 8.66700 | 50.400 | 0.01885 | 0.00684 | 0.01075 |
| CO | 59 | 0.01606 | 186.67700 | 34.900 | 0.01007 | 0.02119 | 0.01692 |
| CU | 63 | 0.68241 | 2370.27700 | 16.300 | 0.62970 | 0.81055 | 0.60697 |
| MO | 98 | 1.24583 | 2306.94700 | 4.800 | 1.17731 | 1.27196 | 1.28823 |
| NI | 60 | 0.05603 | 953.39700 | 166.800 | 0.08596 | -0.04875 | 0.13087 |
| SE | 78 | 0.21617 | 37.55700 | 9.300 | 0.23828 | 0.21135 | 0.19889 |
| SN | 120 | 0.09043 | 1860.18700 | 93.100 | 0.18111 | 0.01469 | 0.07549 |
| SR | 88 | 244.81925 | 437337.14300 | 1.100 | 243.68889 | 247.91901 | 242.84984 |
| ZN | 66 | 2.26937 | 3920.66300 | 13.900 | 2.60316 | 2.23096 | 1.97398 |
| **BI-3** | 209 | 202404.34700 | 0.00000 | 0.000 | 205053.22000 | 203420.60000 | 198739.22000 |
| PB | 208 | 0.02290 | 546.69000 | 50.500 | 0.02736 | 0.03156 | 0.00978 |
| TL | 205 | -0.01852 | 26.66700 | 0.000 | -0.02133 | -0.01801 | -0.01621 |
| U | 238 | 6.11425 | 49649.05300 | 1.300 | 6.02557 | 6.14044 | 6.17673 |
| *SC-2* | 45 | 642203.39000 | 0.00000 | 0.000 | 634197.61000 | 646116.67000 | 646295.89000 |
| *GE-1* | 72 | 994145.12000 | 0.00000 | 0.000 | 995007.49000 | 1000004 | 987424.13000 |
| *GE-2* | 72 | 743196.94300 | 0.00000 | 0.000 | 734690.77000 | 746917.96000 | 747982.10000 |
| *TB-3* | 159 | 306706.48700 | 0.00000 | 0.000 | 304788.67000 | 305950.95000 | 309379.84000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:37:29
Tube Number: 24 Batch: 200371511402A
Sample Number: **1251385** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: SW846

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1361483 | 0 | 0.000 | 1371041 | 1354067 | 1359342 |
| **SC-3** | 45 | 95520.75300 | 0.00000 | 0.000 | 95842.46000 | 95410.15000 | 95309.65000 |
| AL | 27 | 3.18409 | 536.69700 | 46.900 | 3.37251 | 1.60479 | 4.57496 |
| B | 11 | 114.62204 | 68084.03700 | 0.900 | 113.44981 | 115.40556 | 115.01076 |
| BE | 9 | -0.00036 | 5.33300 | 0.000 | -0.00395 | 0.00252 | 0.00035 |
| CA | 44 | 44253.79250 | 365706.15300 | 0.700 | 43961.20494 | 44553.66685 | 44246.50570 |
| CR | 52 | 4.09351 | 10470.71700 | 7.300 | 3.75002 | 4.27518 | 4.25534 |
| FE | 57 | 7.03528 | 583.36700 | 21.100 | 6.14019 | 8.74757 | 6.21807 |
| K | 39 | 3027.07151 | 597367.80300 | 0.700 | 3017.66902 | 3052.07432 | 3011.47120 |
| MG | 24 | 24830.72553 | 3593058.38300 | 0.500 | 24725.14707 | 24804.01503 | 24963.01448 |
| MN | 55 | 0.33334 | 713.38000 | 17.900 | 0.29333 | 0.30475 | 0.40196 |
| NA | 23 | 22804.74096 | 6108947.41000 | 0.200 | 22780.31008 | 22772.84430 | 22861.06850 |
| TI | 47 | -0.00022 | 10.00000 | 0.000 | -0.00090 | -0.18439 | 0.18464 |
| V | 51 | 15.56770 | 26865.25700 | 1.500 | 15.34144 | 15.54950 | 15.81217 |
| **GE-3** | 72 | 240287.51700 | 0.00000 | 0.000 | 236787.38000 | 243915.21000 | 240159.96000 |
| SB | 121 | 0.08712 | 306.67700 | 12.800 | 0.07438 | 0.09209 | 0.09490 |
| **IN-2** | 115 | 561790.94300 | 0.00000 | 0.000 | 547910.27000 | 571064.60000 | 566397.96000 |
| **IN-3** | 115 | 129427.48300 | 0.00000 | 0.000 | 129969.28000 | 129434.63000 | 128878.54000 |
| AG | 107 | 0.00865 | 40.00000 | 66.400 | 0.00531 | 0.00535 | 0.01529 |
| AS | 75 | 1.98709 | 650.02000 | 5.900 | 1.96988 | 2.11245 | 1.87893 |
| BA | 137 | 63.24040 | 43328.61700 | 1.700 | 62.33392 | 64.42278 | 62.96451 |
| CD | 111 | 0.04468 | 24.66700 | 13.600 | 0.05124 | 0.03926 | 0.04354 |
| CO | 59 | 0.07626 | 366.68700 | 31.300 | 0.10371 | 0.06061 | 0.06446 |
| CU | 63 | 0.86100 | 2737.02000 | 1.200 | 0.85694 | 0.87265 | 0.85341 |
| MO | 98 | 3.09339 | 5561.29700 | 3.200 | 3.20522 | 3.01932 | 3.05561 |
| NI | 60 | 19.08530 | 14551.13300 | 5.300 | 18.84312 | 20.20154 | 18.21122 |
| SE | 78 | 0.37969 | 63.55300 | 9.900 | 0.41324 | 0.33889 | 0.38694 |
| SN | 120 | -0.02898 | 1656.82300 | 0.000 | -0.05384 | -0.10120 | 0.06809 |
| SR | 88 | 295.83068 | 530676.47700 | 0.800 | 293.29275 | 297.59530 | 296.60399 |
| ZN | 66 | 1.07311 | 3553.89000 | 27.400 | 1.26593 | 1.21897 | 0.73442 |
| **BI-3** | 209 | 201359.29300 | 0.00000 | 0.000 | 202759.90000 | 202558.10000 | 198759.88000 |
| PB | 208 | 0.04863 | 753.37700 | 11.500 | 0.05489 | 0.04405 | 0.04696 |
| TL | 205 | -0.02018 | 16.66700 | 0.000 | -0.02297 | -0.01965 | -0.01790 |
| U | 238 | 2.60657 | 21071.01300 | 1.400 | 2.61380 | 2.56832 | 2.63759 |
| *SC-2* | 45 | 641278.24700 | 0.00000 | 0.000 | 624186.36000 | 644331.59000 | 655316.79000 |
| *GE-1* | 72 | 995684.25700 | 0.00000 | 0.000 | 1003622 | 999944.36000 | 983486.08000 |
| *GE-2* | 72 | 743506.13700 | 0.00000 | 0.000 | 731002.57000 | 745850.30000 | 753665.54000 |
| *TB-3* | 159 | 311527.20300 | 0.00000 | 0.000 | 313277.38000 | 309353.92000 | 311950.31000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:39:24
Tube Number: 25
Sample Number: **CCV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1292991 | 0 | 0.000 | 1304479 | 1286034 | 1288460 |
| **SC-3** | 45 | 95389.27700 | 0.00000 | 0.000 | 94634.40000 | 95338.44000 | 96194.99000 |
| AL | 27 | 5040.84428 | 306909.33700 | 1.000 | 5063.89946 | 4982.64887 | 5075.98453 |
| B | 11 | 298.22570 | 166092.65700 | 2.600 | 289.42205 | 301.33871 | 303.91633 |
| BE | 9 | 29.53864 | 26242.82300 | 2.000 | 28.85527 | 29.75667 | 30.00397 |
| CA | 44 | 4932.11701 | 41235.57300 | 0.500 | 4905.10334 | 4934.13000 | 4957.11770 |
| CR | 52 | 289.84684 | 568103.91300 | 0.600 | 290.59051 | 290.97378 | 287.97623 |
| FE | 57 | 5093.38802 | 200462.49000 | 1.200 | 5127.84992 | 5129.21260 | 5023.10152 |
| K | 39 | 4689.29659 | 892522.12300 | 0.800 | 4725.04090 | 4652.09115 | 4690.75772 |
| MG | 24 | 4773.55973 | 690064.31300 | 0.800 | 4803.95165 | 4732.22679 | 4784.50076 |
| MN | 55 | 307.12067 | 350494.15000 | 1.000 | 304.64733 | 310.50888 | 306.20580 |
| NA | 23 | 5173.94260 | 1401561.28000 | 3.000 | 5170.27436 | 5329.95391 | 5021.59953 |
| TI | 47 | 300.59720 | 16312.92300 | 1.900 | 304.57696 | 303.06979 | 294.14486 |
| V | 51 | 286.72027 | 470050.95700 | 0.600 | 288.59416 | 285.35586 | 286.21079 |
| **GE-3** | 72 | 236155.17300 | 0.00000 | 0.000 | 235112.28000 | 236564.51000 | 236788.73000 |
| SB | 121 | 30.73048 | 53178.68300 | 1.100 | 30.35578 | 31.04580 | 30.78986 |
| **IN-2** | 115 | 561191.17700 | 0.00000 | 0.000 | 559627.34000 | 564353.62000 | 559592.57000 |
| **IN-3** | 115 | 129221.75700 | 0.00000 | 0.000 | 128566.08000 | 128897.47000 | 130201.72000 |
| AG | 107 | 30.69875 | 93365.18000 | 2.000 | 30.92387 | 31.16931 | 30.00306 |
| AS | 75 | 302.52391 | 82024.56700 | 0.200 | 302.64323 | 303.12934 | 301.79916 |
| BA | 137 | 301.95441 | 206424.52000 | 0.400 | 301.98546 | 303.06620 | 300.81157 |
| CD | 111 | 30.65704 | 15032.08000 | 0.900 | 30.95184 | 30.61433 | 30.40494 |
| CO | 59 | 286.50735 | 850625.01000 | 1.300 | 285.91909 | 290.51503 | 283.08793 |
| CU | 63 | 294.88809 | 587260.31300 | 0.600 | 295.09005 | 296.51599 | 293.05823 |
| MO | 98 | 30.90529 | 54308.35000 | 0.400 | 31.03828 | 30.77459 | 30.90301 |
| NI | 60 | 311.70779 | 223220.15300 | 0.800 | 313.62892 | 312.68912 | 308.80531 |
| SE | 78 | 30.57623 | 4922.85000 | 0.800 | 30.70661 | 30.28033 | 30.74174 |
| SN | 120 | 30.92175 | 56026.95300 | 2.200 | 30.50119 | 31.71590 | 30.54817 |
| SR | 88 | 30.46729 | 54638.87300 | 1.500 | 30.75685 | 29.95838 | 30.68663 |
| ZN | 66 | 308.94312 | 102025.89700 | 1.000 | 306.87372 | 312.31180 | 307.64383 |
| **BI-3** | 209 | 199467.36000 | 0.00000 | 0.000 | 199734.27000 | 200201.93000 | 198465.88000 |
| PB | 208 | 30.67445 | 248732.89000 | 0.100 | 30.71803 | 30.66717 | 30.63816 |
| TL | 205 | 30.60219 | 181697.45300 | 1.400 | 30.37662 | 30.33181 | 31.09816 |
| U | 238 | 50.88642 | 407091.42700 | 0.600 | 51.21935 | 50.66116 | 50.77875 |
| *SC-2* | 45 | 636661.90300 | 0.00000 | 0.000 | 631276.75000 | 640012.37000 | 638696.59000 |
| *GE-1* | 72 | 964447.79700 | 0.00000 | 0.000 | 961014.44000 | 963538.81000 | 968790.14000 |
| *GE-2* | 72 | 725133.06300 | 0.00000 | 0.000 | 716641.16000 | 725859.68000 | 732898.35000 |
| *TB-3* | 159 | 308509.93000 | 0.00000 | 0.000 | 308900.91000 | 306643.69000 | 309985.19000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:41:17
Tube Number: 26
Sample Number: **CCB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1301866 | 0 | 0.000 | 1308798 | 1309631 | 1287170 |
| **SC-3** | 45 | 94890.10700 | 0.00000 | 0.000 | 93891.00000 | 95832.03000 | 94947.29000 |
| AL | 27 | 2.08986 | 466.69000 | 33.700 | 2.89121 | 1.57294 | 1.80541 |
| B | 11 | 7.43156 | 5470.35300 | 5.800 | 7.89789 | 7.35156 | 7.04523 |
| BE | 9 | -0.00086 | 4.66700 | 0.000 | -0.00385 | 0.00281 | -0.00155 |
| CA | 44 | 11.97323 | 693.37300 | 50.900 | 18.59945 | 10.71048 | 6.60976 |
| CR | 52 | 0.47603 | 3380.51700 | 17.200 | 0.46881 | 0.56124 | 0.39802 |
| FE | 57 | 0.47720 | 323.35300 | 155.600 | -0.03345 | 1.32914 | 0.13590 |
| K | 39 | 18.44045 | 60468.03700 | 101.300 | 39.82490 | 10.24480 | 5.25167 |
| MG | 24 | 2.87435 | 746.71000 | 17.600 | 3.37155 | 2.36056 | 2.89093 |
| MN | 55 | 0.01995 | 353.35300 | 131.100 | 0.02923 | 0.04019 | -0.00959 |
| NA | 23 | 8.72169 | 24934.88300 | 39.600 | 10.53071 | 4.73538 | 10.89898 |
| TI | 47 | 0.00026 | 10.00000 | 71369.100 | -0.18439 | -0.00088 | 0.18605 |
| V | 51 | 0.57692 | 2313.59700 | 29.300 | 0.55333 | 0.75647 | 0.42097 |
| **GE-3** | 72 | 235498.11000 | 0.00000 | 0.000 | 233404.47000 | 237052.73000 | 236037.13000 |
| SB | 121 | 0.13332 | 380.02000 | 14.100 | 0.12364 | 0.15503 | 0.12128 |
| **IN-2** | 115 | 559203.93700 | 0.00000 | 0.000 | 556825.15000 | 559257.22000 | 561529.44000 |
| **IN-3** | 115 | 127776.36300 | 0.00000 | 0.000 | 125630.51000 | 130131.00000 | 127567.58000 |
| AG | 107 | 0.01881 | 70.00000 | 18.800 | 0.01918 | 0.01509 | 0.02215 |
| AS | 75 | 0.21479 | 167.33300 | 23.800 | 0.17540 | 0.27253 | 0.19645 |
| BA | 137 | 0.03909 | 60.00000 | 4.000 | 0.04059 | 0.03747 | 0.03922 |
| CD | 111 | 0.00414 | 4.66700 | 251.000 | 0.00285 | -0.00555 | 0.01512 |
| CO | 59 | 0.02216 | 203.34300 | 54.800 | 0.00843 | 0.02658 | 0.03148 |
| CU | 63 | 0.08408 | 1173.42300 | 78.300 | 0.15911 | 0.03594 | 0.05717 |
| MO | 98 | 0.01823 | 160.00700 | 241.700 | 0.00261 | 0.06795 | -0.01588 |
| NI | 60 | 0.13772 | 1003.40000 | 106.800 | 0.08647 | 0.30365 | 0.02305 |
| SE | 78 | 0.01655 | 5.11000 | 57.500 | 0.00556 | 0.02212 | 0.02197 |
| SN | 120 | 0.08883 | 1840.19000 | 30.200 | 0.10080 | 0.05810 | 0.10760 |
| SR | 88 | 0.02965 | 130.00300 | 118.900 | 0.00224 | 0.01729 | 0.06943 |
| ZN | 66 | 0.25372 | 3250.47700 | 169.200 | -0.24201 | 0.50669 | 0.49649 |
| **BI-3** | 209 | 197394.87300 | 0.00000 | 0.000 | 195966.52000 | 199378.12000 | 196839.98000 |
| PB | 208 | 0.00311 | 373.34300 | 269.800 | 0.00299 | -0.00522 | 0.01155 |
| TL | 205 | 0.00603 | 170.00700 | 150.100 | 0.01134 | -0.00442 | 0.01119 |
| U | 238 | 0.01141 | 113.33700 | 17.000 | 0.00982 | 0.01085 | 0.01356 |
| *SC-2* | 45 | 636780.93000 | 0.00000 | 0.000 | 640828.94000 | 633823.51000 | 635690.34000 |
| *GE-1* | 72 | 963648.26700 | 0.00000 | 0.000 | 964149.44000 | 962639.28000 | 964156.08000 |
| *GE-2* | 72 | 734252.38700 | 0.00000 | 0.000 | 735136.40000 | 732376.94000 | 735243.82000 |
| *TB-3* | 159 | 307001.16700 | 0.00000 | 0.000 | 305028.63000 | 307629.66000 | 308345.21000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:43:13
Tube Number: 27 Batch: 200371511402A
Sample Number: **1252854** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: DOD-UPDATE 5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1315103 | 0 | 0.000 | 1335882 | 1319013 | 1290414 |
| **SC-3** | 45 | 97308.75700 | 0.00000 | 0.000 | 96888.56000 | 96003.33000 | 99034.38000 |
| AL | 27 | 2.38001 | 496.69700 | 12.300 | 2.30400 | 2.70391 | 2.13212 |
| B | 11 | 56.86827 | 33302.70300 | 2.200 | 56.60998 | 55.77849 | 58.21633 |
| BE | 9 | 0.00420 | 9.33300 | 118.900 | 0.00700 | 0.00716 | -0.00157 |
| CA | 44 | 90187.63067 | 758509.28700 | 1.400 | 90314.01154 | 91371.63935 | 88877.24112 |
| CR | 52 | 0.16801 | 2853.72300 | 35.400 | 0.20828 | 0.09966 | 0.19610 |
| FE | 57 | 18.05448 | 1036.73700 | 12.400 | 19.51903 | 15.47225 | 19.17217 |
| K | 39 | 1404.22174 | 313702.70300 | 2.700 | 1439.19375 | 1408.69205 | 1364.77942 |
| MG | 24 | 13899.82717 | 2049089.40000 | 0.300 | 13920.02154 | 13925.92699 | 13853.53298 |
| MN | 55 | 70.58394 | 82406.55700 | 3.100 | 71.05609 | 72.47691 | 68.21881 |
| NA | 23 | 31100.92796 | 8478214.87300 | 0.700 | 31144.49558 | 31300.10482 | 30858.18348 |
| TI | 47 | -0.06283 | 6.66700 | 0.000 | -0.00288 | -0.00121 | -0.18439 |
| V | 51 | 0.50084 | 2243.58300 | 12.000 | 0.50404 | 0.55905 | 0.43944 |
| **GE-3** | 72 | 243203.35700 | 0.00000 | 0.000 | 244696.40000 | 238189.04000 | 246724.63000 |
| SB | 121 | 0.00418 | 163.34000 | 607.100 | 0.02440 | -0.02426 | 0.01239 |
| **IN-2** | 115 | 567930.61700 | 0.00000 | 0.000 | 566833.47000 | 567249.33000 | 569709.05000 |
| **IN-3** | 115 | 130071.52300 | 0.00000 | 0.000 | 129414.40000 | 131383.99000 | 129416.18000 |
| AG | 107 | 0.01078 | 46.66700 | 88.400 | 0.02177 | 0.00521 | 0.00535 |
| AS | 75 | 0.71087 | 305.34300 | 3.700 | 0.72624 | 0.68015 | 0.72622 |
| BA | 137 | 77.95236 | 53665.10700 | 1.200 | 77.42228 | 77.42980 | 79.00499 |
| CD | 111 | 0.02281 | 14.00000 | 81.600 | 0.03926 | 0.02655 | 0.00260 |
| CO | 59 | 0.10379 | 450.02300 | 31.900 | 0.12454 | 0.06564 | 0.12118 |
| CU | 63 | 0.36992 | 1766.84000 | 25.100 | 0.41572 | 0.26325 | 0.43079 |
| MO | 98 | 0.11512 | 333.35000 | 20.900 | 0.09152 | 0.13954 | 0.11430 |
| NI | 60 | 0.62504 | 1370.11700 | 6.500 | 0.64850 | 0.57815 | 0.64847 |
| SE | 78 | 0.21117 | 36.89000 | 12.600 | 0.19388 | 0.19785 | 0.24179 |
| SN | 120 | -0.02993 | 1663.50700 | 0.000 | -0.09538 | -0.05250 | 0.05810 |
| SR | 88 | 1921.79473 | 3463936.51000 | 1.400 | 1922.11497 | 1893.81821 | 1949.45100 |
| ZN | 66 | 1.53794 | 3720.61000 | 44.700 | 1.00222 | 1.29822 | 2.31340 |
| **BI-3** | 209 | 199801.24000 | 0.00000 | 0.000 | 197391.42000 | 198310.92000 | 203701.38000 |
| PB | 208 | 0.00504 | 393.34300 | 108.100 | 0.00890 | 0.00741 | -0.00119 |
| TL | 205 | -0.01349 | 56.66700 | 0.000 | -0.01616 | -0.01619 | -0.00812 |
| U | 238 | 0.60577 | 4877.76000 | 0.900 | 0.60104 | 0.60453 | 0.61173 |
| *SC-2* | 45 | 653483.61000 | 0.00000 | 0.000 | 646482.49000 | 657923.51000 | 656044.83000 |
| *GE-1* | 72 | 978127.90300 | 0.00000 | 0.000 | 984965.06000 | 974242.41000 | 975176.24000 |
| *GE-2* | 72 | 756809.10300 | 0.00000 | 0.000 | 749593.04000 | 761127.64000 | 759706.63000 |
| *TB-3* | 159 | 310252.84300 | 0.00000 | 0.000 | 309374.62000 | 311549.27000 | 309834.64000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:45:10
Tube Number: 28 Batch: 200371511402A
Sample Number: **1252857** Class: **********

Initial Vol: 50.00 Final Vol: 51.50 DF: 1.00 Protocol: DOD-UPDATE 5

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1340326 | 0 | 0.000 | 1348941 | 1324974 | 1347061 |
| **SC-3** | 45 | 98160.45300 | 0.00000 | 0.000 | 98850.96000 | 97220.76000 | 98409.64000 |
| AL | 27 | 2.68359 | 520.03000 | 25.900 | 2.62253 | 3.40622 | 2.02200 |
| B | 11 | 56.05659 | 33479.80300 | 2.300 | 54.59566 | 56.86196 | 56.71214 |
| BE | 9 | 0.00333 | 8.66700 | 36.000 | 0.00471 | 0.00271 | 0.00257 |
| CA | 44 | 88263.03161 | 748928.11300 | 0.500 | 88257.16064 | 88689.67735 | 87842.25683 |
| CR | 52 | 1.15969 | 4873.13300 | 37.900 | 1.66611 | 0.88719 | 0.92577 |
| FE | 57 | 21.15256 | 1170.09000 | 16.900 | 17.25784 | 21.92259 | 24.27724 |
| K | 39 | 1385.60475 | 313085.02000 | 2.000 | 1401.40844 | 1401.71017 | 1353.69563 |
| MG | 24 | 13745.31025 | 2044072.00300 | 0.400 | 13680.39877 | 13787.19161 | 13768.34038 |
| MN | 55 | 0.34502 | 746.71000 | 8.900 | 0.33477 | 0.37971 | 0.32058 |
| NA | 23 | 30998.99112 | 8525056.95700 | 1.200 | 31257.86803 | 31150.80475 | 30588.30058 |
| TI | 47 | 0.11438 | 16.66700 | 90.900 | 0.17142 | 0.17739 | -0.00569 |
| V | 51 | 0.52586 | 2306.94000 | 21.700 | 0.65440 | 0.48744 | 0.43574 |
| **GE-3** | 72 | 243012.64000 | 0.00000 | 0.000 | 243464.51000 | 244872.81000 | 240700.60000 |
| SB | 121 | 0.00069 | 156.67700 | 1937.800 | 0.00248 | 0.01314 | -0.01354 |
| **IN-2** | 115 | 572686.00700 | 0.00000 | 0.000 | 570088.19000 | 575064.37000 | 572905.46000 |
| **IN-3** | 115 | 131223.91000 | 0.00000 | 0.000 | 131048.74000 | 131704.85000 | 130918.14000 |
| AG | 107 | 0.00197 | 20.00000 | 163.000 | -0.00125 | 0.00518 | 0.00199 |
| AS | 75 | 0.24008 | 178.66700 | 24.600 | 0.26047 | 0.28612 | 0.17365 |
| BA | 137 | 76.58461 | 53193.29000 | 0.500 | 76.18089 | 76.85229 | 76.72065 |
| CD | 111 | 0.02525 | 15.33300 | 24.000 | 0.01859 | 0.03048 | 0.02667 |
| CO | 59 | 0.10671 | 463.36000 | 8.200 | 0.10579 | 0.09842 | 0.11592 |
| CU | 63 | 0.98448 | 3023.75000 | 13.800 | 0.97464 | 0.85369 | 1.12511 |
| MO | 98 | 0.23907 | 556.71000 | 5.100 | 0.25258 | 0.22857 | 0.23604 |
| NI | 60 | 1.85095 | 2270.25300 | 6.000 | 1.97955 | 1.79815 | 1.77514 |
| SE | 78 | 0.15106 | 27.33000 | 20.900 | 0.13965 | 0.18682 | 0.12672 |
| SN | 120 | -0.05687 | 1630.15000 | 0.000 | -0.05578 | -0.12178 | 0.00695 |
| SR | 88 | 1891.71743 | 3440129.63700 | 0.900 | 1890.18418 | 1876.34157 | 1908.62655 |
| ZN | 66 | 30.50648 | 13163.10700 | 6.800 | 28.87217 | 29.81395 | 32.83332 |
| **BI-3** | 209 | 199237.54300 | 0.00000 | 0.000 | 202004.35000 | 197406.17000 | 198302.11000 |
| PB | 208 | 0.02418 | 546.69000 | 55.300 | 0.00892 | 0.03385 | 0.02977 |
| TL | 205 | -0.01624 | 40.00000 | 0.000 | -0.01465 | -0.01957 | -0.01450 |
| U | 238 | 0.15706 | 1276.78000 | 13.900 | 0.13288 | 0.17521 | 0.16309 |
| *SC-2* | 45 | 655658.75300 | 0.00000 | 0.000 | 643367.61000 | 665440.07000 | 658168.58000 |
| *GE-1* | 72 | 988185.92000 | 0.00000 | 0.000 | 999130.06000 | 986084.20000 | 979343.50000 |
| *GE-2* | 72 | 754858.74000 | 0.00000 | 0.000 | 743135.54000 | 765882.96000 | 755557.72000 |
| *TB-3* | 159 | 315013.48700 | 0.00000 | 0.000 | 317274.02000 | 313572.26000 | 314194.18000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:47:07
Tube Number: 29
Sample Number: **CCV**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1306427 | 0 | 0.000 | 1294939 | 1302248 | 1322094 |
| **SC-3** | 45 | 97526.54700 | 0.00000 | 0.000 | 97331.43000 | 96678.72000 | 98569.49000 |
| AL | 27 | 4895.44770 | 304732.51700 | 0.800 | 4933.37940 | 4894.95845 | 4858.00526 |
| B | 11 | 293.62205 | 165284.51300 | 1.800 | 287.66617 | 296.55169 | 296.64830 |
| BE | 9 | 29.47781 | 26465.15300 | 1.700 | 28.92144 | 29.89439 | 29.61761 |
| CA | 44 | 4953.28955 | 42331.93000 | 1.700 | 4956.83118 | 5037.62543 | 4865.41203 |
| CR | 52 | 285.30022 | 571718.18300 | 1.500 | 286.38489 | 289.05797 | 280.45780 |
| FE | 57 | 5032.31063 | 202495.92000 | 1.300 | 5068.52649 | 5069.63761 | 4958.76780 |
| K | 39 | 4613.43769 | 898696.96300 | 1.100 | 4672.06963 | 4598.23318 | 4570.01027 |
| MG | 24 | 4636.14596 | 685195.38000 | 1.300 | 4693.96053 | 4636.72684 | 4577.75051 |
| MN | 55 | 303.63273 | 354254.05700 | 1.000 | 303.89984 | 306.57425 | 300.42410 |
| NA | 23 | 5062.64301 | 1402639.51000 | 1.400 | 5052.66654 | 5136.74084 | 4998.52164 |
| TI | 47 | 300.59534 | 16676.68700 | 3.100 | 299.57254 | 310.33650 | 291.87700 |
| V | 51 | 283.54644 | 475271.87000 | 0.600 | 283.59455 | 285.08395 | 281.96083 |
| **GE-3** | 72 | 239174.00700 | 0.00000 | 0.000 | 240974.37000 | 239513.49000 | 237034.16000 |
| SB | 121 | 29.95497 | 52506.35700 | 1.900 | 30.60136 | 29.67597 | 29.58759 |
| **IN-2** | 115 | 566829.52300 | 0.00000 | 0.000 | 565094.95000 | 570685.50000 | 564708.12000 |
| **IN-3** | 115 | 130648.31300 | 0.00000 | 0.000 | 131322.25000 | 129029.07000 | 131593.62000 |
| AG | 107 | 30.81898 | 94771.68700 | 0.600 | 30.97175 | 30.88615 | 30.59904 |
| AS | 75 | 301.80120 | 82724.99300 | 1.400 | 300.74051 | 306.34520 | 298.31789 |
| BA | 137 | 300.46069 | 207656.70000 | 1.200 | 299.22400 | 304.36782 | 297.79026 |
| CD | 111 | 30.36101 | 15050.07700 | 1.700 | 29.99673 | 30.94296 | 30.14333 |
| CO | 59 | 285.17282 | 855959.02000 | 1.400 | 282.52497 | 289.73978 | 283.25371 |
| CU | 63 | 291.18800 | 586299.88700 | 0.500 | 291.05185 | 292.65429 | 289.85784 |
| MO | 98 | 30.72977 | 54592.81700 | 1.100 | 30.59934 | 31.10435 | 30.48561 |
| NI | 60 | 308.29621 | 223232.96000 | 0.500 | 310.05467 | 308.03579 | 306.79816 |
| SE | 78 | 30.31775 | 4929.96000 | 2.500 | 30.50397 | 29.47960 | 30.96968 |
| SN | 120 | 30.45336 | 55812.67300 | 0.600 | 30.40310 | 30.66866 | 30.28833 |
| SR | 88 | 30.72002 | 55692.73700 | 1.500 | 30.38610 | 31.26352 | 30.51043 |
| ZN | 66 | 308.14430 | 102888.34000 | 1.500 | 310.81789 | 310.87793 | 302.73709 |
| **BI-3** | 209 | 199803.96700 | 0.00000 | 0.000 | 201265.54000 | 198486.15000 | 199660.21000 |
| PB | 208 | 30.55386 | 248168.46000 | 0.900 | 30.29702 | 30.54750 | 30.81706 |
| TL | 205 | 30.34862 | 180494.83000 | 1.300 | 29.88498 | 30.54921 | 30.61168 |
| U | 238 | 51.02961 | 408908.20000 | 0.900 | 50.55296 | 51.47227 | 51.06359 |
| *SC-2* | 45 | 646780.22700 | 0.00000 | 0.000 | 646215.42000 | 648391.87000 | 645733.39000 |
| *GE-1* | 72 | 965459.88000 | 0.00000 | 0.000 | 966042.95000 | 964168.50000 | 966168.19000 |
| *GE-2* | 72 | 736528.68700 | 0.00000 | 0.000 | 732695.69000 | 735989.91000 | 740900.46000 |
| *TB-3* | 159 | 310485.45000 | 0.00000 | 0.000 | 311145.41000 | 309665.03000 | 310645.91000 |

Run Name: 2004203E07 Date/Time: 02/11/2020 10:49:01
Tube Number: 30
Sample Number: **CCB**

Note: All Analyte values are in ppb, except Internal Standards, C, P, S and CL are in counts per second.

| | | | | | INTEGRATIONS | | |
|---|---|---|---|---|---|---|---|
| Element | MASS | CONC. MEAN (ppb) | CPS MEAN | %RSD | #1 | #2 | #3 |
| **SC-1** | 45 | 1311121 | 0 | 0.000 | 1315991 | 1310295 | 1307078 |
| **SC-3** | 45 | 96925.44700 | 0.00000 | 0.000 | 97190.52000 | 96194.08000 | 97391.74000 |
| AL | 27 | 1.21954 | 423.35700 | 153.200 | -0.46432 | 0.89362 | 3.22931 |
| B | 11 | 6.45742 | 4962.85000 | 7.700 | 7.02698 | 6.23186 | 6.11341 |
| BE | 9 | 0.00650 | 11.33300 | 109.800 | 0.00941 | -0.00163 | 0.01174 |
| CA | 44 | 9.76177 | 690.04000 | 90.700 | 1.20534 | 9.19314 | 18.88684 |
| CR | 52 | 0.48173 | 3463.85700 | 5.600 | 0.46024 | 0.47304 | 0.51190 |
| FE | 57 | -0.93926 | 273.34700 | 0.000 | -1.04598 | 0.28526 | -2.05706 |
| K | 39 | 12.68603 | 60742.90300 | 124.300 | 29.72262 | 9.71974 | -1.38425 |
| MG | 24 | 1.96974 | 630.03700 | 31.000 | 1.88746 | 2.61752 | 1.40426 |
| MN | 55 | 0.02792 | 370.02000 | 99.000 | 0.00112 | 0.05634 | 0.02629 |
| NA | 23 | 9.53913 | 25695.97700 | 16.600 | 7.75492 | 10.09743 | 10.76505 |
| TI | 47 | 0.24019 | 23.33300 | 116.800 | 0.17750 | 0.54690 | -0.00382 |
| V | 51 | 0.43535 | 2126.90300 | 5.600 | 0.45181 | 0.44705 | 0.40718 |
| **GE-3** | 72 | 237525.11700 | 0.00000 | 0.000 | 237420.04000 | 238302.50000 | 236852.81000 |
| SB | 121 | 0.14883 | 410.02000 | 29.500 | 0.10854 | 0.14227 | 0.19568 |
| **IN-2** | 115 | 566314.20000 | 0.00000 | 0.000 | 558617.22000 | 566855.54000 | 573469.84000 |
| **IN-3** | 115 | 129682.60300 | 0.00000 | 0.000 | 130221.45000 | 129201.65000 | 129624.71000 |
| AG | 107 | 0.00642 | 33.33300 | 58.800 | 0.00856 | 0.00866 | 0.00206 |
| AS | 75 | 0.08329 | 134.00000 | 108.300 | 0.17677 | -0.00329 | 0.07638 |
| BA | 137 | 0.03297 | 56.66700 | 200.100 | 0.03741 | 0.09662 | -0.03512 |
| CD | 111 | 0.01750 | 11.33300 | 13.900 | 0.01470 | 0.01894 | 0.01886 |
| CO | 59 | 0.02571 | 216.67700 | 18.900 | 0.02988 | 0.02037 | 0.02687 |
| CU | 63 | 0.06961 | 1163.42300 | 36.300 | 0.05053 | 0.06002 | 0.09827 |
| MO | 98 | 0.00212 | 133.33700 | 308.700 | 0.00559 | 0.00621 | -0.00543 |
| NI | 60 | 0.33226 | 1156.76300 | 45.500 | 0.46956 | 0.35717 | 0.17006 |
| SE | 78 | 0.01082 | 4.22300 | 118.700 | 0.02216 | 0.01344 | -0.00313 |
| SN | 120 | -0.03087 | 1656.82000 | 0.000 | -0.16860 | -0.09963 | 0.17561 |
| SR | 88 | 0.14736 | 343.35300 | 4.800 | 0.13916 | 0.15178 | 0.15114 |
| ZN | 66 | 1.48553 | 3693.91300 | 74.700 | 2.36126 | 0.23830 | 1.85703 |
| **BI-3** | 209 | 199408.76700 | 0.00000 | 0.000 | 197479.20000 | 199662.75000 | 201084.35000 |
| PB | 208 | 0.00709 | 410.01300 | 86.100 | 0.00014 | 0.00953 | 0.01161 |
| TL | 205 | 0.00175 | 146.67000 | 528.300 | -0.00254 | 0.01239 | -0.00458 |
| U | 238 | 0.00875 | 93.33700 | 49.700 | 0.00467 | 0.01333 | 0.00825 |
| *SC-2* | 45 | 644444.49700 | 0.00000 | 0.000 | 633029.76000 | 646873.62000 | 653430.11000 |
| *GE-1* | 72 | 971564.54300 | 0.00000 | 0.000 | 976341.08000 | 966950.14000 | 971402.41000 |
| *GE-2* | 72 | 740895.56000 | 0.00000 | 0.000 | 730544.75000 | 735246.00000 | 756895.93000 |
| *TB-3* | 159 | 308719.45300 | 0.00000 | 0.000 | 309762.10000 | 307727.38000 | 308668.88000 |

# US EPA Tune Check Report

| | |
|---|---|
| **Operator Name** | us19_usr_ins03786 |
| **Acq/Data Batch** | C:\Agilent\ICPMH\1\DATA\~EPATune.b |
| **Acq. Date-Time** | 2/11/2020 7:30:43 AM |
| **Report Comment** | --- |
| **Instrument Name** | G8403A SG18254097 |

**[No Gas]**

**Sensitivity**

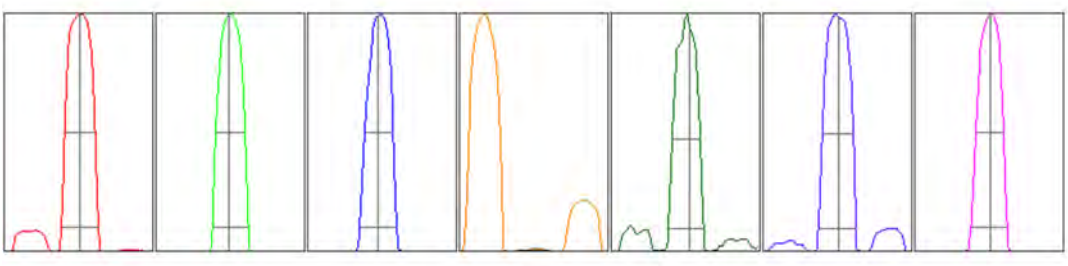
| Mass | Conc. [ug/l] | Count | CPS | Resp (Required) [cps/ug/l] | Resp (Flag) | RSD% | RSD% (Required) |
|---|---|---|---|---|---|---|---|
| 7 | 10.00 | 1805 | 18046.84 | | | 2.212 | 5.000 |
| 89 | 10.00 | 6796 | 67957.99 | | | 1.909 | 5.000 |
| 205 | 10.00 | 2493 | 24931.26 | | | 2.885 | 5.000 |
| 69 | | 6 | 58.50 | | | 9.245 | |
| 138 | | 42 | 416.43 | | | 2.491 | |
| 70 | | 149 | 1490.07 | | | 0.853 | |
| 140 | | 5273 | 52725.28 | | | 1.945 | |

| Mass | RSD% (Flag) |
|---|---|
| 7 | |
| 89 | |
| 205 | |
| 69 | |
| 138 | |
| 70 | |
| 140 | |

| Mass | Rep#1 Count | Rep#2 Count | Rep#3 Count | Rep#4 Count | Rep#5 Count |
|---|---|---|---|---|---|
| 7 | 1738 | 1811 | 1811 | 1820 | 1844 |
| 89 | 6581 | 6775 | 6906 | 6881 | 6836 |
| 205 | 2372 | 2507 | 2538 | 2555 | 2493 |
| 69 | 6 | 5 | 5 | 7 | 6 |
| 138 | 40 | 41 | 43 | 42 | 41 |
| 70 | 148 | 148 | 148 | 150 | 150 |
| 140 | 5101 | 5263 | 5314 | 5364 | 5321 |

Integration Time [sec] 0.1

**Resolution/Axis**



# US EPA Tune Check Report

| Mass | Peak Height | Axis | Axis (Required) | Axis (Flag) |
|---|---|---|---|---|
| 7 | 3005.92 | 7.05 | 6.90 - 7.10 | |
| 89 | 11799.22 | 89.00 | 88.90 - 89.10 | |
| 205 | 4473.97 | 204.95 | 204.90 - 205.10 | |
| 69 | 11.60 | 69.05 | - | |
| 138 | 74.00 | 138.10 | - | |
| 70 | 241.13 | 70.05 | - | |
| 140 | 9635.34 | 140.05 | - | |

| Mass | W-50% | W-10% | W-10% (Required) | W-10% (Flag) |
|---|---|---|---|---|
| 7 | 0.62 | 0.753 | 0.800 | |
| 89 | 0.60 | 0.725 | 0.800 | |
| 205 | 0.58 | 0.753 | 0.800 | |
| 69 | 0.60 | 0.763 | | |
| 138 | 0.58 | 0.716 | | |
| 70 | 0.63 | 0.759 | | |
| 140 | 0.57 | 0.734 | | |

| | |
|---|---|
| Integration Time [sec] | 0.1 |
| Acquisition Time [sec] | 223 |
| Y Axis | Linear |

## Tune Parameters

### Plasma Parameters

| | | | | | |
|---|---|---|---|---|---|
| Plasma Mode | General Purpose | Nebulizer Gas | 1.06 L/min | Makeup Gas | 0.00 L/min |
| RF Power | 1550 W | Option Gas | --- | Auxiliary Gas | 0.90 L/min |
| RF Matching | 1.10 V | Nebulizer Pump | 0.10 rps | Plasma Gas | 15.0 L/min |
| Sample Depth | 10.0 mm | S/C Temp | 2 °C | | |

### Lens Parameters

| | | | | | |
|---|---|---|---|---|---|
| Extract 1 | 0.0 V | Omega Lens | 9.4 V | Deflect | 10.0 V |
| Extract 2 | -210.0 V | Cell Entrance | -30 V | Plate Bias | -35 V |
| Omega Bias | -95 V | Cell Exit | -50 V | | |

### Cell Parameters

| | | | | | |
|---|---|---|---|---|---|
| Use Gas | No | 3rd Gas Flow | --- | Energy Discrimination | 5.0 V |
| He Flow | 0.0 mL/min | OctP Bias | -8.0 V | | |
| H2 Flow | 0.0 mL/min | OctP RF | 180 V | | |

### QP Parameters

| | | | | | |
|---|---|---|---|---|---|
| Mass Gain | 121 | Axis Gain | 0.9985 | QP Bias | -3.0 V |
| Mass Offset | 125 | Axis Offset | 0.11 | | |

## Hardware Settings

### Torch

| | | | |
|---|---|---|---|
| Torch H | 0.4 mm | Torch V | -0.1 mm |

### EM

| | | | | | |
|---|---|---|---|---|---|
| Discriminator | 4.0 mV | Analog HV | 2197 V | Pulse HV | 1411 V |

# Extraction/Distillation/Digestion Logs

# Metals in Liquid

# LLENS Worksheet for ICP-ICPMS filtered no-digest

Batch# 20 034 14866 03

**Start Time:** 2/3/20 19:55 **End Time:** 2/3/20 20:05 **Hot Block:**

**Pipette ID:** P049 /200

| Spike/Reagent | Lot# | Volume Added(mL) |
|---|---|---|
| 1:1 HCL | P19347A | 0.50 |
| 1:1 HNO3 | P19-361B | 1.00 |
| ICP LLC | 1928338ILC | 0.20 |
| ICP LLC LCS | 1928338ILC | 0.20 |

**Method Ref:**

| | SampleID | Date Due | ST | P | H | Method | PH<2 | BC | Vessel Lot# | Location ID | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) | PBW | . | | | | | | | 1906257 | | Filtered Reagent lot# P20-013B |
| 2) | LCSW | . | | | | | | | 1906257 | | Filtered Reagent lot# P20-013B |
| 3) | **1251392U** | 02/12/20 09:42 | GW | N7 | | SW-846 6010B | Y | 800A | 1906257 | WMET49/B3 | |
| 4) | **1251395D** | 02/12/20 09:42 | GW | N7 | | SW-846 6010B | Y | 800A | 1906257 | WMET49/C3 | |
| 5) | **1251393R** | 02/12/20 09:42 | GW | N7 | | SW-846 6010B | Y | 800A | 1906257 | WMET49/A1 | |
| 6) | **1251394M** | 02/12/20 09:42 | GW | N7 | | SW-846 6010B | Y | 800A | 1906257 | WMET49/F3 | |
| 7) | 1249723 | 02/11/20 15:37 | GW | S8 | | SW-846 6010B | | 015A | 1906257 | | |
| 8) | 1249725 | 02/11/20 15:37 | GW | S8 | | SW-846 6010B | | 015A | 1906257 | A139 109/A01 | |
| 9) | 1249727 | 02/11/20 15:37 | GW | S8 | | SW-846 6010B | | 015A | 1906257 | A139 109/A01 | |
| 10) | 1251372 | 02/12/20 09:42 | GW | N7 | | SW-846 6010B | Y | 800A | 1906257 | WMET49/C1 | |
| 11) | 1251374 | 02/12/20 09:42 | GW | N7 | | SW-846 6010B | Y | 800A | 1906257 | WMET49/E1 | |
| 12) | 1251377 | 02/12/20 09:42 | GW | N7 | | SW-846 6010B | Y | 800A | 1906257 | WMET49/D1 | |
| 13) | 1251379 | 02/12/20 09:42 | GW | N7 | | SW-846 6010B | Y | 800A | 1906257 | WMET49/A2 | |
| 14) | 1251381FD | 02/12/20 09:42 | GW | N7 | | SW-846 6010B | Y | 800A | 1906257 | WMET49/D3 | |
| 15) | 1251383 | 02/12/20 09:42 | GW | N7 | | SW-846 6010B | Y | 800A | 1906257 | WMET49/E3 | |
| 16) | 1251385 | 02/12/20 09:42 | GW | N7 | | SW-846 6010B | Y | 800A | 1906257 | WMET49/F2 | |
| 17) | 1251387 | 02/12/20 09:42 | GW | N7 | | SW-846 6010B | Y | 800A | 1906257 | WMET49/A3 | |
| 18) | 1251397 | 02/12/20 09:42 | GW | N7 | | SW-846 6010B | Y | 800A | 1906257 | WMET49/B1 | |
| 19) | 1251430 | 02/12/20 09:51 | GW | N7 | | SW-846 6010C | Y | 800A | 1906257 | WMET49/E4 | |
| 20) | 1251431 | 02/12/20 09:51 | GW | N7 | | SW-846 6010C | Y | 800A | 1906257 | WMET49/A4 | |
| 21) | 1251432 | 02/12/20 09:51 | GW | N7 | | SW-846 6010C | Y | 800D | 1906257 | WMET49/E2 | |
| 22) | 1251434 | 02/12/20 09:54 | GW | N7 | | SW-846 6010C | Y | 800A | 1906257 | WMET49/C4 | |
| 23) | 1251435 | 02/12/20 09:54 | GW | N7 | | SW-846 6010C | Y | 800A | 1906257 | WMET49/B4 | |

Prep Employee:1364 D/I _____

| | SampleID | Date Due | ST | P | H | Method | PH<2 | BC | Vessel Lot# | Location ID | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 24) | 1251436 | 02/12/20 09:54 | GW | N7 | | SW-846 6010C | Y | 800A | 1906257 | WMET49/F1 | |
| 25) | 1251437 | 02/12/20 09:54 | GW | N7 | | SW-846 6010C | Y | 800A | 1906257 | WMET49/D4 | |

# Batch# 20 034 1486 603

## LLENS Batch Chronology and Change Log - ICP-ICPMS filtered no-digest

| | Operation | Instrument | Operation Date | ANALYST |
|---|---|---|---|---|
| 1) | Batch Creation | | 2/3/20 19:19 | 1364 |
| 2) | Sample Vol | CLEAR | 2/3/20 20:13 | 1364 |
| 3) | Trial | | 2/3/20 20:13 | 1364 |
| 4) | Upload Prep | US19PCC06698 | 2/3/20 20:13 | 1364 |

| Sample ID | Analysis | D | Operation | Measurement | Original Entry | | | | Data Changed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Date/Time | Data | Units | Analyst | Date/Time | Analyst | Reason |

## Analysis: 4866 ICP-ICPMS filtered no-digest

## Batch# 20 034 1486 603

| Sample ID | Due Date | P | EPA# | SDG# | Initial Volume | Final Volume | Trial |
|---|---|---|---|---|---|---|---|
| PBW | | | | | 50.0000 | 51.5000 | 1 |
| LCSW | | | | | 50.0000 | 50.0000 | 1 |
| **1251392U** | 02/12/20 | N7 | P48DF | PUP93-19BKG | 50.0000 | 51.5000 | 1 |
| **1251395D** | 02/12/20 | N7 | P48DF | PUP93-19DUP | 50.0000 | 51.5000 | 1 |
| **1251393R** | 02/12/20 | N7 | P48DF | PUP93-19MS | 50.0000 | 52.2000 | 1 |
| **1251394M** | 02/12/20 | N7 | P48DF | PUP93-19MSD | 50.0000 | 52.2000 | 1 |
| 1249723 | 02/11/20 | S8 | 90037 | | 50.0000 | 51.5000 | 1 |
| 1249725 | 02/11/20 | S8 | 90039 | | 50.0000 | 51.5000 | 1 |
| 1249727 | 02/11/20 | S8 | 90041 | | 50.0000 | 51.5000 | 1 |
| 1251372 | 02/12/20 | N7 | P24IF | PUP93-02 | 50.0000 | 51.5000 | 1 |
| 1251374 | 02/12/20 | N7 | PO23F | PUP93-04 | 50.0000 | 51.5000 | 1 |
| 1251377 | 02/12/20 | N7 | P25IF | PUP93-07 | 50.0000 | 51.5000 | 1 |
| 1251379 | 02/12/20 | N7 | P44IF | PUP93-09 | 50.0000 | 51.5000 | 1 |
| 1251381FD | 02/12/20 | N7 | PFD1F | PUP93-11FD | 50.0000 | 51.5000 | 1 |
| 1251383 | 02/12/20 | N7 | P44DF | PUP93-13 | 50.0000 | 51.5000 | 1 |
| 1251385 | 02/12/20 | N7 | 11IPF | PUP93-15 | 50.0000 | 51.5000 | 1 |
| 1251387 | 02/12/20 | N7 | PO2DF | PUP93-17 | 50.0000 | 51.5000 | 1 |
| 1251397 | 02/12/20 | N7 | P48IF | PUP93-21 | 50.0000 | 51.5000 | 1 |
| 1251430 | 02/12/20 | N7 | PZ151 | | 50.0000 | 51.5000 | 1 |
| 1251431 | 02/12/20 | N7 | PZ152 | | 50.0000 | 51.5000 | 1 |
| 1251432 | 02/12/20 | N7 | PZ153 | | 50.0000 | 51.5000 | 1 |
| 1251434 | 02/12/20 | N7 | RRMW1 | | 50.0000 | 51.5000 | 1 |
| 1251435 | 02/12/20 | N7 | RRMW2 | | 50.0000 | 51.5000 | 1 |
| 1251436 | 02/12/20 | N7 | RRMW3 | | 50.0000 | 51.5000 | 1 |
| 1251437 | 02/12/20 | N7 | RRMW4 | | 50.0000 | 51.5000 | 1 |

# LLENS Worksheet for ICP-ICPMS filtered no-digest

Batch# 20 034 15114 01

**Start Time:** 2/3/20 19:55 **End Time:** 2/3/20 20:05 **Hot Block:**

**Pipette ID:** S/500

| Spike/Reagent | Lot# | Volume Added(mL) |
|---|---|---|
| 1:1 HCL | P19347A | 0.50 |
| 1:1 HNO3 | P19-361B | 1.00 |
| ICP/MS | 1926917-IL | 0.50 |
| LCS I CP/MS | 1926917-IL | 0.50 |

**Method Ref:**

| | SampleID | Date Due | ST | P | H | Method | PH<2 | BC | Vessel Lot# | Location ID | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) | PBW | . | | | | | | | | | Filtered Reagent lot# P20-.34B |
| 2) | LCSW | . | | | | | | | | | Filtered Reagent lot# P20-.34B |
| 3) | **1251392U** | 02/12/20 09:42 | GW | N7 | | SW-846 6020 | Y | 802A | 1906257 | WMET31/A2 | |
| 4) | **1251395D** | 02/12/20 09:42 | GW | N7 | | SW-846 6020 | Y | 802A | 1906257 | WMET31/F1 | |
| 5) | **1251393R** | 02/12/20 09:42 | GW | N7 | | SW-846 6020 | Y | 802A | 1906257 | WMET31/A1 | |
| 6) | **1251394M** | 02/12/20 09:42 | GW | N7 | | SW-846 6020 | Y | 802A | 1906257 | WMET31/D2 | |
| 7) | 1250960 | 02/07/20 18:14 | GW | S5 | | SW-846 6020 | Y | 015A | 1906257 | A139 109/A01 | |
| 8) | 1250961 | 02/07/20 18:14 | GW | S5 | | SW-846 6020 | Y | 015A | 1906257 | A139 109/A01 | |
| 9) | 1250738 | 02/11/20 10:27 | GW | P7 | | SW-846 6020 | Y | 015A | 1906257 | A139 109/A01 | |
| 10) | 1250740 | 02/11/20 10:27 | GW | P7 | | SW-846 6020 | Y | 015A | 1906257 | A139 109/A01 | |
| 11) | 1250742 | 02/11/20 10:27 | GW | P7 | | SW-846 6020 | Y | 015A | 1906257 | A139 109/A01 | |
| 12) | 1250744 | 02/11/20 10:27 | GW | P7 | | SW-846 6020 | Y | 015A | 1906257 | A139 109/A01 | |
| 13) | 1250746 | 02/11/20 10:27 | GW | P7 | | SW-846 6020 | Y | 015A | 1906257 | A139 109/A01 | |
| 14) | 1250748 | 02/11/20 10:27 | GW | P7 | | SW-846 6020 | Y | 015A | 1906257 | A139 109/A01 | |
| 15) | 1250750 | 02/11/20 10:27 | GW | P7 | | SW-846 6020 | Y | 015A | 1906257 | A139 109/A01 | |
| 16) | 1250752 | 02/11/20 10:27 | GW | P7 | | SW-846 6020 | Y | 015A | 1906257 | A139 109/A01 | |
| 17) | 1250754 | 02/11/20 10:27 | GW | P7 | | SW-846 6020 | Y | 015A | 1906257 | A139 109/A01 | |
| 18) | 1250756 | 02/11/20 10:27 | GW | P7 | | SW-846 6020 | Y | 015A | 1906257 | A139 109/A01 | |
| 19) | 1247553 | 02/06/20 10:16 | WW | N7 | | SW-846 6020 | Y | 802A | 1906257 | WMET31/C1 | |
| 20) | 1250020 | 02/10/20 18:40 | GW | N7 | | SW-846 6020B Rev.2, July 2014 | Y | 802A | 1906257 | WMET31/A1 | |
| 21) | 1250023FB | 02/10/20 18:40 | GW | N7 | | SW-846 6020B Rev.2, July 2014 | Y | 802A | 1906257 | WMET31/B1 | |
| 22) | 1251072 | 02/11/20 19:24 | GW | N7 | | SW-846 6020B Rev.2, July 2014 | Y | 802A | 1906257 | WMET37/C1 | |
| 23) | 1251074FD | 02/11/20 19:24 | GW | N7 | | SW-846 6020B Rev.2, July 2014 | Y | 802A | 1906257 | WMET37/B1 | |

Prep Employee:1364 D/I _____

| | SampleID | Date Due | ST | P | H | Method | PH<2 | BC | Vessel Lot# | Location ID | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 24) | 1251078FB | 02/11/20 19:24 | GW | N7 | | SW-846 6020B Rev.2, July 2014 | Y | 802A | 1906257 | WMET37/A1 | |

# Batch# 20 034 1511 401

## LLENS Batch Chronology and Change Log - ICP-ICPMS filtered no-digest

| | Operation | Instrument | Operation Date | ANALYST |
|---|---|---|---|---|
| 1) | Batch Creation | | 2/3/20 19:26 | 1364 |
| 2) | Sample Vol | CLEAR | 2/3/20 20:07 | 1364 |
| 3) | Trial | | 2/3/20 20:07 | 1364 |
| 4) | Upload Prep | US19PCC06698 | 2/3/20 20:07 | 1364 |

| Sample ID | Analysis | D | Operation | Measurement | Original Entry | | | | Data Changed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Date/Time | Data | Units | Analyst | Date/Time | Analyst | Reason |

Analysis: 5114 ICP-ICPMS filtered no-digest Batch# 20 034 1511 401

| Sample ID | Due Date | P | EPA# | SDG# | Initial Volume | Final Volume | Trial |
|---|---|---|---|---|---|---|---|
| PBW | | | | | 50.0000 | 51.5000 | 1 |
| LCSW | | | | | 50.0000 | 50.0000 | 1 |
| **1251392U** | 02/12/20 | N7 | P48DF | PUP93-19BKG | 50.0000 | 51.5000 | 1 |
| **1251395D** | 02/12/20 | N7 | P48DF | PUP93-19DUP | 50.0000 | 51.5000 | 1 |
| **1251393R** | 02/12/20 | N7 | P48DF | PUP93-19MS | 50.0000 | 52.0000 | 1 |
| **1251394M** | 02/12/20 | N7 | P48DF | PUP93-19MSD | 50.0000 | 52.0000 | 1 |
| 1250960 | 02/07/20 | S5 | 91684 | | 50.0000 | 51.5000 | 1 |
| 1250961 | 02/07/20 | S5 | 91685 | | 50.0000 | 51.5000 | 1 |
| 1250738 | 02/11/20 | P7 | | | 50.0000 | 51.5000 | 1 |
| 1250740 | 02/11/20 | P7 | | | 50.0000 | 51.5000 | 1 |
| 1250742 | 02/11/20 | P7 | | | 50.0000 | 51.5000 | 1 |
| 1250744 | 02/11/20 | P7 | | | 50.0000 | 51.5000 | 1 |
| 1250746 | 02/11/20 | P7 | | | 50.0000 | 51.5000 | 1 |
| 1250748 | 02/11/20 | P7 | | | 50.0000 | 51.5000 | 1 |
| 1250750 | 02/11/20 | P7 | | | 50.0000 | 51.5000 | 1 |
| 1250752 | 02/11/20 | P7 | | | 50.0000 | 51.5000 | 1 |
| 1250754 | 02/11/20 | P7 | | | 50.0000 | 51.5000 | 1 |
| 1250756 | 02/11/20 | P7 | | | 50.0000 | 51.5000 | 1 |
| 1247553 | 02/06/20 | N7 | 66548 | PBJ93-08* | 50.0000 | 51.5000 | 1 |
| 1250020 | 02/10/20 | N7 | 99205 | CS992-05 | 50.0000 | 51.5000 | 1 |
| 1250023FB | 02/10/20 | N7 | 99208 | CS992-08FB | 50.0000 | 51.5000 | 1 |
| 1251072 | 02/11/20 | N7 | 99305 | CS993-05 | 50.0000 | 51.5000 | 1 |
| 1251074FD | 02/11/20 | N7 | 99307 | CS993-07FD | 50.0000 | 51.5000 | 1 |
| 1251078FB | 02/11/20 | N7 | 99311 | CS993-11FB | 50.0000 | 51.5000 | 1 |

# LLENS Worksheet for ICP-ICPMS filtered no-digest

Batch# 20 035 15114 01

**Start Time:** 2/4/20 5:50 **End Time:** 2/4/20 6:04 **Hot Block:**

**Pipette ID:** R34046G

| Spike/Reagent | Lot# | Volume Added(mL) |
|---|---|---|
| 1:1 HCL | P19347A | 0.50 |
| 1:1 HNO3 | P19-361B | 1.00 |
| ICPMS | 1926917-IL | 0.50 |
| LCS ICPMS | 1926917-IL | 0.50 |

**Method Ref:**

| | SampleID | Date Due | ST | P | H | Method | PH<2 | BC | Vessel Lot# | Location ID | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) | PBW | . | | | | | | | 1906257 | | |
| 2) | LCSW | . | | | | | | | 1906257 | | |
| 3) | **1251892U** | 02/12/20 17:01 | GW | N7 | | SW-846 6020B Rev.2, July 2014 | Y | 802D | 1906257 | WMET37/E2 | |
| 4) | **1251892D** | 02/12/20 17:01 | GW | N7 | | SW-846 6020B Rev.2, July 2014 | Y | 802c | 1906257 | WMET37/D2 | |
| 5) | **1251892R** | 02/12/20 17:01 | GW | N7 | | SW-846 6020B Rev.2, July 2014 | Y | 802b | 1906257 | WMET37/C2 | |
| 6) | **1251892M** | 02/12/20 17:01 | GW | N7 | | SW-846 6020B Rev.2, July 2014 | Y | 802a | 1906257 | WMET37/B2 | |
| 7) | 1251908 | 02/12/20 19:35 | GW | P7 | | SW-846 6020B Rev.2, July 2014 | Y | 802A | 1906257 | WMET37/D1 | |
| 8) | 1251906 | 02/12/20 19:35 | GW | P7 | | SW-846 6020B Rev.2, July 2014 | Y | 802A | 1906257 | WMET37/C1 | |
| 9) | 1251880FB | 02/12/20 16:54 | GW | N7 | | SW-846 6020B Rev.2, July 2014 | Y | 802A | 1906257 | WMET37/F2 | |
| 10) | 1251904 | 02/12/20 19:35 | GW | P7 | | SW-846 6020B Rev.2, July 2014 | Y | 802A | 1906257 | WMET37/F1 | |
| 11) | 1251387 | 02/12/20 09:42 | GW | N7 | | SW-846 6020 | Y | 802A | 1906257 | WMET31/E1 | |
| 12) | 1251900 | 02/12/20 19:35 | GW | P7 | | SW-846 6020B Rev.2, July 2014 | Y | 802A | 1906257 | WMET37/E1 | |
| 13) | 1251379 | 02/12/20 09:42 | GW | N7 | | SW-846 6020 | Y | 802A | 1906257 | WMET31/D1 | |
| 14) | 1251383 | 02/12/20 09:42 | GW | N7 | | SW-846 6020 | Y | 802A | 1906257 | WMET31/C2 | |
| 15) | 1251902 | 02/12/20 19:35 | GW | P7 | | SW-846 6020B Rev.2, July 2014 | Y | 802A | 1906257 | WMET37/A1 | |
| 16) | 1251374 | 02/12/20 09:42 | GW | N7 | | SW-846 6020 | Y | 802A | 1906257 | WMET31/C1 | |
| 17) | 1251898 | 02/12/20 19:35 | GW | P7 | | SW-846 6020B Rev.2, July 2014 | Y | 802A | 1906257 | WMET37/B1 | |
| 18) | 1251381FD | 02/12/20 09:42 | GW | N7 | | SW-846 6020 | Y | 802A | 1906257 | WMET31/B2 | |
| 19) | 1251895FB | 02/12/20 17:01 | GW | N7 | | SW-846 6020B Rev.2, July 2014 | Y | 802A | 1906257 | WMET37/A2 | |
| 20) | 1251372 | 02/12/20 09:42 | GW | N7 | | SW-846 6020 | Y | 802A | 1906257 | WMET31/B1 | |

Prep Employee:1184 D/I _____

2/4/2020

# Batch# 20 035 1511 401

## LLENS Batch Chronology and Change Log - ICP-ICPMS filtered no-digest

| | Operation | Instrument | Operation Date | ANALYST |
|---|---|---|---|---|
| 1) | Batch Creation | | 2/4/20 4:31 | 1184 |
| 2) | Sample Vol | CLEAR | 2/4/20 6:04 | 1184 |
| 3) | Trial | | 2/4/20 6:04 | 1184 |
| 4) | Upload Prep | US19PCC06722 | 2/4/20 6:04 | 1184 |

| Sample ID | Analysis | D | Operation | Measurement | Original Entry | | | | Data Changed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Date/Time | Data | Units | Analyst | Date/Time | Analyst | Reason |

Analysis: 5114 ICP-ICPMS filtered no-digest Batch# 20 035 1511 401

| Sample ID | Due Date | P | EPA# | SDG# | Initial Volume | Final Volume | Trial |
|---|---|---|---|---|---|---|---|
| PBW | | | | | 50.0000 | 51.5000 | 1 |
| LCSW | | | | | 50.0000 | 50.0000 | 1 |
| **1251892U** | 02/12/20 | N7 | 994-8 | CS994-08 | 50.0000 | 51.5000 | 1 |
| **1251892D** | 02/12/20 | N7 | 994-8 | CS994-08 | 50.0000 | 51.5000 | 1 |
| **1251892R** | 02/12/20 | N7 | 994-8 | CS994-08 | 50.0000 | 52.0000 | 1 |
| **1251892M** | 02/12/20 | N7 | 994-8 | CS994-08 | 50.0000 | 52.0000 | 1 |
| 1251908 | 02/12/20 | P7 | 55X12 | XOT55-12 | 50.0000 | 51.5000 | 1 |
| 1251906 | 02/12/20 | P7 | 55X10 | XOT55-10 | 50.0000 | 51.5000 | 1 |
| 1251880FB | 02/12/20 | N7 | 620-6 | CR620-06FB | 50.0000 | 51.5000 | 1 |
| 1251904 | 02/12/20 | P7 | 55X08 | XOT55-08 | 50.0000 | 51.5000 | 1 |
| 1251387 | 02/12/20 | N7 | PO2DF | PUP93-17 | 50.0000 | 51.5000 | 1 |
| 1251900 | 02/12/20 | P7 | 55X04 | XOT55-04 | 50.0000 | 51.5000 | 1 |
| 1251379 | 02/12/20 | N7 | P44IF | PUP93-09 | 50.0000 | 51.5000 | 1 |
| 1251383 | 02/12/20 | N7 | P44DF | PUP93-13 | 50.0000 | 51.5000 | 1 |
| 1251902 | 02/12/20 | P7 | 55X06 | XOT55-06 | 50.0000 | 51.5000 | 1 |
| 1251374 | 02/12/20 | N7 | PO23F | PUP93-04 | 50.0000 | 51.5000 | 1 |
| 1251898 | 02/12/20 | P7 | 55X02 | XOT55-02 | 50.0000 | 51.5000 | 1 |
| 1251381FD | 02/12/20 | N7 | PFD1F | PUP93-11FD | 50.0000 | 51.5000 | 1 |
| 1251895FB | 02/12/20 | N7 | 99411 | CS994-11FB | 50.0000 | 51.5000 | 1 |
| 1251372 | 02/12/20 | N7 | P24IF | PUP93-02 | 50.0000 | 51.5000 | 1 |

# LLENS Worksheet for ICP-ICPMS filtered no-digest

Batch# 20 037 15114 02

**Start Time:** 2/6/20 16:20 **End Time:** 2/6/20 16:25 **Hot Block:**

**Pipette ID:** S/500

| Spike/Reagent | Lot# | Volume Added(mL) |
|---|---|---|
| 1:1 HCL | P19347A | 0.50 |
| 1:1 HNO3 | P19-361B | 1.00 |
| ICP/MS | 1926917-IL | 0.50 |
| LCS ICP/MS | 1926917-IL | 0.50 |

**Method Ref:**

| | SampleID | Date Due | ST | P | H | Method | PH<2 | BC | Vessel Lot# | Location ID | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) | PBW | . | | | | | | | 1906257 | | |
| 2) | LCSW | . | | | | | | | 1906257 | | |
| 3) | **1251397U** | 02/12/20 09:42 | GW | N7 | | SW-846 6020 | | 008A | 1906257 | E01184/ | |
| 4) | **1251397M** | 02/12/20 09:42 | GW | N7 | | SW-846 6020 | | 008a | 1906257 | E01184/ | |
| 5) | **1251397R** | 02/12/20 09:42 | GW | N7 | | SW-846 6020 | | 008a | 1906257 | E01184/ | |
| 6) | **1251397D** | 02/12/20 09:42 | GW | N7 | | SW-846 6020 | | 008a | 1906257 | E01184/ | |
| 7) | 1251377 | 02/12/20 09:42 | GW | N7 | | SW-846 6020 | | 008A | 1906257 | E01184/ | |
| 8) | 1251385 | 02/12/20 09:42 | GW | N7 | | SW-846 6020 | | 008A | 1906257 | E01184/ | |
| 9) | 1252854 | 02/13/20 10:36 | GW | S6 | | SW-846 6020B Rev.2, July 2014 | Y | 802A | 1906257 | WMET02/D1 | |
| 10) | 1252857 | 02/13/20 10:36 | GW | S6 | | SW-846 6020B Rev.2, July 2014 | Y | 802A | 1906257 | WMET02/C1 | |

Prep Employee:1364 D/I _____

2/6/2020



v 1.2.0

# Batch# 20 037 1511 402

## LLENS Batch Chronology and Change Log - ICP-ICPMS filtered no-digest

| | Operation | Instrument | Operation Date | ANALYST |
|---|---|---|---|---|
| 1) | Batch Creation | | 2/6/20 16:09 | 1364 |
| 2) | Sample Vol | CLEAR | 2/6/20 16:28 | 1364 |
| 3) | Trial | | 2/6/20 16:28 | 1364 |
| 4) | Upload Prep | US19PCC06698 | 2/6/20 16:28 | 1364 |

| Sample ID | Analysis | D | Operation | Measurement | Original Entry | | | | Data Changed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Date/Time | Data | Units | Analyst | Date/Time | Analyst | Reason |

Analysis: 5114 ICP-ICPMS filtered no-digest Batch# 20 037 1511 402

| Sample ID | Due Date | P | EPA# | SDG# | Initial Volume | Final Volume | Trial |
|---|---|---|---|---|---|---|---|
| PBW | | | | | 50.0000 | 51.5000 | 1 |
| LCSW | | | | | 50.0000 | 50.0000 | 1 |
| **1251397U** | 02/12/20 | N7 | P48IF | PUP93-21 | 50.0000 | 51.5000 | 1 |
| **1251397M** | 02/12/20 | N7 | P48IF | PUP93-21 | 50.0000 | 52.0000 | 1 |
| **1251397R** | 02/12/20 | N7 | P48IF | PUP93-21 | 50.0000 | 52.0000 | 1 |
| **1251397D** | 02/12/20 | N7 | P48IF | PUP93-21 | 50.0000 | 51.5000 | 1 |
| 1251377 | 02/12/20 | N7 | P25IF | PUP93-07 | 50.0000 | 51.5000 | 1 |
| 1251385 | 02/12/20 | N7 | 11IPF | PUP93-15 | 50.0000 | 51.5000 | 1 |
| 1252854 | 02/13/20 | S6 | 04202 | AGV75-02 | 50.0000 | 51.5000 | 1 |
| 1252857 | 02/13/20 | S6 | 04205 | AGV75-05 | 50.0000 | 51.5000 | 1 |

# Instrumental Wet Chemistry Data

# Case Narrative/Conformance Summary

# Instrumental Wet Chemistry

eurofins | Lancaster Laboratories Environmental

# Case Narrative/Conformance Summary

**CLIENT: Chevron Env Management Company**
**SDG: PUP93**

## Instrumental Water Quality

**Fraction: Instrumental Wet Chemistry**

| Sample # | Client ID | Matrix Liquid | Matrix Solid | Comments |
|---|---|---|---|---|
| 1251371 | MW-24I-W-200130 | X | | |
| 1251373 | MW-23-W-200130 | X | | |
| 1251376 | MW-25I-W-200130 | X | | |
| 1251378 | MW-44I-W-200130 | X | | |
| 1251380 | DUP1-WD-200130 | X | | Field Duplicate Sample |
| 1251382 | MW-44D-W-200130 | X | | |
| 1251384 | MW-11IP-W-200130 | X | | |
| 1251386 | MW-2D-W-200130 | X | | |
| 1251388 | MW-48D-W-200130 | X | | Background/Unspiked |
| 1251389 | MW-48DMS-W-200130 | X | | Matrix Spike |
| 1251391 | MW-48DDUP-W-200130 | X | | Duplicate |
| 1251396 | MW-48I-W-200130 | X | | |

See QC Reference List for Associated Batch QC Samples

### SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

### HOLDING TIME:

All holding times were met.

### PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

### CALIBRATION/STANDARDIZATION:

All criteria were met.

### QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

All QC is within specification.

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# Case Narrative/Conformance Summary

**CLIENT: Chevron Env Management Company**
**SDG: PUP93**

## Instrumental Water Quality

**Fraction: Instrumental Wet Chemistry**

### SAMPLE ANALYSIS:

| Samples | Chloride | Nitrate Nitrogen | Sulfate | Total Organic Carbon |
|---|---|---|---|---|
| 1251371 | DF5 | DF5 | DF5 | DF1 |
| 1251373 | DF5 | DF5 | DF5 | DF1 |
| 1251376 | DF5 | DF5 | DF5 | DF1 |
| 1251378 | DF5 | DF5 | DF5 | DF1 |
| 1251380 | DF5 | DF5 | DF5 | DF1 |
| 1251382 | DF5 | DF5 | DF5 | DF1 |
| 1251384 | DF5 | DF5 | DF10 | DF1 |
| 1251386 | DF5 | DF5 | DF5 | DF1 |
| 1251388 | UNSPK/ DF5 | UNSPK/ DF5 | UNSPK/ DF5 | UNSPK/ DF1 |
| 1251389 | MS/ DF5 | MS/ DF5 | MS/ DF5 | MS/ DF1 |
| 1251391 | D/ DF5 | D/ DF5 | D/ DF5 | D/ DF1 |
| 1251396 | DF5 | DF5 | DF5 | DF1 |

No problems were encountered with the analysis of the samples.

**Abbreviation Key**

| | |
|---|---|
| U = Unspiked (for MS/MSD) | LOQ = Limit of Quantitation |
| R = Matrix Spike (MS) | MDL = Method Detection Limit |
| M = Matrix Spike Duplicate (MSD) | ND = Not Detected |
| BKG = Background (for Duplicate) | J = Estimated Value |
| D = Duplicate (DUP) | NA = Not Applicable |
| HS = High Spike | ME = Method |
| LS = Low Spike | CO = Colorimetric |
| SS = Soluble Spike | G = Gravimetric |
| IS = Insoluble Spike | IR = Infrared Spectrophotometry |
| ISD = Insoluble Spike Duplicate | MTR = Meter |
| PDS = Post Digestion Spike | OD = Oven Dried |
| * = Out of Specification | TI = Titration |
| V = Visual | TOC = Total Organic Carbon |
| AK = Alpkem | IC = Ion Chromatography |
| TC = Total Carbon | RA = Rapid Analyzer |

# Quality Control and Calibration Summary Forms

# Instrumental Wet Chemistry

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# Quality Control Reference List
## Instrumental Water Quality

**CLIENT: Chevron Env Management Company**
**SDG: PUP93**

**Fraction: Instrumental Wet Chemistry**

| Analysis | Batch Number | Sample Number | Analysis Date |
|---|---|---|---|
| Total Organic Carbon | 20035304501A | P03504AB | 02/04/2020 12:08 |
| | | P03504AQ | 02/04/2020 11:54 |
| | | 1251371 | 02/04/2020 12:22 |
| | | 1251373 | 02/04/2020 12:35 |
| | | 1251376 | 02/04/2020 12:49 |
| | | 1251378 | 02/04/2020 13:02 |
| | | 1251380 | 02/04/2020 13:15 |
| | | 1251382 | 02/04/2020 13:29 |
| | | 1251384 | 02/04/2020 13:42 |
| | | 1251386 | 02/04/2020 13:56 |
| | | 1251388 UNSPK/BKG | 02/04/2020 14:37 |
| | | 1251389 MS | 02/04/2020 14:51 |
| | | 1251391 DUP | 02/04/2020 15:05 |
| | | 1251396 | 02/04/2020 15:19 |

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# Quality Control Reference List
## Instrumental Water Quality

**CLIENT: Chevron Env Management Company**
**SDG: PUP93**

**Fraction: Instrumental Wet Chemistry**

| Batch Number | Sample Number | Analysis Date | Chloride | Nitrate Nitrogen | Sulfate |
|---|---|---|---|---|---|
| 20032720113A | 1251371 | 02/01/2020 11:26:00 | | X | |
| | 1251371 | 02/04/2020 06:25:00 | X | | X |
| | 1251373 | 02/01/2020 11:41:00 | X | X | X |
| | 1251376 | 02/01/2020 11:56:00 | X | X | X |
| | 1251378 | 02/01/2020 12:12:00 | X | X | X |
| | 1251380 | 02/01/2020 12:27:00 | X | X | X |
| | 1251382 | 02/01/2020 12:42:00 | X | X | X |
| | 1251384 | 02/01/2020 12:57:00 | X | X | |
| | 1251384 | 02/04/2020 07:17:00 | | | X |
| | 1251386 | 02/01/2020 13:12:00 | X | X | X |
| | 1251388 | 02/01/2020 13:27:00 | X | X | X |
| | UNSPK/BKG | | | | |
| | 1251389 MS | 02/01/2020 13:42:00 | X | X | X |
| | 1251391 DUP | 02/01/2020 14:27:00 | X | X | X |
| | 1251396 | 02/01/2020 14:42:00 | X | X | X |
| | P03220MB | 02/01/2020 15:57:00 | X | X | X |
| | P03220MQ | 02/01/2020 15:42:00 | X | X | X |

**Quality Control Summary**
**Method Blank**
**Instrumental Water Quality**
**SDG: PUP93**
**Matrix: LIQUID**

**Fraction: Instrumental Wet Chemistry**

| 20032720113A / P03220MB Parameter | ME | Analysis Date | Blank Results | Units | MDL | LOQ |
|---|---|---|---|---|---|---|
| Chloride | IC | 02/01/20 | N.D. | ug/l | 200 | 400 |
| Nitrate Nitrogen | IC | 02/01/20 | N.D. | ug/l | 50 | 100 |
| Sulfate | IC | 02/01/20 | N.D. | ug/l | 300 | 1000 |

| 20035304501A / P03504AB Parameter | ME | Analysis Date | Blank Results | Units | MDL | LOQ |
|---|---|---|---|---|---|---|
| Total Organic Carbon | TOC | 02/04/20 | N.D. | ug/l | 500 | 1000 |

## Instrumental Water Quality

**Fraction: Instrumental Wet Chemistry**

| UNSPK: 1251388<br>MS: 1251389 | Batch: **20032720113A** (Sample number(s): 1251371, 1251373, 1251376, 1251378, 1251380, 1251382, 1251384, 1251386, 1251388-1251389, 1251391, 1251396 ) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **ME** | **Spike Added ug/l** | **Unspiked Conc ug/l** | **MS Conc ug/l** | **MSD Conc ug/l** | **MS %Rec** | **MSD %Rec** | **%Rec Limits** | **%RPD** | **%RPD Limits** |
| Chloride | IC | 10000 | 3891.06 | 13455.81 | NA | 96 | NA | 90-110 | NA | NA |
| Nitrate Nitrogen | IC | 2500 | N.D. | 2566.37 | NA | 103 | NA | 90-110 | NA | NA |
| Sulfate | IC | 25000 | 6551.52 | 30531.88 | NA | 96 | NA | 90-110 | NA | NA |

| UNSPK: 1251388<br>MS: 1251389 | Batch: **20035304501A** (Sample number(s): 1251371, 1251373, 1251376, 1251378, 1251380, 1251382, 1251384, 1251386, 1251388-1251389, 1251391, 1251396 ) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **ME** | **Spike Added ug/l** | **Unspiked Conc ug/l** | **MS Conc ug/l** | **MSD Conc ug/l** | **MS %Rec** | **MSD %Rec** | **%Rec Limits** | **%RPD** | **%RPD Limits** |
| Total Organic Carbon | TOC | 10000 | N.D. | 10402.5 | NA | 104 | NA | 91-113 | NA | NA |

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

## Instrumental Water Quality

**Fraction: Instrumental Wet Chemistry**

| BKG: 1251388<br>DUP: 1251391 | Batch: **20032720113A** (Sample number(s): 1251371, 1251373, 1251376, 1251378, 1251380, 1251382, 1251384, 1251386, 1251388-1251389, 1251391, 1251396 ) | | | | |
|---|---|---|---|---|---|
| **Parameter** | **ME** | **Unspiked Conc ug/l** | **DUP Conc ug/l** | **%RPD** | **%RPD Limits** |
| Chloride | IC | 3891.06 | 4076.58 | 5 (1) | 15 |
| Nitrate Nitrogen | IC | N.D. | N.D. | 0 (1) | 15 |
| Sulfate | IC | 6551.52 | 6463.35 | 1 (1) | 15 |

| BKG: 1251388<br>DUP: 1251391 | Batch: **20035304501A** (Sample number(s): 1251371, 1251373, 1251376, 1251378, 1251380, 1251382, 1251384, 1251386, 1251388-1251389, 1251391, 1251396 ) | | | | |
|---|---|---|---|---|---|
| **Parameter** | **ME** | **Unspiked Conc ug/l** | **DUP Conc ug/l** | **%RPD** | **%RPD Limits** |
| Total Organic Carbon | TOC | N.D. | N.D. | 0 (1) | 9 |

Comments:
(1) The sample and/or duplicate result is less than five times the LOQ.
* = Out of Specification

Results are being reported on an as received basis.

## Instrumental Water Quality

**Fraction: Instrumental Wet Chemistry**

| LCS: P03220MQ | Batch: **20032720113A** (Sample number(s): 1251371, 1251373, 1251376, 1251378, 1251380, 1251382, 1251384, 1251386, 1251388-1251389, 1251391, 1251396 ) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **ME** | **Spike Added ug/l** | **LCS Conc ug/l** | **LCSD Conc ug/l** | **LCS %Rec** | **LCSD %Rec** | **%Rec Limits** | **%RPD** | **%RPD Limits** |
| Chloride | IC | 3000 | 2861.52 | NA | 95 | NA | 90-110 | NA | NA |
| Nitrate Nitrogen | IC | 750 | 734.77 | NA | 98 | NA | 90-110 | NA | NA |
| Sulfate | IC | 7500 | 7328.63 | NA | 98 | NA | 90-110 | NA | NA |

| LCS: P03504AQ | Batch: **20035304501A** (Sample number(s): 1251371, 1251373, 1251376, 1251378, 1251380, 1251382, 1251384, 1251386, 1251388-1251389, 1251391, 1251396 ) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **ME** | **Spike Added ug/l** | **LCS Conc ug/l** | **LCSD Conc ug/l** | **LCS %Rec** | **LCSD %Rec** | **%Rec Limits** | **%RPD** | **%RPD Limits** |
| Total Organic Carbon | TOC | 25000 | 24350.5 | NA | 97 | NA | 91-113 | NA | NA |

Quality Control Summary
Initial And Continuing Calibration
Instrumental Analysis/Anion Scan

SDG: PUP93

Instrument ID: 19052
Calibration Date: 01/13/2020

Acceptance Range:
ICV/CCV: 90%-110%
ICB/CCB: < MDL

Concentration units: mg/l

Batch Numbers: 20032720113A
Run Start Dates: 02/01/2020
Run Names: 2003201D13

| Analysis | AUTO CAL1 | AUTO CAL2 | AUTO CAL3 | AUTO CAL4 | AUTO CAL5 | $R^2$ | CC |
|---|---|---|---|---|---|---|---|
| Chloride | 0.665128 | 1.236893 | 2.778051 | 6.389833 | 10.032942 | 0.9970 | 0.9985 |
| Nitrate Nitrogen | 0.159582 | 0.746614 | 1.723984 | 3.922189 | 6.032451 | 0.9980 | 0.9990 |
| Sulfate | 0.376220 | 0.828984 | 1.896159 | 4.338369 | 6.740788 | 0.9980 | 0.9990 |

| | Chloride | | | Sulfate | | | Nitrate Nitrogen | | |
|---|---|---|---|---|---|---|---|---|---|
| Sample | True | Result | %Rec | True | Result | %Rec | True | Result | %Rec |
| ICV | 3 | 3.0670 | 102 | 7.5 | 7.4868 | 100 | 0.75 | 0.7500 | 100 |
| ICB | 0 | ND | NA | 0 | ND | NA | 0 | ND | NA |
| CCV2 | 3 | 2.8742 | 96 | 7.5 | 7.3139 | 98 | 0.75 | 0.7350 | 98 |
| CCB | 0 | ND | NA | 0 | ND | NA | 0 | ND | NA |
| CCV2 | 3 | 2.8694 | 96 | 7.5 | 7.4602 | 99 | 0.75 | 0.7422 | 99 |
| CCB | 0 | ND | NA | 0 | ND | NA | 0 | ND | NA |
| CCV2 | 3 | 2.8587 | 95 | 7.5 | 7.3005 | 97 | 0.75 | 0.7360 | 98 |
| CCB | 0 | ND | NA | 0 | ND | NA | 0 | ND | NA |

* = Out of Specifications

Quality Control Summary
Initial And Continuing Calibration
Instrumental Analysis/Anion Scan

SDG: PUP93

Instrument ID: 12115
Calibration Date: 12/11/2019

| Analysis | AUTO CAL1 | AUTO CAL2 | AUTO CAL3 | AUTO CAL4 | AUTO CAL5 | $R^2$ | CC |
|---|---|---|---|---|---|---|---|
| Chloride | 0.676585 | 1.516940 | 3.879745 | 8.146824 | 12.737719 | 0.9996 | 0.9998 |
| Sulfate | 0.398062 | 0.822469 | 2.154719 | 4.468366 | 6.944768 | 0.9997 | 0.9999 |

Acceptance Range:
ICV/CCV: 90%-110%
ICB/CCB: < MDL

Concentration units: mg/l

Batch Numbers: 20032720113A
Run Start Dates: 02/03/2020
Run Names: 2003401D15

| | Chloride | | | Sulfate | | |
|---|---|---|---|---|---|---|
| Sample | True | Result | %Rec | True | Result | %Rec |
| ICV | 3 | 2.8204 | 94 | 7.5 | 7.1437 | 95 |
| ICB | 0 | ND | NA | 0 | ND | NA |
| CCV2 | 3 | 2.9864 | 100 | 7.5 | 7.8222 | 104 |
| CCB | 0 | ND | NA | 0 | ND | NA |
| CCV2 | 3 | 3.0102 | 100 | 7.5 | 8.0108 | 107 |
| CCB | 0 | ND | NA | 0 | ND | NA |
| CCV2 | | | | 7.5 | 8.0350 | 107 |
| CCB | | | | 0 | ND | NA |

* = Out of Specifications

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Quality Control Summary
Initial And Continuing Calibration
Instrumental Analysis/TOC

SDG: PUP93

Instrument ID: 26070
Calibration Date: 01/28/2020

| Analysis | AUTO CAL1 | AUTO CAL2 | AUTO CAL3 | AUTO CAL4 | AUTO CAL5 | AUTO CAL6 | CC |
|---|---|---|---|---|---|---|---|
| TOC | 7760 | 46158 | 61089 | 149972 | 280179 | 543092 | 0.9997 |

Acceptance Range:
ICV/CCV: 90%-110%
ICB/CCB: < LOQ

Concentration units: mg/l

Batch Numbers: 20035304501A
Run Start Dates: 02/04/2020
Run Names: 2003501G07

| | TOC | | |
|---|---|---|---|
| Sample | True | Result | %Rec |
| ICV | 25 | 24.939 | 100 |
| ICB | 0 | ND | NA |
| CCV2 | 25 | 24.426 | 98 |
| CCB | 0 | ND | NA |
| CCV2 | 25 | 24.429 | 98 |
| CCB | 0 | ND | NA |
| CCV2 | 25 | 24.332 | 97 |
| CCB | 0 | ND | NA |

* = Out of Specification are immediately followed by two acceptable CCVs

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**LOQ/MDL Summary**
**Instrumental Water Quality**

**SDG: PUP93**

**Fraction: Instrumental Wet Chemistry**

| **00224: Chloride**<br>**Analyte Name** | **Default**<br>**MDL** | **Default**<br>**LOQ** | **Units** |
|---|---|---|---|
| Chloride | 200 | 400 | ug/l |

| **00368: Nitrate Nitrogen**<br>**Analyte Name** | **Default**<br>**MDL** | **Default**<br>**LOQ** | **Units** |
|---|---|---|---|
| Nitrate Nitrogen | 50 | 100 | ug/l |

| **00228: Sulfate**<br>**Analyte Name** | **Default**<br>**MDL** | **Default**<br>**LOQ** | **Units** |
|---|---|---|---|
| Sulfate | 300 | 1,000 | ug/l |

| **00273: Total Organic Carbon**<br>**Analyte Name** | **Default**<br>**MDL** | **Default**<br>**LOQ** | **Units** |
|---|---|---|---|
| Total Organic Carbon | 500 | 1,000 | ug/l |

# Raw Data

# Instrumental Wet Chemistry

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# Inorganic Anions by Ion Chromatography

System Name ICS-1100 Analyst KL 1352O

Instrument ID 19052 Run Start Date 1-13-20

IDAT Run Number 200130 1 D13 Run Name 200131 3 C

**ICV/CCV/LCSW (mg/L)**

Prep Book/Page: 304884/45

| Anion | T.V. | LCSW /ICV/CCV2 | DOD LCSW |
|---|---|---|---|
| Fluoride | .75 | .6713 - 0.828 | 0.66-0.84 |
| Chloride | 3.0 | 2.685 - 3.312 | 2.61-3.33 |
| Nitrite-N | .75 | .6713 - 0.828 | .6525-.8325 |
| Bromide | 7.5 | 6.71 - 8.28 | 6.825-8.25 |
| Nitrate-N | .75 | .6713 - 0.828 | 0.66-0.8325 |
| O-Phos as P | 7.5 | 6.71 - 8.28 | 6.0-8.7 |
| Sulfate | 7.5 | 6.71 - 8.28 | 6.525-8.4 |

**CCB/PBW (mg/L)**

| $F, NO_2$ | $NO_3$ | Cl | P | Br | $SO_4$ |
|---|---|---|---|---|---|
| < 0.05 | < 0.05 | <0.2 | < 0.2 | < 0.25 | < 0.3 |

**LCSS (mg/kg)**

Prep Book/Page: ———

| Anion | T.V. | Acceptance Range |
|---|---|---|
| Fluoride | 10 | 8.95 - 11.0 |
| Chloride | 20 | 17.9 - 22.08 |
| Nitrite-N | 10 | 8.95 - 11.0 |
| Bromide | 50 | 44.75 - 55.2 |
| Nitrate-N | 10 | 8.95 - 11.0 |
| O-Phos as P | 50 | 44.75 - 55.2 |
| Sulfate | 50 | 44.75 - 55.2 |

**CCB/PBS (mg/kg)**

| $F, NO_2, NO_3$ | Cl | Br | P, $SO_4$ |
|---|---|---|---|
| < 0.5 | < 5.0 | < 2.5 | 5.0 |

**Calibration Information – (mg/L)**

| Standard | $F, NO_2, NO_3$ | Cl | Br,P | $SO_4$ |
|---|---|---|---|---|
| Cal 1 | 0.1 | 0.4 | 0.5 | 1.0 |
| Cal 2 | 0.4 | 0.8 | 2.0 | 2.0 |
| Cal 3 | 1.0 | 2.0 | 5.0 | 5.0 |
| Cal 4 | 2.0 | 4.0 | 10.0 | 10.0 |
| Cal 5 | 3.0 | 6.0 | 15.0 | 15.0 |

**Check Standards True Values (mg/L)**

| | $F, NO_2, NO_3$ | Cl | Br, P, $SO_4$ |
|---|---|---|---|
| Low | 0.75 | 1.5 | 3.75 |
| High | 2.25 | 4.5 | 11.25 |

The dilution for solids is entered into the software by multiplying by 50 in order to calculate the result to mg/kg.

# Sequence Overview: 2001313C

| No. | Injection Name | Batch Number | Position | Type | Level | Inject Time | Volume µL | Instrumentation Method | Processing Method | Weight | Dilution | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | TEST | | GA7 | Check Standard | | 01/13/2020 10:30:58 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |
| 2 | CAL 0 | | GA1 | Calibration Standard | 01 | 01/13/2020 10:46:00 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |
| 3 | CAL 1 | | GA2 | Calibration Standard | 02 | 01/13/2020 11:01:02 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |
| 4 | CAL 2 | | GA3 | Calibration Standard | 03 | 01/13/2020 11:16:04 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |
| 5 | CAL 3 | | GA4 | Calibration Standard | 04 | 01/13/2020 11:31:06 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |
| 6 | CAL 4 | | GA5 | Calibration Standard | 05 | 01/13/2020 11:46:09 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |
| 7 | CAL 5 | | GA6 | Calibration Standard | 06 | 01/13/2020 12:01:10 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |
| 8 | ICV | | GA7 | Check Standard | | 01/13/2020 12:16:13 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |
| 9 | ICB | | GA8 | Check Standard | | 01/13/2020 12:31:15 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |
| 10 | CRDL | | GA2 | Check Standard | | 01/13/2020 12:46:16 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |
| 11 | QRS | | GA2 | Check Standard | | 01/13/2020 13:01:19 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |

Sequence: 2001313C
Injection #7: CAL 5

Calibration

| Peak No. | Peak Name | Cal.Type | Eval.Type | Number of Points | Rel.Std.Dev. % | Coeff.of Determination | C0 (Offset) | C1 (Slope) | Corr.Coeff. % |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Fluoride | Lin, WithOffset | Area | 5 | 5.6742 | 0.99744 | -0.0236 | 0.3576 | 99.87159 |
| 2 | Chloride | Lin, WithOffset | Area | 5 | 5.7366 | 0.99703 | -0.0199 | 0.2883 | 99.84969 |
| 3 | Nitrite | Lin, WithOffset | Area | 5 | 5.1131 | 0.99788 | -0.0317 | 0.6669 | 99.89405 |
| 4 | Bromide | Lin, WithOffset | Area | 5 | 5.9718 | 0.99793 | -0.0351 | 0.1143 | 99.89666 |
| 5 | Nitrate | Lin, WithOffset | Area | 5 | 4.9517 | 0.99801 | -0.0349 | 0.6244 | 99.90050 |
| 6 | Sulfate | Lin, WithOffset | Area | 5 | 4.7026 | 0.99802 | -0.0583 | 0.1967 | 99.90116 |
| Maximum | | | | | 5.7004 | 0.99802 | | | |
| Minimum | | | | | 4.7809 | 0.99700 | | | |

Drew Gerhart
Chemist

JAN 14 2020

Sandra J. Miller
Chemist

JAN 15 2020

Chromeleon 7,
Version 7.2.7.10369, Thermo Fisher Scientific

Page 1 of 2

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PUP93 Page 935 of 1048

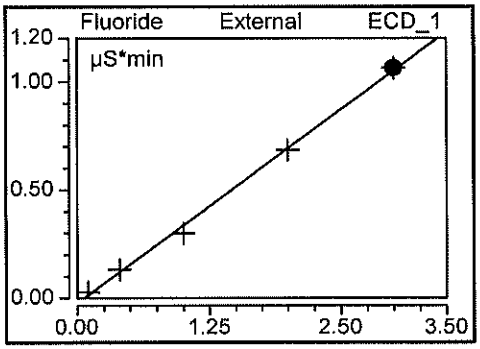
# Calibration Batch Report

| | | | |
|---|---|---|---|
| *Sequence:* | **2001313C** | *Injection Volu A* | **50.00** |
| *Instrument Method:* | **Anions** | *Channel:* | **ECD_1** |
| *Instrument Number:* | **19052** | *Run Time (min):* | **13** |
| *Inj. Date / Time:* | **13-Jan-2020 / 12:01** | | |

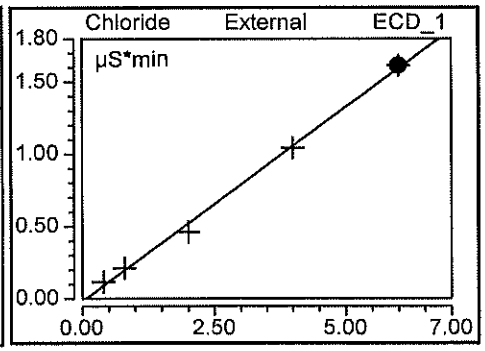
**Calibration Summary**

| Peak Name | Eval.Type | Cal.Type | Points | Offset (C0) | Slope (C1) | Curve (C2) | Coeff.Det. % |
|---|---|---|---|---|---|---|---|
| Fluoride | Area | Lin, WithOffset | 5.000 | -0.024 | 0.358 | 0.000 | 99.7435 |
| Chloride | Area | Lin, WithOffset | 5.000 | -0.020 | 0.269 | 0.000 | 99.6996 |
| Nitrite | Area | Lin, WithOffset | 5.000 | -0.032 | 0.566 | 0.000 | 99.7883 |
| Bromide | Area | Lin, WithOffset | 5.000 | -0.035 | 0.114 | 0.000 | 99.7934 |
| Nitrate | Area | Lin, WithOffset | 5.000 | -0.035 | 0.634 | 0.000 | 99.8011 |
| Sulfate | Area | Lin, WithOffset | 5.000 | -0.058 | 0.191 | 0.000 | 99.8024 |
| | | **AVERAGE:** | | -0.0339 | 0.3553 | 0.0000 | 99.7714 |

| Injection Name | Ret.Time min ECD_1 | Area µS*min ECD_1 | Height µS ECD_1 | Amount ECD_1 |
|---|---|---|---|---|
| | Fluoride | Fluoride | Fluoride | Fluoride |
| CAL 0 | n.a. | n.a. | n.a. | n.a. |
| CAL 1 | 2.737 | 0.0276 | 0.128 | 0.143 |
| CAL 2 | 2.730 | 0.1320 | 0.607 | 0.435 |
| CAL 3 | 2.733 | 0.2990 | 1.463 | 0.902 |
| CAL 4 | 2.733 | 0.6841 | 3.547 | 1.979 |
| CAL 5 | 2.730 | 1.0634 | 5.677 | 3.040 |
| **Average** | 2.733 | | | |
| **Rel. Std. Dev.** | 0.102 % | | | |




| Injection Name | Ret.Time min ECD_1 | Area µS*min ECD_1 | Height µS ECD_1 | Amount ECD_1 |
|---|---|---|---|---|
| | Chloride | Chloride | Chloride | Chloride |
| CAL 0 | n.a. | n.a. | n.a. | n.a. |
| CAL 1 | 3.987 | 0.1169 | 0.665 | 0.509 |
| CAL 2 | 3.983 | 0.2104 | 1.237 | 0.857 |
| CAL 3 | 3.990 | 0.4624 | 2.778 | 1.795 |
| CAL 4 | 3.990 | 1.0424 | 6.390 | 3.955 |
| CAL 5 | 3.990 | 1.6144 | 10.033 | 6.084 |
| **Average** | 3.988 | | | |
| **Rel. Std. Dev.** | 0.075 % | | | |




Sandra J. Miller
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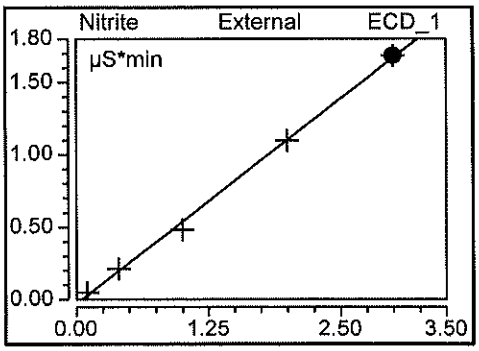
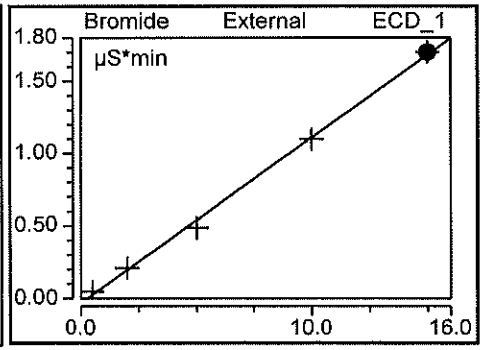
JAN 15 2020

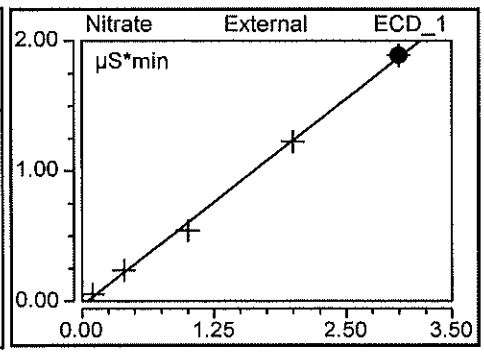
| Injection Name | Ret.Time min ECD_1 | Area µS*min ECD_1 | Height µS ECD_1 | Amount ECD_1 |
|---|---|---|---|---|
| | Nitrite | Nitrite | Nitrite | Nitrite |
| CAL 0 | n.a. | n.a. | n.a. | n.a. |
| CAL 1 | 4.883 | 0.0469 | 0.225 | 0.139 |
| CAL 2 | 4.873 | 0.2121 | 1.014 | 0.431 |
| CAL 3 | 4.873 | 0.4812 | 2.331 | 0.906 |
| CAL 4 | 4.867 | 1.0976 | 5.343 | 1.995 |
| CAL 5 | 4.867 | 1.6829 | 8.223 | 3.029 |
| Average | 4.873 | | | |
| Rel. Std. Dev. | 0.140 % | | | |



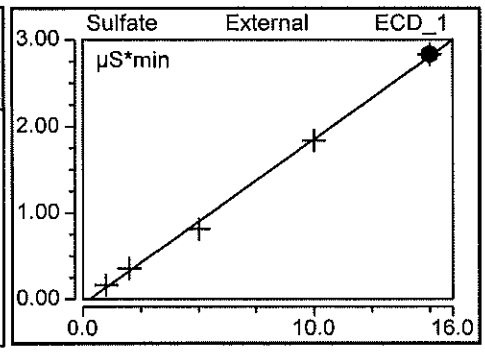

| Injection Name | Ret.Time min ECD_1 | Area µS*min ECD_1 | Height µS ECD_1 | Amount ECD_1 |
|---|---|---|---|---|
| | Bromide | Bromide | Bromide | Bromide |
| CAL 0 | n.a. | n.a. | n.a. | n.a. |
| CAL 1 | 6.370 | 0.0462 | 0.179 | 0.711 |
| CAL 2 | 6.340 | 0.2092 | 0.834 | 2.136 |
| CAL 3 | 6.327 | 0.4860 | 1.956 | 4.558 |
| CAL 4 | 6.303 | 1.0989 | 4.513 | 9.919 |
| CAL 5 | 6.293 | 1.7000 | 7.040 | 15.176 |
| Average | 6.327 | | | |
| Rel. Std. Dev. | 0.481 % | | | |




| Injection Name | Ret.Time min ECD_1 | Area µS*min ECD_1 | Height µS ECD_1 | Amount ECD_1 |
|---|---|---|---|---|
| | Nitrate | Nitrate | Nitrate | Nitrate |
| CAL 0 | n.a. | n.a. | n.a. | n.a. |
| CAL 1 | 7.633 | 0.0531 | 0.160 | 0.139 |
| CAL 2 | 7.557 | 0.2375 | 0.747 | 0.429 |
| CAL 3 | 7.517 | 0.5429 | 1.724 | 0.911 |
| CAL 4 | 7.460 | 1.2272 | 3.922 | 1.989 |
| CAL 5 | 7.433 | 1.8882 | 6.032 | 3.032 |
| Average | 7.520 | | | |
| Rel. Std. Dev. | 1.058 % | | | |




| Injection Name | Ret.Time min ECD_1 | Area µS*min ECD_1 | Height µS ECD_1 | Amount ECD_1 |
|---|---|---|---|---|
| | Sulfate | Sulfate | Sulfate | Sulfate |
| CAL 0 | n.a. | n.a. | n.a. | n.a. |
| CAL 1 | 11.453 | 0.1639 | 0.376 | 1.166 |
| CAL 2 | 11.443 | 0.3568 | 0.829 | 2.177 |
| CAL 3 | 11.447 | 0.8124 | 1.896 | 4.566 |
| CAL 4 | 11.433 | 1.8379 | 4.338 | 9.944 |
| CAL 5 | 11.420 | 2.8302 | 6.741 | 15.147 |
| Average | 11.439 | | | |
| Rel. Std. Dev. | 0.114 % | | | |

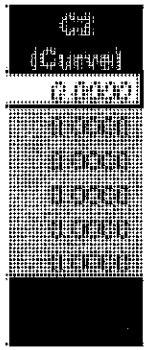



Drew Garhart
Chemist

JAN 14 2020

Sandra J. Miller
Chemist

JAN 15 2020



Drew Gerhart
Chemist

JAN 14 2020

Steven J. Miller
Chemist

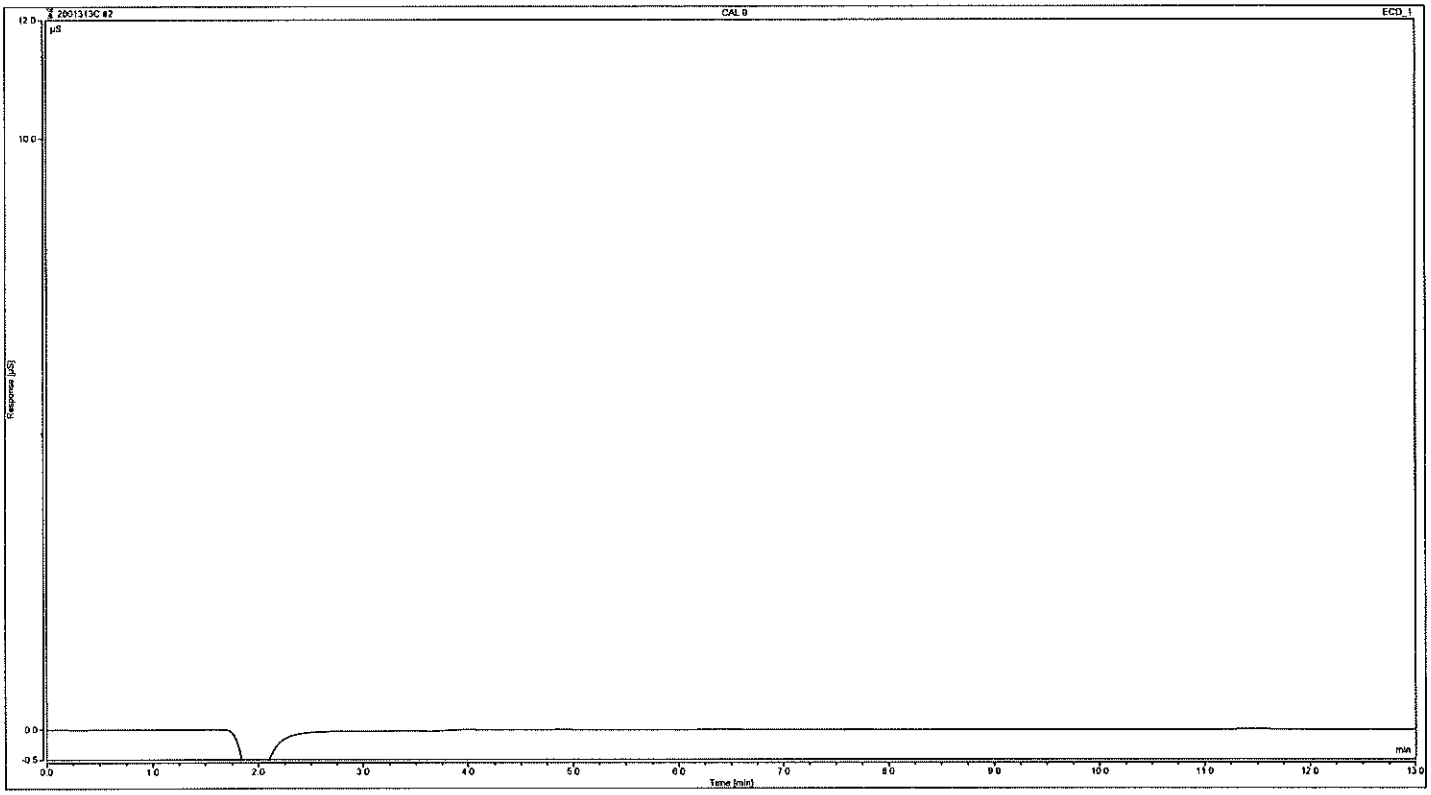
JAN 15 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CAL 0** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **01/13/2020 / 10:46** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Calibration Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **002** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2001313C** |

**Peak Properties: All Components**

| No. | Time | Peak Name | Peak Type | Area | Height | Amount |
|---|---|---|---|---|---|---|
| | min | | | µS*min | µS | n.a. |
| | | TOTAL: | | 0.00 | 0.00 | 0.00 |




**Analyst:** Drew Gernat
Chemist

**Date:** JAN 14 2020

**Verifier:**

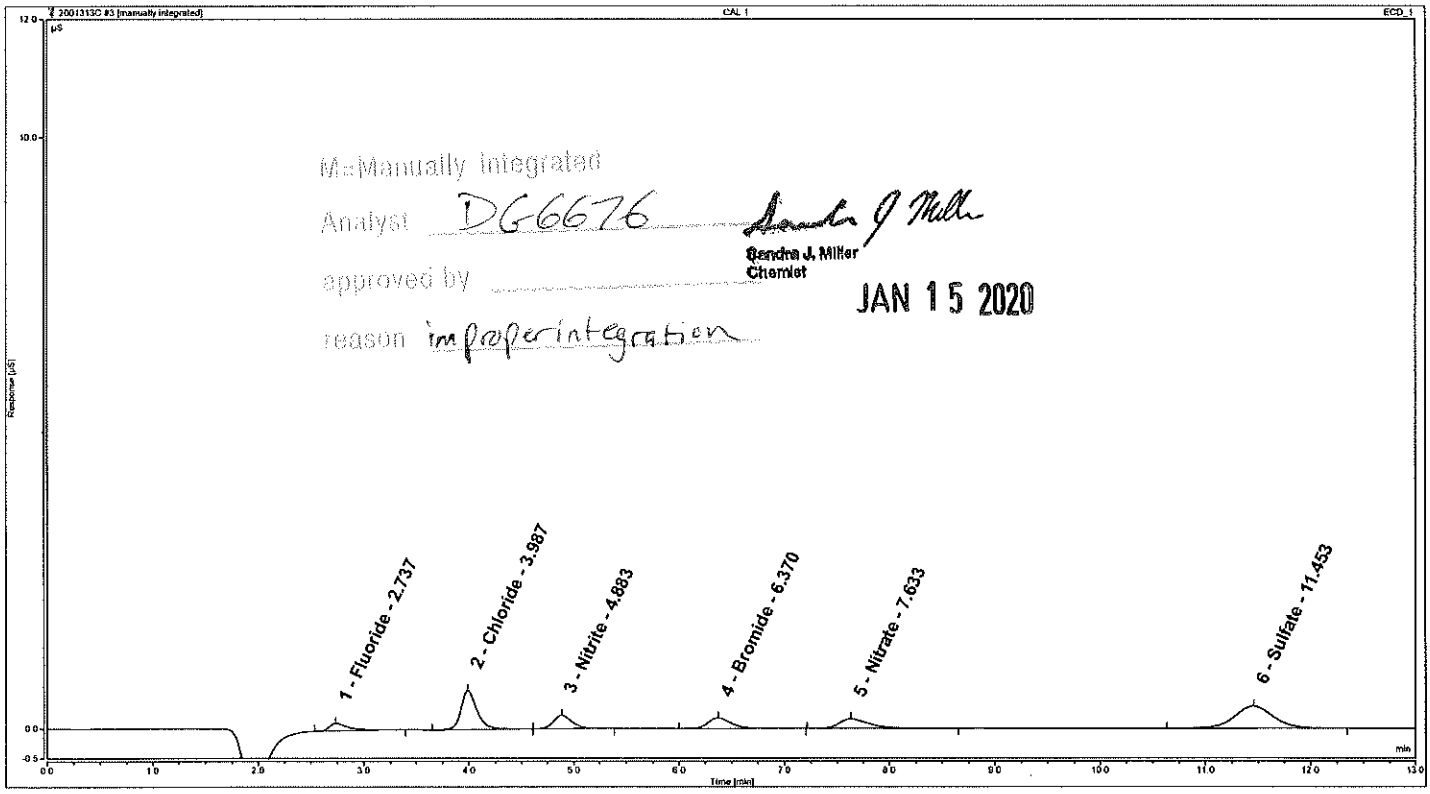
**Date:** Sandra J. Miller
Chemist
JAN 15 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CAL 1** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **01/13/2020 / 11:01** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Calibration Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **003** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2001313C** |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 2.74 | Fluoride | MB* | 0.028 | 0.128 | 0.1431 |
| 2 | 3.99 | Chloride | M | 0.117 | 0.665 | 0.5091 |
| 3 | 4.88 | Nitrite | M | 0.047 | 0.225 | 0.1389 |
| 4 | 6.37 | Bromide | M | 0.046 | 0.179 | 0.7107 |
| 5 | 7.63 | Nitrate | M | 0.053 | 0.160 | 0.1387 |
| 6 | 11.45 | Sulfate | M | 0.164 | 0.376 | 1.1655 |
| | | TOTAL: | | 0.45 | 1.73 | 2.81 |




**Analyst:** Drew Gerhart, Chemist — **Date:** JAN 14 2020

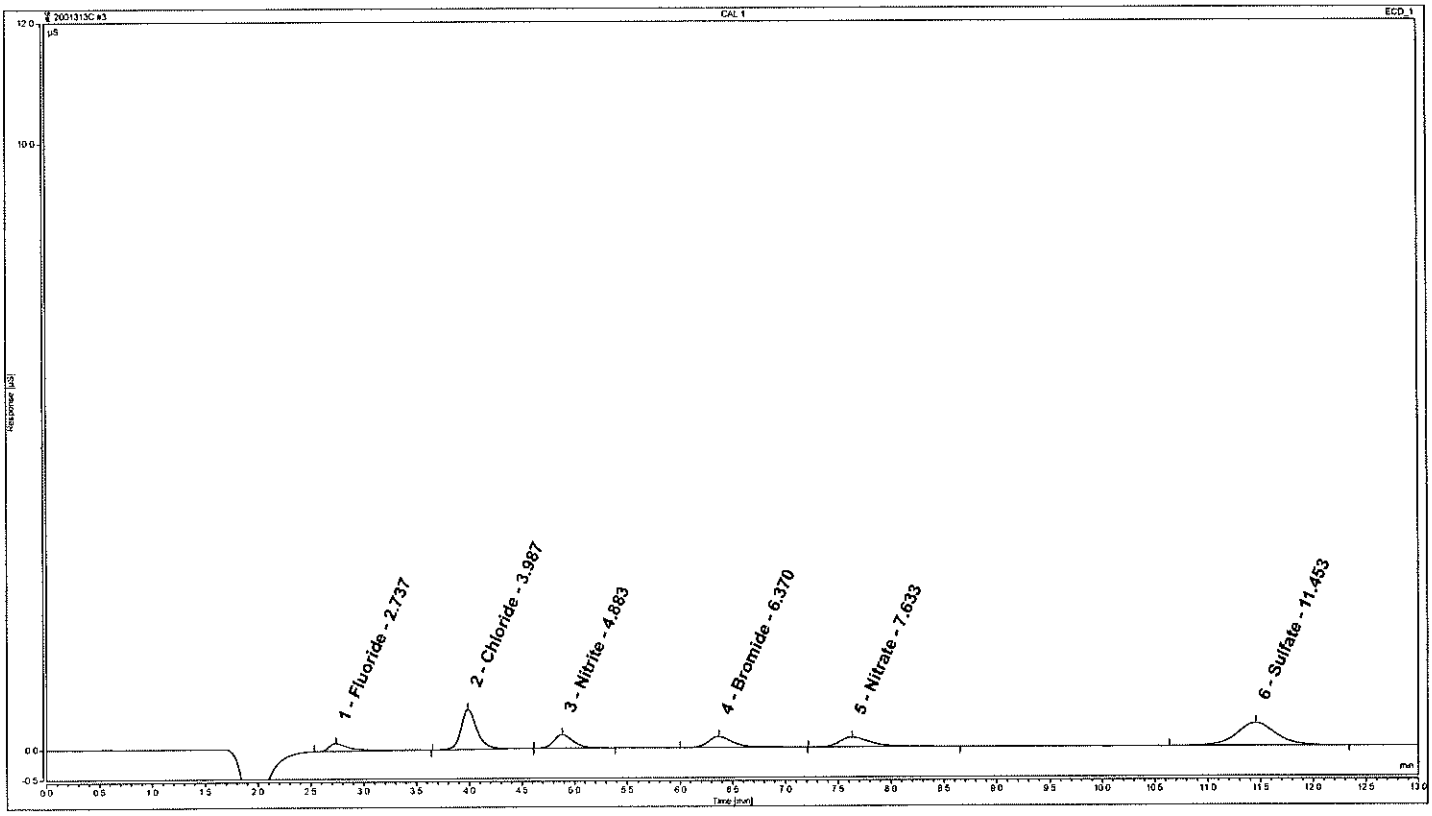
**Verifier:** Sandra J. Miller, Chemist — **Date:** JAN 15 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CAL 1** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **01/13/2020 / 11:01** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Calibration Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **003** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2001313C** |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 2.74 | Fluoride | M | 0.036 | 0.132 | 0.1562 |
| 2 | 3.99 | Chloride | M | 0.117 | 0.665 | 0.5091 |
| 3 | 4.88 | Nitrite | M | 0.047 | 0.225 | 0.1389 |
| 4 | 6.37 | Bromide | M | 0.046 | 0.179 | 0.7107 |
| 5 | 7.63 | Nitrate | M | 0.053 | 0.160 | 0.1387 |
| 6 | 11.45 | Sulfate | M | 0.164 | 0.376 | 1.1655 |
| | | TOTAL: | | 0.46 | 1.74 | 2.82 |




**Analyst:** **Verifier:**

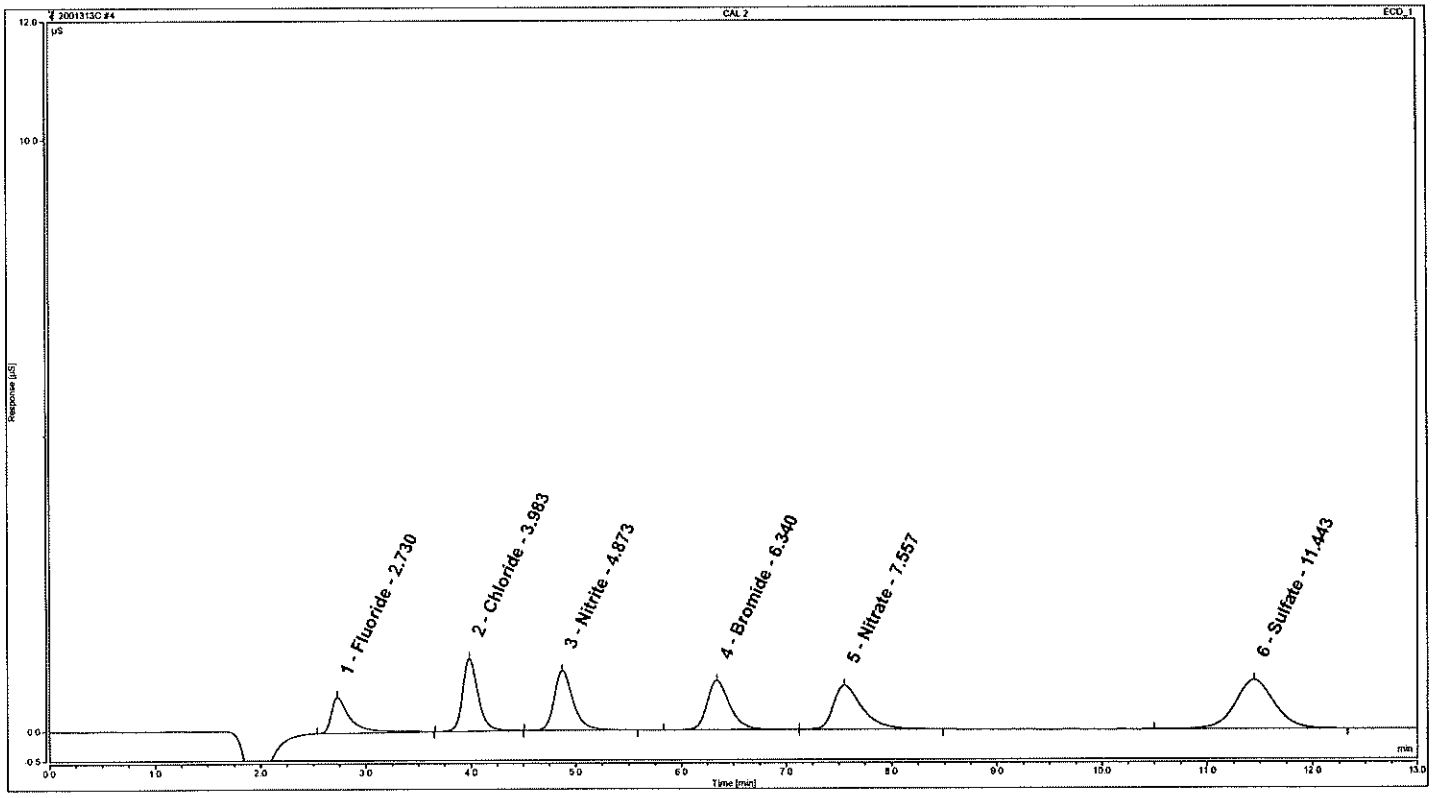
**Date:** **Date:**

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CAL 2** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **01/13/2020 / 11:16** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Calibration Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **004** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2001313C** |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 2.73 | Fluoride | M | 0.132 | 0.607 | 0.4351 |
| 2 | 3.98 | Chloride | BM | 0.210 | 1.237 | 0.8574 |
| 3 | 4.87 | Nitrite | M | 0.212 | 1.014 | 0.4307 |
| 4 | 6.34 | Bromide | M | 0.209 | 0.834 | 2.1363 |
| 5 | 7.56 | Nitrate | M | 0.237 | 0.747 | 0.4294 |
| 6 | 11.44 | Sulfate | M | 0.357 | 0.829 | 2.1769 |
| | | TOTAL: | | 1.36 | 5.27 | 6.47 |




**Analyst:** Drew Gerhart, Chemist

**Date:** JAN 14 2020

**Verifier:** Sandra J. Miller, Chemist

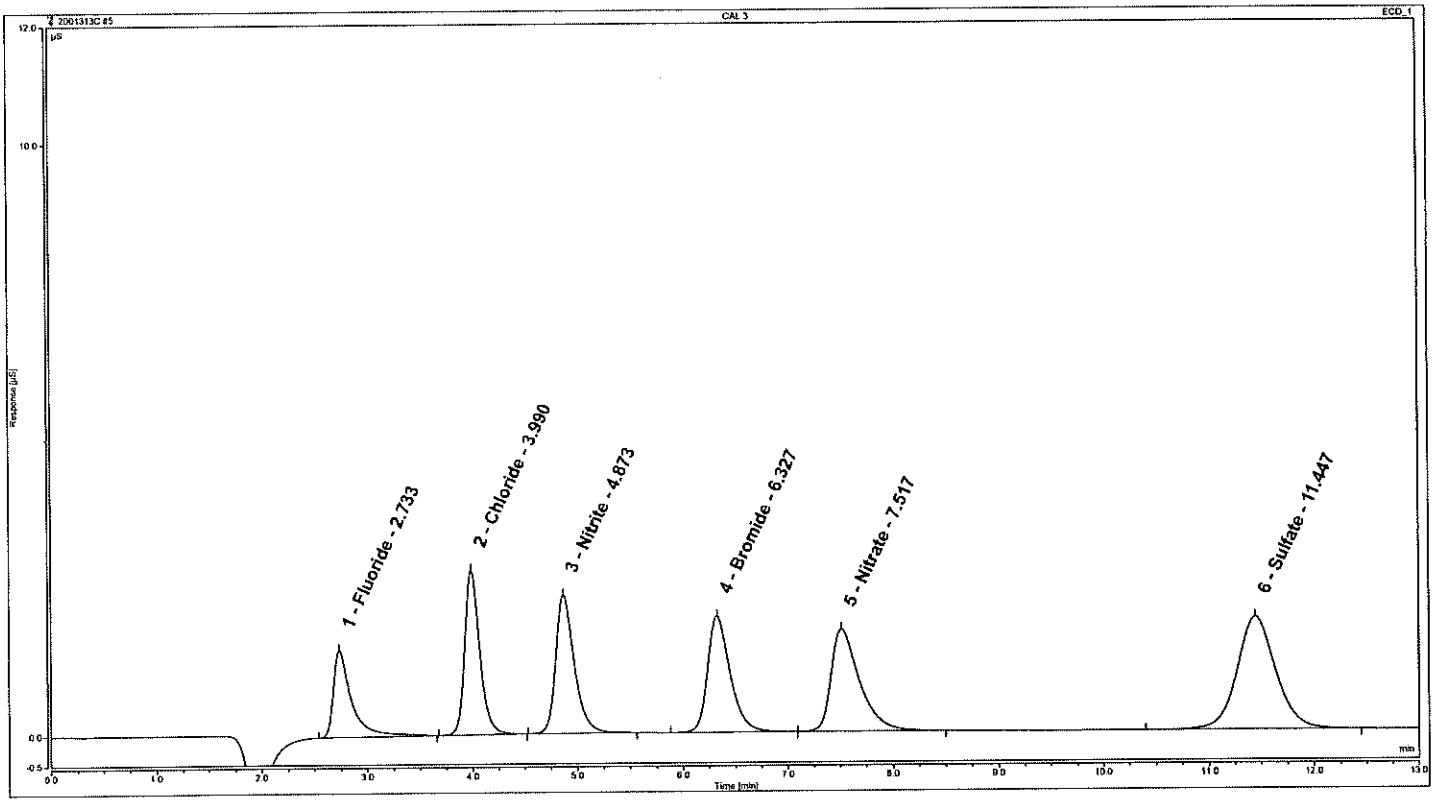
**Date:** JAN 15 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CAL 3** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **01/13/2020 / 11:31** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Calibration Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **005** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2001313C** |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 2.73 | Fluoride | MB | 0.299 | 1.463 | 0.9021 |
| 2 | 3.99 | Chloride | MB | 0.462 | 2.778 | 1.7953 |
| 3 | 4.87 | Nitrite | MB | 0.481 | 2.331 | 0.9061 |
| 4 | 6.33 | Bromide | BM | 0.486 | 1.956 | 4.5580 |
| 5 | 7.52 | Nitrate | MB | 0.543 | 1.724 | 0.9109 |
| 6 | 11.45 | Sulfate | M | 0.812 | 1.896 | 4.5663 |
| | | TOTAL: | | 3.08 | 12.15 | 13.64 |




**Analyst:** Drew Gemart, Chemist

**Date:** JAN 14 2020

**Verifier:** Sandra J. Miller, Chemist

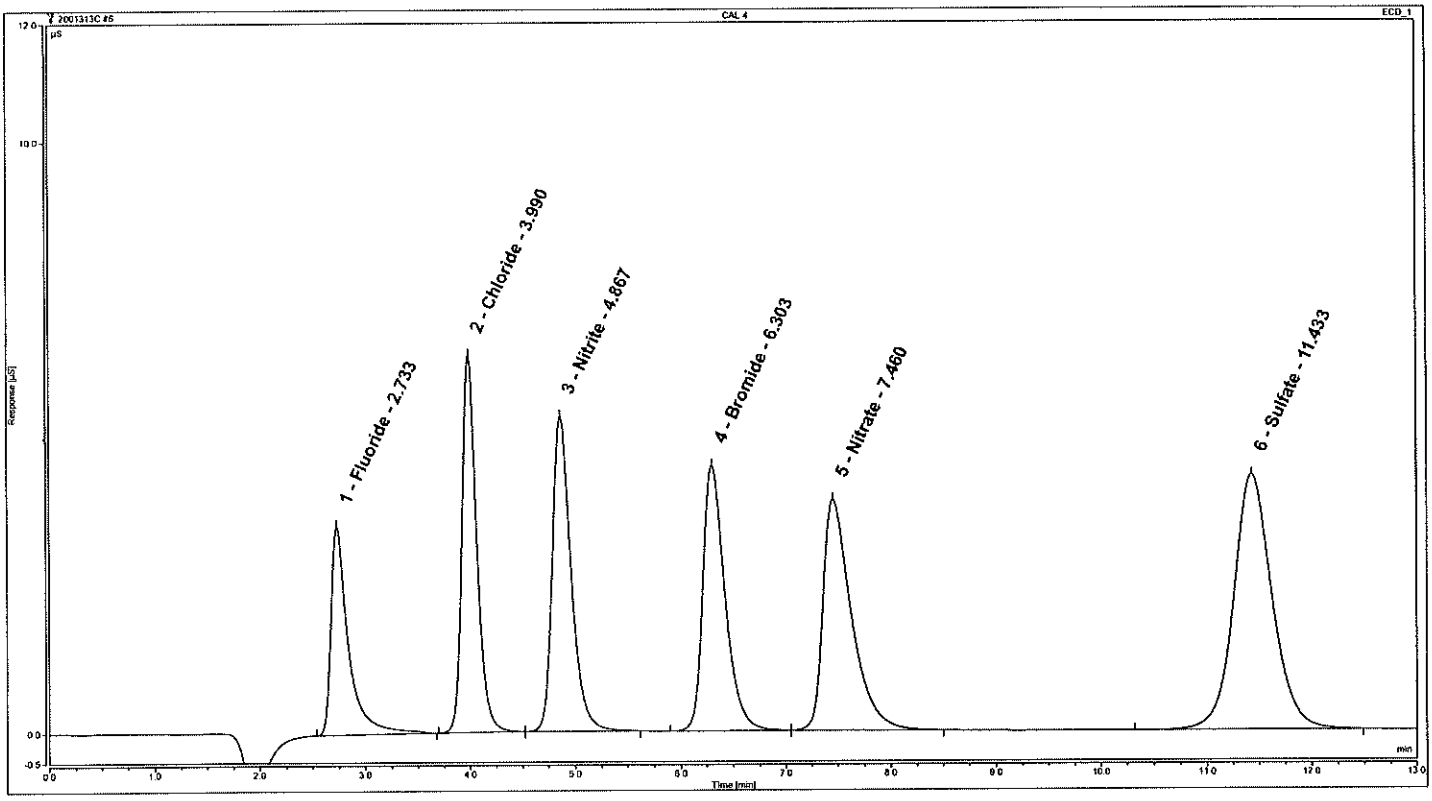
**Date:** JAN 15 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CAL 4** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **01/13/2020 / 11:46** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Calibration Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **006** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2001313C** |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 2.73 | Fluoride | M | 0.684 | 3.547 | 1.9794 |
| 2 | 3.99 | Chloride | MB | 1.042 | 6.390 | 3.9545 |
| 3 | 4.87 | Nitrite | BM | 1.098 | 5.343 | 1.9951 |
| 4 | 6.30 | Bromide | BM | 1.099 | 4.513 | 9.9187 |
| 5 | 7.46 | Nitrate | MB | 1.227 | 3.922 | 1.9895 |
| 6 | 11.43 | Sulfate | BM | 1.838 | 4.338 | 9.9439 |
| | | TOTAL: | | 6.99 | 28.05 | 29.78 |




**Analyst:** Drew Gerhart, Chemist

**Date:** JAN 14 2020

**Verifier:** Sandra J. Miller, Chemist

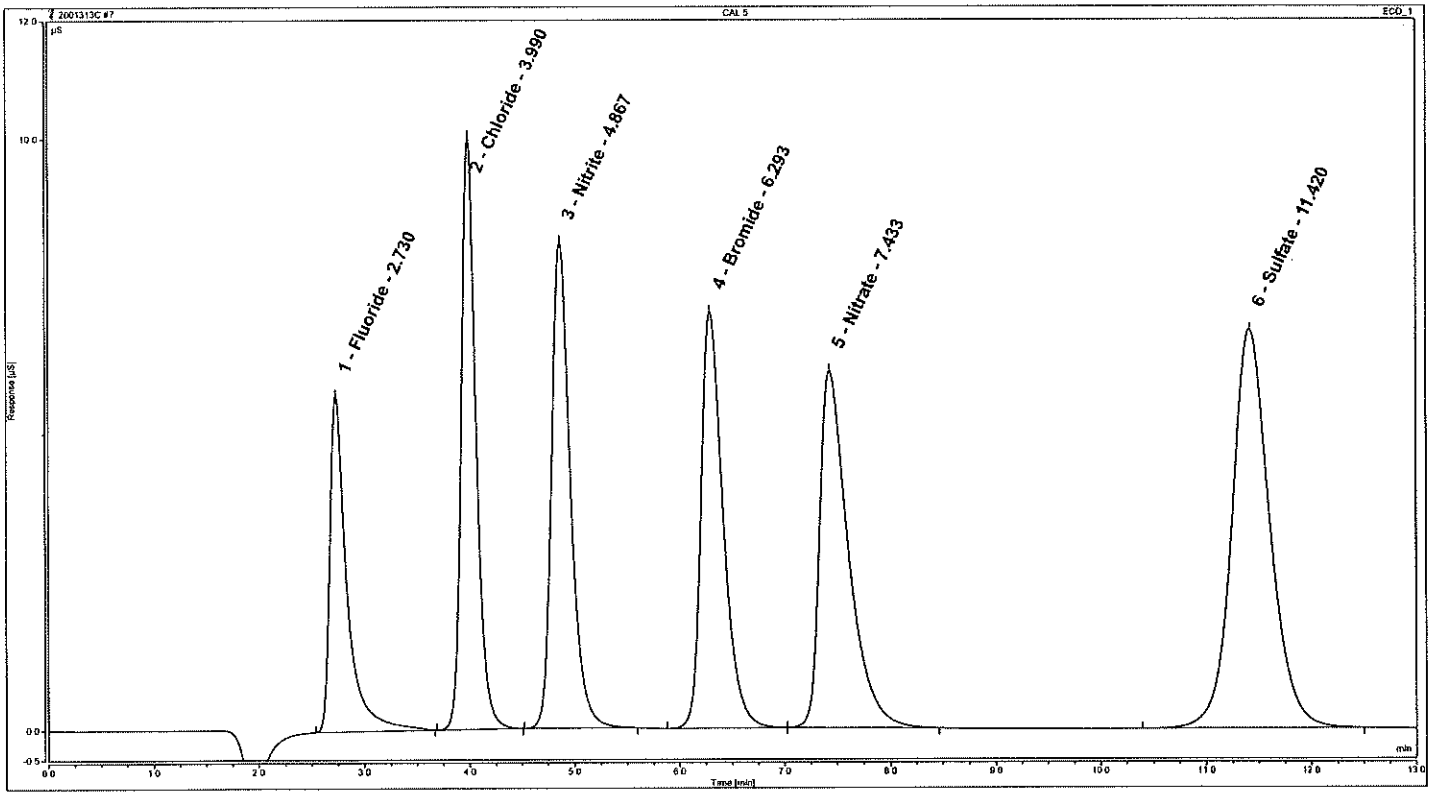
**Date:** JAN 15 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CAL 5** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **01/13/2020 / 12:01** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Calibration Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **007** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2001313C** |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 2.73 | Fluoride | M | 1.063 | 5.677 | 3.0402 |
| 2 | 3.99 | Chloride | M | 1.614 | 10.033 | 6.0836 |
| 3 | 4.87 | Nitrite | M | 1.683 | 8.223 | 3.0291 |
| 4 | 6.29 | Bromide | BM | 1.700 | 7.040 | 15.1763 |
| 5 | 7.43 | Nitrate | M | 1.888 | 6.032 | 3.0315 |
| 6 | 11.42 | Sulfate | MB | 2.830 | 6.741 | 15.1473 |
| | | TOTAL: | | 10.78 | 43.75 | 45.51 |




**Analyst:** Drew Gerhart
Chemist

**Date:** JAN 14 2020

**Verifier:** Sandra J. Miller
Chemist

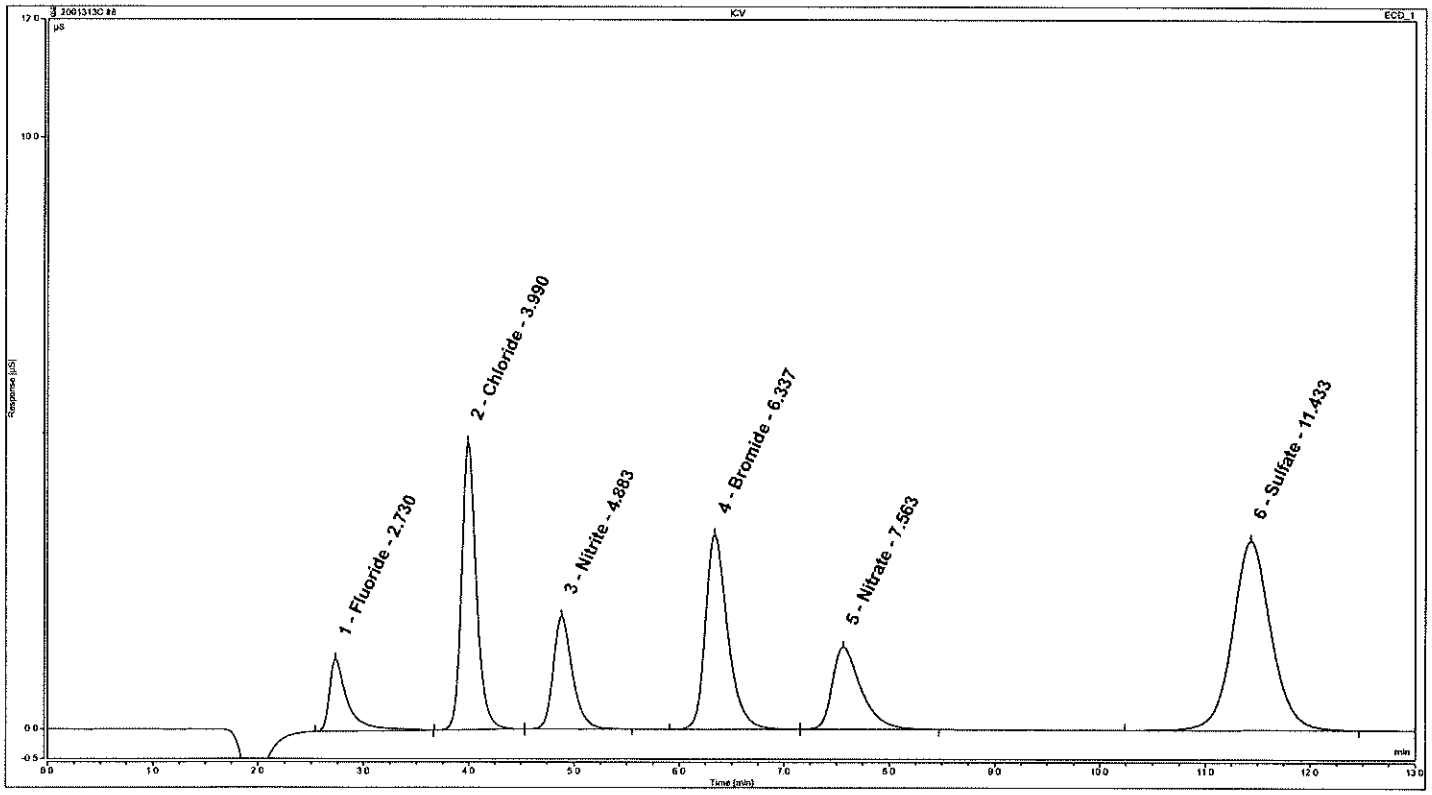
**Date:** JAN 15 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **ICV** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **01/13/2020 / 12:16** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Check Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **008** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2001313C** |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount | |
|---|---|---|---|---|---|---|---|
| 1 | 2.73 | Fluoride | MB | 0.254 | 1.220 | 0.7765 | 104% |
| 2 | 3.99 | Chloride | MB | 0.804 | 4.874 | 3.0670 | 102% |
| 3 | 4.88 | Nitrite | BM | 0.397 | 1.906 | 0.7568 | 101% |
| 4 | 6.34 | Bromide | M | 0.821 | 3.296 | 7.4874 | 100% |
| 5 | 7.56 | Nitrate | M | 0.441 | 1.390 | 0.7500 | 100% |
| 6 | 11.43 | Sulfate | BM | 1.369 | 3.206 | 7.4868 | 100% |
| | | TOTAL: | | 4.09 | 15.89 | 20.32 | |




**Analyst:** Drew Gerhart
Chemist

**Date:** JAN 14 2020

**Verifier:** Sandra J. Miller
Chemist

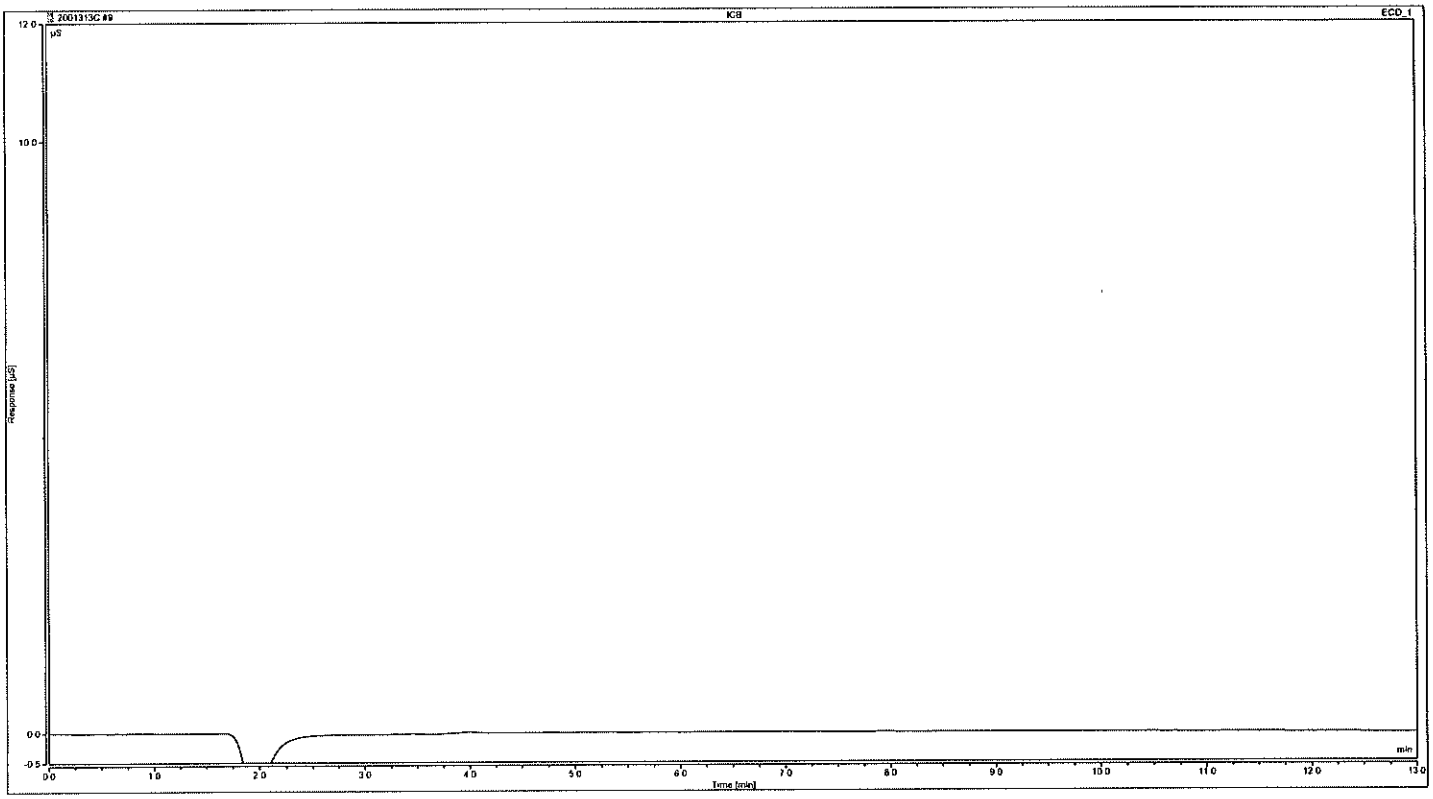
**Date:** JAN 15 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **ICB** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **01/13/2020 / 12:31** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Check Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **009** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2001313C** |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount n.a. |
|---|---|---|---|---|---|---|
| | | TOTAL: | | 0.00 | 0.00 | 0.00 |




**Analyst:** Drew Gerhart
Chemist

**Date:** JAN 14 2020

**Verifier:**

**Date:** Sandra J. Miller
Chemist
JAN 15 2020

eurofins | Lancaster Laboratories

# Inorganic Anions by Ion Chromatography

System Name ICS-1100 Analyst SF30720

Instrument ID 19052 Run Start Date 2-1-20

IDAT Run Number 200320ID13 Run Name 200320 13

**ICV/CCV/LCSW (mg/L)**

Prep Book/Page: 308946/13

| Anion | T.V. | LCSW /ICV/CCV2 | DOD LCSW |
|---|---|---|---|
| Fluoride | .75 | .6713 - 0.828 | 0.66-0.84 |
| Chloride | 3.0 | 2.685 - 3.312 | 2.61-3.33 |
| Nitrite-N | .75 | .6713 - 0.828 | .6525-.8325 |
| Bromide | 7.5 | 6.71 - 8.28 | 6.825-8.25 |
| Nitrate-N | .75 | .6713 - 0.828 | 0.66-0.8325 |
| O-Phos as P | 7.5 | 6.71 - 8.28 | 6.0-8.7 |
| Sulfate | 7.5 | 6.71 - 8.28 | 6.525-8.4 |

**CCB/PBW (mg/L)**

| $F, NO_2$ | $NO_3$ | Cl | P | Br | $SO_4$ |
|---|---|---|---|---|---|
| < 0.05 | < 0.05 | <0.2 | < 0.2 | < 0.25 | < 0.3 |

**LCSS (mg/kg)**

Prep Book/Page: ———

| Anion | T.V. | Acceptance Range |
|---|---|---|
| Fluoride | 10 | 8.95 - 11.0 |
| Chloride | 20 | 17.9 - 22.08 |
| Nitrite-N | 10 | 8.95 - 11.0 |
| Bromide | 50 | 44.75 - 55.2 |
| Nitrate-N | 10 | 8.95 - 11.0 |
| O-Phos as P | 50 | 44.75 - 55.2 |
| Sulfate | 50 | 44.75 - 55.2 |

**CCB/PBS (mg/kg)**

| $F, NO_2, NO_3$ | Cl | Br | $P, SO_4$ |
|---|---|---|---|
| < 0.5 | < 5.0 | < 2.5 | 5.0 |

**Calibration Information – (mg/L)**

| Standard | $F, NO_2, NO_3$ | Cl | Br,P | $SO_4$ |
|---|---|---|---|---|
| Cal 1 | 0.1 | 0.4 | 0.5 | 1.0 |
| Cal 2 | 0.4 | 0.8 | 2.0 | 2.0 |
| Cal 3 | 1.0 | 2.0 | 5.0 | 5.0 |
| Cal 4 | 2.0 | 4.0 | 10.0 | 10.0 |
| Cal 5 | 3.0 | 6.0 | 15.0 | 15.0 |

**Check Standards True Values (mg/L)**

| | $F, NO_2, NO_3$ | Cl | Br, P, $SO_4$ |
|---|---|---|---|
| Low | 0.75 | 1.5 | 3.75 |
| High | 2.25 | 4.5 | 11.25 |

The dilution for solids is entered into the software by multiplying by 50 in order to calculate the result to mg/kg.

# Sequence Overview: 2003213

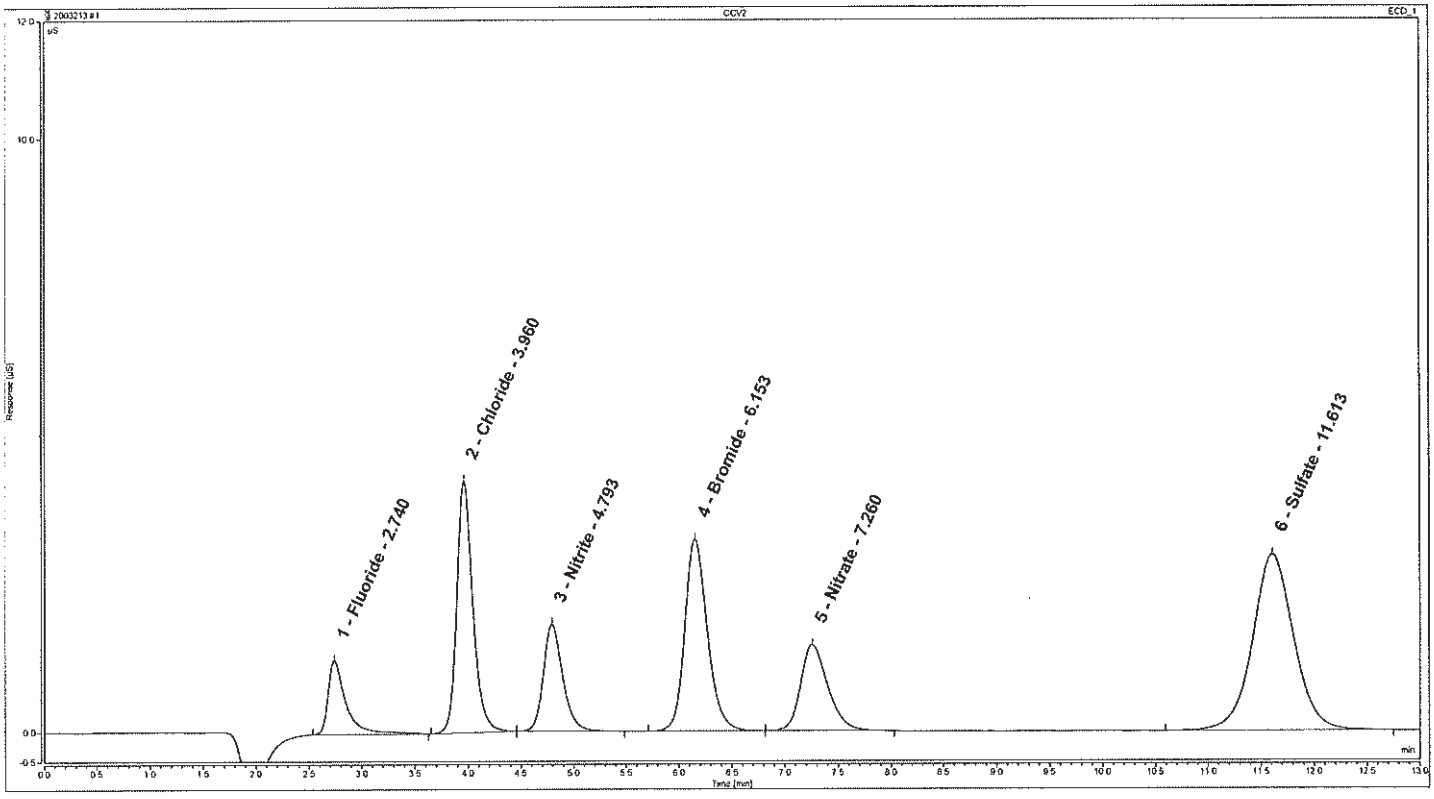
| No. | Injection Name | Batch Number | Position | Type | Level | Inject Time | Volume µL | Instrumentation Method | Processing Method | Weight | Dilution | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CCV2 | | G1 | Check Standard | | 02/01/2020 10:56:47 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |
| 2 | CCB | | G8 | Check Standard | | 02/01/2020 11:11:50 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |
| 3 | 1251371 | 20032720113A-30720 | GB7 | Unknown | | 02/01/2020 11:26:55 | 50.00 | Anions | Anions | 1.00 | 5 | Finished |
| 4 | 1251373 | 20032720113A-30720 | GB8 | Unknown | | 02/01/2020 11:41:57 | 50.00 | Anions | Anions | 1.00 | 5 | Finished |
| 5 | 1251376 | 20032720113A-30720 | GC1 | Unknown | | 02/01/2020 11:56:59 | 50.00 | Anions | Anions | 1.00 | 5 | Finished |
| 6 | 1251378 | 20032720113A-30720 | GC2 | Unknown | | 02/01/2020 12:12:01 | 50.00 | Anions | Anions | 1.00 | 5 | Finished |
| 7 | 1251380 | 20032720113A-30720 | GC3 | Unknown | | 02/01/2020 12:27:03 | 50.00 | Anions | Anions | 1.00 | 5 | Finished |
| 8 | 1251382 | 20032720113A-30720 | GC4 | Unknown | | 02/01/2020 12:42:05 | 50.00 | Anions | Anions | 1.00 | 5 | Finished |
| 9 | 1251384 | 20032720113A-30720 | GC5 | Unknown | | 02/01/2020 12:57:08 | 50.00 | Anions | Anions | 1.00 | 5 | Finished |
| 10 | 1251386 | 20032720113A-30720 | GC6 | Unknown | | 02/01/2020 13:12:09 | 50.00 | Anions | Anions | 1.00 | 5 | Finished |
| 11 | 1251388-U | 20032720113A-30720 | GC7 | Unknown | | 02/01/2020 13:27:10 | 50.00 | Anions | Anions | 1.00 | 5 | Finished |
| 12 | 1251389-R | 20032720113A-30720 | GC8 | Unknown | | 02/01/2020 13:42:11 | 50.00 | Anions | Anions | 1.00 | 5 | Finished |
| 13 | CCV2 | | G1 | Check Standard | | 02/01/2020 13:57:14 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |
| 14 | CCB | | G8 | Check Standard | | 02/01/2020 14:12:17 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |
| 15 | 1251391-D | 20032720113A-30720 | GD1 | Unknown | | 02/01/2020 14:27:18 | 50.00 | Anions | Anions | 1.00 | 5 | Finished |
| 16 | 1251396 | 20032720113A-30720 | GD2 | Unknown | | 02/01/2020 14:42:20 | 50.00 | Anions | Anions | 1.00 | 5 | Finished |
| 17 | 1251396 | 20032720113A-30720 | GD2 | Unknown | | 02/01/2020 14:57:22 | 50.00 | Anions | Anions | 1.00 | 5 | Finished |
| 18 | LOWS | | GE4 | Check Standard | | 02/01/2020 15:12:25 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |
| 19 | HIGHS | | GE5 | Check Standard | | 02/01/2020 15:27:26 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |
| 20 | LCSW | 20032720113A-30720 | GE1 | Unknown | | 02/01/2020 15:42:28 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |
| 21 | PBW | 20032720113A-30720 | GE8 | Unknown | | 02/01/2020 15:57:29 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |
| 22 | CCV2 | | G1 | Check Standard | | 02/01/2020 16:12:32 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |
| 23 | CCB | | G8 | Check Standard | | 02/01/2020 16:27:34 | 50.00 | Anions | Anions | 1.00 | 1 | Finished |

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV2** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 10:56** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Check Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **001** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 2.74 | Fluoride | M | 0.251 | 1.249 | 0.7675 |
| 2 | 3.96 | Chloride | MB | 0.752 | 4.244 | 2.8742 |
| 3 | 4.79 | Nitrite | BM | 0.385 | 1.809 | 0.7367 |
| 4 | 6.15 | Bromide | M | 0.795 | 3.235 | 7.2634 |
| 5 | 7.26 | Nitrate | M | 0.431 | 1.454 | 0.7350 |
| 6 | 11.61 | Sulfate | M | 1.336 | 2.974 | 7.3139 |
| | | TOTAL: | | 3.95 | 14.96 | 19.69 |




**Analyst:** Drew Gerhart
Chemist

**Date:** FEB 03 2020

**Verifier:**

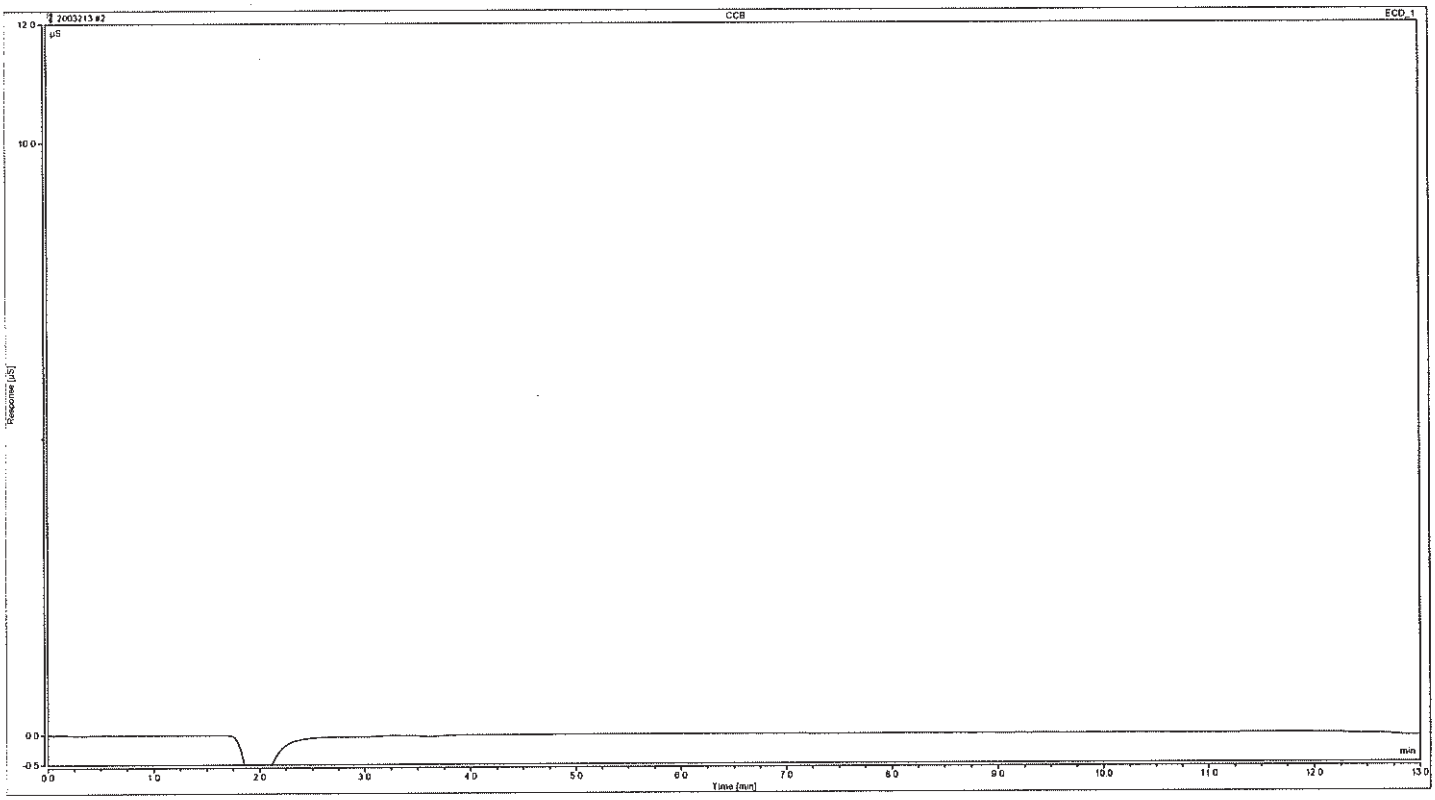
**Date:** Sandra J. Miller
Chemist
FEB 04 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 11:11** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Check Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **002** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount n.a. |
|---|---|---|---|---|---|---|
| | | TOTAL: | | 0.00 | 0.00 | 0.00 |




**Analyst:** Drew Gerhart
Chemist

**Date:** FEB 03 2020

**Verifier:**

**Date:** Sandra J. Miller
Chemist
FEB 04 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **1251371** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | **20032720113A-30720** | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 11:26** | *Dilution Factor:* | **5** |
| *Injection Type:* | **Unknown** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **003** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

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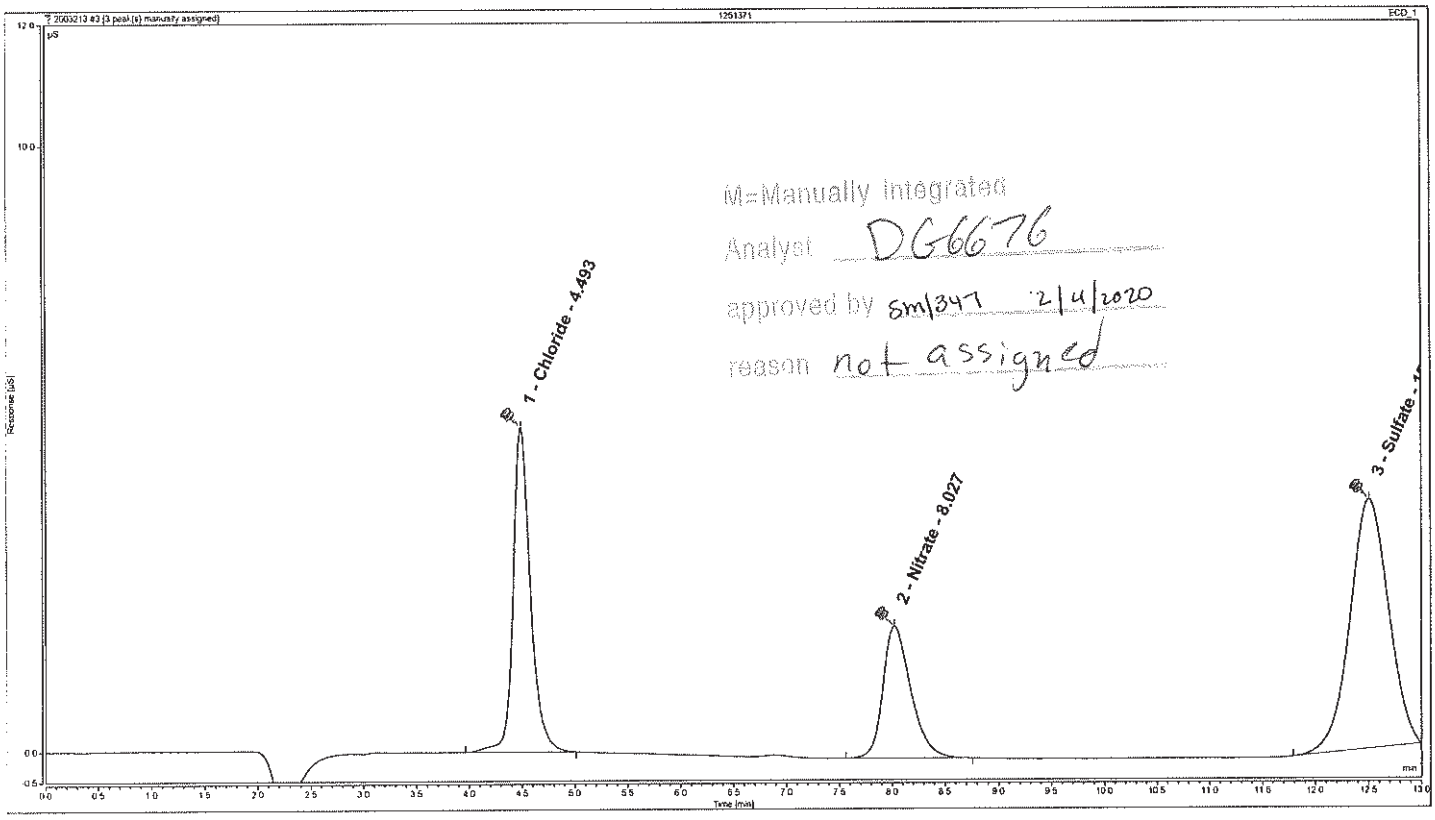
Repeat to confirm

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 4.49 | Chloride | M ^ | 1.014 | 5.365 | 19.2489 |
| 2 | 8.03 | Nitrate | MB^ | 0.671 | 2.181 | 5.5666 |
| 3 | 12.51 | Sulfate | M ^ | 1.728 | 4.121 | 46.8262 |
| | | TOTAL: | | 3.41 | 11.67 | 71.64 |




M=Manually integrated
Analyst DG6676
approved by SM/347 2/4/2020
reason not assigned

**Analyst:** Drew Gerhart, Chemist
**Date:** FEB 03 2020

**Verifier:** Sandra J. Miller, Chemist
**Date:** FEB 05 2020

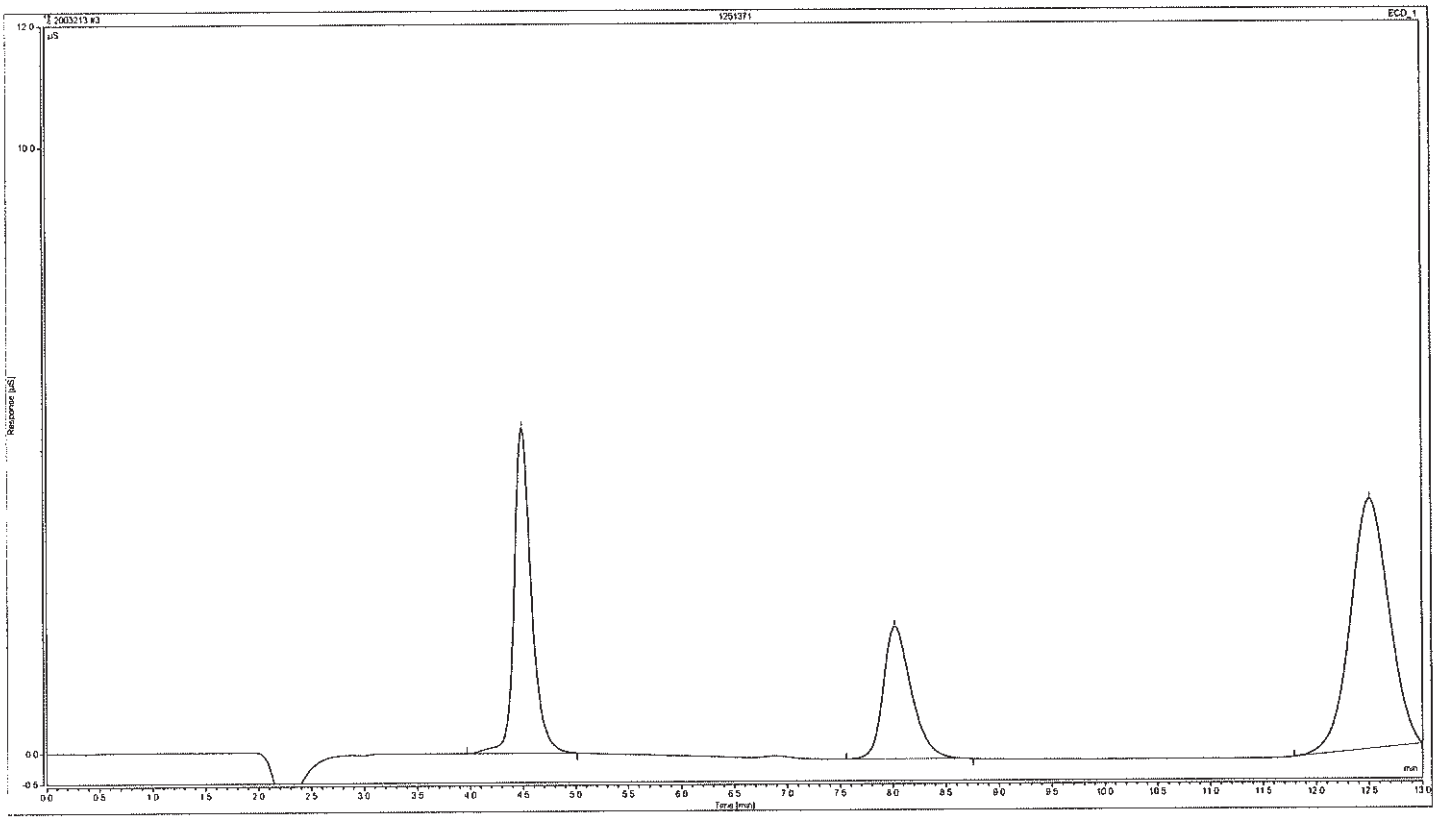
confirms NO3 on 2003401 D15/62

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **1251371** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | **20032720113A-30720** | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 11:26** | *Dilution Factor:* | **5** |
| *Injection Type:* | **Unknown** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **003** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

**Peak Properties: All Components**

| No. | Time | Peak Name | Peak Type | Area | Height | Amount |
|---|---|---|---|---|---|---|
| | min | | | µS*min | µS | n.a. |
| | | TOTAL: | | 0.00 | 0.00 | 0.00 |




**Analyst:**

**Verifier:**

**Date:**

**Date:**

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **1251373** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | **20032720113A-30720** | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 11:41** | *Dilution Factor:* | **5** |
| *Injection Type:* | **Unknown** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **004** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

**Peak Properties: All Components**

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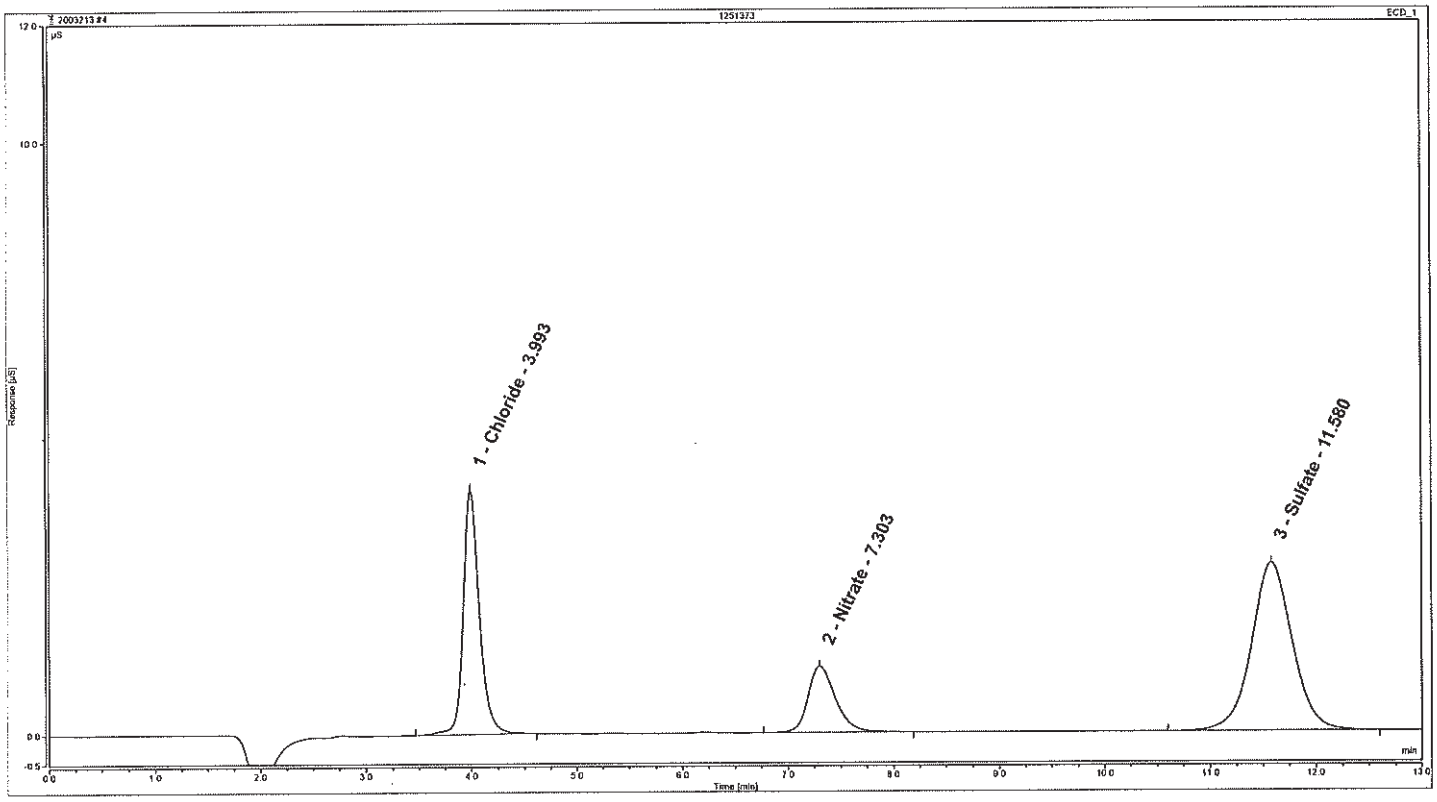
| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 3.99 | Chloride | M | 0.732 | 4.135 | 13.9926 |
| 2 | 7.30 | Nitrate | M | 0.337 | 1.118 | 2.9325 |
| 3 | 11.58 | Sulfate | MB | 1.273 | 2.845 | 34.9108 |
| | | TOTAL: | | 2.34 | 8.10 | 51.84 |




**Analyst:** Drew Gerhart, Chemist

**Date:** FEB 03 2020

**Verifier:** Barbara J. Miller, Chemist

**Date:** FEB 04 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **1251376** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | **20032720113A-30720** | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 11:56** | *Dilution Factor:* | **5** |
| *Injection Type:* | **Unknown** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **005** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

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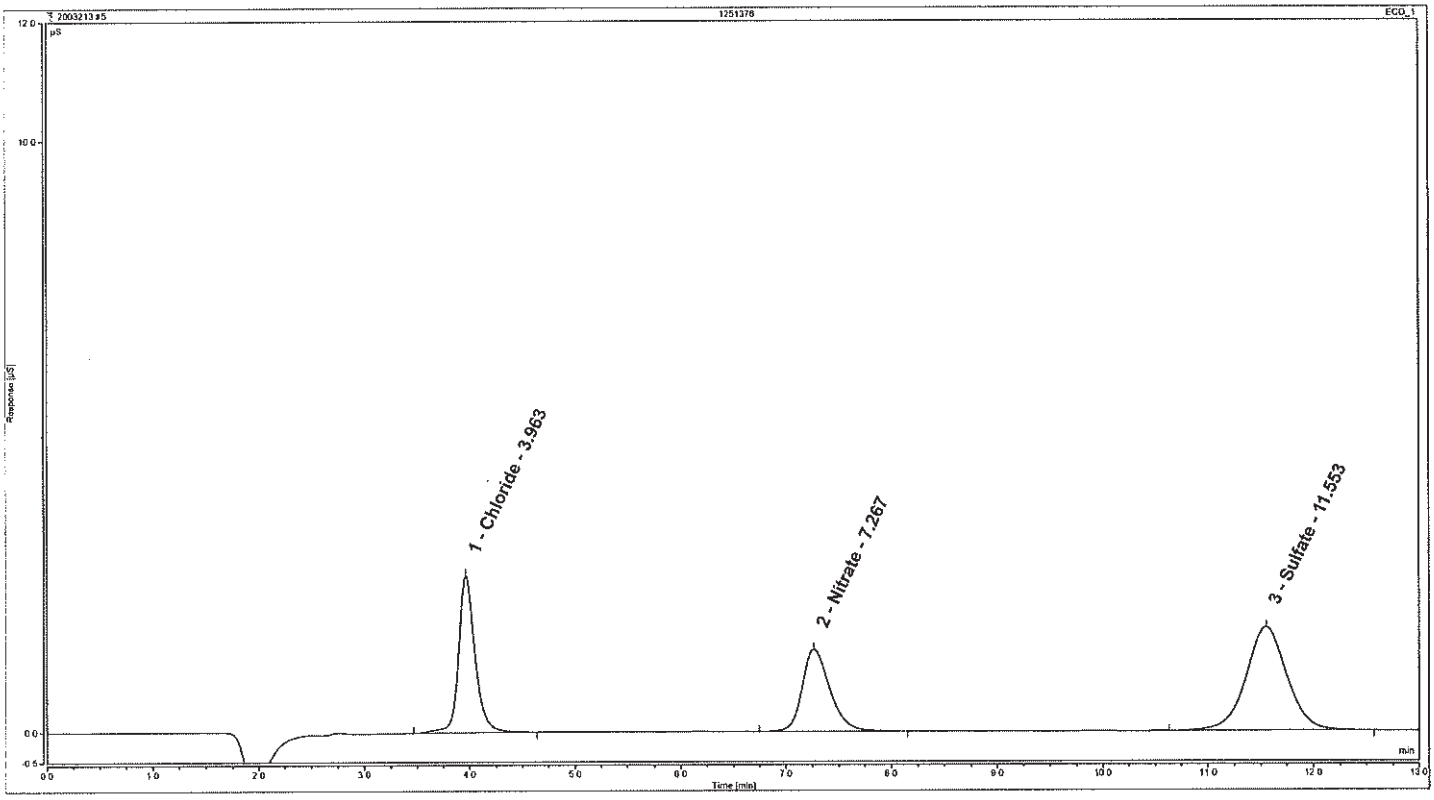
**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 3.96 | Chloride | MB | 0.483 | 2.659 | 9.3577 |
| 2 | 7.27 | Nitrate | M | 0.419 | 1.389 | 3.5782 |
| 3 | 11.55 | Sulfate | M | 0.786 | 1.748 | 22.1448 |
| | | TOTAL: | | 1.69 | 5.80 | 35.08 |




**Analyst:** Drew Gerhart, Chemist — **Date:** FEB 03 2020

**Verifier:** Sandra J. Miller, Chemist — **Date:** FEB 04 2020

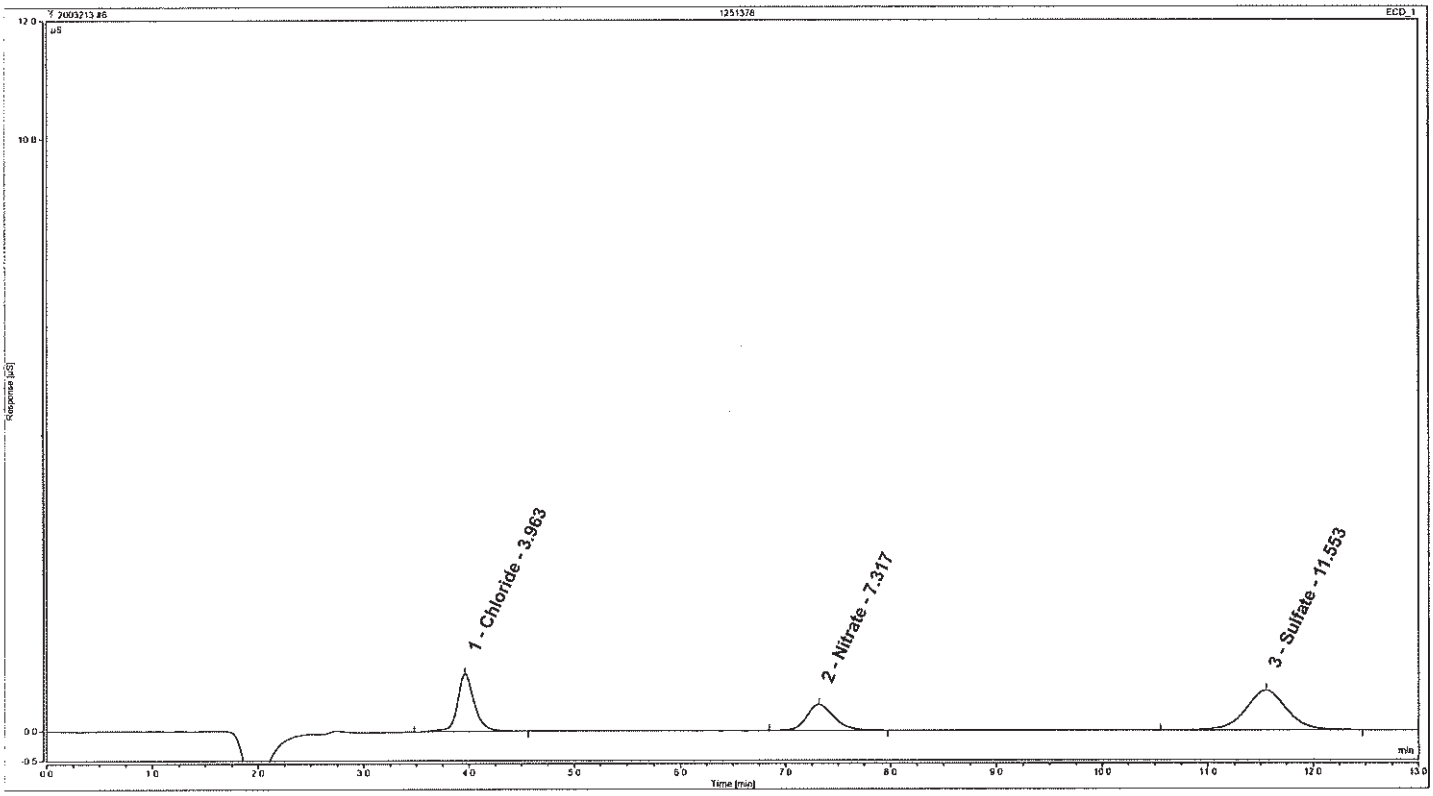
# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **1251378** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | **20032720113A-30720** | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 12:12** | *Dilution Factor:* | **5** |
| *Injection Type:* | **Unknown** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **006** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 3.96 | Chloride | BMB | 0.184 | 0.972 | 3.7903 |
| 2 | 7.32 | Nitrate | M | 0.131 | 0.436 | 1.3096 |
| 3 | 11.55 | Sulfate | M | 0.307 | 0.673 | 9.5911 |
| | | TOTAL: | | 0.62 | 2.08 | 14.69 |

Cl NO3 SO4




**Analyst:** Drew Gerhart, Chemist **Date:** FEB 03 2020

**Verifier:** Sandra J. Miller, Chemist **Date:** FEB 04 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **1251380** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | **20032720113A-30720** | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 12:27** | *Dilution Factor:* | **5** |
| *Injection Type:* | **Unknown** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **007** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

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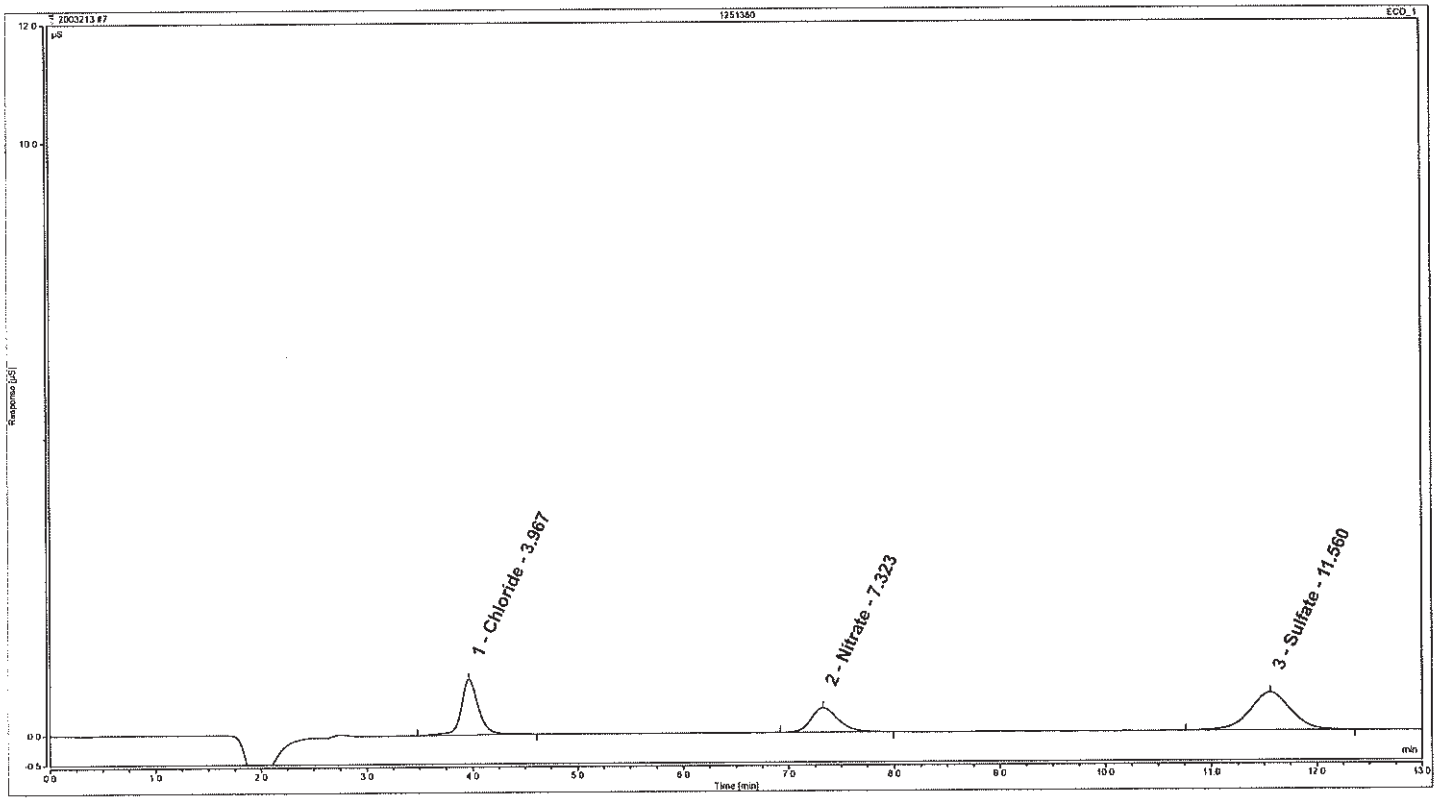
**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 3.97 | Chloride | M | 0.178 | 0.939 | 3.6901 |
| 2 | 7.32 | Nitrate | BM | 0.124 | 0.412 | 1.2510 |
| 3 | 11.56 | Sulfate | M | 0.286 | 0.636 | 9.0368 |
| | | TOTAL: | | 0.59 | 1.99 | 13.98 |




**Analyst:** Drew Gerhart
Chemist

**Date:** FEB 03 2020

**Verifier:** Sandra J. Miller
Chemist

**Date:** FEB 04 2020

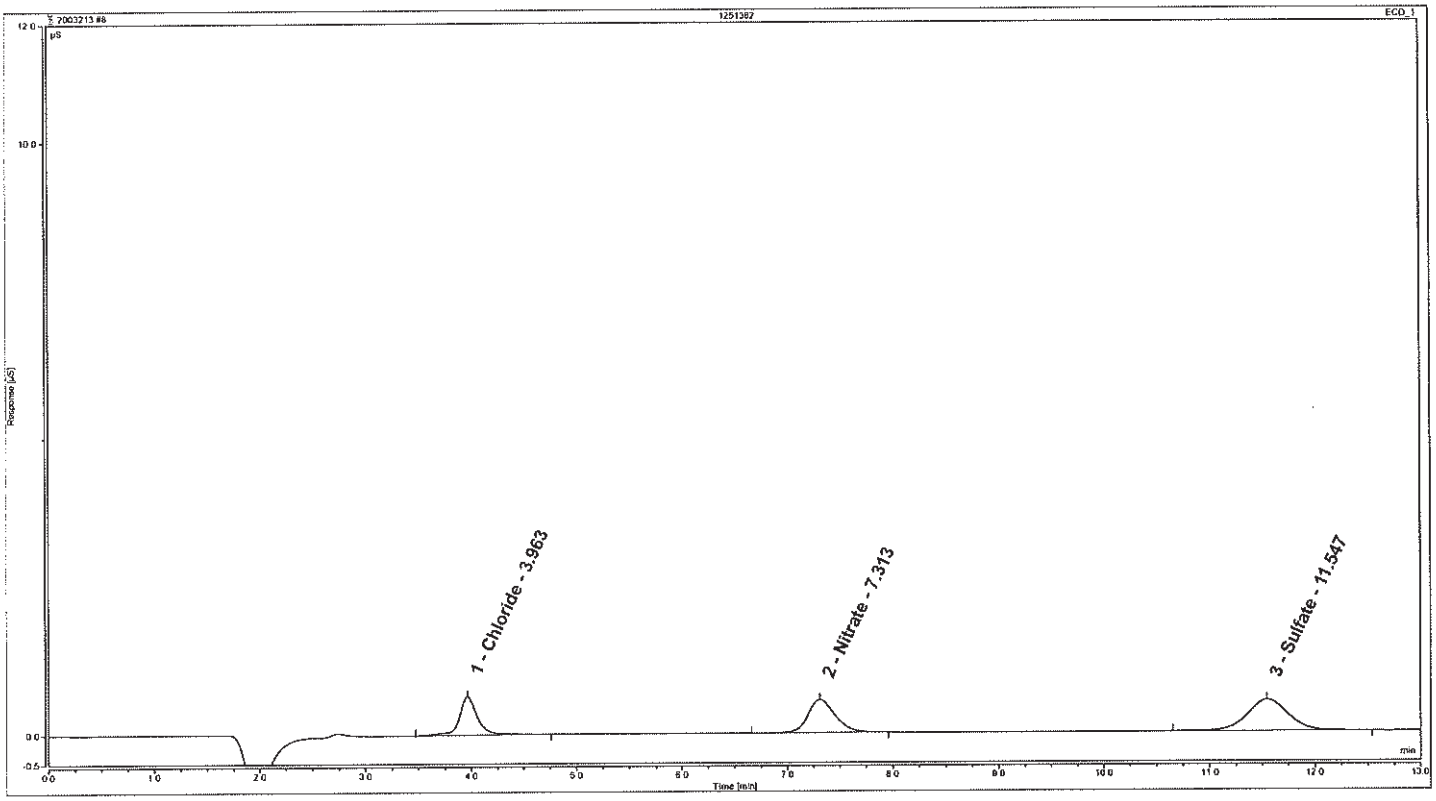
# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **1251382** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | **20032720113A-30720** | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 12:42** | *Dilution Factor:* | **5** |
| *Injection Type:* | **Unknown** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **008** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

Cl NO3 SO4

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 3.96 | Chloride | MB | 0.132 | 0.655 | 2.8285 |
| 2 | 7.31 | Nitrate | BMB | 0.168 | 0.560 | 1.6000 |
| 3 | 11.55 | Sulfate | MB | 0.243 | 0.534 | 7.9036 |
| | | TOTAL: | | 0.54 | 1.75 | 12.33 |




**Analyst:** Drew Gerhart, Chemist — **Date:** FEB 03 2020

**Verifier:** Sandra J. Miller, Chemist — **Date:** FEB 04 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **1251384** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | **20032720113A-30720** | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 12:57** | *Dilution Factor:* | **5** |
| *Injection Type:* | **Unknown** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **009** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

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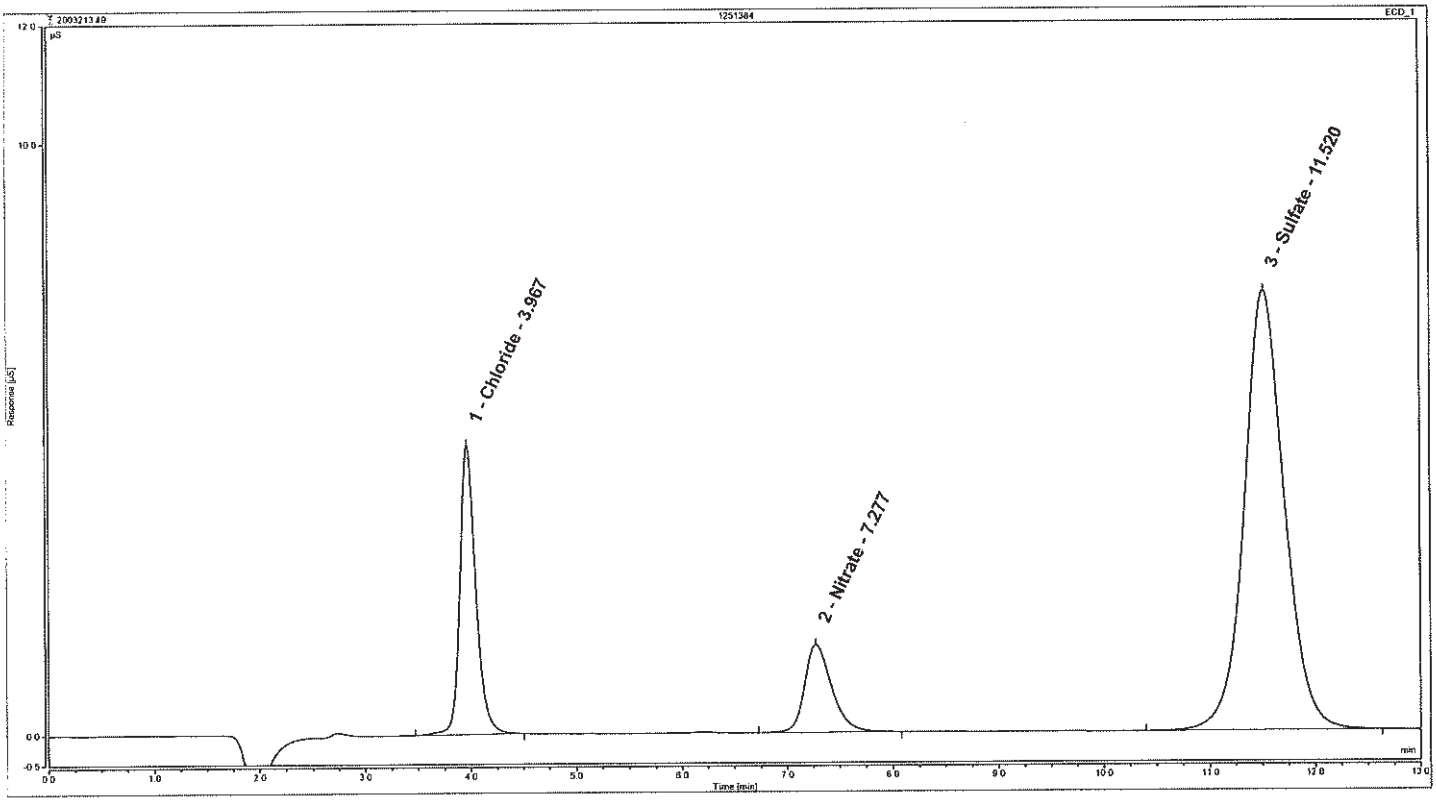
Sulfate

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 3.97 | Chloride | M | 0.859 | 4.889 | 16.3506 |
| 2 | 7.28 | Nitrate | MB | 0.446 | 1.477 | 3.7885 |
| 3 | 11.52 | Sulfate | BM | 3.278 | 7.428 | 87.4730 |
| | | TOTAL: | | 4.58 | 13.79 | 107.61 |




**Analyst:** Drew Gerhart
Chemist

**Date:** FEB 03 2020

**Verifier:** Sandra J. Miller
Chemist

**Date:** FEB 04 2020

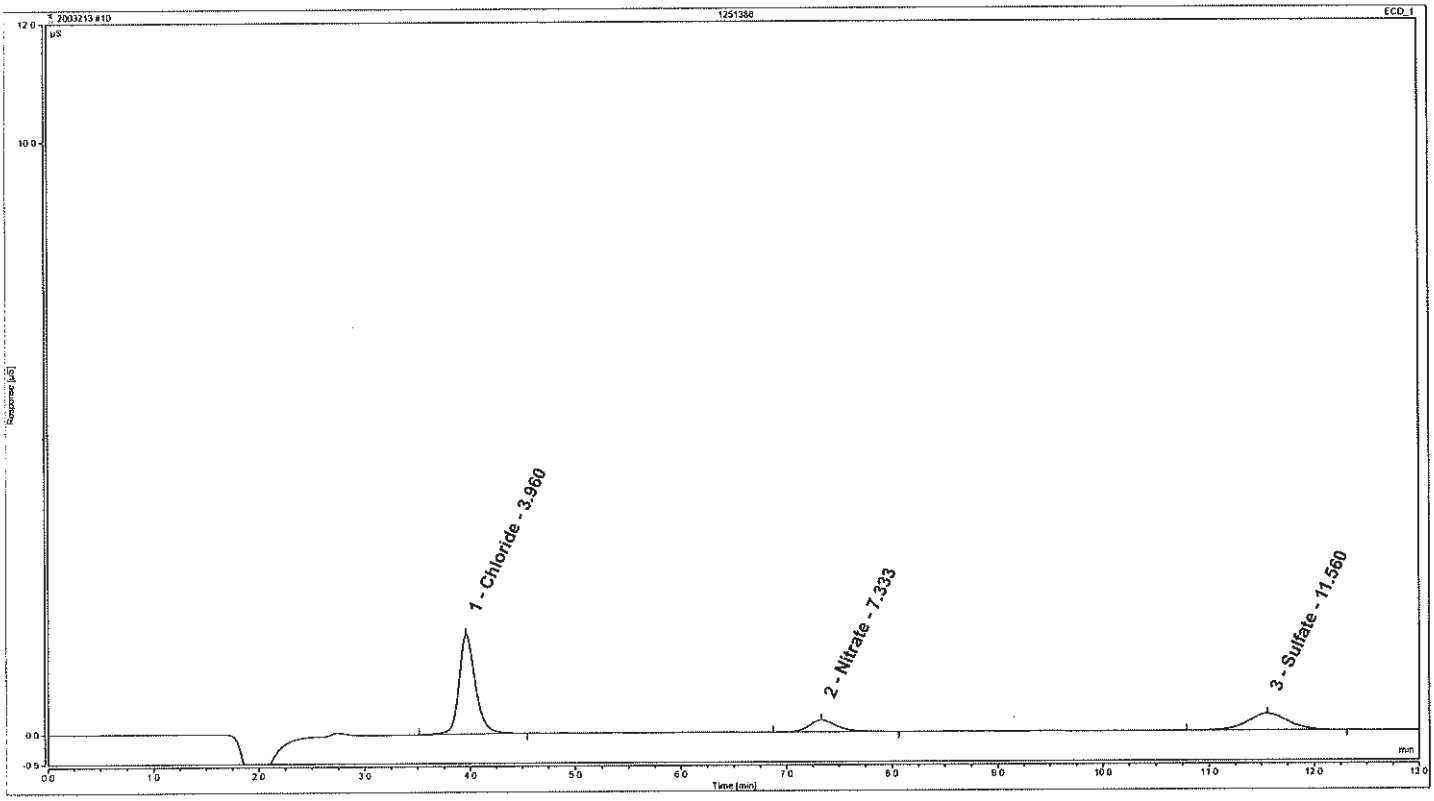
# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **1251386** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | **20032720113A-30720** | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 13:12** | *Dilution Factor:* | **5** |
| *Injection Type:* | **Unknown** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **010** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 3.96 | Chloride | M | 0.306 | 1.677 | 6.0684 |
| 2 | 7.33 | Nitrate | M | 0.062 | 0.200 | 0.7631 |
| 3 | 11.56 | Sulfate | M | 0.125 | 0.278 | 4.8058 |
| | | TOTAL: | | 0.49 | 2.15 | 11.64 |

Cl NO3 SO4




**Analyst:** Drew Gerhart, Chemist — **Date:** FEB 03 2020

**Verifier:** Sandra J. Miller, Chemist — **Date:** FEB 04 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **1251388-U** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | **20032720113A-30720** | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 13:27** | *Dilution Factor:* | **5** |
| *Injection Type:* | **Unknown** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **011** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

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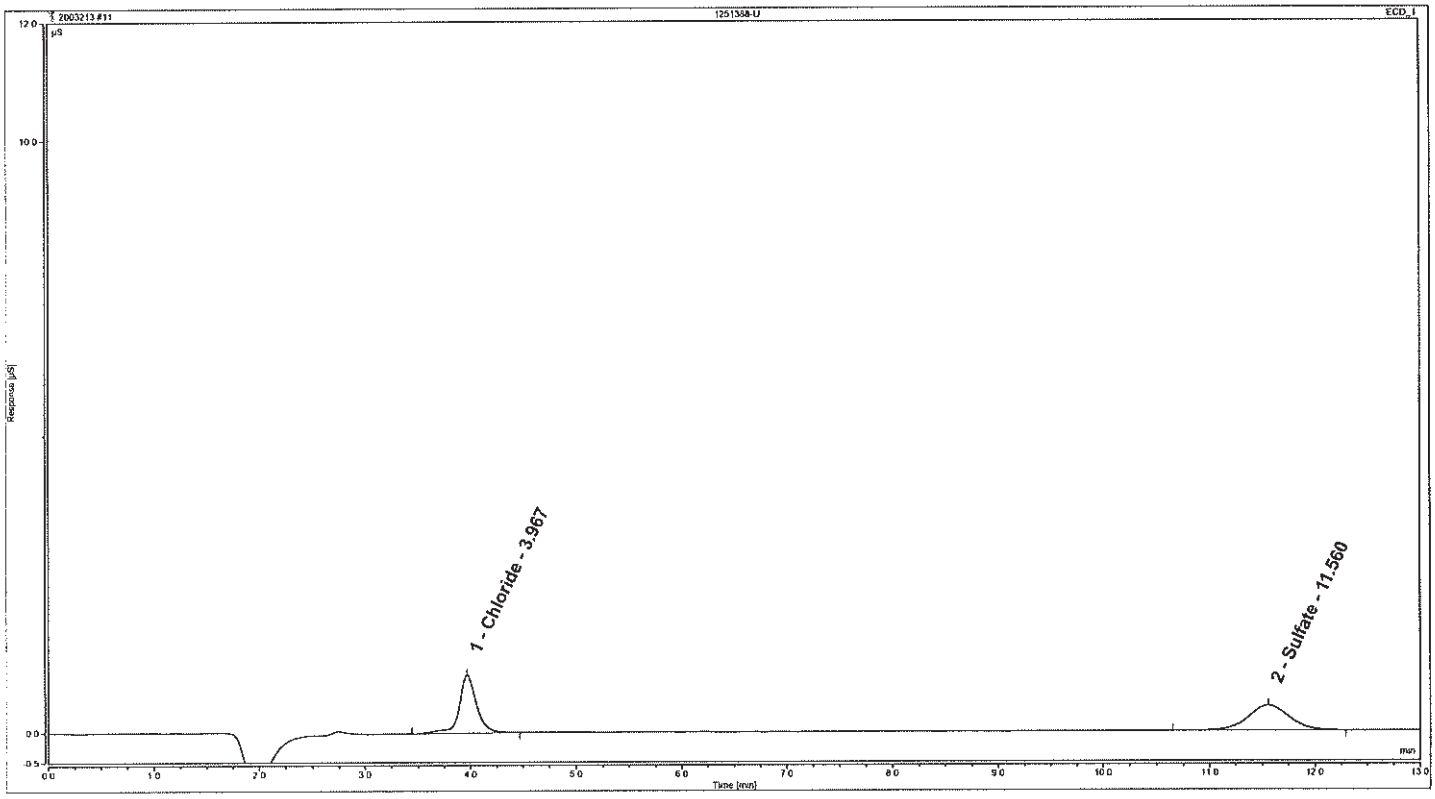
**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 3.97 | Chloride | M | 0.189 | 0.979 | 3.8911 |
| 2 | 11.56 | Sulfate | M | 0.192 | 0.422 | 6.5515 |
| | | TOTAL: | | 0.38 | 1.40 | 10.44 |




**Analyst:** Drew Gerhart, Chemist **Date:** FEB 03 2020

**Verifier:** Brandon J. Miller, Chemist **Date:** FEB 04 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **1251389-R** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | **20032720113A-30720** | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 13:42** | *Dilution Factor:* | **5** |
| *Injection Type:* | **Unknown** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **012** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

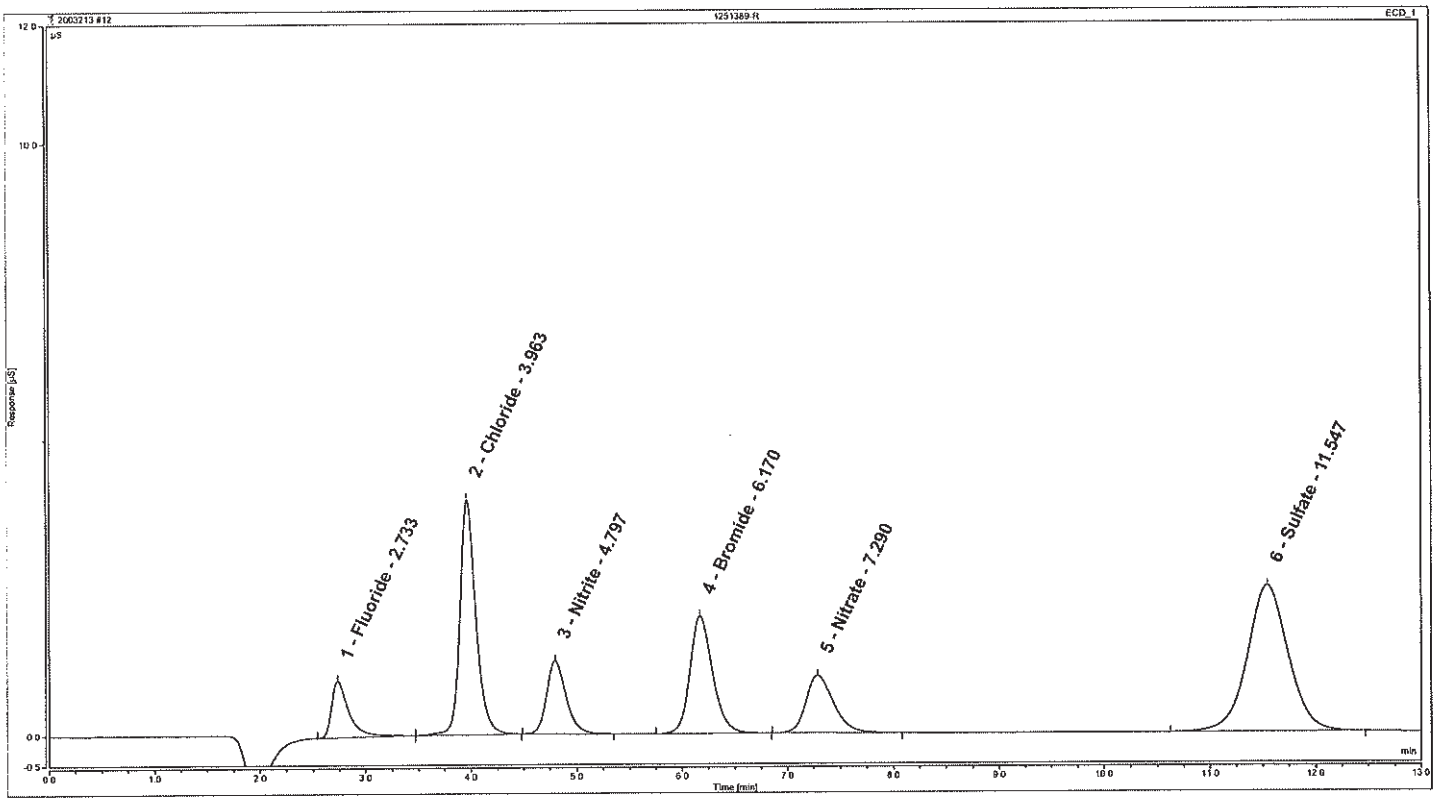
C(NO3SO4

10 96%

2.5 103%
25 96%

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 2.73 | Fluoride | BM | 0.184 | 0.952 | 2.9013 |
| 2 | 3.96 | Chloride | MB | 0.703 | 3.982 | 13.4558 |
| 3 | 4.80 | Nitrite | M | 0.263 | 1.236 | 2.6012 |
| 4 | 6.17 | Bromide | M | 0.495 | 1.985 | 23.1791 |
| 5 | 7.29 | Nitrate | MB | 0.291 | 0.969 | 2.5664 |
| 6 | 11.55 | Sulfate | M | 1.106 | 2.471 | 30.5319 |
| | | TOTAL: | | 3.04 | 11.60 | 75.24 |




**Analyst:** Drew Gerhart
Chemist

**Date:** FEB 03 2020

**Verifier:** Gregory J. Miller
Chemist

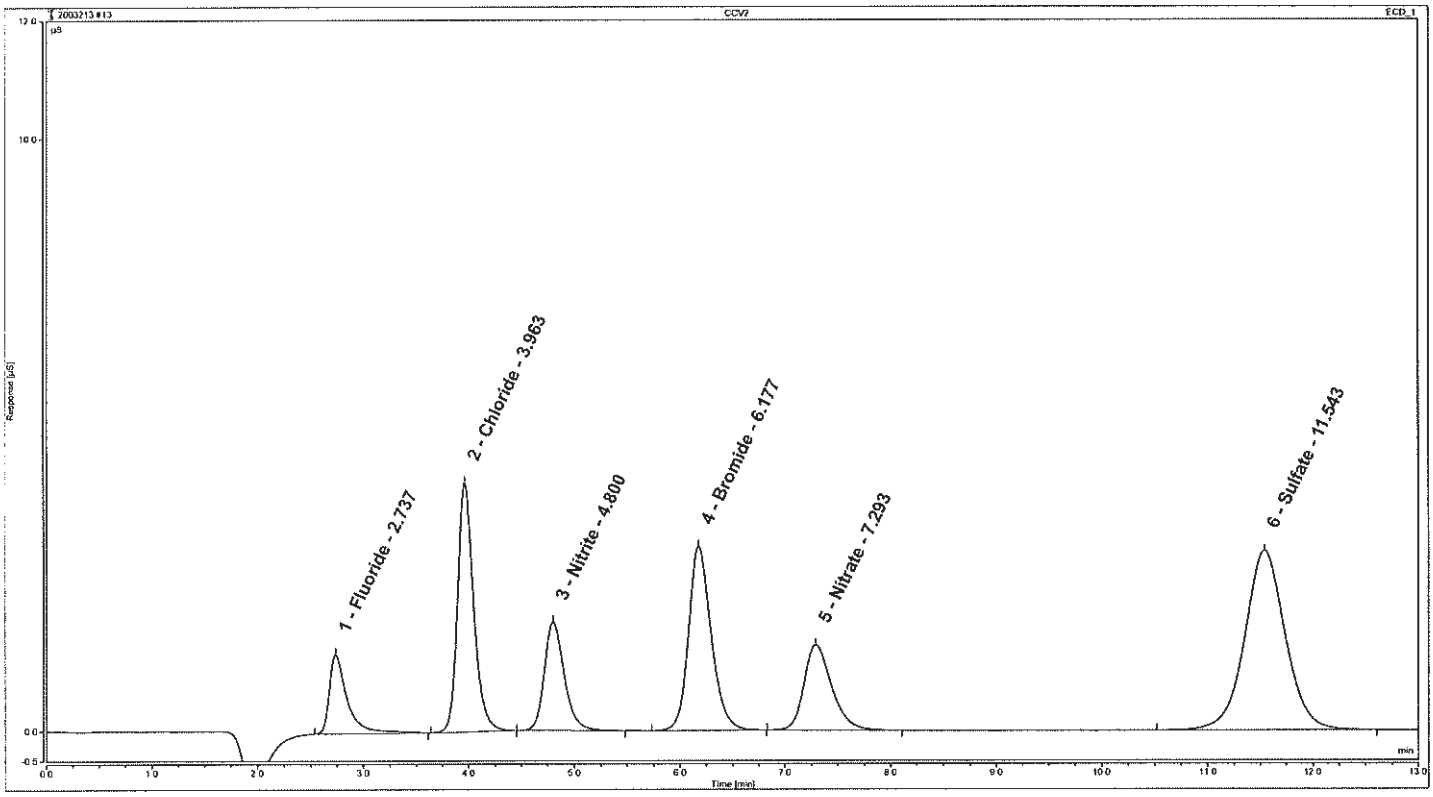
**Date:** FEB 04 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV2** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 13:57** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Check Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **013** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 2.74 | Fluoride | M | 0.268 | 1.334 | 0.8152 |
| 2 | 3.96 | Chloride | MB | 0.751 | 4.215 | 2.8694 |
| 3 | 4.80 | Nitrite | BMB | 0.396 | 1.836 | 0.7559 |
| 4 | 6.18 | Bromide | M | 0.778 | 3.115 | 7.1109 |
| 5 | 7.29 | Nitrate | M | 0.436 | 1.442 | 0.7422 |
| 6 | 11.54 | Sulfate | BM | 1.364 | 3.038 | 7.4602 |
| | | TOTAL: | | 3.99 | 14.98 | 19.75 |




**Analyst:** Drew Gerhart, Chemist

**Date:** FEB 03 2020

**Verifier:** Sandra J. Miller, Chemist

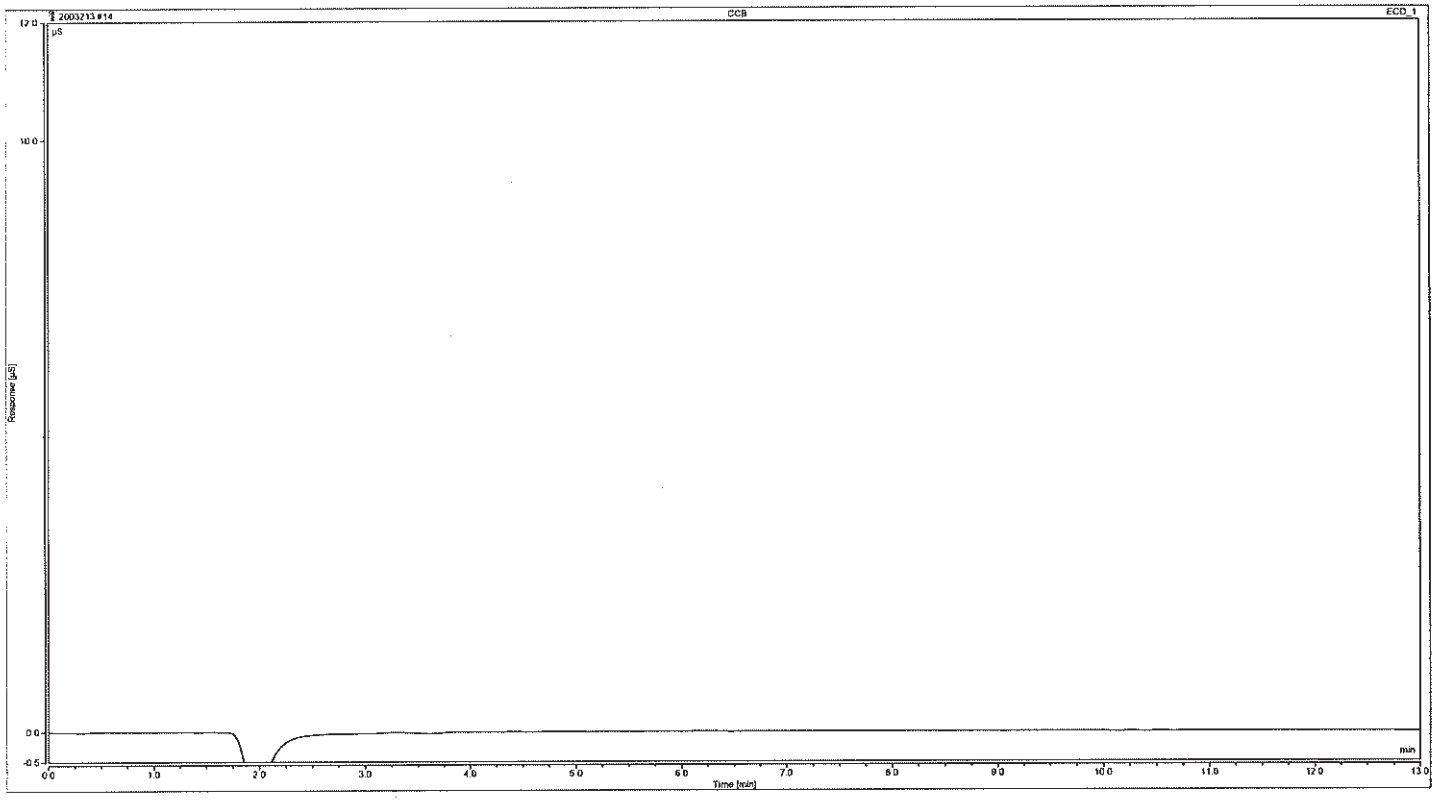
**Date:** FEB 04 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 14:12** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Check Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **014** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount n.a. |
|---|---|---|---|---|---|---|
| | | TOTAL: | | 0.00 | 0.00 | 0.00 |




**Analyst:** Drew Gerhart
Chemist

**Date:** FEB 03 2020

**Verifier:**

**Date:** FEB 04 2020

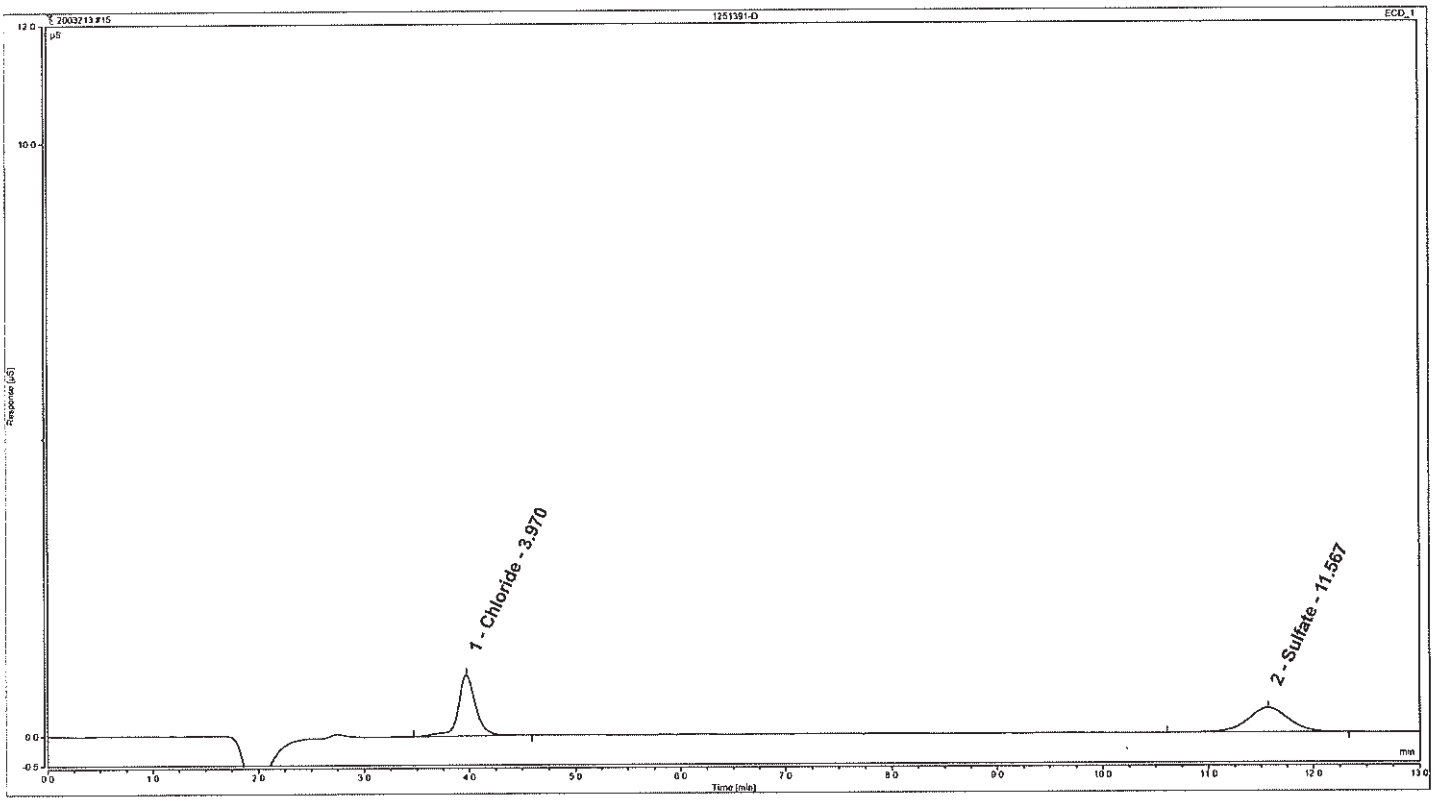
# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **1251391-D** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | **20032720113A-30720** | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 14:27** | *Dilution Factor:* | **5** |
| *Injection Type:* | **Unknown** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **015** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

Cl NO3 SO4

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 3.97 | Chloride | M | 0.199 | 1.030 | 4.0766 |
| 2 | 11.57 | Sulfate | M | 0.188 | 0.413 | 6.4634 |
| | | TOTAL: | | 0.39 | 1.44 | 10.54 |




**Analyst:** Drew Gerhart, Chemist

**Date:** FEB 03 2020

**Verifier:** Gordon J. Miller, Chemist

**Date:** FEB 04 2020

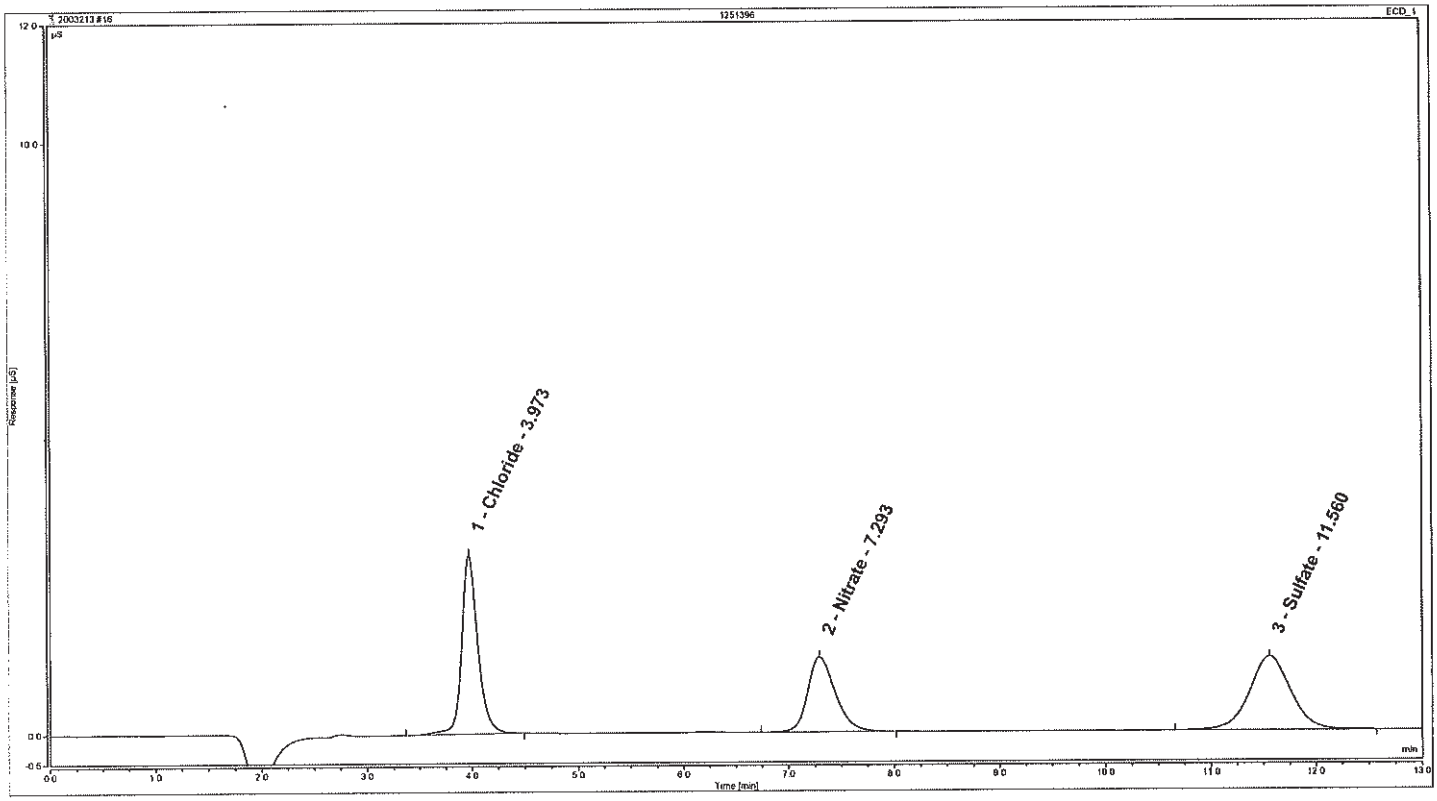
# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **1251396** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | **20032720113A-30720** | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 14:42** | *Dilution Factor:* | **5** |
| *Injection Type:* | **Unknown** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **016** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

Cl NO3 SO4

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 3.97 | Chloride | M | 0.546 | 3.030 | 10.5360 |
| 2 | 7.29 | Nitrate | BM | 0.382 | 1.267 | 3.2854 |
| 3 | 11.56 | Sulfate | M | 0.566 | 1.245 | 16.3641 |
| | | TOTAL: | | 1.49 | 5.54 | 30.19 |




**Analyst:** Drew Gerhart, Chemist — **Date:** FEB 03 2020

**Verifier:** Brandon J. Miller, Chemist — **Date:** FEB 04 2020

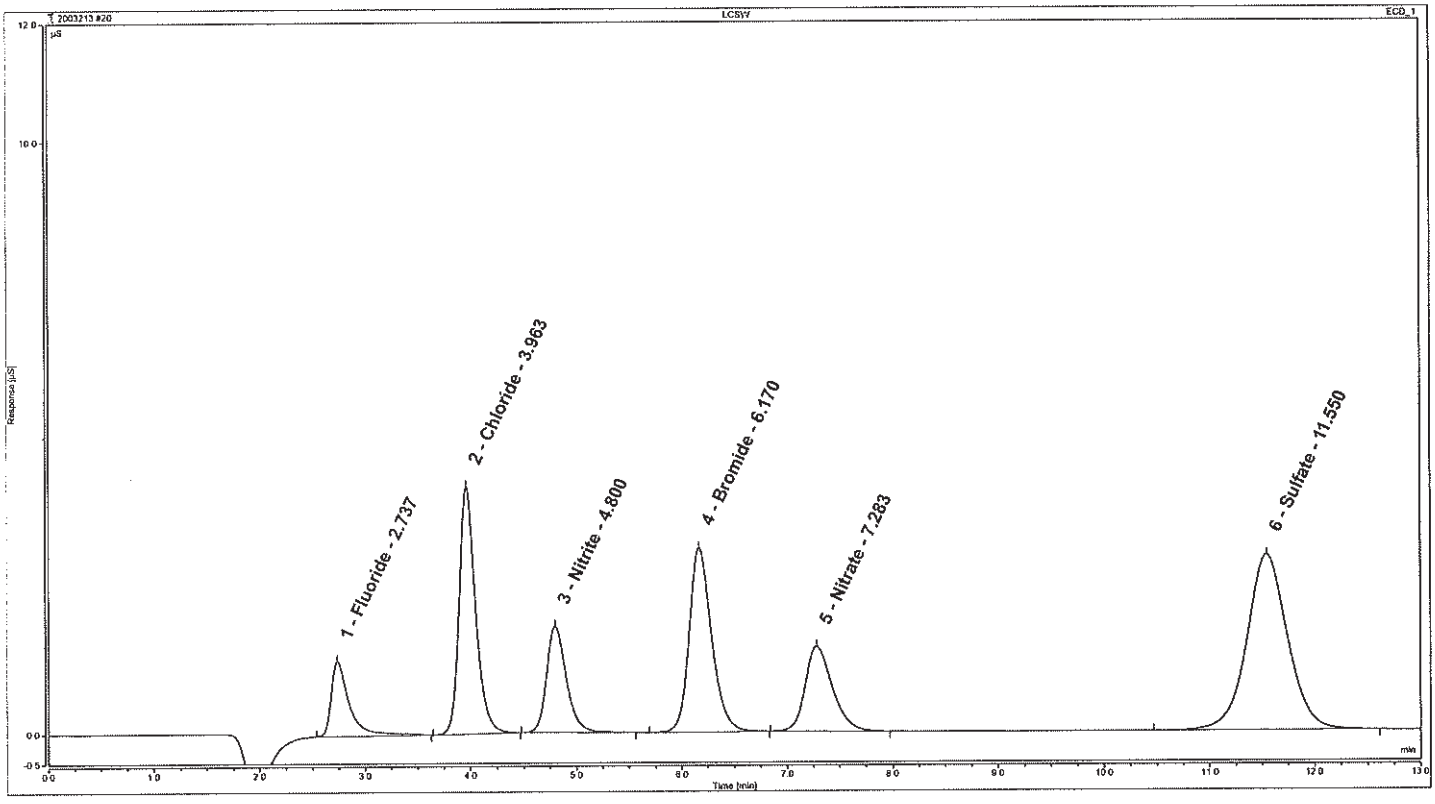
# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **LCSW** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | **20032720113A-30720** | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 15:42** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Unknown** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **020** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

Cl NO3 SO4

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 2.74 | Fluoride | M | 0.255 | 1.255 | 0.7804 |
| 2 | 3.96 | Chloride | M | 0.749 | 4.185 | 2.8615 |
| 3 | 4.80 | Nitrite | M | 0.389 | 1.795 | 0.7432 |
| 4 | 6.17 | Bromide | M | 0.777 | 3.113 | 7.1056 |
| 5 | 7.28 | Nitrate | M | 0.431 | 1.431 | 0.7348 |
| 6 | 11.55 | Sulfate | M | 1.339 | 2.969 | 7.3286 |
| | | TOTAL: | | 3.94 | 14.75 | 19.55 |




**Analyst:** Drew Gerhart, Chemist — **Date:** FEB 03 2020

**Verifier:** Sandra J. Miller, Chemist — **Date:** FEB 04 2020

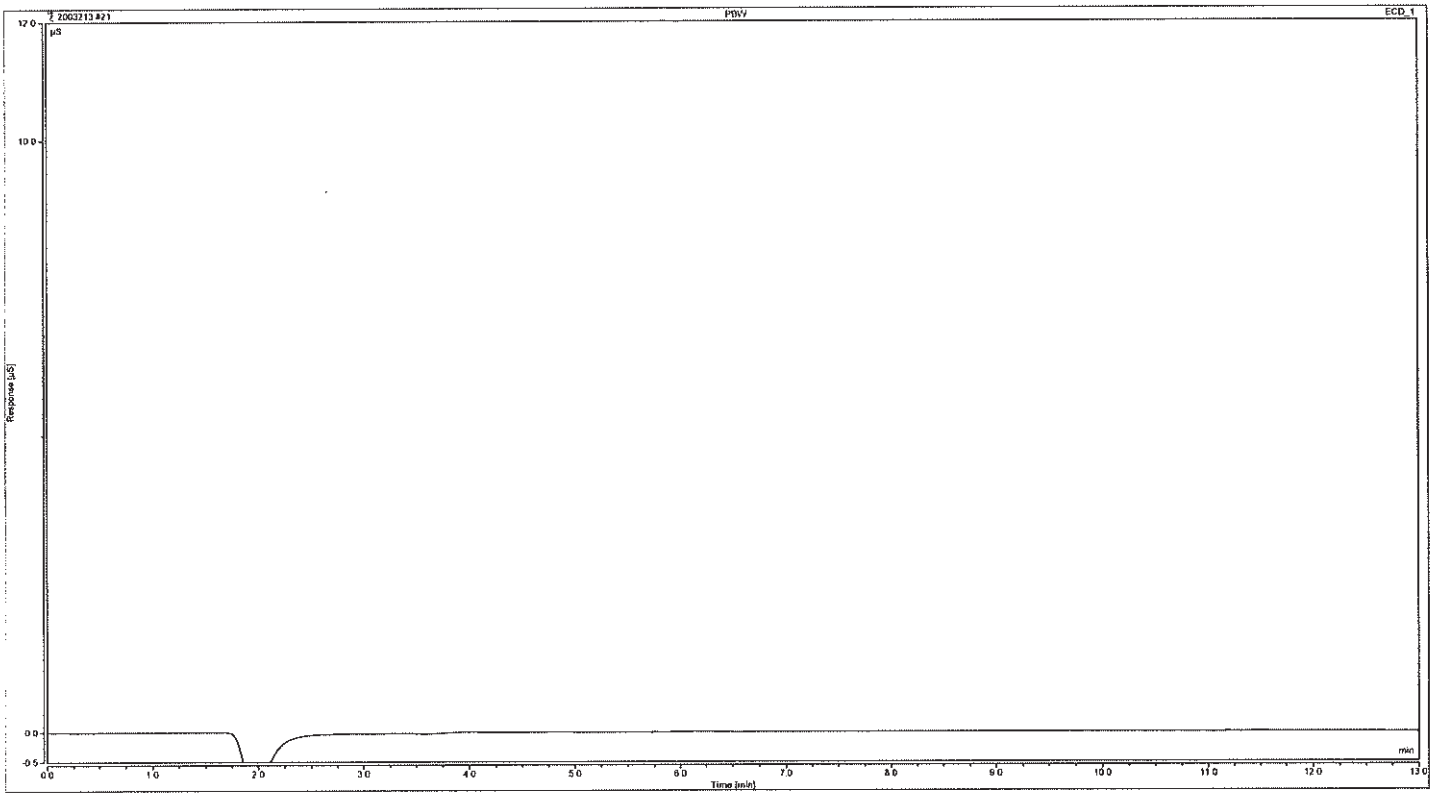
# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **PBW** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | **20032720113A-30720** | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 15:57** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Unknown** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **021** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount n.a. |
|---|---|---|---|---|---|---|
| | | TOTAL: | | 0.00 | 0.00 | 0.00 |

C(Nd3SO4




**Analyst:** Drew Gerhart, Chemist

**Date:** FEB 03 2020

**Verifier:**

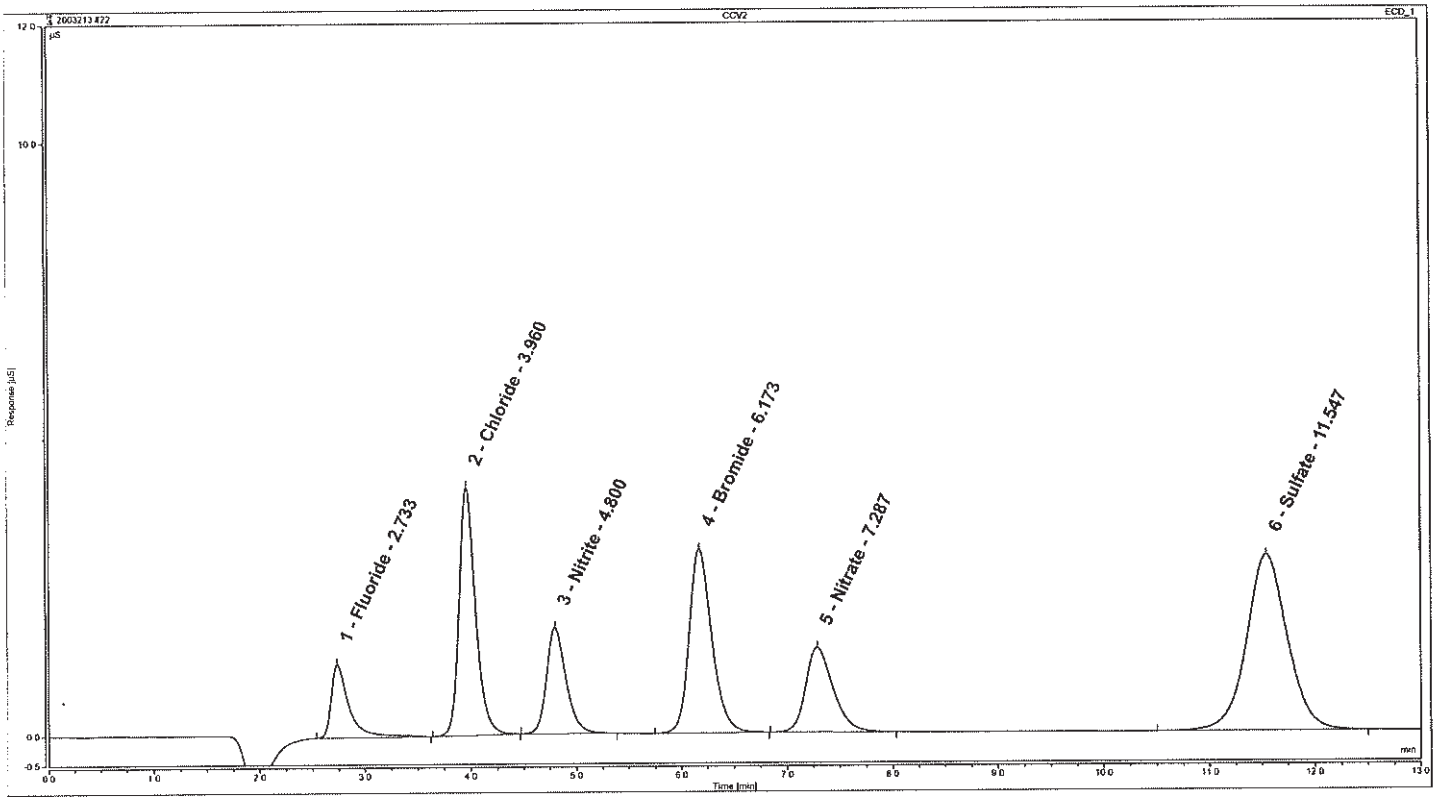
**Date:** FEB 04 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV2** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 16:12** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Check Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **022** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 2.73 | Fluoride | M | 0.251 | 1.239 | 0.7676 |
| 2 | 3.96 | Chloride | BM | 0.748 | 4.176 | 2.8587 |
| 3 | 4.80 | Nitrite | M | 0.385 | 1.792 | 0.7367 |
| 4 | 6.17 | Bromide | M | 0.777 | 3.103 | 7.1041 |
| 5 | 7.29 | Nitrate | M | 0.432 | 1.428 | 0.7360 |
| 6 | 11.55 | Sulfate | MB | 1.334 | 2.967 | 7.3005 |
| | | TOTAL: | | 3.93 | 14.71 | 19.50 |




**Analyst:** Drew Gerhart Chemist

**Date:** FEB 03 2020

**Verifier:** Sandra J. Miller Chemist

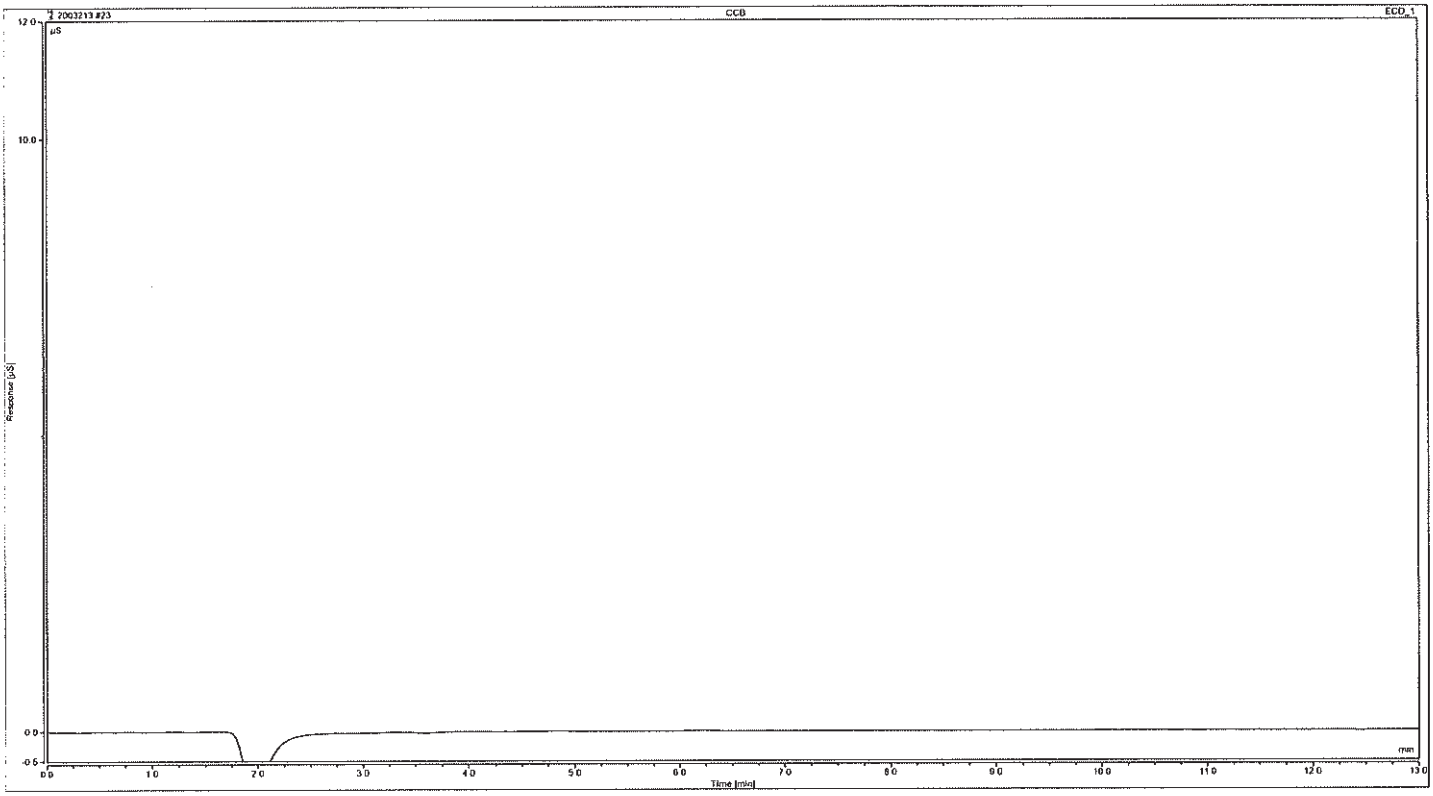
**Date:** FEB 04 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **13.00** |
| *Inj. Date / Time:* | **02/01/2020 / 16:27** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Check Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **Anions** | *Injection Number:* | **023** |
| *Instrument Number:* | **19052** | *Calibration Date:* | **1/13/2020** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003213** |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount n.a. |
|---|---|---|---|---|---|---|
| | | TOTAL: | | 0.00 | 0.00 | 0.00 |




**Analyst:** Drew Gerhart, Chemist — **Date:** FEB 03 2020

**Verifier:** Sandra J. Miller, Chemist — **Date:** FEB 04 2020

eurofins | Lancaster Laboratories

# Inorganic Anions by Ion Chromatography

System Name ICS-2000 Analyst FL13520

Instrument ID 12115 Run Start Date 12-11-19

IDAT Run Number 193501B15 Run Name 193515C

**ICV/CCV/LCSW (mg/L)**

Prep Book/Page: 304884 / 19

| Anion | T.V. | LCSW /ICV/CCV2 | DOD LCSW |
|---|---|---|---|
| Fluoride | .75 | .6713 - 0.828 | 0.66-0.84 |
| Chloride | 3.0 | 2.685 - 3.312 | 2.61-3.33 |
| Nitrite-N | .75 | .6713 - 0.828 | .6525-.8325 |
| Bromide | 7.5 | 6.71 - 8.28 | 6.825-8.25 |
| Nitrate-N | .75 | .6713 - 0.828 | 0.66-0.8325 |
| O-Phos as P | 7.5 | 6.71 - 8.28 | 6.0-8.7 |
| Sulfate | 7.5 | 6.71 - 8.28 | 6.525-8.4 |

**LCSS (mg/kg)**

Prep Book/Page: _____

| Anion | T.V. | Acceptance Range |
|---|---|---|
| Fluoride | 10 | 8.95 - 11.0 |
| Chloride | 20 | 17.9 - 22.08 |
| Nitrite-N | 10 | 8.95 - 11.0 |
| Bromide | 50 | 44.75 - 55.2 |
| Nitrate-N | 10 | 8.95 - 11.0 |
| O-Phos as P | 50 | 44.75 - 55.2 |
| Sulfate | 50 | 44.75 - 55.2 |

**CCB/PBW (mg/L)**

| $F, NO_2$ | $NO_3$ | Cl | P | Br | $SO_4$ |
|---|---|---|---|---|---|
| < 0.05 | < 0.05 | <.2 | < 0.2 | < 0.25 | < 0.3 |

**CCB/PBS (mg/kg)**

| $F, NO_2, NO_3$ | Cl | Br | $P, SO_4$ |
|---|---|---|---|
| < 0.5 | < 5.0 | < 2.5 | < 5.0 |

**Calibration Information – (mg/L)**

| Standard | $F, NO_2, NO_3$ | Cl | Br,P | $SO_4$ |
|---|---|---|---|---|
| Cal 1 | 0.1 | 0.4 | 0.5 | 1.0 |
| Cal 2 | 0.4 | 0.8 | 2.0 | 2.0 |
| Cal 3 | 1.0 | 2.0 | 5.0 | 5.0 |
| Cal 4 | 2.0 | 4.0 | 10.0 | 10.0 |
| Cal 5 | 3.0 | 6.0 | 15.0 | 15.0 |

**Check Standards True Values (mg/L)**

| | $F, NO_2, NO_3$ | Cl | Br, P, $SO_4$ |
|---|---|---|---|
| Low | 0.75 | 1.5 | 3.75 |
| High | 2.25 | 4.5 | 11.25 |

The dilution for solids is entered into the software by multiplying by 50 in order to calculate the result to mg/kg.

# Sequence Overview: 1934515C

| No. | Injection Name | Batch Number | Position | Type | Level | Inject Time | Volume µL | Instrumentation Method | Processing Method | Weight | Dilution | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | TEST | | 77 | Unknown | | 12/11/2019 11:43:28 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 2 | CAL 0 | | 71 | Calibration Standard | 01 | 12/11/2019 12:00:36 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 3 | CAL 1 | | 72 | Calibration Standard | 02 | 12/11/2019 12:17:43 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 4 | CAL 2 | | 73 | Calibration Standard | 03 | 12/11/2019 12:34:50 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 5 | CAL 3 | | 74 | Calibration Standard | 04 | 12/11/2019 12:51:57 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 6 | CAL 4 | | 75 | Calibration Standard | 05 | 12/11/2019 13:09:04 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 7 | CAL 5 | | 76 | Calibration Standard | 06 | 12/11/2019 13:26:11 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 8 | ICV | | 77 | Check Standard | | 12/11/2019 13:43:17 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 9 | ICB | | 78 | Check Standard | | 12/11/2019 14:00:25 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 10 | QRS | | 72 | Check Standard | | 12/11/2019 14:17:32 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 11 | CRDL | | 72 | Check Standard | | 12/11/2019 14:34:38 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |

| Peak No. | Peak Name | Cal.Type | Eval.Type | Number of Points | Rel.Std.Dev. % | Coeff.of Determination | C0 (Offset) | C1 (Slope) | Corr.Coeff. % |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Fluoride | Lin. WithOffset | Area | 5 | 2.5022 | 0.99900 | -0.0178 | 0.3335 | 99.95005 |
| 2 | Chloride | Lin. WithOffset | Area | 5 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 3 | Nitrite | Lin. WithOffset | Area | 5 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 4 | Bromide | Lin. WithOffset | Area | 5 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 5 | Nitrate | Lin. WithOffset | Area | 5 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 6 | Sulfate | Lin. WithOffset | Area | 5 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| Maximum | | | | | 3.5022 | 0.99974 | | | |
| Minimum | | | | | 1.6834 | 0.99800 | | | |

Clinton M. Wilson
Chemist

DEC 13 2019

Sandra J. Miller
Chemist

DEC 15 2019

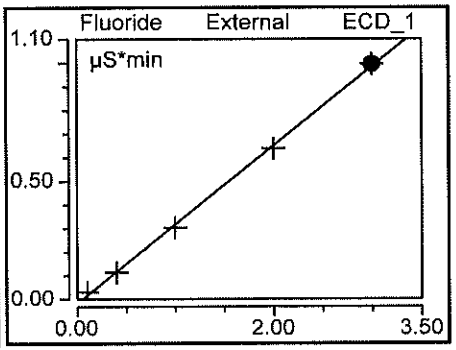
# Calibration Batch Report

| | | | |
|---|---|---|---|
| *Sequence:* | **1934515C** | *Injection Volu* A | **50.00** |
| *Instrument Method:* | **AnionsAS** | *Channel:* | **ECD_1** |
| *Instrument Number:* | **12115** | *Run Time (min):* | **16** |
| *Inj. Date / Time:* | **11-Dec-2019 / 13:26** | *Column Type-Serial #:* | AG14-180119260, AS14-170410251 |

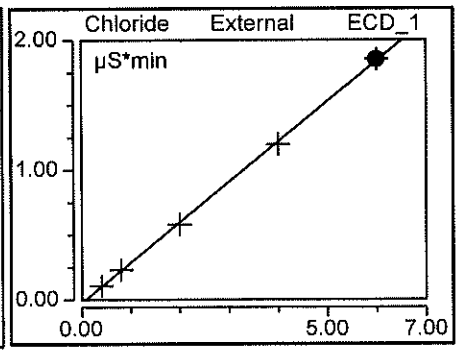
**Calibration Summary**

| Peak Name | Eval.Type | Cal.Type | Points | Offset (C0) | Slope (C1) | Curve (C2) | R-Squared % |
|---|---|---|---|---|---|---|---|
| Fluoride | Area | Lin, WithOffset | 5.000 | -0.018 | 0.334 | 0.000 | 99.9001187 |
| Chloride | Area | Lin, WithOffset | 5.000 | -0.025 | 0.310 | 0.000 | 99.9569427 |
| Nitrite | Area | Lin, WithOffset | 5.000 | -0.022 | 0.647 | 0.000 | 99.9426752 |
| Bromide | Area | Lin, WithOffset | 5.000 | -0.028 | 0.129 | 0.000 | 99.9716550 |
| Nitrate | Area | Lin, WithOffset | 5.000 | -0.023 | 0.721 | 0.000 | 99.9723668 |
| Sulfate | Area | Lin, WithOffset | 5.000 | -0.042 | 0.211 | 0.000 | 99.9743245 |
| | | AVERAGE: | | -0.0264 | 0.3921 | 0.0000 | 99.9530 |

| Injection Name | Ret.Time min ECD_1 | Area µS*min ECD_1 | Height µS ECD_1 | Amount ECD_1 |
|---|---|---|---|---|
| | Fluoride | Fluoride | Fluoride | Fluoride |
| CAL 0 | n.a. | n.a. | n.a. | n.a. |
| CAL 1 | 3.297 | 0.0301 | 0.059 | 0.144 |
| CAL 2 | 3.287 | 0.1135 | 0.280 | 0.394 |
| CAL 3 | 3.287 | 0.3028 | 0.799 | 0.961 |
| CAL 4 | 3.287 | 0.6382 | 1.766 | 1.967 |
| CAL 5 | 3.287 | 0.9942 | 2.834 | 3.034 |
| **Average** | 3.289 | | | |
| **Rel. Std. Dev.** | 0.136 % | | | |




| Injection Name | Ret.Time min ECD_1 | Area µS*min ECD_1 | Height µS ECD_1 | Amount ECD_1 |
|---|---|---|---|---|
| | Chloride | Chloride | Chloride | Chloride |
| CAL 0 | n.a. | n.a. | n.a. | n.a. |
| CAL 1 | 4.757 | 0.1071 | 0.677 | 0.427 |
| CAL 2 | 4.753 | 0.2323 | 1.517 | 0.830 |
| CAL 3 | 4.753 | 0.5803 | 3.880 | 1.952 |
| CAL 4 | 4.760 | 1.1982 | 8.147 | 3.943 |
| CAL 5 | 4.760 | 1.8511 | 12.738 | 6.048 |
| **Average** | 4.757 | | | |
| **Rel. Std. Dev.** | 0.070 % | | | |



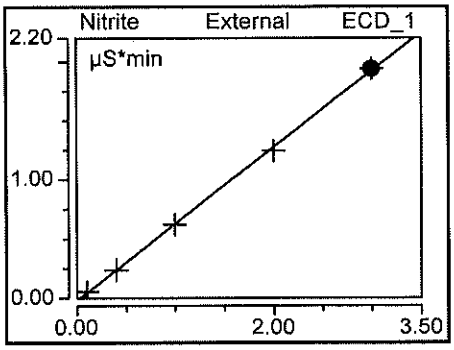

Clinton M. Wilson
Chemist

DEC 13 2019

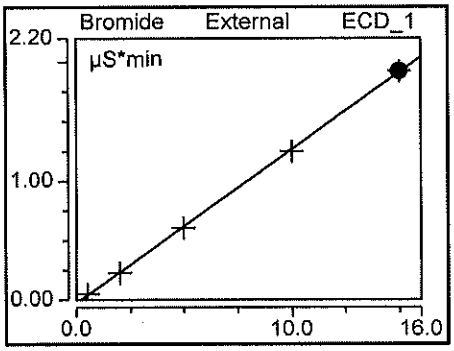
Samuel J. Miller
Chemist

DEC 15 2019

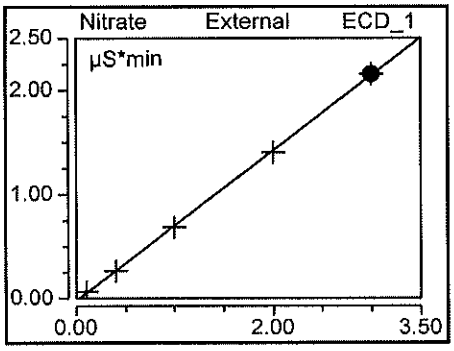
| Injection Name | Ret.Time min ECD_1 | Area µS*min ECD_1 | Height µS ECD_1 | Amount ECD_1 |
|---|---|---|---|---|
| | Nitrite | Nitrite | Nitrite | Nitrite |
| CAL 0 | n.a. | n.a. | n.a. | n.a. |
| CAL 1 | 5.827 | 0.0546 | 0.271 | 0.119 |
| CAL 2 | 5.817 | 0.2373 | 1.172 | 0.401 |
| CAL 3 | 5.810 | 0.6209 | 3.070 | 0.994 |
| CAL 4 | 5.810 | 1.2436 | 6.296 | 1.956 |
| CAL 5 | 5.807 | 1.9393 | 9.687 | 3.031 |
| **Average** | 5.814 | | | |
| **Rel. Std. Dev.** | 0.137 % | | | |



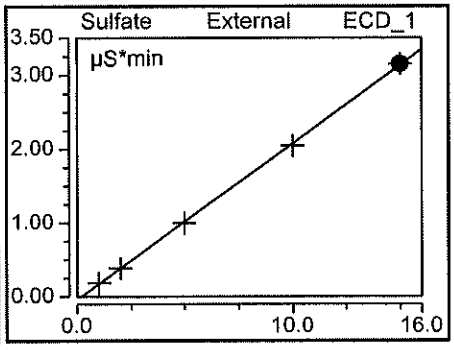

| Injection Name | Ret.Time min ECD_1 | Area µS*min ECD_1 | Height µS ECD_1 | Amount ECD_1 |
|---|---|---|---|---|
| | Bromide | Bromide | Bromide | Bromide |
| CAL 0 | n.a. | n.a. | n.a. | n.a. |
| CAL 1 | 7.617 | 0.0505 | 0.196 | 0.610 |
| CAL 2 | 7.583 | 0.2274 | 0.915 | 1.978 |
| CAL 3 | 7.553 | 0.6082 | 2.481 | 4.925 |
| CAL 4 | 7.537 | 1.2495 | 5.199 | 9.887 |
| CAL 5 | 7.510 | 1.9230 | 8.136 | 15.099 |
| **Average** | 7.560 | | | |
| **Rel. Std. Dev.** | 0.547 % | | | |




| Injection Name | Ret.Time min ECD_1 | Area µS*min ECD_1 | Height µS ECD_1 | Amount ECD_1 |
|---|---|---|---|---|
| | Nitrate | Nitrate | Nitrate | Nitrate |
| CAL 0 | n.a. | n.a. | n.a. | n.a. |
| CAL 1 | 9.103 | 0.0643 | 0.194 | 0.120 |
| CAL 2 | 9.027 | 0.2647 | 0.823 | 0.398 |
| CAL 3 | 8.957 | 0.6868 | 2.185 | 0.984 |
| CAL 4 | 8.910 | 1.4033 | 4.512 | 1.978 |
| CAL 5 | 8.857 | 2.1549 | 6.953 | 3.020 |
| **Average** | 8.971 | | | |
| **Rel. Std. Dev.** | 1.081 % | | | |




| Injection Name | Ret.Time min ECD_1 | Area µS*min ECD_1 | Height µS ECD_1 | Amount ECD_1 |
|---|---|---|---|---|
| | Sulfate | Sulfate | Sulfate | Sulfate |
| CAL 0 | n.a. | n.a. | n.a. | n.a. |
| CAL 1 | 13.770 | 0.1849 | 0.398 | 1.075 |
| CAL 2 | 13.780 | 0.3842 | 0.822 | 2.017 |
| CAL 3 | 13.780 | 1.0015 | 2.155 | 4.936 |
| CAL 4 | 13.780 | 2.0460 | 4.468 | 9.875 |
| CAL 5 | 13.777 | 3.1505 | 6.945 | 15.098 |
| **Average** | 13.777 | | | |
| **Rel. Std. Dev.** | 0.032 % | | | |




Gordon M. Watson
Chemist

DEC 13 2019

Gordon J. Miller
Chemist

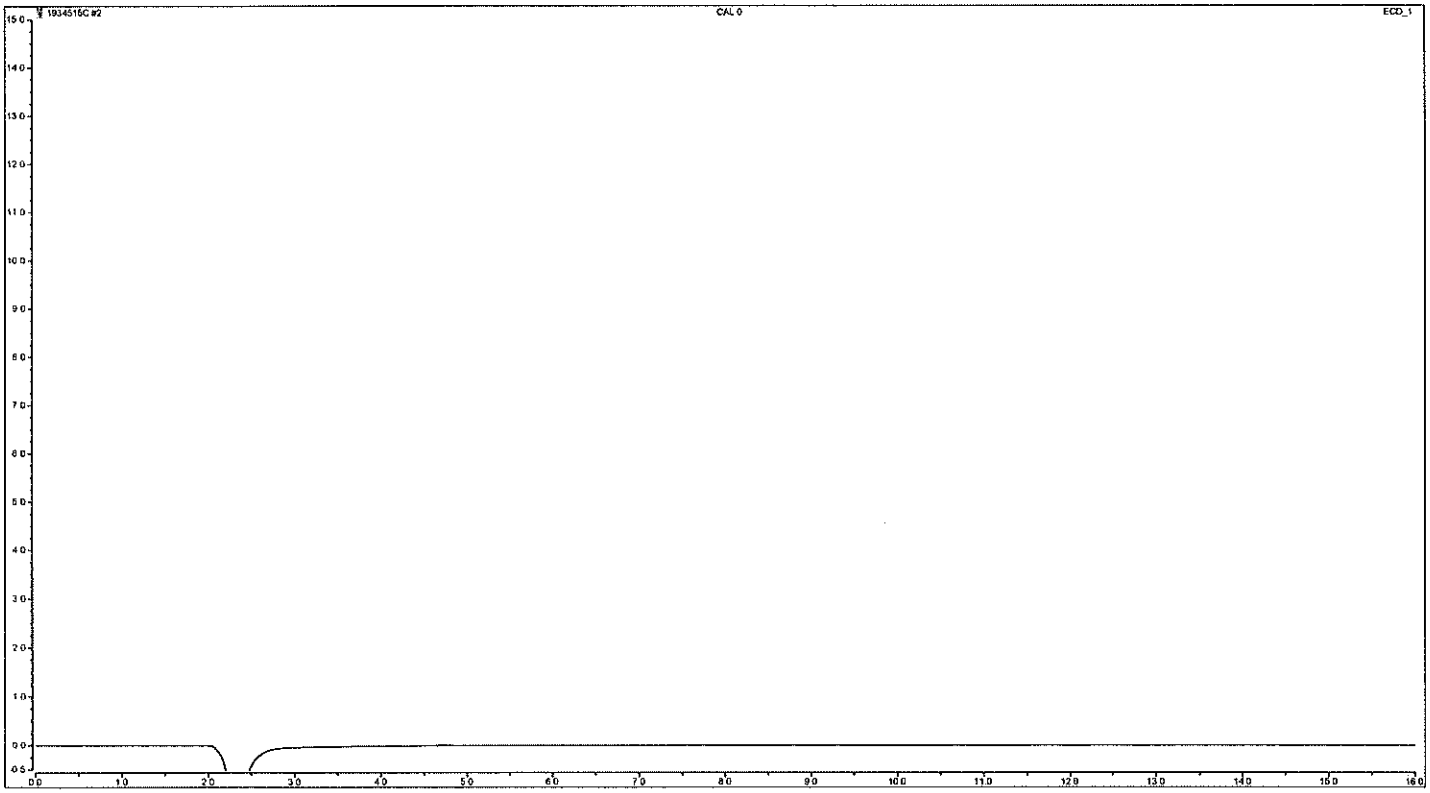
DEC 15 2019

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CAL 0** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **16.00** |
| *Inj. Date / Time:* | **12/11/2019 / 12:00** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Calibration Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **AnionsAS** | *Injection Number:* | **002** |
| *Instrument Number:* | **12115** | *Calibration Date:* | **12/11/2019** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **1934515C** |
| *Column Type-Serial #:* | **AG14-180119260, AS14-170410251** | | |

**Peak Properties: All Components**

| No. | Time | Peak Name | Peak Type | Area | Height | Amount |
|---|---|---|---|---|---|---|
| | min | | | µS*min | µS | n.a. |
| | | TOTAL: | | 0.00 | 0.00 | 0.00 |




**Analyst:**

**Date:**

Clinton M. Wilson
Chemist

DEC 13 2019

**Verifier:**

**Date:**

Chemist

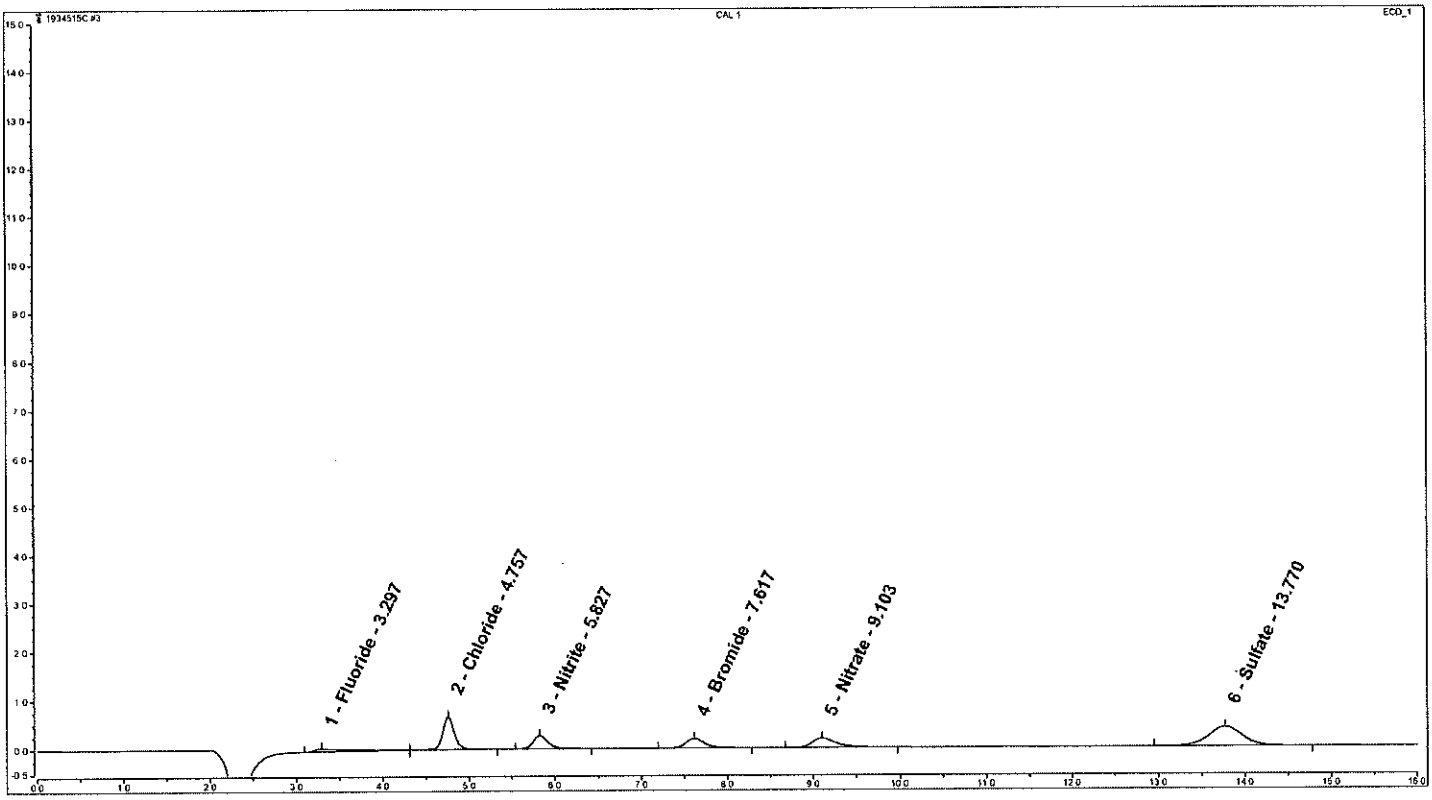
DEC 15 2019

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CAL 1** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **16.00** |
| *Inj. Date / Time:* | **12/11/2019 / 12:17** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Calibration Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **AnionsAS** | *Injection Number:* | **003** |
| *Instrument Number:* | **12115** | *Calibration Date:* | **12/11/2019** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **1934515C** |
| *Column Type-Serial #:* | **AG14-180119260, AS14-170410251** | | |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 3.30 | Fluoride | BMB | 0.030 | 0.059 | 0.1437 |
| 2 | 4.76 | Chloride | BMB | 0.107 | 0.677 | 0.4265 |
| 3 | 5.83 | Nitrite | BMB | 0.055 | 0.271 | 0.1187 |
| 4 | 7.62 | Bromide | BMB | 0.050 | 0.196 | 0.6096 |
| 5 | 9.10 | Nitrate | BMB | 0.064 | 0.194 | 0.1204 |
| 6 | 13.77 | Sulfate | BMB | 0.185 | 0.398 | 1.0748 |
| | | TOTAL: | | 0.49 | 1.79 | 2.49 |




**Analyst:** Clinton M. Wilson, Chemist **Date:** DEC 13 2019

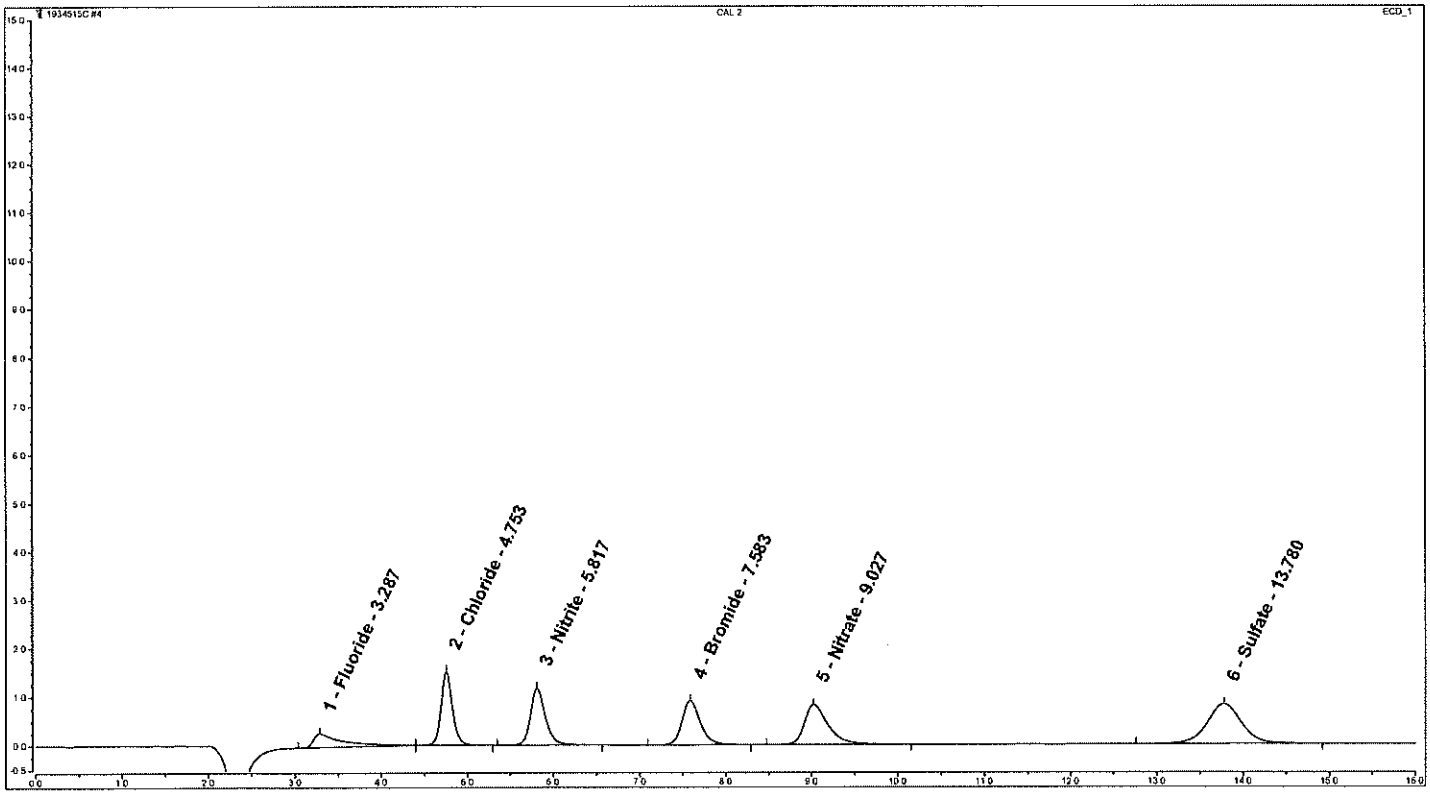
**Verifier:** Barbara J. Miller, Chemist **Date:** DEC 15 2019

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CAL 2** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **16.00** |
| *Inj. Date / Time:* | **12/11/2019 / 12:34** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Calibration Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **AnionsAS** | *Injection Number:* | **004** |
| *Instrument Number:* | **12115** | *Calibration Date:* | **12/11/2019** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **1934515C** |
| *Column Type-Serial #:* | **AG14-180119260, AS14-170410251** | | |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 3.29 | Fluoride | BMB | 0.114 | 0.280 | 0.3937 |
| 2 | 4.75 | Chloride | BMB | 0.232 | 1.517 | 0.8303 |
| 3 | 5.82 | Nitrite | BMB | 0.237 | 1.172 | 0.4010 |
| 4 | 7.58 | Bromide | BMB | 0.227 | 0.915 | 1.9784 |
| 5 | 9.03 | Nitrate | BMB | 0.265 | 0.823 | 0.3983 |
| 6 | 13.78 | Sulfate | BMB | 0.384 | 0.822 | 2.0170 |
| | | TOTAL: | | 1.46 | 5.53 | 6.02 |




**Analyst:** Clinton M. Wilson, Chemist — DEC 13 2019

**Date:**

**Verifier:** Sandra J. Miller, Chemist — DEC 15 2019

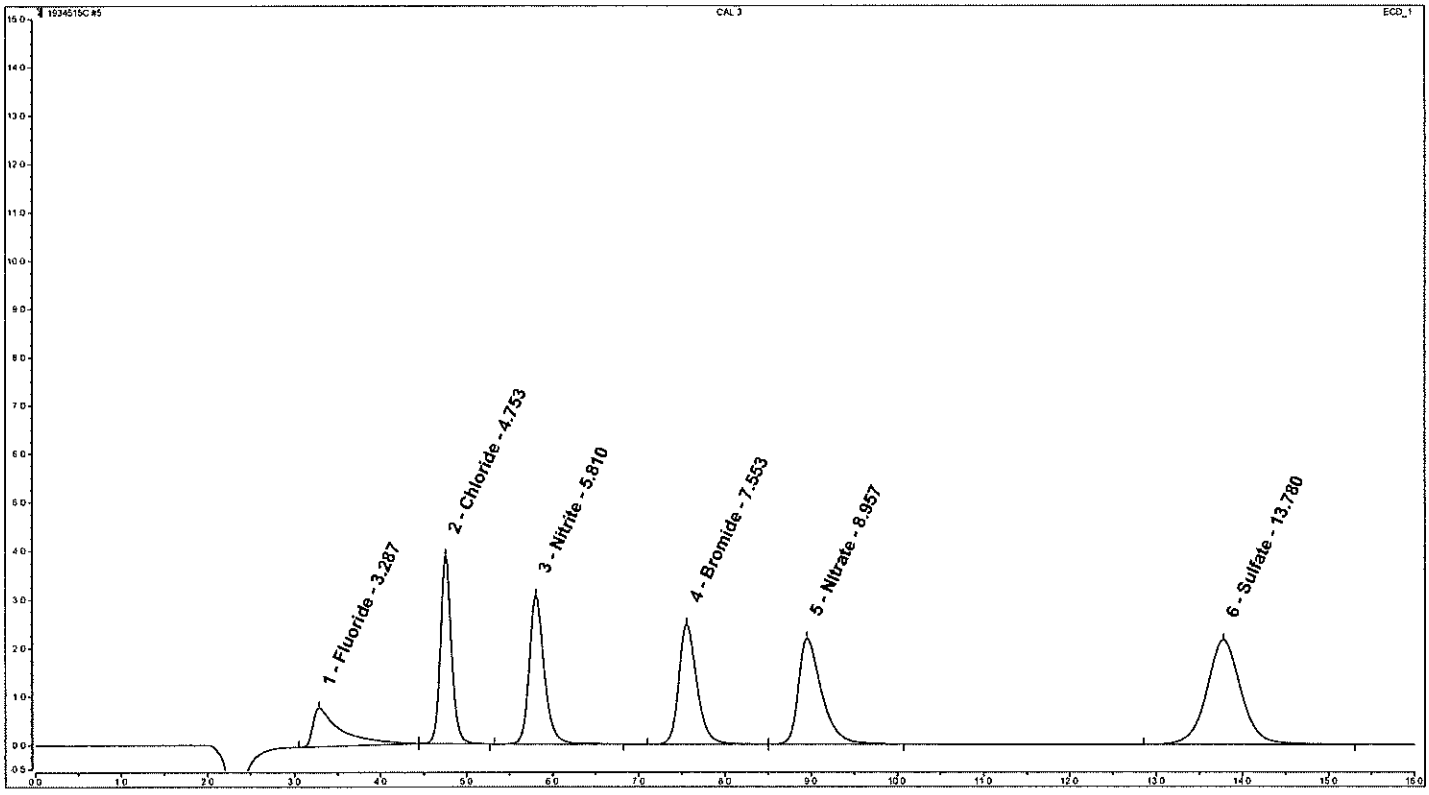
**Date:**

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CAL 3** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **16.00** |
| *Inj. Date / Time:* | **12/11/2019 / 12:51** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Calibration Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **AnionsAS** | *Injection Number:* | **005** |
| *Instrument Number:* | **12115** | *Calibration Date:* | **12/11/2019** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **1934515C** |
| *Column Type-Serial #:* | **AG14-180119260, AS14-170410251** | | |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 3.29 | Fluoride | BMB | 0.303 | 0.799 | 0.9613 |
| 2 | 4.75 | Chloride | BMB | 0.580 | 3.880 | 1.9518 |
| 3 | 5.81 | Nitrite | BMB | 0.621 | 3.070 | 0.9937 |
| 4 | 7.55 | Bromide | BMB | 0.608 | 2.481 | 4.9254 |
| 5 | 8.96 | Nitrate | BMB | 0.687 | 2.185 | 0.9838 |
| 6 | 13.78 | Sulfate | BMB | 1.001 | 2.155 | 4.9358 |
| | | TOTAL: | | 3.80 | 14.57 | 14.75 |




**Analyst:** Clinton M. Wilson, Chemist

**Date:** DEC 13 2019

**Verifier:** Sandra S. Miller, Chemist

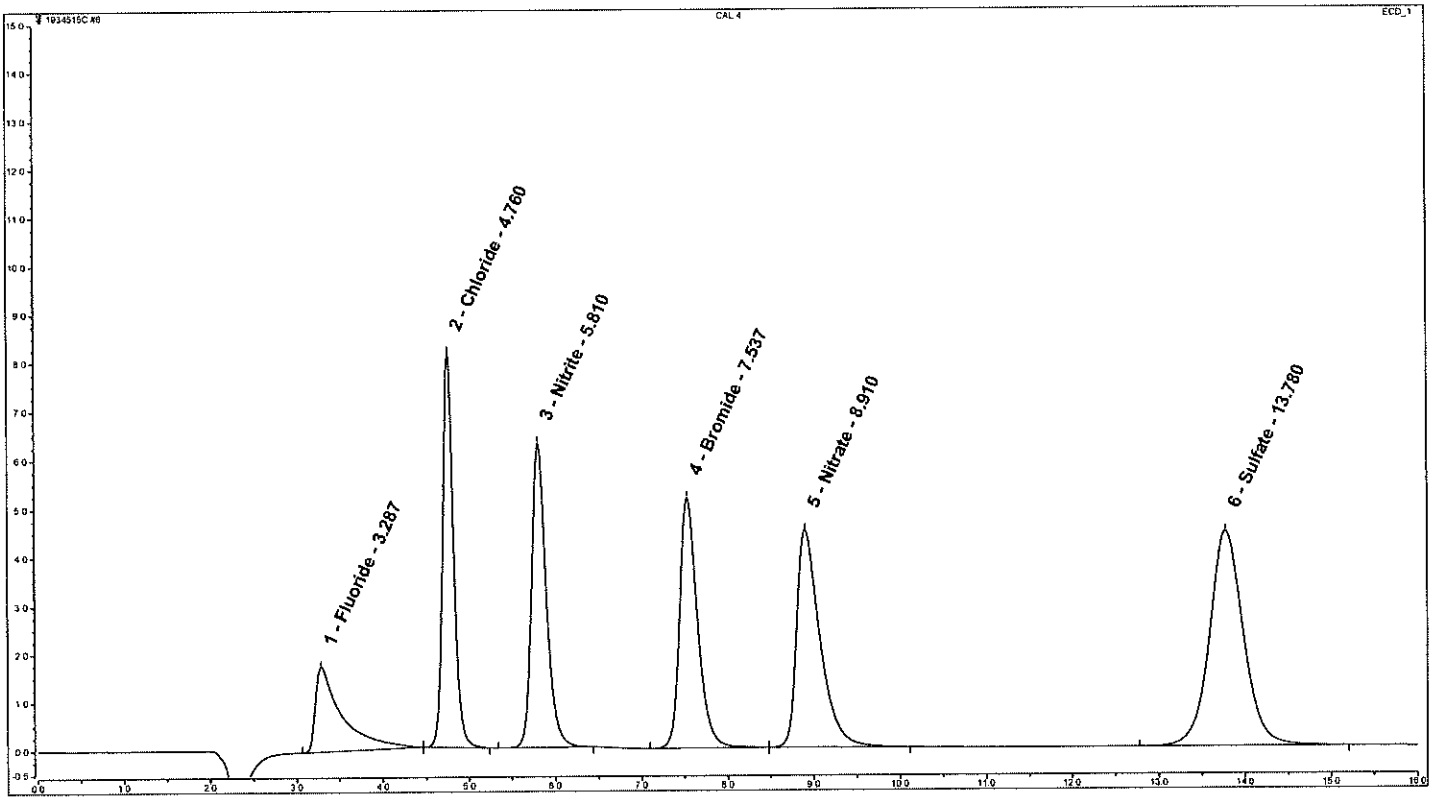
**Date:** DEC 15 2019

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CAL 4** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **16.00** |
| *Inj. Date / Time:* | **12/11/2019 / 13:09** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Calibration Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **AnionsAS** | *Injection Number:* | **006** |
| *Instrument Number:* | **12115** | *Calibration Date:* | **12/11/2019** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **1934515C** |
| *Column Type-Serial #:* | **AG14-180119260, AS14-170410251** | | |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 3.29 | Fluoride | BMB | 0.638 | 1.766 | 1.9669 |
| 2 | 4.76 | Chloride | BMB | 1.198 | 8.147 | 3.9434 |
| 3 | 5.81 | Nitrite | BMB | 1.244 | 6.296 | 1.9559 |
| 4 | 7.54 | Bromide | BMB | 1.249 | 5.199 | 9.8875 |
| 5 | 8.91 | Nitrate | BMB | 1.403 | 4.512 | 1.9776 |
| 6 | 13.78 | Sulfate | BMB | 2.046 | 4.468 | 9.8748 |
| | | TOTAL: | | 7.78 | 30.39 | 29.61 |




**Analyst:** Clinton M. Wilson, Chemist

**Date:** DEC 13 2019

**Verifier:** Jessica J. Miller, Chemist

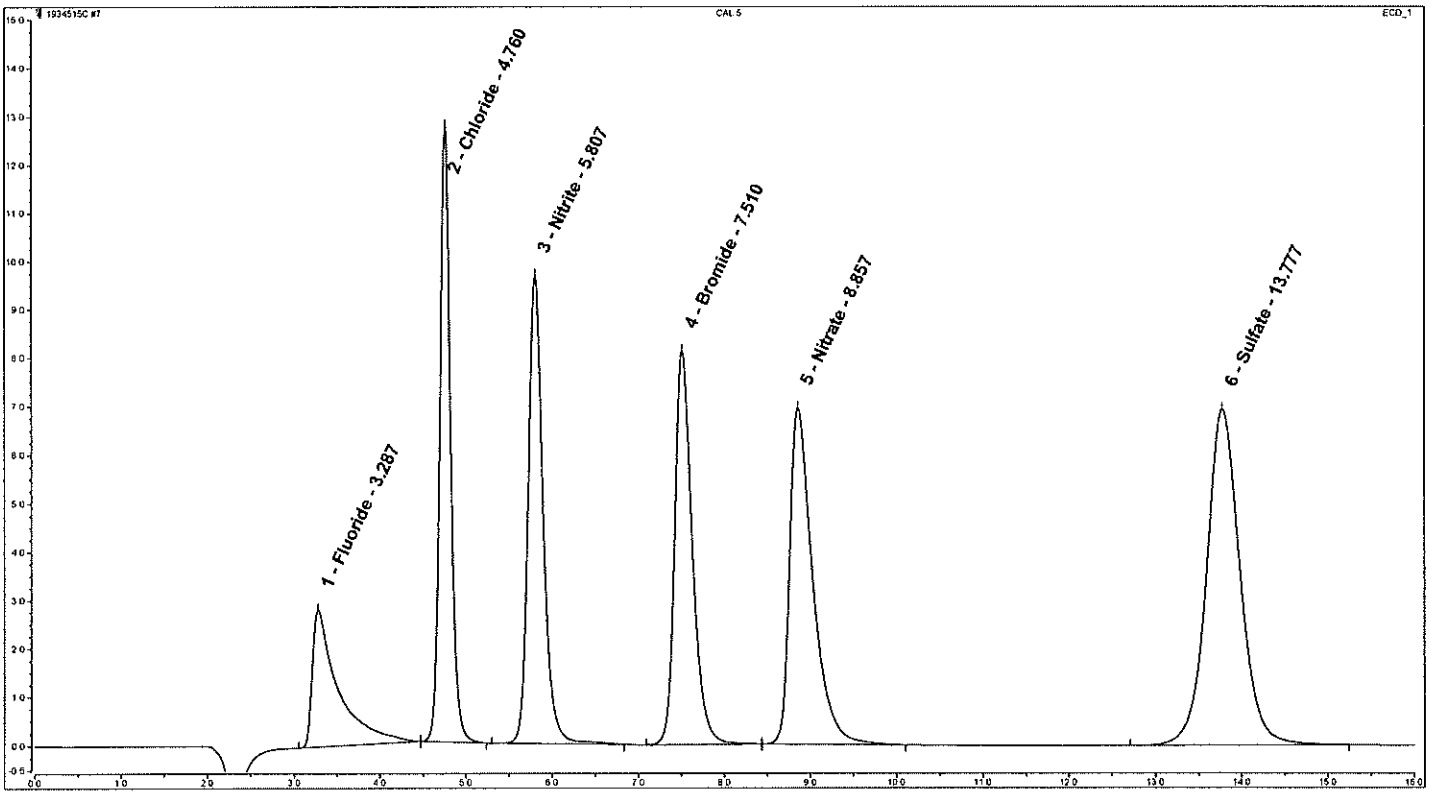
**Date:** DEC 15 2019

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CAL 5** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **16.00** |
| *Inj. Date / Time:* | **12/11/2019 / 13:26** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Calibration Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **AnionsAS** | *Injection Number:* | **007** |
| *Instrument Number:* | **12115** | *Calibration Date:* | **12/11/2019** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **1934515C** |
| *Column Type-Serial #:* | **AG14-180119260, AS14-170410251** | | |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 3.29 | Fluoride | BMB | 0.994 | 2.834 | 3.0343 |
| 2 | 4.76 | Chloride | BMB | 1.851 | 12.738 | 6.0480 |
| 3 | 5.81 | Nitrite | BMB | 1.939 | 9.687 | 3.0308 |
| 4 | 7.51 | Bromide | BMB | 1.923 | 8.136 | 15.0991 |
| 5 | 8.86 | Nitrate | BMB | 2.155 | 6.953 | 3.0199 |
| 6 | 13.78 | Sulfate | BMB | 3.150 | 6.945 | 15.0977 |
| | | TOTAL: | | 12.01 | 47.29 | 45.33 |




**Analyst:** Clinton M. Wilson, Chemist

**Date:** DEC 13 2019

**Verifier:** Chemist

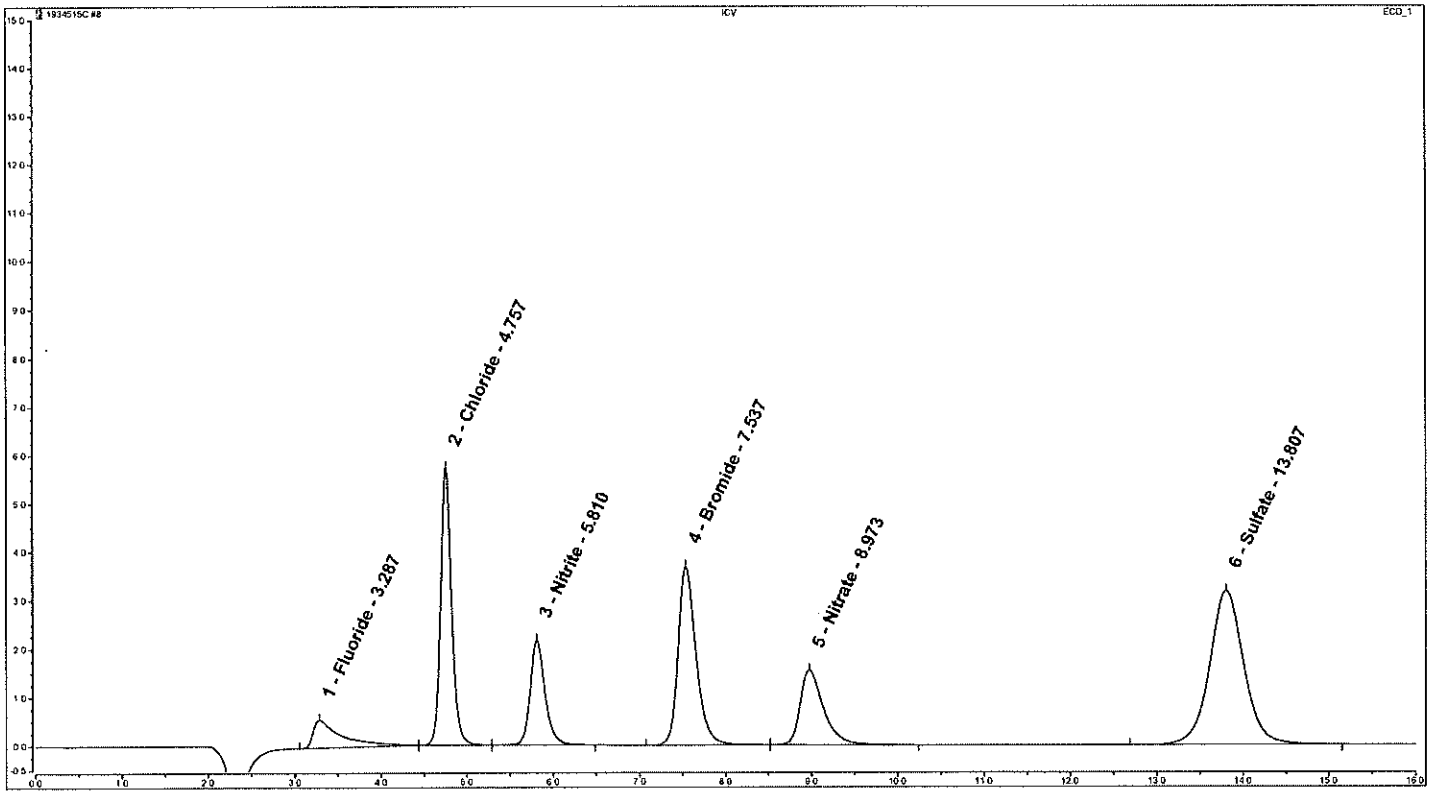
**Date:** DEC 15 2019

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **ICV** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **16.00** |
| *Inj. Date / Time:* | **12/11/2019 / 13:43** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Check Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **AnionsAS** | *Injection Number:* | **008** |
| *Instrument Number:* | **12115** | *Calibration Date:* | **12/11/2019** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **1934515C** |
| *Column Type-Serial #:* | **AG14-180119260, AS14-170410251** | | |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 3.29 | Fluoride | BMB | 0.223 | 0.578 | 0.7210 |
| 2 | 4.76 | Chloride | BMB | 0.850 | 5.738 | 2.8204 |
| 3 | 5.81 | Nitrite | BMB | 0.434 | 2.174 | 0.7046 |
| 4 | 7.54 | Bromide | BMB | 0.899 | 3.697 | 7.1772 |
| 5 | 8.97 | Nitrate | BMB | 0.491 | 1.555 | 0.7117 |
| 6 | 13.81 | Sulfate | BMB | 1.468 | 3.187 | 7.1437 |
| | | TOTAL: | | 4.36 | 16.93 | 19.28 |




**Analyst:** Christine M. Watson Chemist

**Date:** DEC 13 2019

**Verifier:** Sandra J. Miller Chemist

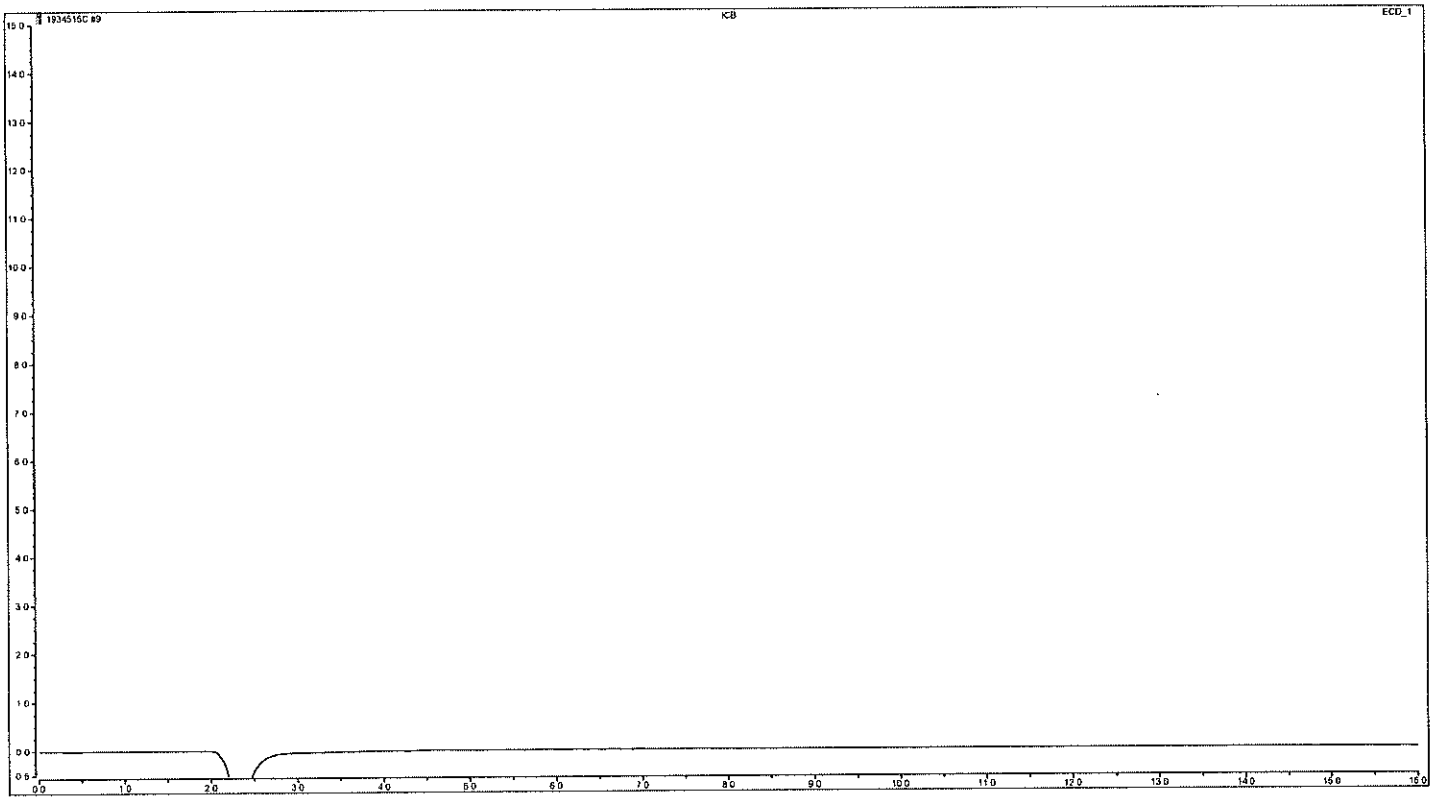
**Date:** DEC 15 2019

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **ICB** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **16.00** |
| *Inj. Date / Time:* | **12/11/2019 / 14:00** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Check Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **AnionsAS** | *Injection Number:* | **009** |
| *Instrument Number:* | **12115** | *Calibration Date:* | **12/11/2019** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **1934515C** |
| *Column Type-Serial #:* | **AG14-180119260, AS14-170410251** | | |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount n.a. |
|---|---|---|---|---|---|---|
| | | TOTAL: | | 0.00 | 0.00 | 0.00 |




**Analyst:** Clinton M. Wilson, Chemist

**Date:** DEC 13 2019

**Verifier:** Sandra J. Miller, Chemist

**Date:** DEC 15 2019

eurofins | Lancaster Laboratories

# Inorganic Anions by Ion Chromatography

System Name ICS-2000 Analyst DG/GG/TC

Instrument ID 12115 Run Start Date 2-3-20

IDAT Run Number 200340101015 Run Name 200340115

**ICV/CCV/LCSW (mg/L)**

Prep Book/Page: 30834/6/15

| Anion | T.V. | LCSW /ICV/CCV2 | DOD LCSW |
|---|---|---|---|
| Fluoride | .75 | .6713 - 0.828 | 0.66-0.84 |
| Chloride | 3.0 | 2.685 - 3.312 | 2.61-3.33 |
| Nitrite-N | .75 | .6713 - 0.828 | .6525-.8325 |
| Bromide | 7.5 | 6.71 - 8.28 | 6.825-8.25 |
| Nitrate-N | .75 | .6713 - 0.828 | 0.66-0.8325 |
| O-Phos as P | 7.5 | 6.71 - 8.28 | 6.0-8.7 |
| Sulfate | 7.5 | 6.71 - 8.28 | 6.525-8.4 |

**CCB/PBW (mg/L)**

| $F, NO_2$ | $NO_3$ | Cl | P | Br | $SO_4$ |
|---|---|---|---|---|---|
| < 0.05 | < 0.05 | <.2 | < 0.2 | < 0.25 | < 0.3 |

**LCSS (mg/kg)**

Prep Book/Page:

| Anion | T.V. | Acceptance Range |
|---|---|---|
| Fluoride | 10 | 8.95 - 11.0 |
| Chloride | 20 | 17.9 - 22.08 |
| Nitrite-N | 10 | 8.95 - 11.0 |
| Bromide | 50 | 44.75 - 55.2 |
| Nitrate-N | 10 | 8.95 - 11.0 |
| O-Phos as P | 50 | 44.75 - 55.2 |
| Sulfate | 50 | 44.75 - 55.2 |

**CCB/PBS (mg/kg)**

| $F, NO_2, NO_3$ | Cl | Br | $P, SO_4$ |
|---|---|---|---|
| < 0.5 | < 5.0 | < 2.5 | < 5.0 |

**Calibration Information – (mg/L)**

| Standard | $F, NO_2, NO_3$ | Cl | Br,P | $SO_4$ |
|---|---|---|---|---|
| Cal 1 | 0.1 | 0.4 | 0.5 | 1.0 |
| Cal 2 | 0.4 | 0.8 | 2.0 | 2.0 |
| Cal 3 | 1.0 | 2.0 | 5.0 | 5.0 |
| Cal 4 | 2.0 | 4.0 | 10.0 | 10.0 |
| Cal 5 | 3.0 | 6.0 | 15.0 | 15.0 |

**Check Standards True Values (mg/L)**

| | $F, NO_2, NO_3$ | Cl | $Br, P, SO_4$ |
|---|---|---|---|
| Low | 0.75 | 1.5 | 3.75 |
| High | 2.25 | 4.5 | 11.25 |

The dilution for solids is entered into the software by multiplying by 50 in order to calculate the result to mg/kg.

# Sequence Overview: 2003415

| No. | Injection Name | Batch Number | Position | Type | Level | Inject Time | Volume µL | Instrumentation Method | Processing Method | Weight | Dilution | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | LOWS | | 89 | Check Standard | | 02/03/2020 13:01:57 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 2 | HIGHS | | 90 | Check Standard | | 02/03/2020 13:19:04 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 3 | CCV2 | | 91 | Check Standard | | 02/03/2020 13:36:10 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 4 | CCB | | 92 | Check Standard | | 02/03/2020 13:53:17 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 5 | 1250975 | 20031076113A-6676 | 1 | Unknown | | 02/03/2020 14:10:24 | 50.00 | AnionsAS | Anions | 1.00 | 5 | Finished |
| 6 | 1250975 | 20031076113A-6676 | 2 | Unknown | | 02/03/2020 14:27:30 | 50.00 | AnionsAS | Anions | 1.00 | 50 | Finished |
| 7 | 1250974 | 20031076113A-6676 | 3 | Unknown | | 02/03/2020 14:44:37 | 50.00 | AnionsAS | Anions | 1.00 | 5 | Finished |
| 8 | 1250974 | 20031076113A-6676 | 4 | Unknown | | 02/03/2020 15:01:44 | 50.00 | AnionsAS | Anions | 1.00 | 50 | Finished |
| 9 | 1250976 | 20031076113A-6676 | 5 | Unknown | | 02/03/2020 15:18:50 | 50.00 | AnionsAS | Anions | 1.00 | 5 | Finished |
| 10 | 1250976 | 20031076113A-6676 | 6 | Unknown | | 02/03/2020 15:35:56 | 50.00 | AnionsAS | Anions | 1.00 | 50 | Finished |
| 11 | 1250820-U | 20031076113A-6676 | 7 | Unknown | | 02/03/2020 15:53:03 | 50.00 | AnionsAS | Anions | 1.00 | 5 | Finished |
| 12 | 1250820-D | 20031076113A-6676 | 7 | Unknown | | 02/03/2020 16:10:09 | 50.00 | AnionsAS | Anions | 1.00 | 5 | Finished |
| 13 | 1250820-R | 20031076113A-6676 | 8 | Unknown | | 02/03/2020 16:27:16 | 50.00 | AnionsAS | Anions | 1.00 | 5 | Finished |
| 14 | 1248674 | 20030135117A-32076 | 9 | Unknown | | 02/03/2020 16:44:22 | 50.00 | AnionsAS | Anions | 1.00 | 20000 | Finished |
| 15 | CCV2 | | 91 | Check Standard | | 02/03/2020 17:01:28 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 16 | CCB | | 92 | Check Standard | | 02/03/2020 17:18:35 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 17 | 1248675 | 20030135117A-32076 | 10 | Unknown | | 02/03/2020 17:35:41 | 50.00 | AnionsAS | Anions | 1.00 | 20000 | Finished |
| 18 | 1248677 | 20030135117A-32076 | 11 | Unknown | | 02/03/2020 17:52:48 | 50.00 | AnionsAS | Anions | 1.00 | 2000 | Finished |
| 19 | 1248652 | 20030135115A-32076 | 12 | Unknown | | 02/03/2020 18:09:55 | 50.00 | AnionsAS | Anions | 1.00 | 2000 | Finished |
| 20 | 1249365 | 20030076113A-32076 | 13 | Unknown | | 02/03/2020 18:27:02 | 50.00 | AnionsAS | Anions | 1.00 | 50 | Finished |
| 21 | 1249366 | 20030076113A-32076 | 14 | Unknown | | 02/03/2020 18:44:09 | 50.00 | AnionsAS | Anions | 1.00 | 50 | Finished |
| 22 | 1249367 | 20030076113A-32076 | 15 | Unknown | | 02/03/2020 19:01:16 | 50.00 | AnionsAS | Anions | 1.00 | 50 | Finished |
| 23 | 1249368 | 20030076113A-32076 | 16 | Unknown | | 02/03/2020 19:18:23 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 24 | 1249369 | 20030076113A-32076 | 17 | Unknown | | 02/03/2020 19:35:29 | 50.00 | AnionsAS | Anions | 1.00 | 50 | Finished |
| 25 | 1250977 | 20031076113A-32076 | 18 | Unknown | | 02/03/2020 19:52:36 | 50.00 | AnionsAS | Anions | 1.00 | 5 | Finished |
| 26 | 1250978 | 20031076113A-32076 | 19 | Unknown | | 02/03/2020 20:09:42 | 50.00 | AnionsAS | Anions | 1.00 | 5 | Finished |
| 27 | CCV2 | | 91 | Check Standard | | 02/03/2020 20:26:49 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 28 | CCB | | 92 | Check Standard | | 02/03/2020 20:43:55 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 29 | 1250979 | 20031076113A-32076 | 20 | Unknown | | 02/03/2020 21:01:02 | 50.00 | AnionsAS | Anions | 1.00 | 5 | Finished |
| 30 | 1250980 | 20031076113A-32076 | 21 | Unknown | | 02/03/2020 21:18:09 | 50.00 | AnionsAS | Anions | 1.00 | 5 | Finished |
| 31 | 1250982 | 20031076113A-32076 | 22 | Unknown | | 02/03/2020 21:35:16 | 50.00 | AnionsAS | Anions | 1.00 | 5 | Finished |
| 32 | 1250981 | 20031076113A-32076 | 23 | Unknown | | 02/03/2020 21:52:24 | 50.00 | AnionsAS | Anions | 1.00 | 5 | Finished |
| 33 | 1250393 | 20031720109B-32076 | 24 | Unknown | | 02/03/2020 22:09:31 | 50.00 | AnionsAS | Anions | 1.00 | 50 | Finished |
| 34 | 1248689 | 20030135117A-32076 | 25 | Unknown | | 02/03/2020 22:26:38 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 35 | 1248689 | 20030135117A-32076 | 26 | Unknown | | 02/03/2020 22:43:45 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 36 | 1248726 | 20030135117A-32076 | 27 | Unknown | | 02/03/2020 23:00:52 | 50.00 | AnionsAS | Anions | 1.00 | 20000 | Finished |
| 37 | 1248657 | 20030135115A-32076 | 28 | Unknown | | 02/03/2020 23:17:59 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 38 | 1248657 | 20030135115A-32076 | 29 | Unknown | | 02/03/2020 23:35:05 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 39 | CCV2 | | 91 | Check Standard | | 02/03/2020 23:52:12 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 40 | CCB | | 92 | Check Standard | | 02/04/2020 00:09:19 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 41 | 1248670 | 20030135115B-32076 | 30 | Unknown | | 02/04/2020 00:26:26 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |

# Sequence Overview: 2003415

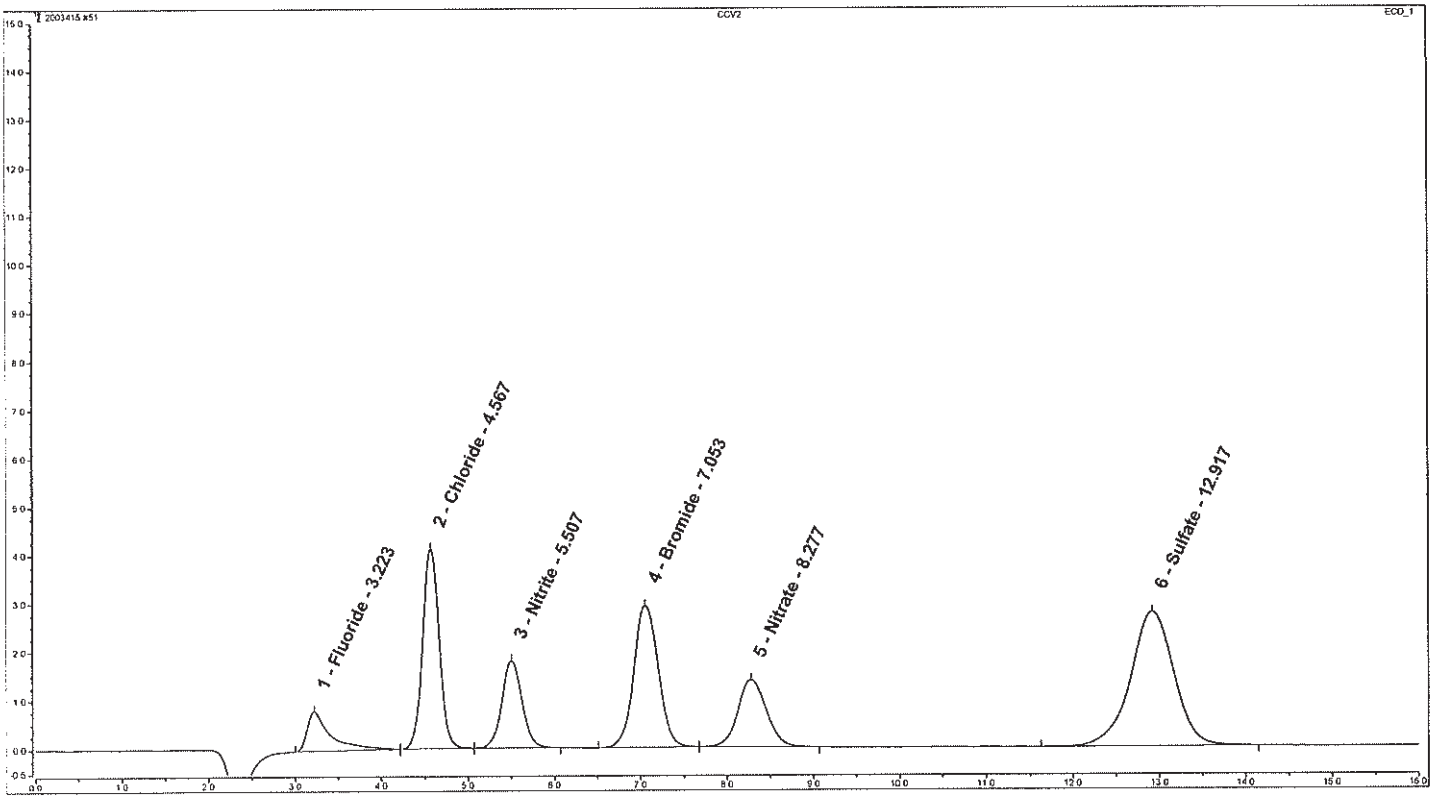
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 42 | 1248670 | 20030135115B-32076 | 31 | Unknown | | 02/04/2020 00:43:33 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 43 | 1250977 | 20031076113A-32076 | 32 | Unknown | | 02/04/2020 01:00:40 | 50.00 | AnionsAS | Anions | 1.00 | 10 | Finished |
| 44 | 1250979 | 20031076113A-32076 | 33 | Unknown | | 02/04/2020 01:17:47 | 50.00 | AnionsAS | Anions | 1.00 | 50 | Finished |
| 45 | 1250980 | 20031076113A-32076 | 34 | Unknown | | 02/04/2020 01:34:53 | 50.00 | AnionsAS | Anions | 1.00 | 25 | Finished |
| 46 | 1250982 | 20031076113A-32076 | 35 | Unknown | | 02/04/2020 01:52:01 | 50.00 | AnionsAS | Anions | 1.00 | 50 | Finished |
| 47 | 1250981 | 20031076113A-32076 | 36 | Unknown | | 02/04/2020 02:09:07 | 50.00 | AnionsAS | Anions | 1.00 | 50 | Finished |
| 48 | 1248733 | 20030135117A-32076 | 37 | Unknown | | 02/04/2020 02:26:14 | 50.00 | AnionsAS | Anions | 1.00 | 10 | Finished |
| 49 | LCSS | 20031031201A-32076 | 38 | Unknown | | 02/04/2020 02:43:21 | 50.00 | AnionsAS | Anions | 5.00 | 50 | Finished |
| 50 | PBS | 20031031201A-32076 | 39 | Unknown | | 02/04/2020 03:00:27 | 50.00 | AnionsAS | Anions | 5.00 | 50 | Finished |
| 51 | CCV2 | | 91 | Check Standard | | 02/04/2020 03:17:33 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 52 | CCB | | 92 | Check Standard | | 02/04/2020 03:34:39 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 53 | 1248727-U | 20031031201A-32076 | 40 | Unknown | | 02/04/2020 03:51:46 | 50.00 | AnionsAS | Anions | 5.07 | 50 | Finished |
| 54 | 1248727-D | 20031031201A-32076 | 41 | Unknown | | 02/04/2020 04:08:53 | 50.00 | AnionsAS | Anions | 5.06 | 50 | Finished |
| 55 | 1248727-R | 20031031201A-32076 | 42 | Unknown | | 02/04/2020 04:26:00 | 50.00 | AnionsAS | Anions | 5.02 | 50 | Finished |
| 56 | 1247165 | 20031031201A-32076 | 43 | Unknown | | 02/04/2020 04:43:07 | 50.00 | AnionsAS | Anions | 5.07 | 250 | Finished |
| 57 | 1248729 | 20031031201A-32076 | 44 | Unknown | | 02/04/2020 05:00:14 | 50.00 | AnionsAS | Anions | 5.05 | 50 | Finished |
| 58 | 1251308 | 20033135115A-32076 | 45 | Unknown | | 02/04/2020 05:17:20 | 50.00 | AnionsAS | Anions | 1.00 | 50 | Finished |
| 59 | 1249495 | 20031720115A-32076 | 46 | Unknown | | 02/04/2020 05:34:27 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 60 | 1249495 | 20031720115A-32076 | 46 | Unknown | | 02/04/2020 05:51:34 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 61 | 1249494 | 20031720115B-32076 | 47 | Unknown | | 02/04/2020 06:08:41 | 50.00 | AnionsAS | Anions | 1.00 | 50 | Finished |
| 62 | 1251371 | 20032720113A-32076 | 48 | Unknown | | 02/04/2020 06:25:48 | 50.00 | AnionsAS | Anions | 1.00 | 5 | Finished |
| 63 | CCV2 | | 91 | Check Standard | | 02/04/2020 06:42:55 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 64 | CCB | | 92 | Check Standard | | 02/04/2020 07:00:01 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 65 | 1251384 | 20032720113A-32076 | 49 | Unknown | | 02/04/2020 07:17:07 | 50.00 | AnionsAS | Anions | 1.00 | 10 | Finished |
| 66 | CCV2 | | 91 | Check Standard | | 02/04/2020 07:34:14 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |
| 67 | CCB | | 92 | Check Standard | | 02/04/2020 07:51:21 | 50.00 | AnionsAS | Anions | 1.00 | 1 | Finished |

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV2** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **16.00** |
| *Inj. Date / Time:* | **02/04/2020 / 03:17** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Check Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **AnionsAS** | *Injection Number:* | **051** |
| *Instrument Number:* | **12115** | *Calibration Date:* | **12/11/2019** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003415** |
| *Column Type-Serial #:* | **AG14-180119260, AS14-170410251** | | |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 3.22 | Fluoride | BMB | 0.260 | 0.810 | 0.8333 |
| 2 | 4.57 | Chloride | BMB | 0.901 | 4.116 | 2.9864 |
| 3 | 5.51 | Nitrite | BMB | 0.482 | 1.788 | 0.7787 |
| 4 | 7.05 | Bromide | BMB | 0.944 | 2.926 | 7.5265 |
| 5 | 8.28 | Nitrate | BMB | 0.531 | 1.381 | 0.7670 |
| 6 | 12.92 | Sulfate | BMB | 1.612 | 2.772 | 7.8222 |
| | | TOTAL: | | 4.73 | 13.79 | 20.71 |




**Analyst:** Clinton M. Wilson, Chemist

**Date:** FEB 04 2020

**Verifier:** Sandra J. Miller, Chemist

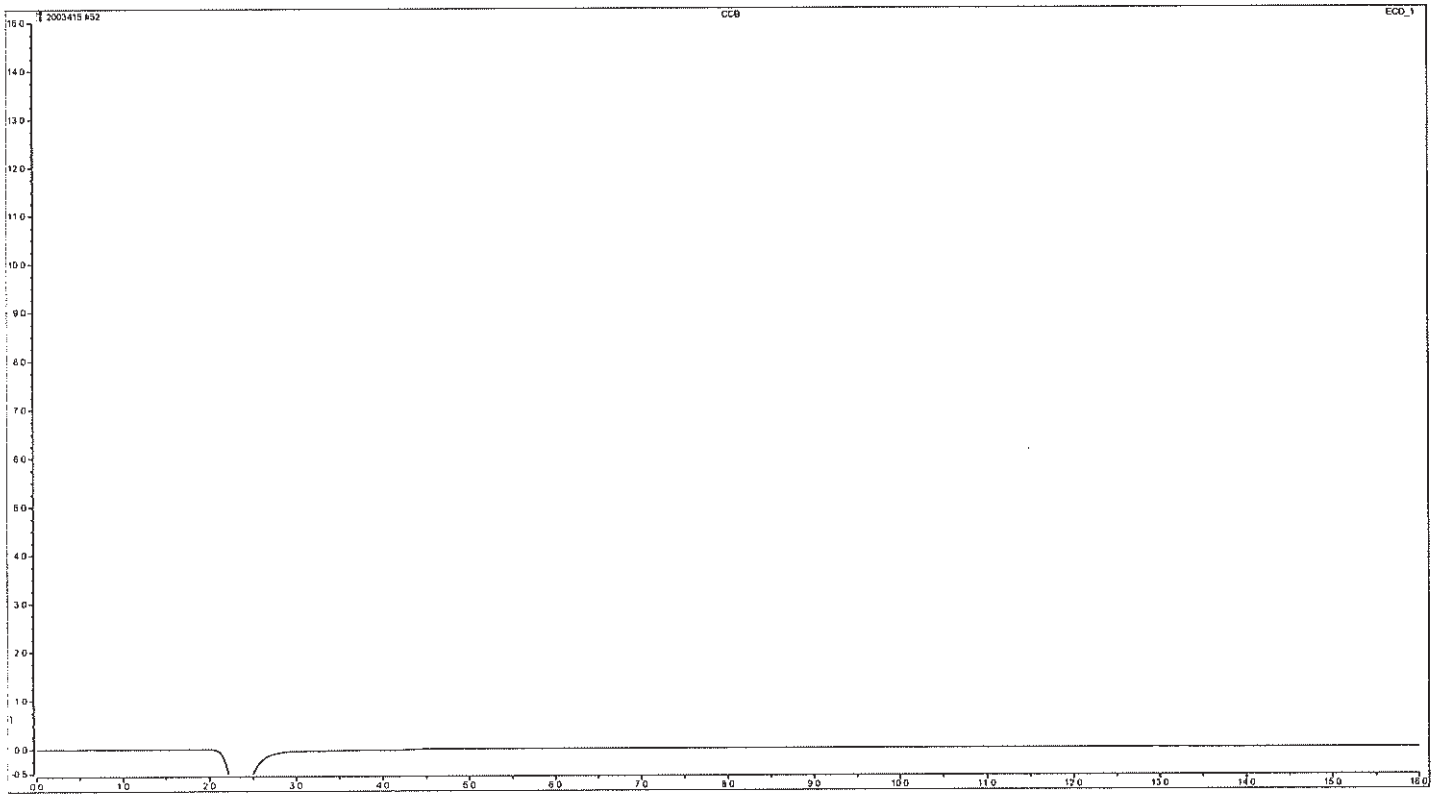
**Date:** FEB 04 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **16.00** |
| *Inj. Date / Time:* | **02/04/2020 / 03:34** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Check Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **AnionsAS** | *Injection Number:* | **052** |
| *Instrument Number:* | **12115** | *Calibration Date:* | **12/11/2019** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003415** |
| *Column Type-Serial #:* | **AG14-180119260, AS14-170410251** | | |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount n.a. |
|---|---|---|---|---|---|---|
| | | TOTAL: | | 0.00 | 0.00 | 0.00 |




**Analyst:**

**Date:** Clinton M Wilson
Chemist
FEB 04 2020

**Verifier:**

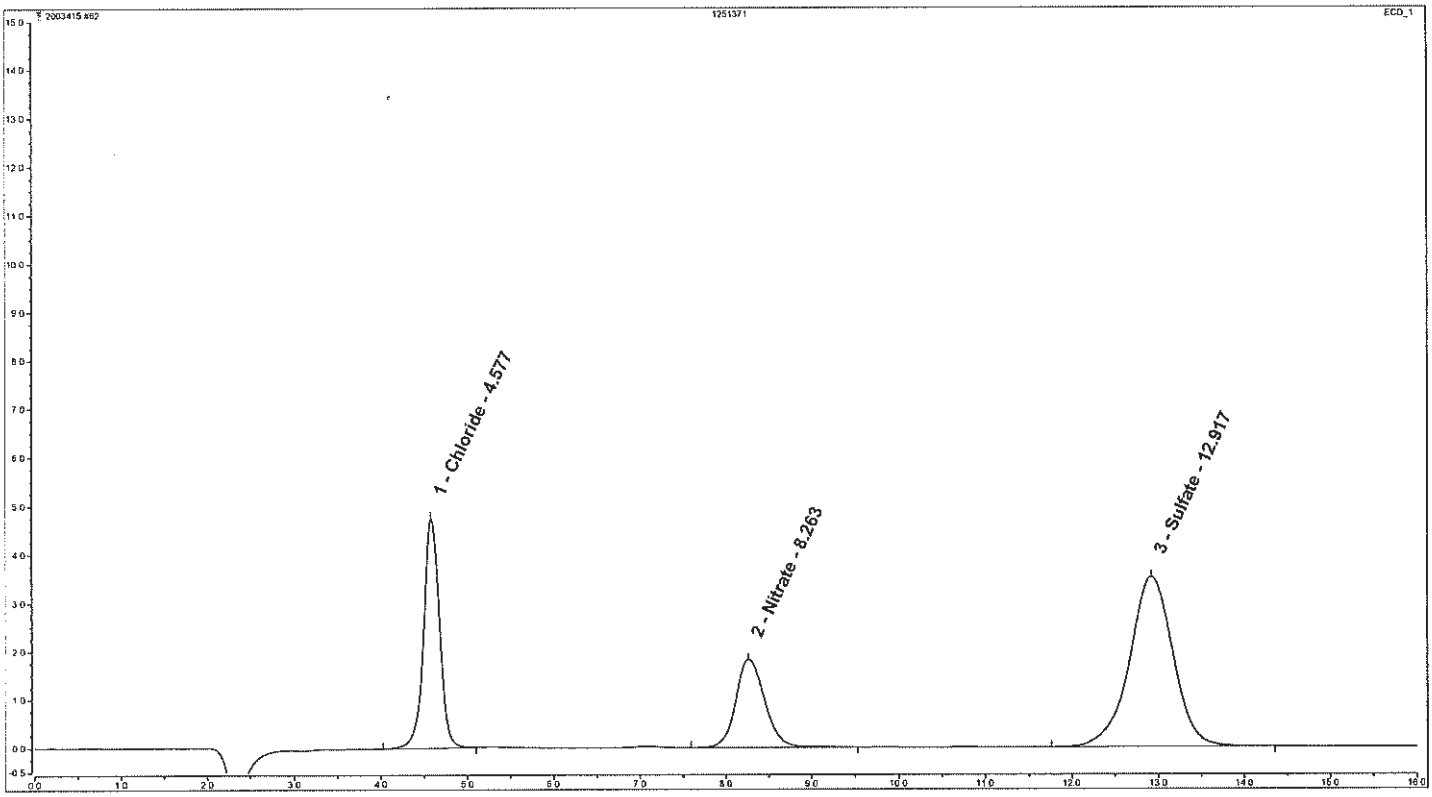
**Date:**
Chemist
FEB 04 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **1251371** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | **20032720113A-32076** | *Run Time:* | **16.00** |
| *Inj. Date / Time:* | **02/04/2020 / 06:25** | *Dilution Factor:* | **5** |
| *Injection Type:* | **Unknown** | *Sample Weight:* | **1.00** |
| *Program:* | **AnionsAS** | *Injection Number:* | **062** |
| *Instrument Number:* | **12115** | *Calibration Date:* | **12/11/2019** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003415** |
| *Column Type-Serial #:* | **AG14-180119260, AS14-170410251** | | |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 4.58 | Chloride | BMB | 1.015 | 4.756 | 16.7668 |
| 2 | 8.26 | Nitrate | BMB | 0.714 | 1.827 | 5.1084 |
| 3 | 12.92 | Sulfate | BMB | 2.053 | 3.521 | 49.5419 |
| | | TOTAL: | | 3.78 | 10.10 | 71.42 |




**Analyst:** Clinton M Wilson Chemist

**Date:** FEB 04 2020

**Verifier:** Sandra J. Miller Chemist

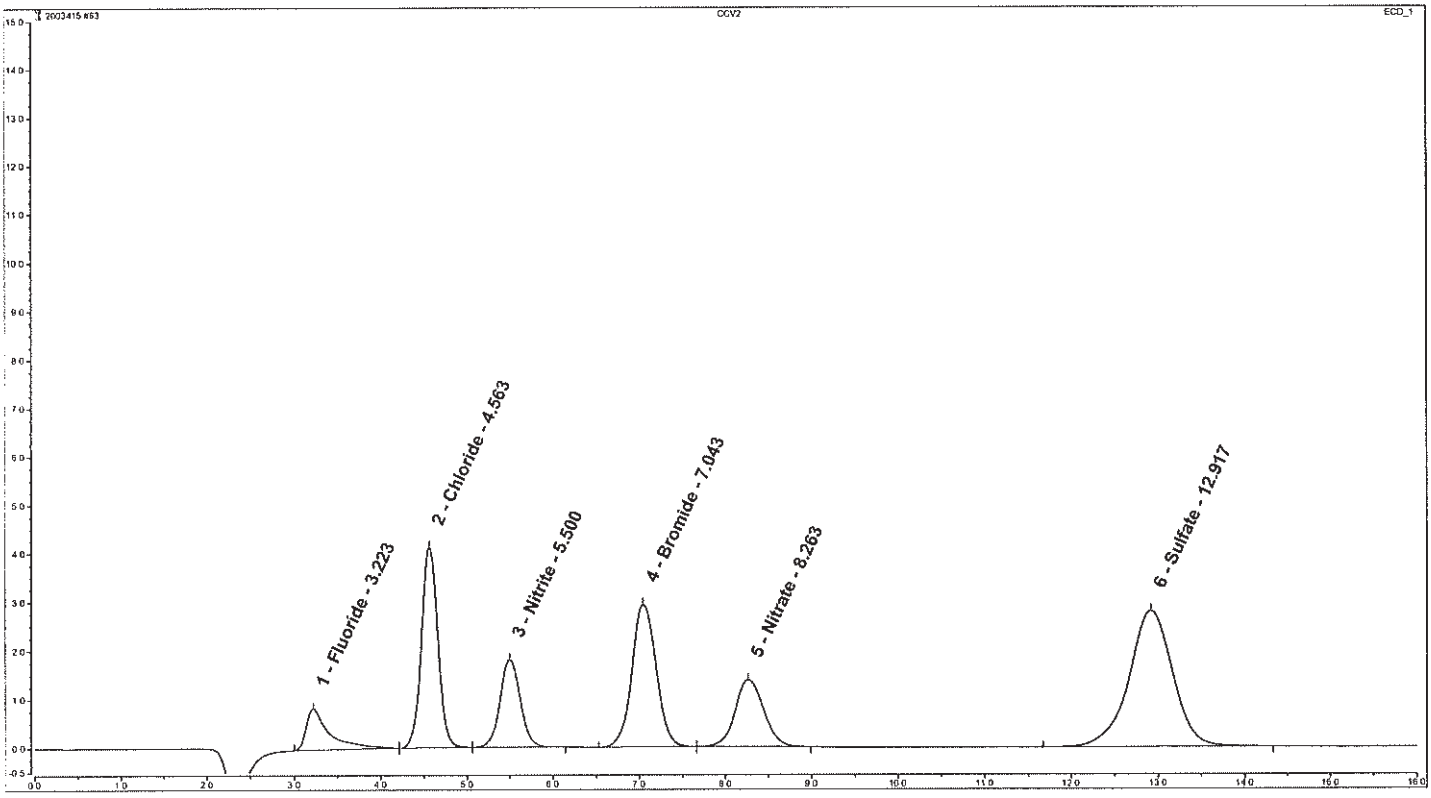
**Date:** FEB 06 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV2** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **16.00** |
| *Inj. Date / Time:* | **02/04/2020 / 06:42** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Check Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **AnionsAS** | *Injection Number:* | **063** |
| *Instrument Number:* | **12115** | *Calibration Date:* | **12/11/2019** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003415** |
| *Column Type-Serial #:* | **AG14-180119260, AS14-170410251** | | |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 3.22 | Fluoride | BMB | 0.273 | 0.855 | 0.8710 |
| 2 | 4.56 | Chloride | BMB | 0.909 | 4.124 | 3.0102 |
| 3 | 5.50 | Nitrite | BMB | 0.491 | 1.807 | 0.7931 |
| 4 | 7.04 | Bromide | BMB | 0.957 | 2.937 | 7.6207 |
| 5 | 8.26 | Nitrate | BMB | 0.534 | 1.383 | 0.7716 |
| 6 | 12.92 | Sulfate | BMB | 1.652 | 2.808 | 8.0108 |
| | | TOTAL: | | 4.81 | 13.91 | 21.08 |




**Analyst:** Clinton M. Wilson, Chemist

**Date:** FEB 04 2020

**Verifier:** Sandra J. Miller, Chemist

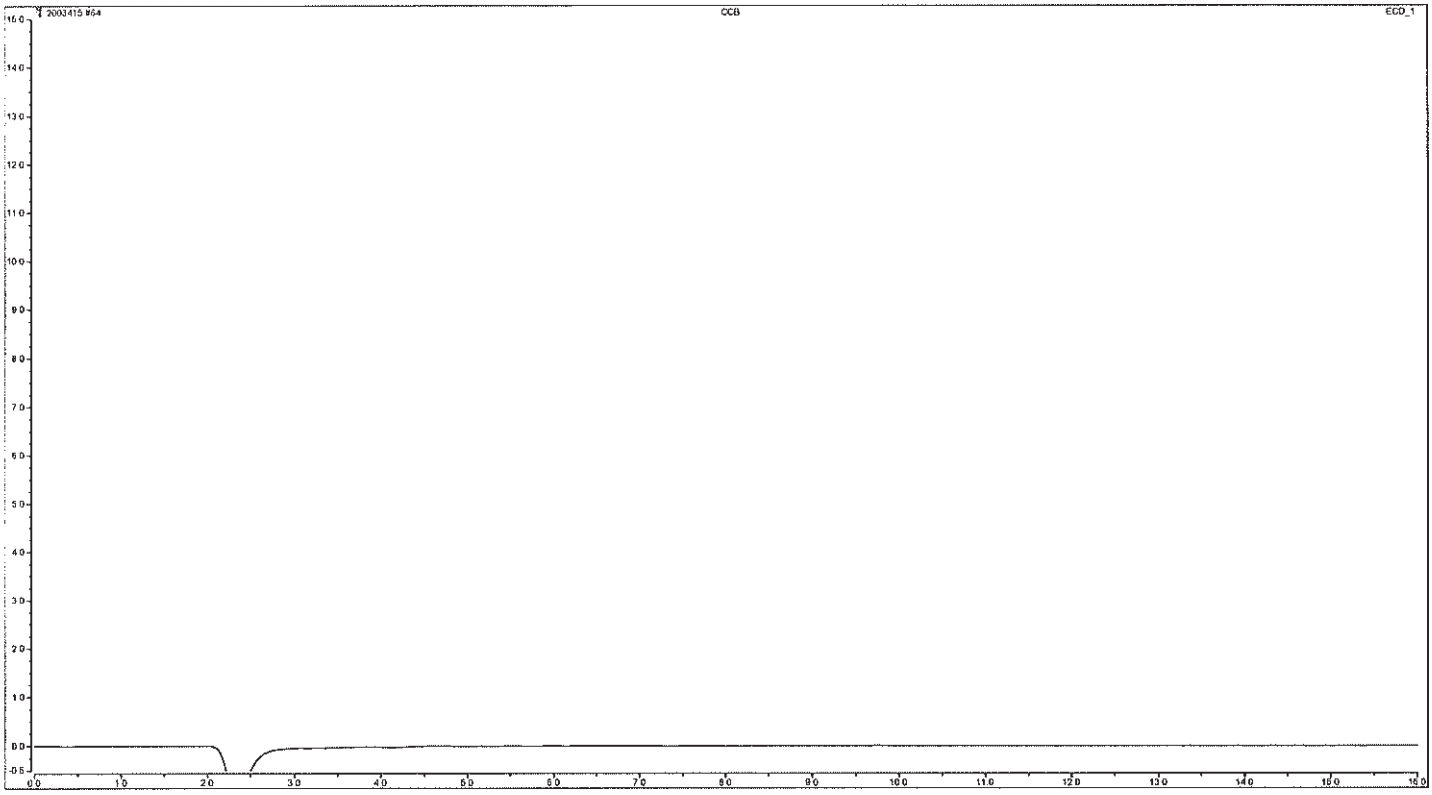
**Date:** FEB 06 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **16.00** |
| *Inj. Date / Time:* | **02/04/2020 / 07:00** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Check Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **AnionsAS** | *Injection Number:* | **064** |
| *Instrument Number:* | **12115** | *Calibration Date:* | **12/11/2019** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003415** |
| *Column Type-Serial #:* | **AG14-180119260, AS14-170410251** | | |

**Peak Properties: All Components**

| No. | Time | Peak Name | Peak Type | Area | Height | Amount |
|---|---|---|---|---|---|---|
| | min | | | µS*min | µS | n.a. |
| | | TOTAL: | | 0.00 | 0.00 | 0.00 |




**Analyst:**

**Date:** FEB 04 2020

Clinton M. Wilson
Chemist

**Verifier:**

**Date:** FEB 06 2020

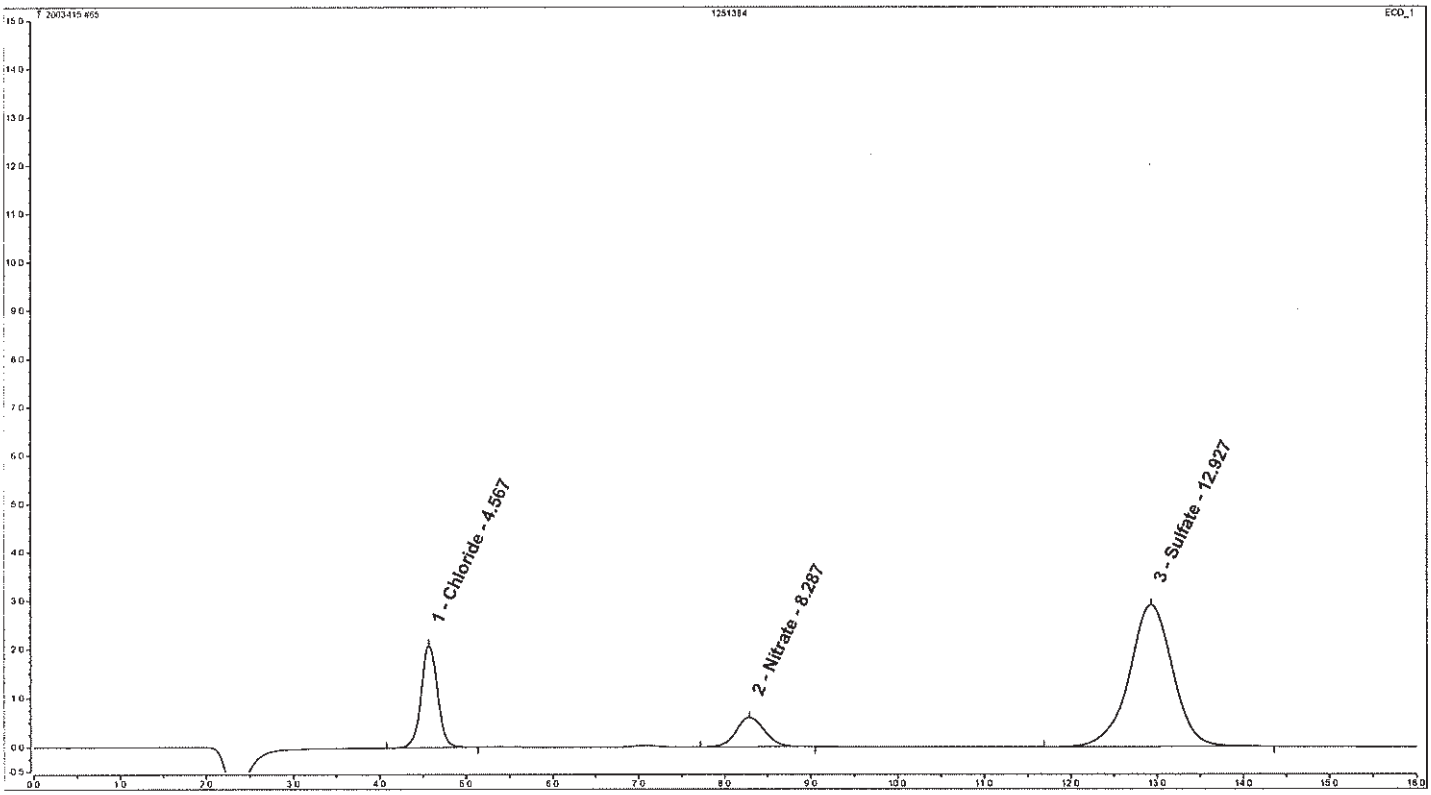
Chemist

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **1251384** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | **20032720113A-32076** | *Run Time:* | **16.00** |
| *Inj. Date / Time:* | **02/04/2020 / 07:17** | *Dilution Factor:* | **10** |
| *Injection Type:* | **Unknown** | *Sample Weight:* | **1.00** |
| *Program:* | **AnionsAS** | *Injection Number:* | **065** |
| *Instrument Number:* | **12115** | *Calibration Date:* | **12/11/2019** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003415** |
| *Column Type-Serial #:* | **AG14-180119260, AS14-170410251** | | |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 4.57 | Chloride | BMB | 0.466 | 2.086 | 15.8223 |
| 2 | 8.29 | Nitrate | BMB | 0.233 | 0.605 | 3.5503 |
| 3 | 12.93 | Sulfate | BMB | 1.709 | 2.915 | 82.8206 |
| | | TOTAL: | | 2.41 | 5.61 | 102.19 |




**Analyst:**

**Date:**

Clinton M. Wilson
Chemist

FEB 04 2020

**Verifier:**

Sandra J. Miller
Chemist

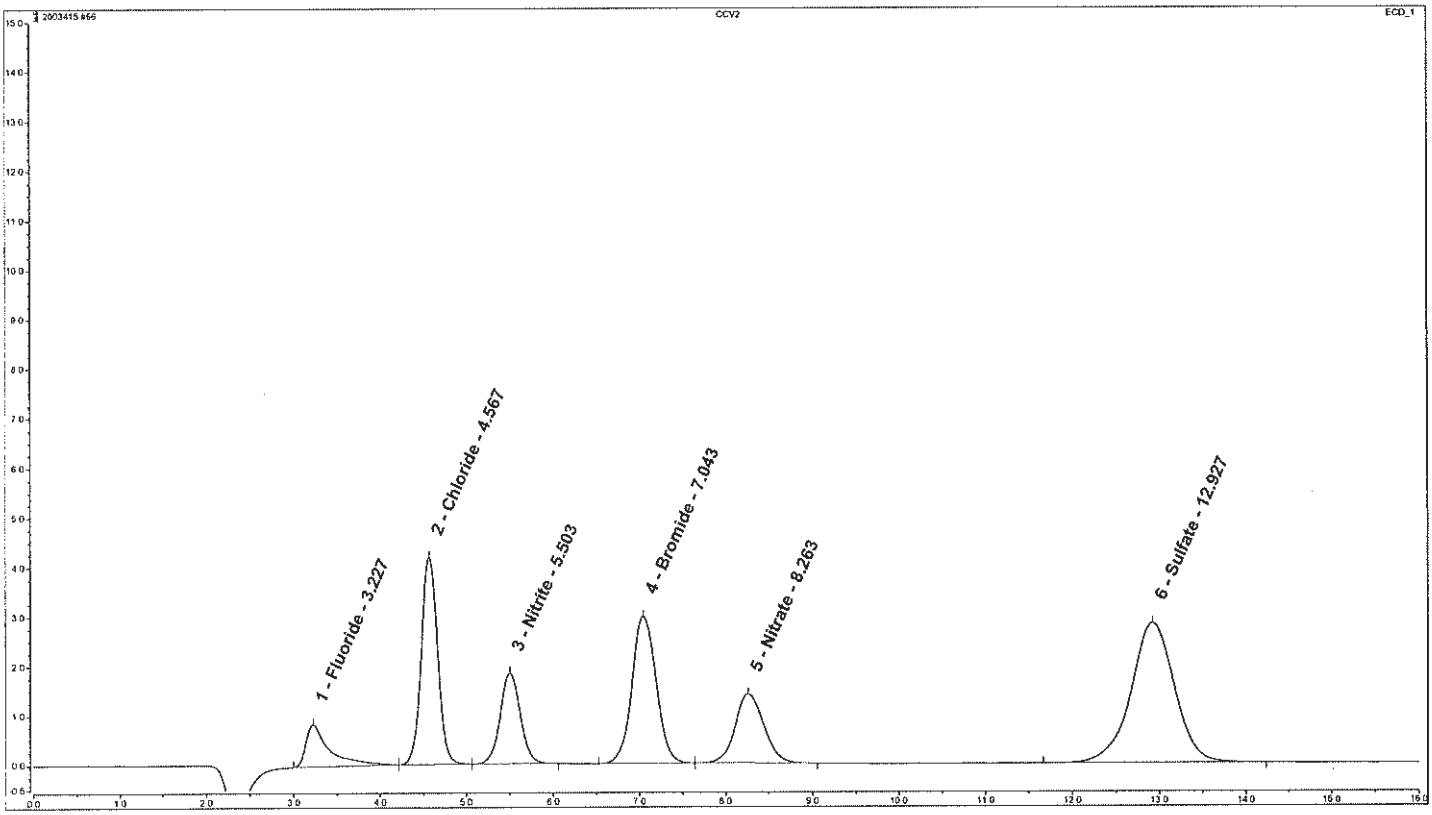
**Date:** FEB 06 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCV2** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **16.00** |
| *Inj. Date / Time:* | **02/04/2020 / 07:34** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Check Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **AnionsAS** | *Injection Number:* | **066** |
| *Instrument Number:* | **12115** | *Calibration Date:* | **12/11/2019** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003415** |
| *Column Type-Serial #:* | **AG14-180119260, AS14-170410251** | | |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount |
|---|---|---|---|---|---|---|
| 1 | 3.23 | Fluoride | BMB | 0.274 | 0.854 | 0.8739 |
| 2 | 4.57 | Chloride | BMB | 0.920 | 4.185 | 3.0462 |
| 3 | 5.50 | Nitrite | BMB | 0.494 | 1.832 | 0.7979 |
| 4 | 7.04 | Bromide | BMB | 0.962 | 2.978 | 7.6649 |
| 5 | 8.26 | Nitrate | BMB | 0.541 | 1.404 | 0.7809 |
| 6 | 12.93 | Sulfate | BMB | 1.657 | 2.837 | 8.0350 |
| | | TOTAL: | | 4.85 | 14.09 | 21.20 |




**Analyst:** Clinton M. Wilson, Chemist

**Date:** FEB 04 2020

**Verifier:** Sandra J. Miller, Chemist

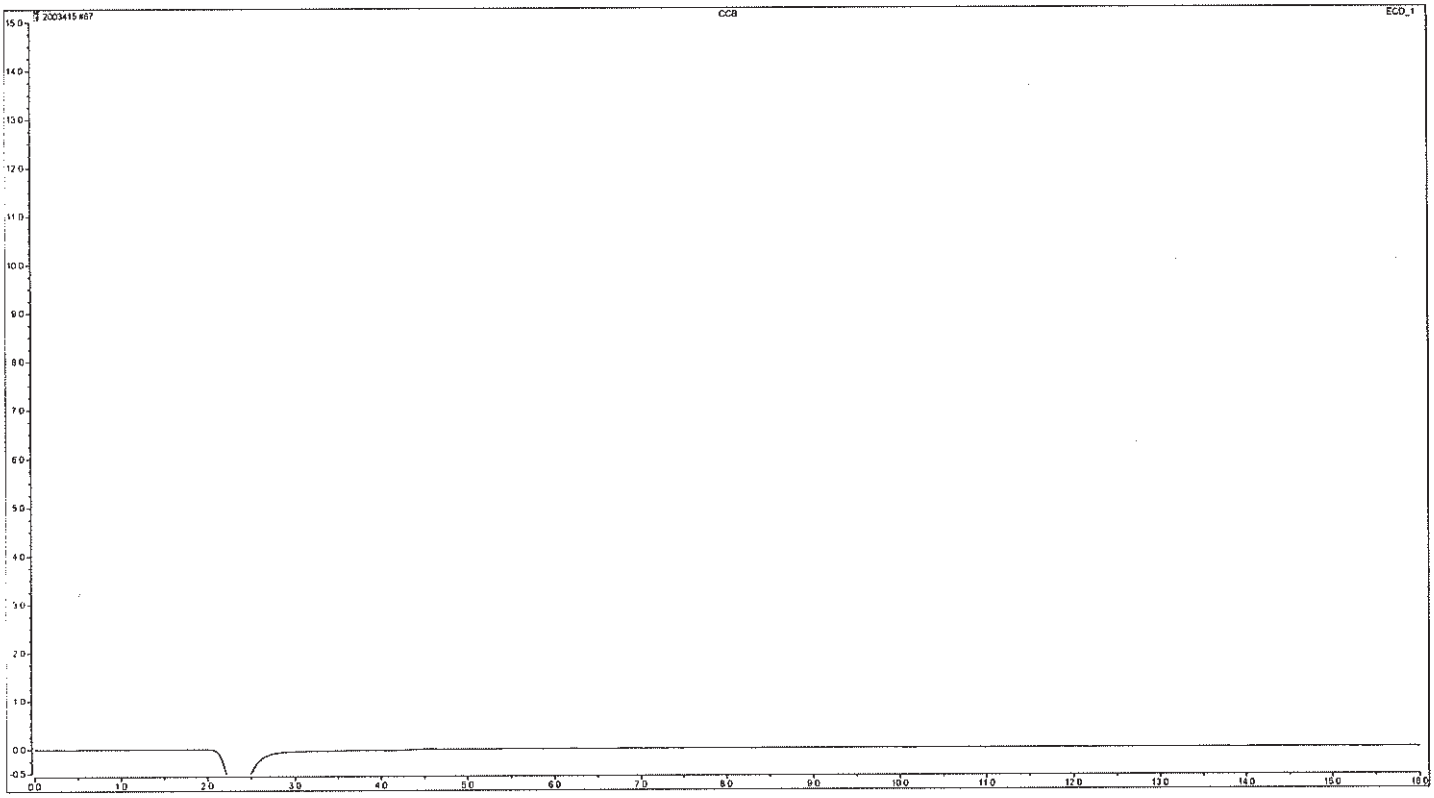
**Date:** FEB 06 2020

# Peak Integration Report: Anions by IC

| | | | |
|---|---|---|---|
| *Sample Name:* | **CCB** | *Inj. Vol.:* | **50.00** |
| *Batch Number-Analyst:* | | *Run Time:* | **16.00** |
| *Inj. Date / Time:* | **02/04/2020 / 07:51** | *Dilution Factor:* | **1** |
| *Injection Type:* | **Check Standard** | *Sample Weight:* | **1.00** |
| *Program:* | **AnionsAS** | *Injection Number:* | **067** |
| *Instrument Number:* | **12115** | *Calibration Date:* | **12/11/2019** |
| *Channel:* | **ECD_1** | *Sequence File Name:* | **2003415** |
| *Column Type-Serial #:* | **AG14-180119260, AS14-170410251** | | |

**Peak Properties: All Components**

| No. | Time min | Peak Name | Peak Type | Area µS*min | Height µS | Amount n.a. |
|---|---|---|---|---|---|---|
| | | TOTAL: | | 0.00 | 0.00 | 0.00 |




**Analyst:** Clinton M. Wilson, Chemist

**Date:** FEB 04 2020

**Verifier:**

**Date:** FEB 06 2020

*Calibration Information Location*

eurofins | Lancaster Laboratories Environmental

# Lancaster Laboratories Instrumental Water Quality Report

**Run Name:** 2002802G07

**Data File Name:** 20028TOCCAL.G07

**Run Start Date/Time:** 01/28/2020 15:19

**Instrument Number:** 26070

**Instrument Name:** O.I. Analytical Aurora 1030

**Analyst:** Bethany Sandone

| Book ID | Page Number |
|---|---|
| 303167 | 40 |

***Initial Calibration Summary***

| Standards | Area Counts | True (mg/L) |
|---|---|---|
| S0 | 1528 | 0 |
| S1.0 | 7760 | 1.0 |
| S7.5 | 46158 | 7.5 |
| S10.0 | 61089 | 10.0 |
| S25.0 | 149972 | 25.0 |
| S50.0 | 280179 | 50.0 |
| S100.0 | 543092 | 100.0 |

| | |
|---|---|
| File Name: | 20028TOCCAL.G07 |
| Calibration Date/Time: | 1/28/2020 3:19:34PM |
| Correlation Coefficient: | 0.99970 |
| Y Intercept: | 6175.67222 |
| Slope: | 5408.51832 |

***QC Values***

| Type | Description | True (mg/L) | Lower Window (mg/L) | Upper Window (mg/L) |
|---|---|---|---|---|
| LCS | | | | |
| PB | | 0.0 | -2.00 | 2.00 |
| | | 0.0 | -1.00 | 1.00 |

Reviewed By: BS30452

Reviewed Date: 01-29-20

Verified By:

Verified Date

JAN 30 2020

**Lancaster Laboratories Instrumental Water Quality Report**

Run Name: 2002802G07 Instrument Number: 26070

Analyst ID:

Injection # Date/Time: 01/28/2020 15:19

**0 CLEANUP**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 2833 | 2354 |

Comments:

Injection # Date/Time: 01/28/2020 15:30

**1 RINSE**

| Dil Factor | Raw Result (mg/L) | Calculated Result (mg/L) | Area Count |
|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 1625 |

Comments:

Injection # Date/Time: 01/28/2020 15:36

**2 MBLANK**

| Dil Factor | Raw Result (mg/L) | Calculated Result (mg/L) | Area Count |
|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 1686 |

Comments:

Injection # Date/Time: 01/28/2020 16:17

**3 S0**

| Dil Factor | Raw Result (mg/L) | Calculated Result (mg/L) | Area Count |
|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 1528 |

Comments:

Injection # Date/Time: 01/28/2020 16:27

**4 S1.0**

| Dil Factor | Raw Result (mg/L) | Calculated Result (mg/L) | Area Count |
|---|---|---|---|
| 1.0 | 1.00000 | 1.00000 | 7760 |

Comments:

Injection # Date/Time: 01/28/2020 16:35

**5 S7.5**

| Dil Factor | Raw Result (mg/L) | Calculated Result (mg/L) | Area Count |
|---|---|---|---|
| 1.0 | 7.50000 | 7.50000 | 46158 |

Comments:

Injection # Date/Time: 01/28/2020 16:43

**6 S10.0**

| Dil Factor | Raw Result (mg/L) | Calculated Result (mg/L) | Area Count |
|---|---|---|---|
| 1.0 | 10.00000 | 10.00000 | 61089 |

Comments:

Injection # Date/Time: 01/28/2020 16:50

**7 S25.0**

| Dil Factor | Raw Result (mg/L) | Calculated Result (mg/L) | Area Count |
|---|---|---|---|
| 1.0 | 25.00000 | 25.00000 | 149972 |

Comments:

**Lancaster Laboratories Instrumental Water Quality Report**

Run Name: 2002802G07 Instrument Number: 26070

Analyst ID:

Injection # 8 Date/Time: 01/28/2020 16:58

S50.0

| Dil Factor | Raw Result (mg/L) | Calculated Result (mg/L) | Area Count |
|---|---|---|---|
| 1.0 | 50.00000 | 50.00000 | 280179 |

Comments:

Injection # 9 Date/Time: 01/28/2020 17:06

S100.0

| Dil Factor | Raw Result (mg/L) | Calculated Result (mg/L) | Area Count |
|---|---|---|---|
| 1.0 | 100.00000 | 100.00000 | 543092 |

Comments:

Injection # 10 Date/Time: 01/28/2020 17:16

RINSE

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 1469 | 1845 |

Comments:

Injection # 11 Date/Time: 01/28/2020 17:29

ICV

| Dil Factor | Raw Result (mg/L) | Calculated Result (mg/L) | Area Count |
|---|---|---|---|
| 1.0 | 24.93900 | 24.93900 | 141056 |

Comments: 100%

Injection # 12 Date/Time: 01/28/2020 17:37

ICB

| Dil Factor | Raw Result (mg/L) | Calculated Result (mg/L) | Area Count |
|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 1412 |

Comments:

Sandra J. Miller
Chemist

JAN 30 2020

Instrument ID: P644730676 Wet-Chemical

| | |
|---|---|
| User ID: toc | Name: Total Organic Carbon |
| Title: Mr | Dept: OIC-TOC |

## Results - Quick View - Result Data

Result Information

Date/Time Start: 2020-01-28; 03:09:04 PM
Date/Time End: 2020-01-28; 05:37:41 PM
Comments: Result Header

Configuration:

Active Syringe:
- Active Syringe Size: 10.00 (mL)
- Priming at Start of Run: Y

Rinse:
- Rinse Vol: 10.00 (mL)
- Rinse at Start of Run: Y

Active Sample Intro: Rotary Auto Sampler
Sample Strirring in A/S: N
With Solids/CRDS: N
Options:
- Chamber 1: Y
- Chamber 2: Y
- Use POC Module: N

Other Devices:
- Use Attached Printer: N

Automatic Repeat of Sequence
- Enable Auto Repeat: N
- Delay (hh:mm:ss): 00:00:00

Standby Settings:
- Chamber 1 (C): 70
- Chamber 2 (C): 70
- Pressure (psi): 20.00
- Flowrate (mL/min): 30.00

Enable User Notices: Y
A-Factor Linearization Used: Y

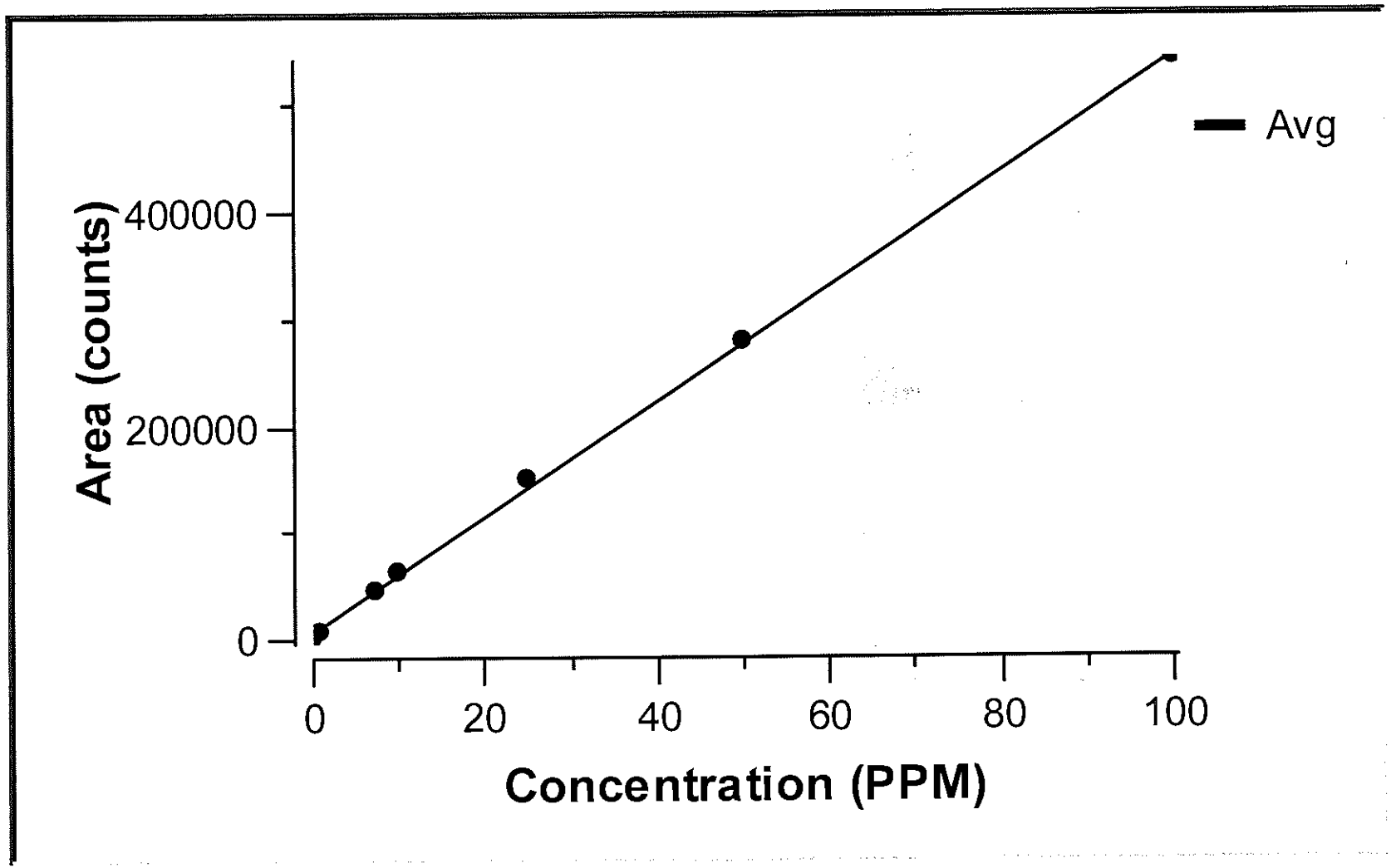
Sandra J. Miller
Chemist

JAN 30 2020

Sequence Summary

Sequence: 20028CAL Last Modified: 2020/01/28; 03:06:17PM

| Seq# | Vial | Sample ID | Reps | Method | Type | Dil | Priority |
|---|---|---|---|---|---|---|---|
| 1 | - | Clean Up | 2 | DefaultCleanUpMethod | Clean Up | 1 | N |
| 2 | 1 | RINSE | 1 | LLTOC AUG 15 - Aug 15, 2019; 07-03-05 PM | Sample | 1 | N |
| 3 | 2 | METHOD BLANK | 1 | LLTOC AUG 15 - Aug 15, 2019; 07-03-05 PM | QC Blank | 1 | N |
| 5 | 3 | TOC-RW | 1 | LLTOC AUG 15 - Aug 15, 2019; 07-03-05 PM | Std | 1 | N |
| 6 | 4 | TOC-Std#1-1.000 PPM | 1 | LLTOC AUG 15 - Aug 15, 2019; 07-03-05 PM | Std | 1 | N |
| 7 | 5 | TOC-Std#2-7.500 PPM | 1 | LLTOC AUG 15 - Aug 15, 2019; 07-03-05 PM | Std | 1 | N |
| 8 | 6 | TOC-Std#3-10.000 PPM | 1 | LLTOC AUG 15 - Aug 15, 2019; 07-03-05 PM | Std | 1 | N |
| 9 | 7 | TOC-Std#4-25.000 PPM | 1 | LLTOC AUG 15 - Aug 15, 2019; 07-03-05 PM | Std | 1 | N |
| 10 | 8 | TOC-Std#5-50.000 PPM | 1 | LLTOC AUG 15 - Aug 15, 2019; 07-03-05 PM | Std | 1 | N |
| 11 | 9 | TOC-Std#6-100.000 PPM | 1 | LLTOC AUG 15 - Aug 15, 2019; 07-03-05 PM | Std | 1 | N |
| 12 | 10 | RINSE | 2 | LLTOC AUG 15 - Aug 15, 2019; 07-03-05 PM | Sample | 1 | N |
| 13 | 11 | ICV | 1 | LLTOC AUG 15 - Aug 15, 2019; 07-03-05 PM | Sample | 1 | N |
| 14 | 12 | ICB | 1 | LLTOC AUG 15 - Aug 15, 2019; 07-03-05 PM | Sample | 1 | N |




Sandra J. Miller
Chemist

JAN 30 2020

*Calibration Information Location*

eurofins | Lancaster Laboratories Environmental

# Lancaster Laboratories Instrumental Water Quality Report

**Run Name:** 2003501G07

**Data File Name:** 2003501G07.G07

**Run Start Date/Time:** 02/04/2020 10:48

**Instrument Number:** 26070

**Instrument Name:** O.I. Analytical Aurora 1030

**Analyst:** Bethany Sandone

| Book ID | Page Number |
|---|---|
| 303167 | 40 |

***Initial Calibration Summary***

| Standards | Area Counts | True (mg/L) |
|---|---|---|
| S0 | 1528 | 0 |
| S1.0 | 7760 | 1.0 |
| S7.5 | 46158 | 7.5 |
| S10.0 | 61089 | 10.0 |
| S25.0 | 149972 | 25.0 |
| S50.0 | 280179 | 50.0 |
| S100.0 | 543092 | 100.0 |

| | |
|---|---|
| File Name: | 20028TOCCAL.G07 |
| Calibration Date/Time: | 1/28/2020 3:19:34PM |
| Correlation Coefficient: | 0.99970 |
| Y Intercept: | 6175.67222 |
| Slope: | 5408.51832 |

***QC Values***

| Type | Description | True (mg/L) | Lower Window (mg/L) | Upper Window (mg/L) |
|---|---|---|---|---|
| LCS | 25 mg/l | 25.0 | 22.75 | 28.25 |
| PB | | 0.0 | -2.00 | 2.00 |
| | | 0.0 | -1.00 | 1.00 |

Reviewed By: Drew M Gerhart

Reviewed Date: 02/06/2020 13:30

Verified By: Erik J Frederiksen

Verified Date: 02/06/2020 16:45

**Lancaster Laboratories Instrumental Water Quality Report**

Run Name: 2003501G07 Instrument Number: 26070

Analyst ID:

Injection # 0 — Date/Time: 02/04/2020 10:48

**CLEANUP**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 3732 | 3035 |

Comments:

Injection # 1 — Date/Time: 02/04/2020 10:59

**RINSE**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 2482 | 2256 |

Comments:

Injection # 2 — Date/Time: 02/04/2020 11:13

**25 TIC**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 26.74900 | 25.37400 | 26.06150 | 150848 | 143413 |

Comments:

Injection # 3 — Date/Time: 02/04/2020 11:27

**CCV2**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 24.63800 | 24.21400 | 24.42600 | 139431 | 137138 |

% Recovery = 98

Comments:

Injection # 4 — Date/Time: 02/04/2020 11:40

**CCB**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 1475 | 1675 |

Comments:

Injection # 5 — Date/Time: 02/04/2020 11:54 Batch: 20035304501A Class: ********** Element: TOC Verified: V

**LCS**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 24.46700 | 24.23400 | 24.35050 | 138507 | 137247 |

Comments:

Injection # 6 — Date/Time: 02/04/2020 12:08 Batch: 20035304501A Class: ********** Element: TOC Verified: V

**PB**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 1643 | 1681 |

Comments:

Injection # 7 — Date/Time: 02/04/2020 12:22 Batch: 20035304501A Class: ********** SDG:PUP93 Element: TOC Verified: V

**1251371**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.35300 | 0.41600 | 0.38450 | 8086 | 8426 |

Comments:

**Lancaster Laboratories Instrumental Water Quality Report**

Run Name: 2003501G07 Instrument Number: 26070

Analyst ID:

| Injection # | Date/Time: | Batch: | Class: | SDG: | Element: | Verified |
|---|---|---|---|---|---|---|
| **8** | 02/04/2020 12:35 | 20035304501A | ********** | PUP93 | TOC | V |
| **1251373** | | | | | | |

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 4561 | 5051 |

Comments:

| Injection # | Date/Time: | Batch: | Class: | SDG: | Element: | Verified |
|---|---|---|---|---|---|---|
| **9** | 02/04/2020 12:49 | 20035304501A | ********** | PUP93 | TOC | V |
| **1251376** | | | | | | |

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 3376 | 3786 |

Comments:

| Injection # | Date/Time: | Batch: | Class: | SDG: | Element: | Verified |
|---|---|---|---|---|---|---|
| **10** | 02/04/2020 13:02 | 20035304501A | ********** | PUP93 | TOC | V |
| **1251378** | | | | | | |

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 2714 | 2949 |

Comments:

| Injection # | Date/Time: | Batch: | Class: | SDG: | Element: | Verified |
|---|---|---|---|---|---|---|
| **11** | 02/04/2020 13:15 | 20035304501A | ********** | PUP93 | TOC | V |
| **1251380** | | | | | | |

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 2495 | 3086 |

Comments:

| Injection # | Date/Time: | Batch: | Class: | SDG: | Element: | Verified |
|---|---|---|---|---|---|---|
| **12** | 02/04/2020 13:29 | 20035304501A | ********** | PUP93 | TOC | V |
| **1251382** | | | | | | |

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 3342 | 3634 |

Comments:

| Injection # | Date/Time: | Batch: | Class: | SDG: | Element: | Verified |
|---|---|---|---|---|---|---|
| **13** | 02/04/2020 13:42 | 20035304501A | ********** | PUP93 | TOC | V |
| **1251384** | | | | | | |

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 4566 | 4878 |

Comments:

| Injection # | Date/Time: | Batch: | Class: | SDG: | Element: | Verified |
|---|---|---|---|---|---|---|
| **14** | 02/04/2020 13:56 | 20035304501A | ********** | PUP93 | TOC | V |
| **1251386** | | | | | | |

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 3177 | 3411 |

Comments:

| Injection # | Date/Time: |
|---|---|
| **15** | 02/04/2020 14:09 |
| **CCV2** | |

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 24.48600 | 24.37200 | 24.42900 | 138608 | 137993 |

% Recovery = 98

Comments:

**Lancaster Laboratories Instrumental Water Quality Report**

Run Name: 2003501G07 Instrument Number: 26070

Analyst ID:

Injection # Date/Time: 02/04/2020 14:23

**16**
**CCB**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 1596 | 1657 |

Comments:

Injection # Date/Time: 02/04/2020 14:37 Batch: 20035304501A Class: U********* SDG:PUP93 Element: TOC Verified

**17**
**1251388**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 5163 | 5538 |

V

Comments:

Injection # Date/Time: 02/04/2020 14:51 Batch: 20035304501A Class: R********* SDG:PUP93 Element: TOC Verified

**18**
**1251389**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 10.41200 | 10.39300 | 10.40250 | 62487 | 62387 |

V

Comments:

Injection # Date/Time: 02/04/2020 15:05 Batch: 20035304501A Class: D********* SDG:PUP93 Element: TOC Verified

**19**
**1251391**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 4289 | 4782 |

V

Comments:

Injection # Date/Time: 02/04/2020 15:19 Batch: 20035304501A Class: ********** SDG:PUP93 Element: TOC Verified

**20**
**1251396**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 3622 | 3981 |

V

Comments:

Injection # Date/Time: 02/04/2020 15:32 Batch: 20035304501B Class: U********* Element: TOC Verified

**21**
**1251924**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 8.49800 | 8.34700 | 8.42250 | 52136 | 51322 |

V

Comments:

Injection # Date/Time: 02/04/2020 15:46 Batch: 20035304501B Class: D********* Element: TOC Verified

**22**
**1251924**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 8.95800 | 8.86400 | 8.91100 | 54623 | 54117 |

V

Comments:

Injection # Date/Time: 02/04/2020 16:00 Batch: 20035304501B Class: R********* Element: TOC Verified

**23**
**1251924**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 19.19000 | 18.93900 | 19.06450 | 109962 | 108609 |

V

Comments:

**Lancaster Laboratories Instrumental Water Quality Report**

Run Name: 2003501G07 Instrument Number: 26070

Analyst ID:

Injection # **24** Date/Time: 02/04/2020 16:15 Batch: 20035304501B Class: ********** Element: TOC Verified: V

**1251928**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.28400 | 0.41600 | 0.35000 | 7709 | 8424 |

Comments:

Injection # **25** Date/Time: 02/04/2020 16:28 Batch: 20035304501B Class: ********** Element: TOC Verified: V

**1251930**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 2804 | 3193 |

Comments:

Injection # **26** Date/Time: 02/04/2020 16:42 Batch: 20035304501B Class: ********** Element: TOC Verified: V

**1251934**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 5.79700 | 5.94500 | 5.87100 | 37527 | 38328 |

Comments:

Injection # **27** Date/Time: 02/04/2020 16:56

**CCV2**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 24.73000 | 23.93300 | 24.33150 | 139933 | 135615 |

% Recovery = 97

Comments:

Injection # **28** Date/Time: 02/04/2020 17:10

**CCB**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 1687 | 1748 |

Comments:

Injection # **29** Date/Time: 02/04/2020 17:24 Batch: 20035304501B Class: ********** Element: TOC Verified: V

**1251936**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 2324 | 2531 |

Comments:

Injection # **30** Date/Time: 02/04/2020 17:38

**CCV2**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 24.57800 | 24.34500 | 24.46150 | 139108 | 137843 |

% Recovery = 98

Comments:

Injection # **31** Date/Time: 02/04/2020 17:52

**CCB**

| Dil Factor | Raw Result 1 (mg/L) | Raw Result 2 (mg/L) | Calculated Average Result (mg/L) | Area Count 1 | Area Count 2 |
|---|---|---|---|---|---|
| 1.0 | 0.00000 | 0.00000 | 0.00000 | 0 | 0 |

Comments:

**Lancaster Laboratories Instrumental Water Quality Report**

Run Name: 2003501G07 Instrument Number: 26070

Analyst ID:

Instrument #: 26070
Analyst: BS30452
Calibration Name: 2002802G07
$H_3PO_4$: 01/24/20 266916/31
500 mg/L TOC QC Stock: 01/28/20 266916/32

Date: 02/04/2020
Run Name: 2003501G07
0.45µm Filter Lot: N/A
Sodium Persulfate: 01/24/20 266916/31
LCSW Prep Book/Page: 303167/45

| Sample Number | DF | Bottle Code | Batch Number | SDG | Comments |
|---|---|---|---|---|---|
| LCSW | 1 | N/A | 20035304501A | N/A | TV = 25 mg/L |
| PBW | 1 | N/A | 20035304501A | N/A | |
| 1251371 | 1 | 91A | 20035304501A | PUP93 | |
| 1251373 | 1 | 91A | 20035304501A | PUP93 | |
| 1251376 | 1 | 91A | 20035304501A | PUP93 | |
| 1251378 | 1 | 91A | 20035304501A | PUP93 | |
| 1251380 | 1 | 91A | 20035304501A | PUP93 | |
| 1251382 | 1 | 91A | 20035304501A | PUP93 | |
| 1251384 | 1 | 91A | 20035304501A | PUP93 | |
| 1251386 | 1 | 91A | 20035304501A | PUP93 | |
| 1251388U | 1 | 91A | 20035304501A | PUP93 | |
| 1251389R | 1 | 91A | 20035304501A | PUP93 | +.5mL 500mg/L QC to 25 mL |
| 1251391D | 1 | 91A | 20035304501A | PUP93 | |
| 1251396 | 1 | 91A | 20035304501A | PUP93 | |
| 1251924U | 1 | 91A | 20035304501B | N/A | |
| 1251924D | 1 | 91B | 20035304501B | N/A | |
| 1251924R | 1 | 91A/B | 20035304501B | N/A | +.5mL 500mg/L QC to 25 mL |
| 1251928 | 1 | 91A | 20035304501B | N/A | |
| 1251930 | 1 | 91A | 20035304501B | N/A | |
| 1251934 | 1 | 91A | 20035304501B | N/A | |
| 1251936 | 1 | 91A | 20035304501B | N/A | |

Verified by: _____ Erik Frederiksen Manager Date: _____

FEB 0 6 2020

# Wet Chemistry Data

# Case Narrative/Conformance Summary

# Wet Chemistry

eurofins | Lancaster Laboratories Environmental

# Case Narrative/Conformance Summary

**CLIENT: Chevron Env Management Company**
**SDG: PUP93**

## Water Quality

**Fraction: Wet Chemistry**

| Sample # | Client ID | Matrix Liquid | Matrix Solid | DF | Comments |
|---|---|---|---|---|---|
| 1251371 | MW-24I-W-200130 | X | | 1 | |
| 1251373 | MW-23-W-200130 | X | | 1 | |
| 1251376 | MW-25I-W-200130 | X | | 1 | |
| 1251378 | MW-44I-W-200130 | X | | 1 | |
| 1251380 | DUP1-WD-200130 | X | | 1 | Field Duplicate Sample |
| 1251382 | MW-44D-W-200130 | X | | 1 | |
| 1251384 | MW-11IP-W-200130 | X | | 1 | |
| 1251386 | MW-2D-W-200130 | X | | 1 | |
| 1251388 | MW-48D-W-200130 | X | | 1 | Background/Unspiked |
| 1251389 | MW-48DMS-W-200130 | X | | 1 | Matrix Spike |
| 1251390 | MW-48DMSD-W-200130 | X | | 1 | Matrix Spike Duplicate |
| 1251391 | MW-48DDUP-W-200130 | X | | 1 | Duplicate |
| 1251396 | MW-48I-W-200130 | X | | 1 | |

See QC Reference List for Associated Batch QC Samples

### SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

### HOLDING TIME:

All holding times were met.

### PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

### CALIBRATION/STANDARDIZATION:

All criteria were met.

### QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

All QC is within specification.

### SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

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# Case Narrative/Conformance Summary

**CLIENT: Chevron Env Management Company**
**SDG: PUP93**

## Water Quality

**Fraction: Wet Chemistry**

**Abbreviation Key**

| | |
|---|---|
| U = Unspiked (for MS/MSD) | LOQ = Limit of Quantitation |
| R = Matrix Spike (MS) | MDL = Method Detection Limit |
| M = Matrix Spike Duplicate (MSD) | ND = Not Detected |
| BKG = Background (for Duplicate) | J = Estimated Value |
| D = Duplicate (DUP) | NA = Not Applicable |
| HS = High Spike | ME = Method |
| LS = Low Spike | CO = Colorimetric |
| SS = Soluble Spike | G = Gravimetric |
| IS = Insoluble Spike | IR = Infrared Spectrophotometry |
| ISD = Insoluble Spike Duplicate | MTR = Meter |
| PDS = Post Digestion Spike | OD = Oven Dried |
| * = Out of Specification | TI = Titration |
| V = Visual | TOC = Total Organic Carbon |
| AK = Alpkem | IC = Ion Chromatography |
| TC = Total Carbon | RA = Rapid Analyzer |

# QC Summary

# Wet Chemistry

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# Quality Control Reference List
## Water Quality

**CLIENT: Chevron Env Management Company**
**SDG: PUP93**

**Fraction: Wet Chemistry**

| Batch Number | Sample Number | Analysis Date | Phenolphthalein Alk. to pH 8.3 | Total Alkalinity to pH 4.5 |
|---|---|---|---|---|
| 20041005201A | 1251376 | 02/10/2020 22:56:00 | X | X |
| | 1251378 | 02/10/2020 22:29:00 | X | X |
| | 1251380 | 02/10/2020 22:23:00 | X | X |
| | 1251382 | 02/10/2020 22:43:00 | X | X |
| | 1251384 | 02/10/2020 22:36:00 | X | X |
| | 1251386 | 02/10/2020 22:49:00 | X | X |
| | 1251396 | 02/10/2020 23:02:00 | X | X |
| | P005201B | 02/10/2020 19:11:00 | | X |
| | P005201Q | 02/10/2020 19:19:00 | | X |
| 20041005202A | 1251371 | 02/11/2020 00:14:00 | X | X |
| | 1251373 | 02/11/2020 00:20:00 | X | X |
| | 1251388 UNSPK/BKG | 02/10/2020 23:34:00 | X | X |
| | 1251389 MS | 02/10/2020 23:41:00 | X | X |
| | 1251390 MSD | 02/10/2020 23:47:00 | X | X |
| | 1251391 DUP | 02/10/2020 23:54:00 | X | X |
| | P005202B | 02/10/2020 23:08:00 | | X |
| | P005202Q | 02/10/2020 23:15:00 | | X |

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**Quality Control Summary**
**Method Blank**
**Water Quality**
**SDG: PUP93**
**Matrix: LIQUID**

**Fraction: Wet Chemistry**

| 20041005201A / P005201B Parameter | ME | Analysis Date | Blank Results | Units | MDL | LOQ |
|---|---|---|---|---|---|---|
| Total Alkalinity to pH 4.5 | TI | 02/10/20 | N.D. | ug/l as CaCO3 | 2600 | 8000 |

| 20041005202A / P005202B Parameter | ME | Analysis Date | Blank Results | Units | MDL | LOQ |
|---|---|---|---|---|---|---|
| Total Alkalinity to pH 4.5 | TI | 02/10/20 | N.D. | ug/l as CaCO3 | 2600 | 8000 |

## Water Quality
**Fraction: Wet Chemistry**

| UNSPK: 1251388<br>MS: 1251389<br>MSD: 1251390<br>**Parameter** | Batch: **20041005202A** (Sample number(s): 1251371, 1251373, 1251388-1251391 )<br>**ME** | **Spike Added ug/l as CaCO3** | **Unspiked Conc ug/l as CaCO3** | **MS Conc ug/l as CaCO3** | **MSD Conc ug/l as CaCO3** | **MS %Rec** | **MSD %Rec** | **%Rec Limits** | **%RPD** | **%RPD Limits** |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Alkalinity to pH 4.5 | TI | 188000 | 141620. | 319080. | 314370. | 94 | 92 | 82-106 | 1 | 10 |

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

## Water Quality
**Fraction: Wet Chemistry**

| BKG: 1251388<br>DUP: 1251391<br><br>**Parameter** | Batch: **20041005202A** (Sample number(s): 1251371, 1251373, 1251388-1251391 )<br>**ME** | **Unspiked Conc ug/l as CaCO3** | **DUP Conc ug/l as CaCO3** | **%RPD** | **%RPD Limits** |
|---|---|---|---|---|---|
| Phenolphthalein Alk. to pH 8.3 | TI | N.D. | N.D. | 0 (1) | 5 |
| Total Alkalinity to pH 4.5 | TI | 141620. | 141280. | 0 | 5 |

Comments:
(1) The sample and/or duplicate result is less than five times the LOQ.
* = Out of Specification

Results are being reported on an as received basis.

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**Quality Control Summary**
**Laboratory Control Standard (LCS)**
**Laboratory Control Standard Duplicate(LCSD)**

**SDG: PUP93**
**Matrix: LIQUID**

## Water Quality
**Fraction: Wet Chemistry**

| LCS: P005201Q | Batch: **20041005201A** (Sample number(s): 1251376, 1251378, 1251380, 1251382, 1251384, 1251386, 1251396 ) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **ME** | **Spike Added ug/l as CaCO3** | **LCS Conc ug/l as CaCO3** | **LCSD Conc ug/l as CaCO3** | **LCS %Rec** | **LCSD %Rec** | **%Rec Limits** | **%RPD** | **%RPD Limits** |
| Total Alkalinity to pH 4.5 | TI | 188000 | 182230 | NA | 97 | NA | 82-106 | NA | NA |

| LCS: P005202Q | Batch: **20041005202A** (Sample number(s): 1251371, 1251373, 1251388-1251391 ) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **ME** | **Spike Added ug/l as CaCO3** | **LCS Conc ug/l as CaCO3** | **LCSD Conc ug/l as CaCO3** | **LCS %Rec** | **LCSD %Rec** | **%Rec Limits** | **%RPD** | **%RPD Limits** |
| Total Alkalinity to pH 4.5 | TI | 188000 | 182100 | NA | 97 | NA | 82-106 | NA | NA |

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**LOQ/MDL Summary**
**Water Quality**

**SDG: PUP93**

**Fraction: Wet Chemistry**

| 12707: Phenolphthalein Alk. to pH 8.3<br>Analyte Name | Default<br>MDL | Default<br>LOQ | Units |
|---|---|---|---|
| Phenolphthalein Alk. to pH 8.3 | 2.6 | 8.0 | mg/l as CaCO3 |

| 12150: Total Alkalinity to pH 4.5<br>Analyte Name | Default<br>MDL | Default<br>LOQ | Units |
|---|---|---|---|
| Total Alkalinity to pH 4.5 | 2,600 | 8,000 | ug/l as CaCO3 |

# Raw Data

# Wet Chemistry

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# Water Quality Run Report

**Run Name: 20200210-52** **Instrument: 19153**

Analyst : 25420 - Jeremy L. Bolf Verifier : 1026 - Michelle L. Lalli

| Analysis Name | Units |
|---|---|
| Bicarbonate | mg/l as CaCO3 |
| Carbonate | mg/l as CaCO3 |
| Phenolphthalein Alkalinity | mg/l as CaCO3 |
| Temperature of pH | Degrees C |
| Total Alkalinity | mg/l as CaCO3 |
| pH | Std. Units |

| Analysis Name | QC Check | True Value | Acceptance Range |
|---|---|---|---|
| pH | CCVPH2 | 7.00 | 6.27 - 7.73 |
| pH | CCVPH8 | 8.00 | 7.20 - 8.80 |

| Analysis Name | QC Check | Acceptance Range |
|---|---|---|
| Total Alkalinity | CCB | < 5.00 |
| Total Alkalinity | PBW | < 5.00 |

| Analysis Name | LCS | True Value | Acceptance Range | Lot Information |
|---|---|---|---|---|
| Total Alkalinity | LCSAK | 188.00 | 154.16 - 199.28 | 284547/9 |
| pH | LCSPH | 7.00 | 6.62 - 7.38 | J282-17 |

# Water Quality Run Report

**Run Name: 20200210-52** **Instrument: 19153**

Analyst : 25420 - Jeremy L. Bolf Verifier : 1026 - Michelle L. Lalli

| Sample | Index | QC Type | Batch | Dilution | Run_Date: | |
|---|---|---|---|---|---|---|
| **Tap** | **101625** | | | 1.00 | 02/10/2020 | 18:57 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 252.98 | 252.98 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.91 | 7.91 | | | | |
| Total Alkalinity | 252.98 | 252.98 | | | | |
| Temperature of pH | 23.12 | 23.12 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Run_Date: | |
|---|---|---|---|---|---|---|
| **CCVPH2** | **101626** | CCV | | 1.00 | 02/10/2020 | 19:00 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| pH | 7.00 | 7.00 | | |
| Temperature of pH | 22.35 | 22.35 | | |

| Sample | Index | QC Type | Batch | Dilution | Run_Date: | |
|---|---|---|---|---|---|---|
| **CCB** | **101627** | CCB | | 1.00 | 02/10/2020 | 19:06 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| Bicarbonate | 0.00 | 0.00 | | |
| Carbonate | 0.00 | 0.00 | | |
| Hydroxide | 0.00 | 0.00 | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | |
| pH | 5.74 | 5.74 | | |
| Total Alkalinity | 0.00 | 0.00 | | |
| Temperature of pH | 22.02 | 22.02 | | |

| Sample | Index | QC Type | Batch | Dilution | Run_Date: | |
|---|---|---|---|---|---|---|
| **PBW** | **101628** | B | 20041005201A | 1.00 | 02/10/2020 | 19:11 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | -0.03 | -0.03 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 5.41 | 5.41 | | | | |
| Total Alkalinity | -0.03 | -0.03 | Y | Y | | |
| Temperature of pH | 22.22 | 22.22 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Run_Date: | |
|---|---|---|---|---|---|---|
| **LCSAK** | **101629** | Q | 20041005201A | 1.00 | 02/10/2020 | 19:19 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 0.00 | 0.00 | | | | |
| Carbonate | 177.78 | 177.78 | | | | |
| Hydroxide | 4.45 | 4.45 | | | | |
| Phenolphthalein Alkali | 93.34 | 93.34 | | | | |
| pH | 10.68 | 10.68 | | | | |
| Total Alkalinity | 182.23 | 182.23 | Y | Y | | |
| Temperature of pH | 21.41 | 21.41 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Run_Date: | |
|---|---|---|---|---|---|---|
| **LCSPH** | **101630** | Q | 20041005201A | 1.00 | 02/10/2020 | 19:22 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| pH | 7.00 | 7.00 | | | | |
| Temperature of pH | 21.77 | 21.77 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| **1253931** | **101631** | U | 20041005201A | 1.00 | 332A | 02/10/2020 | 19:33 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 1104.03 | 1,104.03 | Y | | | |
| Carbonate | 0.00 | 0.00 | Y | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | Y | | |

| | | | | | |
|---|---|---|---|---|---|
| pH | 7.59 | 7.59 | | | |
| Total Alkalinity | 1104.03 | 1,104.03 | Y | Y | |
| Temperature of pH | 21.73 | 21.73 | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1253932 | 101632 | R | 20041005201A | 1.00 | 332A | 02/10/2020 | 19:44 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 1272.05 | 1,272.05 | Y | | | |
| Carbonate | 0.00 | 0.00 | Y | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | | | |
| pH | 8.08 | 8.08 | | | | |
| Total Alkalinity | 1272.05 | 1,272.05 | Y | | | |
| Temperature of pH | 22.00 | 22.00 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1253933 | 101633 | M | 20041005201A | 1.00 | 332A | 02/10/2020 | 19:56 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 1231.56 | 1,231.56 | Y | | | |
| Carbonate | 0.00 | 0.00 | Y | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | | | |
| pH | 8.15 | 8.15 | | | | |
| Total Alkalinity | 1231.56 | 1,231.56 | Y | | | |
| Temperature of pH | 22.46 | 22.46 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1253934 | 101634 | D | 20041005201A | 1.00 | 332A | 02/10/2020 | 20:07 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 1111.05 | 1,111.05 | Y | | | |
| Carbonate | 0.00 | 0.00 | Y | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | | | |
| pH | 7.60 | 7.60 | | | | |
| Total Alkalinity | 1111.05 | 1,111.05 | Y | | | |
| Temperature of pH | 21.99 | 21.99 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1254163 | 101635 | U | 20041005201B | 1.00 | 070A | 02/10/2020 | 20:12 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 134.45 | 134.45 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.90 | 7.90 | Y | Y | | |
| Total Alkalinity | 134.45 | 134.45 | Y | Y | | |
| Temperature of pH | 21.83 | 21.83 | Y | Y | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1254163 | 101636 | D | 20041005201B | 1.00 | 070A | 02/10/2020 | 20:19 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 136.93 | 136.93 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.09 | 8.09 | Y | Y | | |
| Total Alkalinity | 136.93 | 136.93 | Y | Y | | |
| Temperature of pH | 21.95 | 21.95 | Y | Y | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1253881 | 101637 | | 20041005201A | 1.00 | 332A | 02/10/2020 | 20:25 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 1.59 | 1.59 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Carbonate | 0.00 | 0.00 | | | |
| Hydroxide | 0.00 | 0.00 | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | |
| pH | 5.30 | 5.30 | | | |
| Total Alkalinity | 1.59 | 1.59 | Y | Y | |
| Temperature of pH | 21.87 | 21.87 | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCVPH2** | **101638** | CCV | | 1.00 | 02/10/2020 | 20:28 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| pH | 7.00 | 7.00 | | |
| Temperature of pH | 21.67 | 21.67 | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCB** | **101639** | CCB | | 1.00 | 02/10/2020 | 20:34 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| Bicarbonate | 0.17 | 0.17 | | |
| Carbonate | 0.00 | 0.00 | | |
| Hydroxide | 0.00 | 0.00 | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | |
| pH | 5.68 | 5.68 | | |
| Total Alkalinity | 0.17 | 0.17 | | |
| Temperature of pH | 21.66 | 21.66 | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1253882** | **101640** | | 20041005201A | 1.00 | 332A | 02/10/2020 | 20:38 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | -1.21 | -1.21 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 4.28 | 4.28 | | | | |
| Total Alkalinity | -1.21 | -1.21 | Y | Y | | |
| Temperature of pH | 22.25 | 22.25 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1252972** | **101641** | | 20041005201A | 1.00 | 332A | 02/10/2020 | 20:51 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 1604.32 | 1,604.32 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 6.78 | 6.78 | | | | |
| Total Alkalinity | 1604.32 | 1,604.32 | Y | Y | | |
| Temperature of pH | 21.98 | 21.98 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1252974** | **101642** | | 20041005201A | 1.00 | 332A | 02/10/2020 | 21:06 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 1752.97 | 1,752.97 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.81 | 7.81 | | | | |
| Total Alkalinity | 1752.97 | 1,752.97 | Y | Y | | |
| Temperature of pH | 22.40 | 22.40 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1252976** | **101643** | | 20041005201A | 1.00 | 332A | 02/10/2020 | 21:16 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 934.83 | 934.83 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Phenolphthalein Alkali | 0.00 | 0.00 | | | |
| pH | 7.74 | 7.74 | | | |
| Total Alkalinity | 934.83 | 934.83 | Y | Y | |
| Temperature of pH | 22.20 | 22.20 | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1252973 | 101644 | | 20041005201A | 1.00 | 332A | 02/10/2020 | 21:25 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 846.77 | 846.77 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.82 | 7.82 | | | | |
| Total Alkalinity | 846.77 | 846.77 | Y | Y | | |
| Temperature of pH | 22.60 | 22.60 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1252975 | 101645 | | 20041005201A | 1.00 | 332A | 02/10/2020 | 21:36 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 1040.76 | 1,040.76 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.79 | 7.79 | | | | |
| Total Alkalinity | 1040.76 | 1,040.76 | Y | Y | | |
| Temperature of pH | 21.86 | 21.86 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1252971 | 101646 | | 20041005201A | 1.00 | 332A | 02/10/2020 | 21:45 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 804.86 | 804.86 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.87 | 7.87 | | | | |
| Total Alkalinity | 804.86 | 804.86 | Y | Y | | |
| Temperature of pH | 22.05 | 22.05 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1252970 | 101647 | | 20041005201A | 1.00 | 332A | 02/10/2020 | 21:55 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 843.36 | 843.36 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.88 | 7.88 | | | | |
| Total Alkalinity | 843.36 | 843.36 | Y | Y | | |
| Temperature of pH | 21.73 | 21.73 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1253184 | 101648 | | 20041005201A | 1.00 | 332A | 02/10/2020 | 22:01 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 268.22 | 268.22 | Y | Y | | |
| Carbonate | 0.00 | 0.00 | Y | Y | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.10 | 8.10 | | | | |
| Total Alkalinity | 268.22 | 268.22 | Y | Y | | |
| Temperature of pH | 22.14 | 22.14 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1253619 | 101649 | | 20041005201A | 1.00 | 332A | 02/10/2020 | 22:08 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| Bicarbonate | 93.07 | 93.07 | Y | Y |
| Carbonate | 0.00 | 0.00 | Y | Y |
| Hydroxide | 0.00 | 0.00 | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | |
| pH | 7.18 | 7.18 | | |
| Total Alkalinity | 93.07 | 93.07 | Y | Y |
| Temperature of pH | 21.76 | 21.76 | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCVPH2** | **101650** | CCV | | 1.00 | 02/10/2020 | 22:11 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| pH | 7.00 | 7.00 | | |
| Temperature of pH | 22.64 | 22.64 | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCB** | **101651** | CCB | | 1.00 | 02/10/2020 | 22:17 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| Bicarbonate | 0.20 | 0.20 | | |
| Carbonate | 0.00 | 0.00 | | |
| Hydroxide | 0.00 | 0.00 | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | |
| pH | 5.76 | 5.76 | | |
| Total Alkalinity | 0.20 | 0.20 | | |
| Temperature of pH | 22.57 | 22.57 | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1251380** | **101652** | | 20041005201A | 1.00 | 332A | 02/10/2020 | 22:23 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 80.09 | 80.09 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | Y | | |
| pH | 7.91 | 7.91 | | | | |
| Total Alkalinity | 80.09 | 80.09 | Y | Y | | |
| Temperature of pH | 22.14 | 22.14 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1251378** | **101653** | | 20041005201A | 1.00 | 332A | 02/10/2020 | 22:29 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 80.47 | 80.47 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | Y | | |
| pH | 7.85 | 7.85 | | | | |
| Total Alkalinity | 80.47 | 80.47 | Y | Y | | |
| Temperature of pH | 21.69 | 21.69 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1251384** | **101654** | | 20041005201A | 1.00 | 332A | 02/10/2020 | 22:36 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 144.63 | 144.63 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | Y | | |
| pH | 8.05 | 8.05 | | | | |
| Total Alkalinity | 144.63 | 144.63 | Y | Y | | |
| Temperature of pH | 21.44 | 21.44 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1251382** | **101655** | | 20041005201A | 1.00 | 332A | 02/10/2020 | 22:43 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 101.79 | 101.79 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Hydroxide | 0.00 | 0.00 | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | Y | |
| pH | 8.28 | 8.28 | | | |
| Total Alkalinity | 101.79 | 101.79 | Y | Y | |
| Temperature of pH | 21.89 | 21.89 | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1251386 | 101656 | | 20041005201A | 1.00 | 332A | 02/10/2020 | 22:49 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 75.28 | 75.28 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | Y | | |
| pH | 8.01 | 8.01 | | | | |
| Total Alkalinity | 75.28 | 75.28 | Y | Y | | |
| Temperature of pH | 22.48 | 22.48 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1251376 | 101657 | | 20041005201A | 1.00 | 332A | 02/10/2020 | 22:56 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 165.62 | 165.62 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | Y | | |
| pH | 8.07 | 8.07 | | | | |
| Total Alkalinity | 165.62 | 165.62 | Y | Y | | |
| Temperature of pH | 21.89 | 21.89 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1251396 | 101658 | | 20041005201A | 1.00 | 332A | 02/10/2020 | 23:02 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 169.28 | 169.28 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | Y | | |
| pH | 8.08 | 8.08 | | | | |
| Total Alkalinity | 169.28 | 169.28 | Y | Y | | |
| Temperature of pH | 21.60 | 21.60 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| PBW | 101659 | B | 20041005202A | 1.00 | 02/10/2020 | 23:08 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 0.41 | 0.41 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 5.79 | 5.79 | | | | |
| Total Alkalinity | 0.41 | 0.41 | Y | Y | | |
| Temperature of pH | 21.80 | 21.80 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| LCSAK | 101660 | Q | 20041005202A | 1.00 | 02/10/2020 | 23:15 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 5.63 | 5.63 | | | | |
| Carbonate | 176.46 | 176.46 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 88.23 | 88.23 | | | | |
| pH | 10.55 | 10.55 | | | | |
| Total Alkalinity | 182.10 | 182.10 | Y | Y | | |
| Temperature of pH | 22.72 | 22.72 | | | | |

# Water Quality Run Report

**Run Name: 20200210-52** **Instrument: 19153**

Analyst : 25420 - Jeremy L. Bolf Verifier : 1026 - Michelle L. Lalli

| Sample | Index | QC Type | Batch | Dilution | Run_Date: | |
|---|---|---|---|---|---|---|
| **LCSPH** | **101661** | Q | 20041005202A | 1.00 | 02/10/2020 | 23:18 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| pH | 7.00 | 7.00 | | | | |
| Temperature of pH | 22.28 | 22.28 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Run_Date: | |
|---|---|---|---|---|---|---|
| **CCVPH2** | **101662** | CCV | | 1.00 | 02/10/2020 | 23:21 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| pH | 7.00 | 7.00 | | |
| Temperature of pH | 21.89 | 21.89 | | |

| Sample | Index | QC Type | Batch | Dilution | Run_Date: | |
|---|---|---|---|---|---|---|
| **CCB** | **101663** | CCB | | 1.00 | 02/10/2020 | 23:27 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| Bicarbonate | 0.50 | 0.50 | | |
| Carbonate | 0.00 | 0.00 | | |
| Hydroxide | 0.00 | 0.00 | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | |
| pH | 5.88 | 5.88 | | |
| Total Alkalinity | 0.50 | 0.50 | | |
| Temperature of pH | 21.70 | 21.70 | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| **1251388** | **101664** | U | 20041005202A | 1.00 | 332A | 02/10/2020 | 23:34 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 141.62 | 141.62 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | Y | | |
| pH | 8.21 | 8.21 | | | | |
| Total Alkalinity | 141.62 | 141.62 | Y | Y | | |
| Temperature of pH | 21.48 | 21.48 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| **1251389** | **101665** | R | 20041005202A | 1.00 | 332A | 02/10/2020 | 23:41 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 116.99 | 116.99 | | | | |
| Carbonate | 202.08 | 202.08 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 101.04 | 101.04 | Y | | | |
| pH | 9.71 | 9.71 | | | | |
| Total Alkalinity | 319.08 | 319.08 | Y | | | |
| Temperature of pH | 22.37 | 22.37 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| **1251390** | **101666** | M | 20041005202A | 1.00 | 332A | 02/10/2020 | 23:47 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 117.09 | 117.09 | | | | |
| Carbonate | 197.28 | 197.28 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 98.64 | 98.64 | Y | | | |
| pH | 9.69 | 9.69 | | | | |
| Total Alkalinity | 314.37 | 314.37 | Y | | | |
| Temperature of pH | 22.05 | 22.05 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| **1251391** | **101667** | D | 20041005202A | 1.00 | 332A | 02/10/2020 | 23:54 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 141.28 | 141.28 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| pH | 8.08 | 8.08 | | | | | | | |
| Total Alkalinity | 141.28 | 141.28 | Y | | | | | | |
| Temperature of pH | 21.73 | 21.73 | | | | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1251721 | 101668 | U | 20041005202B | 1.00 | 070A | 02/11/2020 | 0:00 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 133.66 | 133.66 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.13 | 8.13 | Y | Y | | |
| Total Alkalinity | 133.66 | 133.66 | Y | Y | | |
| Temperature of pH | 22.08 | 22.08 | Y | Y | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1251721 | 101669 | D | 20041005202B | 1.00 | 070A | 02/11/2020 | 0:07 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 134.97 | 134.97 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.12 | 8.12 | Y | Y | | |
| Total Alkalinity | 134.97 | 134.97 | Y | Y | | |
| Temperature of pH | 22.14 | 22.14 | Y | Y | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1251371 | 101670 | | 20041005202A | 1.00 | 332A | 02/11/2020 | 0:14 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 287.79 | 287.79 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | Y | | |
| pH | 8.04 | 8.04 | | | | |
| Total Alkalinity | 287.79 | 287.79 | Y | Y | | |
| Temperature of pH | 21.77 | 21.77 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1251373 | 101671 | | 20041005202A | 1.00 | 332A | 02/11/2020 | 0:20 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 165.91 | 165.91 | | | | |
| Carbonate | 2.80 | 2.80 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 1.40 | 1.40 | Y | Y | | |
| pH | 8.33 | 8.33 | | | | |
| Total Alkalinity | 168.71 | 168.71 | Y | Y | | |
| Temperature of pH | 21.60 | 21.60 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1253926 | 101672 | | 20041005202A | 1.00 | 332A | 02/11/2020 | 0:29 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 727.24 | 727.24 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | Y | | |
| pH | 7.57 | 7.57 | | | | |
| Total Alkalinity | 727.24 | 727.24 | Y | Y | | |
| Temperature of pH | 22.52 | 22.52 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1253929 | 101673 | | 20041005202A | 1.00 | 332A | 02/11/2020 | 0:39 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 911.17 | 911.17 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Carbonate | 0.00 | 0.00 | | | |
| Hydroxide | 0.00 | 0.00 | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | Y | |
| pH | 7.52 | 7.52 | | | |
| Total Alkalinity | 911.17 | 911.17 | Y | Y | |
| Temperature of pH | 21.99 | 21.99 | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCVPH2** | **101674** | CCV | | 1.00 | 02/11/2020 | 0:42 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| pH | 7.00 | 7.00 | | |
| Temperature of pH | 22.57 | 22.57 | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCB** | **101675** | CCB | | 1.00 | 02/11/2020 | 0:47 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| Bicarbonate | 1.53 | 1.53 | | |
| Carbonate | 0.00 | 0.00 | | |
| Hydroxide | 0.00 | 0.00 | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | |
| pH | 5.77 | 5.77 | | |
| Total Alkalinity | 1.53 | 1.53 | | |
| Temperature of pH | 22.14 | 22.14 | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1253941** | **101676** | | 20041005202A | 1.00 | 332A | 02/11/2020 | 0:55 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 502.75 | 502.75 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | Y | | |
| pH | 7.85 | 7.85 | | | | |
| Total Alkalinity | 502.75 | 502.75 | Y | Y | | |
| Temperature of pH | 21.79 | 21.79 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1253943** | **101677** | | 20041005202A | 1.00 | 332A | 02/11/2020 | 1:02 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 439.77 | 439.77 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | Y | | |
| pH | 7.85 | 7.85 | | | | |
| Total Alkalinity | 439.77 | 439.77 | Y | Y | | |
| Temperature of pH | 22.26 | 22.26 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1253939** | **101678** | | 20041005202A | 1.00 | 332A | 02/11/2020 | 1:10 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 496.87 | 496.87 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | Y | | |
| pH | 7.85 | 7.85 | | | | |
| Total Alkalinity | 496.87 | 496.87 | Y | Y | | |
| Temperature of pH | 22.14 | 22.14 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1254374** | **101679** | | 20041005202A | 1.00 | 332A | 02/11/2020 | 1:16 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 13.31 | 13.31 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Phenolphthalein Alkali | 0.00 | 0.00 | | | |
| pH | 6.86 | 6.86 | | | |
| Total Alkalinity | 13.31 | 13.31 | Y | Y | |
| Temperature of pH | 21.87 | 21.87 | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1254370 | 101680 | | 20041005202A | 1.00 | 332A | 02/11/2020 | 1:23 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 4.21 | 4.21 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 6.53 | 6.53 | | | | |
| Total Alkalinity | 4.21 | 4.21 | Y | Y | | |
| Temperature of pH | 22.35 | 22.35 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1255163 | 101681 | | 20041005202A | 1.00 | 332A | 02/11/2020 | 1:30 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 30.61 | 30.61 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.50 | 7.50 | | | | |
| Total Alkalinity | 30.61 | 30.61 | Y | Y | | |
| Temperature of pH | 21.98 | 21.98 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1255160 | 101682 | | 20041005202A | 1.00 | 332A | 02/11/2020 | 1:36 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 33.39 | 33.39 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.43 | 7.43 | | | | |
| Total Alkalinity | 33.39 | 33.39 | Y | Y | | |
| Temperature of pH | 22.58 | 22.58 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1255157 | 101683 | | 20041005202A | 1.00 | 332A | 02/11/2020 | 1:43 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 34.02 | 34.02 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.49 | 7.49 | | | | |
| Total Alkalinity | 34.02 | 34.02 | Y | Y | | |
| Temperature of pH | 21.99 | 21.99 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1255159 | 101684 | | 20041005202A | 1.00 | 332A | 02/11/2020 | 1:49 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 28.96 | 28.96 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.47 | 7.47 | | | | |
| Total Alkalinity | 28.96 | 28.96 | Y | Y | | |
| Temperature of pH | 22.23 | 22.23 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1254368 | 101685 | | 20041005202A | 1.00 | 332A | 02/11/2020 | 1:56 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Bicarbonate | 35.64 | 35.64 | | | |
| Carbonate | 0.00 | 0.00 | | | |
| Hydroxide | 0.00 | 0.00 | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | |
| pH | 7.63 | 7.63 | | | |
| Total Alkalinity | 35.64 | 35.64 | Y | Y | |
| Temperature of pH | 22.17 | 22.17 | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCVPH2** | **101686** | CCV | | 1.00 | 02/11/2020 | 1:59 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| pH | 7.00 | 7.00 | | |
| Temperature of pH | 21.74 | 21.74 | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCB** | **101687** | CCB | | 1.00 | 02/11/2020 | 2:05 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| Bicarbonate | 0.36 | 0.36 | | |
| Carbonate | 0.00 | 0.00 | | |
| Hydroxide | 0.00 | 0.00 | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | |
| pH | 5.90 | 5.90 | | |
| Total Alkalinity | 0.36 | 0.36 | | |
| Temperature of pH | 21.56 | 21.56 | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1255162** | **101688** | | 20041005202A | 1.00 | 332A | 02/11/2020 | 2:11 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 33.45 | 33.45 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.43 | 7.43 | | | | |
| Total Alkalinity | 33.45 | 33.45 | Y | Y | | |
| Temperature of pH | 22.42 | 22.42 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1255164** | **101689** | | 20041005202A | 1.00 | 332A | 02/11/2020 | 2:18 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 34.06 | 34.06 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.48 | 7.48 | | | | |
| Total Alkalinity | 34.06 | 34.06 | Y | Y | | |
| Temperature of pH | 21.96 | 21.96 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1254362** | **101690** | | 20041005202A | 1.00 | 332A | 02/11/2020 | 2:25 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 4.40 | 4.40 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 6.93 | 6.93 | | | | |
| Total Alkalinity | 4.40 | 4.40 | Y | Y | | |
| Temperature of pH | 22.10 | 22.10 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1254364** | **101691** | | 20041005202A | 1.00 | 332A | 02/11/2020 | 2:31 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 20.38 | 20.38 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Hydroxide | 0.00 | 0.00 | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | |
| pH | 7.08 | 7.08 | | | |
| Total Alkalinity | 20.38 | 20.38 | Y | Y | |
| Temperature of pH | 22.35 | 22.35 | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **PBW** | **101692** | B | 20041005203A | 1.00 | 02/11/2020 | 2:37 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 0.29 | 0.29 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 5.75 | 5.75 | | | | |
| Total Alkalinity | 0.29 | 0.29 | Y | Y | | |
| Temperature of pH | 21.86 | 21.86 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **LCSAK** | **101693** | Q | 20041005203A | 1.00 | 02/11/2020 | 2:44 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 13.53 | 13.53 | | | | |
| Carbonate | 169.02 | 169.02 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 84.51 | 84.51 | | | | |
| pH | 10.46 | 10.46 | | | | |
| Total Alkalinity | 182.55 | 182.55 | Y | Y | | |
| Temperature of pH | 22.34 | 22.34 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **LCSPH** | **101694** | Q | 20041005203A | 1.00 | 02/11/2020 | 2:47 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| pH | 7.00 | 7.00 | | | | |
| Temperature of pH | 22.14 | 22.14 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1251905** | **101695** | U | 20041005203A | 1.00 | 070A | 02/11/2020 | 2:53 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 118.22 | 118.22 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.17 | 8.17 | | | | |
| Total Alkalinity | 118.22 | 118.22 | Y | Y | | |
| Temperature of pH | 21.82 | 21.82 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1251905** | **101696** | R | 20041005203A | 1.00 | 070A | 02/11/2020 | 3:00 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 105.70 | 105.70 | | | | |
| Carbonate | 102.40 | 102.40 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 51.20 | 51.20 | | | | |
| pH | 9.61 | 9.61 | | | | |
| Total Alkalinity | 208.10 | 208.10 | Y | Y | | |
| Temperature of pH | 22.00 | 22.00 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1251905** | **101697** | D | 20041005203A | 1.00 | 070A | 02/11/2020 | 3:06 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 119.01 | 119.01 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| pH | 8.16 | 8.16 | | | |
| Total Alkalinity | 119.01 | 119.01 | Y | Y | |
| Temperature of pH | 22.31 | 22.31 | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCVPH2** | **101698** | CCV | | 1.00 | 02/11/2020 | 3:09 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| pH | 7.00 | 7.00 | | |
| Temperature of pH | 21.86 | 21.86 | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCB** | **101699** | CCB | | 1.00 | 02/11/2020 | 3:15 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| Bicarbonate | 0.71 | 0.71 | | |
| Carbonate | 0.00 | 0.00 | | |
| Hydroxide | 0.00 | 0.00 | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | |
| pH | 5.91 | 5.91 | | |
| Total Alkalinity | 0.71 | 0.71 | | |
| Temperature of pH | 21.70 | 21.70 | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1251901** | **101700** | U | 20041005203B | 1.00 | 070A | 02/11/2020 | 3:25 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 789.18 | 789.18 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 5.92 | 5.92 | | | | |
| Total Alkalinity | 789.18 | 789.18 | Y | Y | | |
| Temperature of pH | 22.42 | 22.42 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1251901** | **101701** | D | 20041005203B | 1.00 | 070A | 02/11/2020 | 3:35 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 788.20 | 788.20 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 5.94 | 5.94 | | | | |
| Total Alkalinity | 788.20 | 788.20 | Y | Y | | |
| Temperature of pH | 22.13 | 22.13 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1252429** | **101702** | | 20041005203A | 1.00 | 332A | 02/11/2020 | 3:45 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 703.62 | 703.62 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 6.02 | 6.02 | | | | |
| Total Alkalinity | 703.62 | 703.62 | Y | Y | | |
| Temperature of pH | 22.49 | 22.49 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1252435** | **101703** | | 20041005203A | 1.00 | 332A | 02/11/2020 | 3:52 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 217.77 | 217.77 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.14 | 7.14 | | | | |
| Total Alkalinity | 217.77 | 217.77 | Y | Y | | |

| | | | |
|---|---|---|---|
| Temperature of pH | 22.46 | 22.46 | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1252433 | 101704 | | 20041005203A | 1.00 | 332A | 02/11/2020 | 3:59 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 345.63 | 345.63 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 5.95 | 5.95 | | | | |
| Total Alkalinity | 345.63 | 345.63 | Y | Y | | |
| Temperature of pH | 22.48 | 22.48 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1252439 | 101705 | | 20041005203A | 1.00 | 332A | 02/11/2020 | 4:08 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 659.44 | 659.44 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 5.88 | 5.88 | | | | |
| Total Alkalinity | 659.44 | 659.44 | Y | Y | | |
| Temperature of pH | 22.02 | 22.02 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1252427 | 101706 | | 20041005203A | 1.00 | 332A | 02/11/2020 | 4:17 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 552.33 | 552.33 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 5.94 | 5.94 | | | | |
| Total Alkalinity | 552.33 | 552.33 | Y | Y | | |
| Temperature of pH | 22.20 | 22.20 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1252431 | 101707 | | 20041005203A | 1.00 | 332A | 02/11/2020 | 4:28 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 936.54 | 936.54 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 5.95 | 5.95 | | | | |
| Total Alkalinity | 936.54 | 936.54 | Y | Y | | |
| Temperature of pH | 22.11 | 22.11 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1252437 | 101708 | | 20041005203A | 1.00 | 332A | 02/11/2020 | 4:37 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 721.14 | 721.14 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 5.59 | 5.59 | | | | |
| Total Alkalinity | 721.14 | 721.14 | Y | Y | | |
| Temperature of pH | 22.19 | 22.19 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1253666 | 101709 | | 20041005203A | 1.00 | 332A | 02/11/2020 | 4:44 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 319.71 | 319.71 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Phenolphthalein Alkali | 0.00 | 0.00 | | | |
| pH | 6.04 | 6.04 | | | |
| Total Alkalinity | 319.71 | 319.71 | Y | Y | |
| Temperature of pH | 22.78 | 22.78 | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCVPH2** | **101710** | CCV | | 1.00 | 02/11/2020 | 4:47 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| pH | 7.01 | 7.01 | | |
| Temperature of pH | 22.29 | 22.29 | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCB** | **101711** | CCB | | 1.00 | 02/11/2020 | 4:51 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| Bicarbonate | 1.58 | 1.58 | | |
| Carbonate | 0.00 | 0.00 | | |
| Hydroxide | 0.00 | 0.00 | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | |
| pH | 5.77 | 5.77 | | |
| Total Alkalinity | 1.58 | 1.58 | | |
| Temperature of pH | 21.96 | 21.96 | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1251717** | **101712** | | 20041005203A | 1.00 | 332A | 02/11/2020 | 4:59 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 305.96 | 305.96 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.77 | 7.77 | | | | |
| Total Alkalinity | 305.96 | 305.96 | Y | Y | | |
| Temperature of pH | 22.03 | 22.03 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1254527** | **101713** | | 20041005203A | 1.00 | 332A | 02/11/2020 | 5:05 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 179.10 | 179.10 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.05 | 8.05 | | | | |
| Total Alkalinity | 179.10 | 179.10 | Y | Y | | |
| Temperature of pH | 22.48 | 22.48 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1252445** | **101714** | | 20041005203A | 1.00 | 332A | 02/11/2020 | 5:12 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 243.91 | 243.91 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.02 | 8.02 | | | | |
| Total Alkalinity | 243.91 | 243.91 | Y | Y | | |
| Temperature of pH | 21.99 | 21.99 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1252441** | **101715** | | 20041005203A | 1.00 | 332A | 02/11/2020 | 5:18 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 163.43 | 163.43 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.07 | 8.07 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Total Alkalinity | 163.43 | 163.43 | Y | Y | |
| Temperature of pH | 21.90 | 21.90 | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1254529 | 101716 | | 20041005203A | 1.00 | 332A | 02/11/2020 | 5:25 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 168.57 | 168.57 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.04 | 8.04 | | | | |
| Total Alkalinity | 168.57 | 168.57 | Y | Y | | |
| Temperature of pH | 22.70 | 22.70 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1251899 | 101717 | | 20041005203A | 1.00 | 332A | 02/11/2020 | 5:31 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 189.94 | 189.94 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.67 | 7.67 | | | | |
| Total Alkalinity | 189.94 | 189.94 | Y | Y | | |
| Temperature of pH | 22.19 | 22.19 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1254531 | 101718 | | 20041005203A | 1.00 | 332A | 02/11/2020 | 5:38 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 163.91 | 163.91 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.06 | 8.06 | | | | |
| Total Alkalinity | 163.91 | 163.91 | Y | Y | | |
| Temperature of pH | 21.85 | 21.85 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1251715 | 101719 | | 20041005203A | 1.00 | 332A | 02/11/2020 | 5:44 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 11.58 | 11.58 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 5.54 | 5.54 | | | | |
| Total Alkalinity | 11.58 | 11.58 | Y | Y | | |
| Temperature of pH | 22.74 | 22.74 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1251719 | 101720 | | 20041005203A | 1.00 | 332A | 02/11/2020 | 5:50 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 59.31 | 59.31 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 6.50 | 6.50 | | | | |
| Total Alkalinity | 59.31 | 59.31 | Y | Y | | |
| Temperature of pH | 22.40 | 22.40 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1251897 | 101721 | | 20041005203A | 1.00 | 332A | 02/11/2020 | 5:56 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 164.67 | 164.67 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Hydroxide | 0.00 | 0.00 | | | |
| Phenolphthalein Alkalii | 0.00 | 0.00 | | | |
| pH | 8.15 | 8.15 | | | |
| Total Alkalinity | 164.67 | 164.67 | Y | Y | |
| Temperature of pH | 22.14 | 22.14 | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCVPH2** | **101722** | CCV | | 1.00 | 02/11/2020 | 5:59 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| pH | 7.00 | 7.00 | | |
| Temperature of pH | 21.85 | 21.85 | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCB** | **101723** | CCB | | 1.00 | 02/11/2020 | 6:05 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| Bicarbonate | 0.36 | 0.36 | | |
| Carbonate | 0.00 | 0.00 | | |
| Hydroxide | 0.00 | 0.00 | | |
| Phenolphthalein Alkalii | 0.00 | 0.00 | | |
| pH | 5.91 | 5.91 | | |
| Total Alkalinity | 0.36 | 0.36 | | |
| Temperature of pH | 22.00 | 22.00 | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **PBW** | **101724** | B | 20041005204A | 1.00 | 02/11/2020 | 6:11 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 0.07 | 0.07 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkalii | 0.00 | 0.00 | | | | |
| pH | 5.36 | 5.36 | | | | |
| Total Alkalinity | 0.07 | 0.07 | Y | Y | | |
| Temperature of pH | 22.92 | 22.92 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **LCSAK** | **101725** | Q | 20041005204A | 1.00 | 02/11/2020 | 6:18 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 22.02 | 22.02 | | | | |
| Carbonate | 160.61 | 160.61 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkalii | 80.31 | 80.31 | | | | |
| pH | 10.39 | 10.39 | | Y | | |
| Total Alkalinity | 182.63 | 182.63 | Y | Y | | |
| Temperature of pH | 22.32 | 22.32 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **LCSPH** | **101726** | Q | 20041005204A | 1.00 | 02/11/2020 | 6:21 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| pH | 7.00 | 7.00 | Y | Y | | |
| Temperature of pH | 21.93 | 21.93 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1251907** | **101727** | U | 20041005204A | 1.00 | 070A | 02/11/2020 | 6:27 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 152.56 | 152.56 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkalii | 0.00 | 0.00 | | | | |
| pH | 7.95 | 7.95 | Y | Y | | |
| Total Alkalinity | 152.56 | 152.56 | Y | Y | | |
| Temperature of pH | 21.70 | 21.70 | Y | Y | | |

# Water Quality Run Report

**Run Name: 20200210-52** **Instrument: 19153**

Analyst : 25420 - Jeremy L. Bolf Verifier : 1026 - Michelle L. Lalli

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1251907 | 101728 | R | 20041005204A | 1.00 | 070A | 02/11/2020 | 6:33 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 152.31 | 152.31 | | | | |
| Carbonate | 106.13 | 106.13 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 53.07 | 53.07 | | | | |
| pH | 9.34 | 9.34 | Y | | | |
| Total Alkalinity | 258.44 | 258.44 | Y | Y | | |
| Temperature of pH | 22.28 | 22.28 | Y | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1251907 | 101729 | D | 20041005204A | 1.00 | 070A | 02/11/2020 | 6:40 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 153.79 | 153.79 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.94 | 7.94 | Y | Y | | |
| Total Alkalinity | 153.79 | 153.79 | Y | Y | | |
| Temperature of pH | 22.51 | 22.51 | Y | Y | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1251903 | 101730 | U | 20041005204B | 1.00 | 070A | 02/11/2020 | 6:49 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 678.48 | 678.48 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 5.85 | 5.85 | | | | |
| Total Alkalinity | 678.48 | 678.48 | Y | Y | | |
| Temperature of pH | 22.05 | 22.05 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1251903 | 101731 | D | 20041005204B | 1.00 | 070A | 02/11/2020 | 6:58 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 675.86 | 675.86 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 5.86 | 5.86 | | | | |
| Total Alkalinity | 675.86 | 675.86 | Y | Y | | |
| Temperature of pH | 22.13 | 22.13 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1253646 | 101732 | | 20041005204A | 1.00 | 332A | 02/11/2020 | 7:05 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 198.66 | 198.66 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.02 | 8.02 | | | | |
| Total Alkalinity | 198.66 | 198.66 | Y | Y | | |
| Temperature of pH | 22.87 | 22.87 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1252449 | 101733 | | 20041005204A | 1.00 | 332A | 02/11/2020 | 7:12 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 194.23 | 194.23 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| pH | 8.13 | 8.13 | | | |
| Total Alkalinity | 194.23 | 194.23 | Y | Y | |
| Temperature of pH | 22.22 | 22.22 | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCVPH2** | **101734** | CCV | | 1.00 | 02/11/2020 | 7:15 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| pH | 7.00 | 7.00 | | |
| Temperature of pH | 21.83 | 21.83 | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCB** | **101735** | CCB | | 1.00 | 02/11/2020 | 7:21 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| Bicarbonate | 0.27 | 0.27 | | |
| Carbonate | 0.00 | 0.00 | | |
| Hydroxide | 0.00 | 0.00 | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | |
| pH | 5.65 | 5.65 | | |
| Total Alkalinity | 0.27 | 0.27 | | |
| Temperature of pH | 22.19 | 22.19 | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1252443** | **101736** | | 20041005204A | 1.00 | 332A | 02/11/2020 | 7:28 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 203.63 | 203.63 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.09 | 8.09 | | | | |
| Total Alkalinity | 203.63 | 203.63 | Y | Y | | |
| Temperature of pH | 22.54 | 22.54 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1253670** | **101737** | | 20041005204A | 1.00 | 332A | 02/11/2020 | 7:34 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 164.21 | 164.21 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.02 | 8.02 | | | | |
| Total Alkalinity | 164.21 | 164.21 | Y | Y | | |
| Temperature of pH | 22.00 | 22.00 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1253648** | **101738** | | 20041005204A | 1.00 | 332A | 02/11/2020 | 7:41 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 197.13 | 197.13 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.17 | 8.17 | | | | |
| Total Alkalinity | 197.13 | 197.13 | Y | Y | | |
| Temperature of pH | 22.58 | 22.58 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1253650** | **101739** | | 20041005204A | 1.00 | 332A | 02/11/2020 | 7:47 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 203.67 | 203.67 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.10 | 8.10 | | | | |
| Total Alkalinity | 203.67 | 203.67 | Y | Y | | |

| | | | |
|---|---|---|---|
| Temperature of pH | 22.11 | 22.11 | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1253664 | 101740 | | 20041005204A | 1.00 | 332A | 02/11/2020 | 7:54 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 168.22 | 168.22 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.10 | 8.10 | | | | |
| Total Alkalinity | 168.22 | 168.22 | Y | Y | | |
| Temperature of pH | 22.22 | 22.22 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1253676 | 101741 | | 20041005204A | 1.00 | 332A | 02/11/2020 | 8:01 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 152.18 | 152.18 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.11 | 8.11 | | | | |
| Total Alkalinity | 152.18 | 152.18 | Y | Y | | |
| Temperature of pH | 22.23 | 22.23 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1253674 | 101742 | | 20041005204A | 1.00 | 332A | 02/11/2020 | 8:08 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 227.40 | 227.40 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.97 | 7.97 | | | | |
| Total Alkalinity | 227.40 | 227.40 | Y | Y | | |
| Temperature of pH | 21.96 | 21.96 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1253652 | 101743 | | 20041005204A | 1.00 | 332A | 02/11/2020 | 8:14 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 191.38 | 191.38 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.16 | 8.16 | | | | |
| Total Alkalinity | 191.38 | 191.38 | Y | Y | | |
| Temperature of pH | 22.63 | 22.63 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1253668 | 101744 | | 20041005204A | 1.00 | 332A | 02/11/2020 | 8:21 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 114.57 | 114.57 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.07 | 8.07 | | | | |
| Total Alkalinity | 114.57 | 114.57 | Y | Y | | |
| Temperature of pH | 22.08 | 22.08 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1253672 | 101745 | | 20041005204A | 1.00 | 332A | 02/11/2020 | 8:27 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 109.50 | 109.50 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Phenolphthalein Alkali | 0.00 | 0.00 | | | |
| pH | 8.03 | 8.03 | | | |
| Total Alkalinity | 109.50 | 109.50 | Y | Y | |
| Temperature of pH | 22.35 | 22.35 | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCVPH2** | **101746** | CCV | | 1.00 | 02/11/2020 | 8:31 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| pH | 7.00 | 7.00 | | |
| Temperature of pH | 22.08 | 22.08 | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCB** | **101747** | CCB | | 1.00 | 02/11/2020 | 8:37 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| Bicarbonate | 0.68 | 0.68 | | |
| Carbonate | 0.00 | 0.00 | | |
| Hydroxide | 0.00 | 0.00 | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | |
| pH | 6.04 | 6.04 | | |
| Total Alkalinity | 0.68 | 0.68 | | |
| Temperature of pH | 21.74 | 21.74 | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1253644** | **101748** | | 20041005204A | 1.00 | 332A | 02/11/2020 | 8:44 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 254.20 | 254.20 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.12 | 8.12 | | | | |
| Total Alkalinity | 254.20 | 254.20 | Y | Y | | |
| Temperature of pH | 22.25 | 22.25 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1252447** | **101749** | | 20041005204A | 1.00 | 332A | 02/11/2020 | 8:51 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 204.04 | 204.04 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.05 | 8.05 | | | | |
| Total Alkalinity | 204.04 | 204.04 | Y | Y | | |
| Temperature of pH | 21.83 | 21.83 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1251437** | **101750** | | 20041005204A | 1.00 | 332A | 02/11/2020 | 8:58 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 410.63 | 410.63 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.62 | 7.62 | Y | Y | | |
| Total Alkalinity | 410.63 | 410.63 | Y | Y | | |
| Temperature of pH | 22.55 | 22.55 | Y | Y | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1251431** | **101751** | | 20041005204A | 1.00 | 332A | 02/11/2020 | 9:04 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 54.24 | 54.24 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.04 | 7.04 | Y | Y | | |

| | | | | | |
|---|---|---|---|---|---|
| Total Alkalinity | 54.24 | 54.24 | Y | Y | |
| Temperature of pH | 22.10 | 22.10 | Y | Y | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1251436 | 101752 | | 20041005204A | 1.00 | 332A | 02/11/2020 | 9:10 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 27.88 | 27.88 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.04 | 7.04 | Y | Y | | |
| Total Alkalinity | 27.88 | 27.88 | Y | Y | | |
| Temperature of pH | 22.54 | 22.54 | Y | Y | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1251435 | 101753 | | 20041005204A | 1.00 | 332A | 02/11/2020 | 9:16 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 31.34 | 31.34 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 6.48 | 6.48 | Y | Y | | |
| Total Alkalinity | 31.34 | 31.34 | Y | Y | | |
| Temperature of pH | 22.28 | 22.28 | Y | Y | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| PBW | 101754 | B | 20041005205A | 1.00 | 02/11/2020 | 9:22 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 0.20 | 0.20 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 5.74 | 5.74 | | | | |
| Total Alkalinity | 0.20 | 0.20 | Y | Y | | |
| Temperature of pH | 21.92 | 21.92 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| LCSAK | 101755 | Q | 20041005205A | 1.00 | 02/11/2020 | 9:28 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 30.66 | 30.66 | | | | |
| Carbonate | 152.64 | 152.64 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 76.32 | 76.32 | | | | |
| pH | 10.31 | 10.31 | | Y | | |
| Total Alkalinity | 183.30 | 183.30 | Y | Y | | |
| Temperature of pH | 22.10 | 22.10 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| LCSPH | 101756 | Q | 20041005205A | 1.00 | 02/11/2020 | 9:32 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| pH | 7.01 | 7.01 | Y | Y | | |
| Temperature of pH | 22.10 | 22.10 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1251722 | 101757 | U | 20041005205A | 1.00 | 070A | 02/11/2020 | 9:38 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 70.87 | 70.87 | Y | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | Y | | |
| pH | 7.90 | 7.90 | Y | Y | | |
| Total Alkalinity | 70.87 | 70.87 | Y | Y | | |
| Temperature of pH | 21.76 | 21.76 | Y | Y | | |

# Water Quality Run Report

**Run Name: 20200210-52** **Instrument: 19153**

Analyst : 25420 - Jeremy L. Bolf Verifier : 1026 - Michelle L. Lalli

| Sample | Index | QC Type | Batch | Dilution | Run_Date: | |
|---|---|---|---|---|---|---|
| **CCVPH2** | **101758** | CCV | | 1.00 | 02/11/2020 | 9:41 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| pH | 7.01 | 7.01 | | |
| Temperature of pH | 22.29 | 22.29 | | |

| Sample | Index | QC Type | Batch | Dilution | Run_Date: | |
|---|---|---|---|---|---|---|
| **CCB** | **101759** | CCB | | 1.00 | 02/11/2020 | 9:47 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| Bicarbonate | 0.41 | 0.41 | | |
| Carbonate | 0.00 | 0.00 | | |
| Hydroxide | 0.00 | 0.00 | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | |
| pH | 6.01 | 6.01 | | |
| Total Alkalinity | 0.41 | 0.41 | | |
| Temperature of pH | 22.02 | 22.02 | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| **1251722** | **101760** | R | 20041005205A | 1.00 | 070A | 02/11/2020 | 9:55 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 79.50 | 79.50 | Y | | | |
| Carbonate | 84.90 | 84.90 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 42.45 | 42.45 | Y | | | |
| pH | 9.56 | 9.56 | Y | | | |
| Total Alkalinity | 164.40 | 164.40 | Y | Y | | |
| Temperature of pH | 21.77 | 21.77 | Y | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| **1251722** | **101761** | D | 20041005205A | 1.00 | 070A | 02/11/2020 | 10:01 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 70.47 | 70.47 | Y | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | Y | | |
| pH | 7.91 | 7.91 | Y | Y | | |
| Total Alkalinity | 70.47 | 70.47 | Y | Y | | |
| Temperature of pH | 22.39 | 22.39 | Y | Y | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| **1251723** | **101762** | U | 20041005205B | 1.00 | 070A | 02/11/2020 | 10:08 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 224.81 | 224.81 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.27 | 8.27 | Y | Y | | |
| Total Alkalinity | 224.81 | 224.81 | Y | Y | | |
| Temperature of pH | 22.16 | 22.16 | Y | Y | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| **1251723** | **101763** | D | 20041005205B | 1.00 | 070A | 02/11/2020 | 10:14 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 225.53 | 225.53 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.25 | 8.25 | Y | Y | | |
| Total Alkalinity | 225.53 | 225.53 | Y | Y | | |
| Temperature of pH | 22.60 | 22.60 | Y | Y | | |

# Water Quality Run Report

**Run Name: 20200210-52** **Instrument: 19153**

Analyst : 25420 - Jeremy L. Bolf Verifier : 1026 - Michelle L. Lalli

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1250915 | 101764 | | 20041005205A | 1.00 | 332A | 02/11/2020 | 10:21 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 126.01 | 126.01 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 8.12 | 8.12 | Y | Y | | |
| Total Alkalinity | 126.01 | 126.01 | Y | Y | | |
| Temperature of pH | 22.05 | 22.05 | Y | Y | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1251430 | 101765 | | 20041005205A | 1.00 | 332A | 02/11/2020 | 10:25 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | -0.42 | -0.42 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 4.23 | 4.23 | Y | Y | | |
| Total Alkalinity | -0.42 | -0.42 | Y | Y | | |
| Temperature of pH | 22.37 | 22.37 | Y | Y | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1251434 | 101766 | | 20041005205A | 1.00 | 332A | 02/11/2020 | 10:31 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 12.64 | 12.64 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.02 | 7.02 | Y | Y | | |
| Total Alkalinity | 12.64 | 12.64 | Y | Y | | |
| Temperature of pH | 22.11 | 22.11 | Y | Y | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1251432 | 101767 | | 20041005205A | 1.00 | 332A | 02/11/2020 | 10:38 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 3.37 | 3.37 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 6.64 | 6.64 | Y | Y | | |
| Total Alkalinity | 3.37 | 3.37 | Y | Y | | |
| Temperature of pH | 21.80 | 21.80 | Y | Y | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1253035 | 101768 | | 20041005205A | 1.00 | 332A | 02/11/2020 | 10:42 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | -0.18 | -0.18 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 4.22 | 4.22 | | | | |
| Total Alkalinity | -0.18 | -0.18 | Y | Y | | |
| Temperature of pH | 21.61 | 21.61 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1253036 | 101769 | | 20041005205A | 1.00 | 332A | 02/11/2020 | 10:48 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 12.72 | 12.72 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| pH | 7.10 | 7.10 | | | |
| Total Alkalinity | 12.72 | 12.72 | Y | Y | |
| Temperature of pH | 22.11 | 22.11 | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCVPH2** | **101770** | CCV | | 1.00 | 02/11/2020 | 10:51 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| pH | 7.00 | 7.00 | | |
| Temperature of pH | 21.89 | 21.89 | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCB** | **101771** | CCB | | 1.00 | 02/11/2020 | 10:58 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| Bicarbonate | 0.43 | 0.43 | | |
| Carbonate | 0.00 | 0.00 | | |
| Hydroxide | 0.00 | 0.00 | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | |
| pH | 6.04 | 6.04 | | |
| Total Alkalinity | 0.43 | 0.43 | | |
| Temperature of pH | 21.76 | 21.76 | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1253034** | **101772** | | 20041005205A | 1.00 | 332A | 02/11/2020 | 11:05 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 3.83 | 3.83 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 6.54 | 6.54 | | | | |
| Total Alkalinity | 3.83 | 3.83 | Y | Y | | |
| Temperature of pH | 22.49 | 22.49 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1255183** | **101773** | | 20041005205A | 1.00 | 332A | 02/11/2020 | 11:11 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 58.07 | 58.07 | Y | Y | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.06 | 7.06 | | | | |
| Total Alkalinity | 58.07 | 58.07 | Y | Y | | |
| Temperature of pH | 22.10 | 22.10 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1255179** | **101774** | | 20041005205A | 1.00 | 332A | 02/11/2020 | 11:17 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 39.41 | 39.41 | Y | Y | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.31 | 7.31 | | | | |
| Total Alkalinity | 39.41 | 39.41 | Y | Y | | |
| Temperature of pH | 21.93 | 21.93 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1255175** | **101775** | | 20041005205A | 1.00 | 332A | 02/11/2020 | 11:24 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 56.79 | 56.79 | Y | Y | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.69 | 7.69 | | | | |
| Total Alkalinity | 56.79 | 56.79 | Y | Y | | |

| | | | |
|---|---|---|---|
| Temperature of pH | 22.60 | 22.60 | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1255187 | 101776 | | 20041005205A | 1.00 | 332A | 02/11/2020 | 11:30 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 56.75 | 56.75 | Y | Y | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.72 | 7.72 | | | | |
| Total Alkalinity | 56.75 | 56.75 | Y | Y | | |
| Temperature of pH | 22.14 | 22.14 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1254376 | 101777 | | 20041005205A | 1.00 | 332A | 02/11/2020 | 11:36 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 34.44 | 34.44 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.60 | 7.60 | | | | |
| Total Alkalinity | 34.44 | 34.44 | Y | Y | | |
| Temperature of pH | 21.83 | 21.83 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1254378 | 101778 | | 20041005205A | 1.00 | 332A | 02/11/2020 | 11:43 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 32.51 | 32.51 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.63 | 7.63 | | | | |
| Total Alkalinity | 32.51 | 32.51 | Y | Y | | |
| Temperature of pH | 22.20 | 22.20 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1254372 | 101779 | | 20041005205A | 1.00 | 332A | 02/11/2020 | 11:50 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 11.86 | 11.86 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | | | |
| pH | 7.15 | 7.15 | | | | |
| Total Alkalinity | 11.86 | 11.86 | Y | Y | | |
| Temperature of pH | 21.96 | 21.96 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1255666 | 101780 | | 20041005205A | 1.00 | 332A | 02/11/2020 | 11:57 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 184.77 | 184.77 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | Y | | |
| pH | 7.77 | 7.77 | | | | |
| Total Alkalinity | 184.77 | 184.77 | Y | Y | | |
| Temperature of pH | 22.29 | 22.29 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run_Date: | |
|---|---|---|---|---|---|---|---|
| 1255676 | 101781 | | 20041005205A | 1.00 | 332A | 02/11/2020 | 12:03 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 129.92 | 129.92 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Phenolphthalein Alkalii | 0.00 | 0.00 | Y | Y | |
| pH | 7.57 | 7.57 | | | |
| Total Alkalinity | 129.92 | 129.92 | Y | Y | |
| Temperature of pH | 22.58 | 22.58 | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCVPH2** | **101782** | CCV | | 1.00 | 02/11/2020 | 12:06 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| pH | 7.01 | 7.01 | | |
| Temperature of pH | 22.32 | 22.32 | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **CCB** | **101783** | CCB | | 1.00 | 02/11/2020 | 12:12 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| Bicarbonate | 0.66 | 0.66 | | |
| Carbonate | 0.00 | 0.00 | | |
| Hydroxide | 0.00 | 0.00 | | |
| Phenolphthalein Alkalii | 0.00 | 0.00 | | |
| pH | 6.03 | 6.03 | | |
| Total Alkalinity | 0.66 | 0.66 | | |
| Temperature of pH | 22.02 | 22.02 | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1255675** | **101784** | | 20041005205A | 1.00 | 332A | 02/11/2020 | 12:19 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 129.76 | 129.76 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkalii | 0.00 | 0.00 | Y | Y | | |
| pH | 8.21 | 8.21 | | | | |
| Total Alkalinity | 129.76 | 129.76 | Y | Y | | |
| Temperature of pH | 22.61 | 22.61 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| **1255679** | **101785** | | 20041005205A | 1.00 | 332A | 02/11/2020 | 12:26 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 1.39 | 1.39 | Y | Y | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkalii | 0.00 | 0.00 | Y | Y | | |
| pH | 6.42 | 6.42 | | | | |
| Total Alkalinity | 1.39 | 1.39 | Y | Y | | |
| Temperature of pH | 22.23 | 22.23 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **PBW** | **101786** | B | 20041005206A | 1.00 | 02/11/2020 | 12:32 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 0.22 | 0.22 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkalii | 0.00 | 0.00 | | | | |
| pH | 5.72 | 5.72 | | | | |
| Total Alkalinity | 0.22 | 0.22 | Y | Y | | |
| Temperature of pH | 21.92 | 21.92 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| **LCSAK** | **101787** | Q | 20041005206A | 1.00 | 02/11/2020 | 12:38 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 40.29 | 40.29 | | | | |
| Carbonate | 142.79 | 142.79 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkalii | 71.39 | 71.39 | | | | |
| pH | 10.24 | 10.24 | | Y | | |

| | | | | | |
|---|---|---|---|---|---|
| Total Alkalinity | 183.08 | 183.08 | Y | Y | |
| Temperature of pH | 22.22 | 22.22 | | | |

| Sample | Index | QC Type | Batch | Dilution | Run Date: | |
|---|---|---|---|---|---|---|
| LCSPH | 101788 | Q | 20041005206A | 1.00 | 02/11/2020 | 12:41 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| pH | 7.01 | 7.01 | Y | Y | | |
| Temperature of pH | 22.26 | 22.26 | | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1253837 | 101789 | U | 20041005206A | 1.00 | 332A | 02/11/2020 | 12:47 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 11.86 | 11.86 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | Y | | |
| pH | 6.24 | 6.24 | Y | Y | | |
| Total Alkalinity | 11.86 | 11.86 | Y | Y | | |
| Temperature of pH | 21.96 | 21.96 | Y | Y | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1253838 | 101790 | R | 20041005206A | 1.00 | 332A | 02/11/2020 | 12:53 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 154.86 | 154.86 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | | | |
| pH | 7.54 | 7.54 | Y | | | |
| Total Alkalinity | 154.86 | 154.86 | Y | | | |
| Temperature of pH | 21.83 | 21.83 | Y | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1253839 | 101791 | M | 20041005206A | 1.00 | 332A | 02/11/2020 | 13:00 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 151.70 | 151.70 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | | | |
| pH | 7.58 | 7.58 | Y | | | |
| Total Alkalinity | 151.70 | 151.70 | Y | | | |
| Temperature of pH | 22.00 | 22.00 | Y | | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1253840 | 101792 | D | 20041005206A | 1.00 | 332A | 02/11/2020 | 13:05 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 11.30 | 11.30 | | | | |
| Carbonate | 0.00 | 0.00 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | Y | | | |
| pH | 6.26 | 6.26 | Y | Y | | |
| Total Alkalinity | 11.30 | 11.30 | Y | | | |
| Temperature of pH | 22.63 | 22.63 | Y | Y | | |

| Sample | Index | QC Type | Batch | Dilution | Bottle | Run Date: | |
|---|---|---|---|---|---|---|---|
| 1251724 | 101793 | | 20041005206A | 1.00 | 070A | 02/11/2020 | 13:12 |

| Analysis Name | Raw Result | CalcResult | Uploaded? | Verified | QC Review Notes | Selection Reason |
|---|---|---|---|---|---|---|
| Bicarbonate | 53.85 | 53.85 | | | | |
| Carbonate | 5.61 | 5.61 | | | | |
| Hydroxide | 0.00 | 0.00 | | | | |
| Phenolphthalein Alkali | 2.80 | 2.80 | | | | |
| pH | 8.58 | 8.58 | Y | Y | | |
| Total Alkalinity | 59.46 | 59.46 | Y | Y | | |
| Temperature of pH | 22.20 | 22.20 | Y | Y | | |

# Water Quality Run Report

**Run Name: 20200210-52** **Instrument: 19153**

Analyst : 25420 - Jeremy L. Bolf Verifier : 1026 - Michelle L. Lalli

| Sample | Index | QC Type | Batch | Dilution | Run_Date: |
|---|---|---|---|---|---|
| **CCVPH2** | **101794** | CCV | | 1.00 | 02/11/2020 13:16 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| pH | 7.00 | 7.00 | | |
| Temperature of pH | 21.93 | 21.93 | | |

| Sample | Index | QC Type | Batch | Dilution | Run_Date: |
|---|---|---|---|---|---|
| **CCB** | **101795** | CCB | | 1.00 | 02/11/2020 13:22 |

| Analysis Name | Raw Result | CalcResult | Verified | QC Review Notes |
|---|---|---|---|---|
| Bicarbonate | 0.69 | 0.69 | | |
| Carbonate | 0.00 | 0.00 | | |
| Hydroxide | 0.00 | 0.00 | | |
| Phenolphthalein Alkali | 0.00 | 0.00 | | |
| pH | 6.04 | 6.04 | | |
| Total Alkalinity | 0.69 | 0.69 | | |
| Temperature of pH | 21.96 | 21.96 | | |

# APPENDIX E

## Arcadis Data Review Report

ARCADIS Design & Consultancy for natural and built assets

# PURITY OIL SALES SUPERFUND SITE

# DATA REVIEW

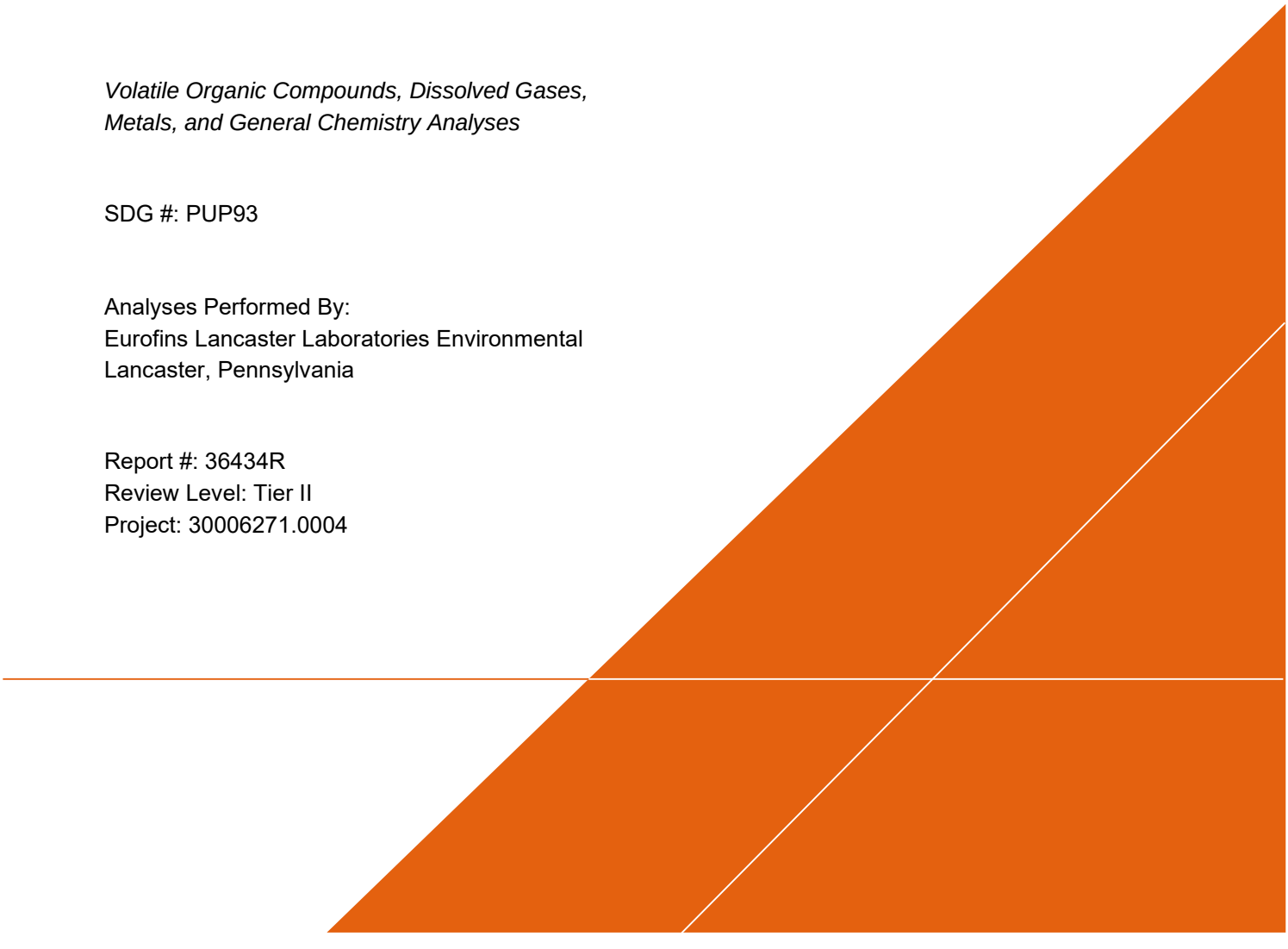
## Fresno, California

*Volatile Organic Compounds, Dissolved Gases, Metals, and General Chemistry Analyses*

SDG #: PUP93

Analyses Performed By:
Eurofins Lancaster Laboratories Environmental
Lancaster, Pennsylvania

Report #: 36434R
Review Level: Tier II
Project: 30006271.0004



# SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # PUP93 for samples collected in association with the Purity Oil Sales Superfund Site at 3281 South Maple Avenue, Fresno, California. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data as reported by the laboratory were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody records (COCs). Analyses were performed on the following samples:

| Sample ID | Lab ID | Matrix | Sample Collection Date | Parent Sample | Analysis | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | VOC | SVOC | TPH | Metals | Misc. |
| MW-24I-W-200130 | 1251371 | Water | 1/30/2020 | | X | | | | X |
| MW-24I-W-200130 | 1251372 | Water | 1/30/2020 | | | | | X* | |
| MW-23-W-200130 | 1251373 | Water | 1/30/2020 | | X | | | | X |
| MW-23-W-200130 | 1251374 | Water | 1/30/2020 | | | | | X* | |
| MW-34I-W-200130 | 1251375 | Water | 1/30/2020 | | X | | | | |
| MW-25I-W-200130 | 1251376 | Water | 1/30/2020 | | X | | | | X |
| MW-25I-W-200130 | 1251377 | Water | 1/30/2020 | | | | | X* | |
| MW-44I-W-200130 | 1251378 | Water | 1/30/2020 | | X | | | | X |
| MW-44I-W-200130 | 1251379 | Water | 1/30/2020 | | | | | X* | |
| DUP1-WD-200130 | 1251380 | Water | 1/30/2020 | MW-44I | X | | | | X |
| DUP1-WD-200130 | 1251381 | Water | 1/30/2020 | MW-44I | | | | X* | |
| MW-44D-W-200130 | 1251382 | Water | 1/30/2020 | | X | | | | X |
| MW-44D-W-200130 | 1251383 | Water | 1/30/2020 | | | | | X* | |
| MW-11IP-W-200130 | 1251384 | Water | 1/30/2020 | | X | | | | X |
| MW-11IP-W-200130 | 1251385 | Water | 1/30/2020 | | | | | X* | |
| MW-2D-W-200130 | 1251386 | Water | 1/30/2020 | | X | | | | X |
| MW-2D-W-200130 | 1251387 | Water | 1/30/2020 | | | | | X* | |
| MW-48D-W-200130 | 1251388 | Water | 1/30/2020 | | X | | | | X |
| MW-48D-W-200130 | 1251392 | Water | 1/30/2020 | | | | | X* | |
| MW-48I-W-200130 | 1251396 | Water | 1/30/2020 | | X | | | | X |
| MW-48I-W-200130 | 1251397 | Water | 1/30/2020 | | | | | X* | |
| TB-T-200130 | 1251398 | Water | 1/30/2020 | | X | | | | |
| EB-R-200130 | 1251399 | Water | 1/30/2020 | | X | | | | |

Notes:

1. As specified on the COCs, sample MW-48D was used in the matrix spike/matrix spike duplicate analyses.
2. * = Sample was field-filtered for dissolved metals analysis.

## ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

| Items Reviewed | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| 1. Sample receipt condition | | X | | X | |
| 2. Requested analyses and sample results | | X | | X | |
| 3. Master tracking list | | X | | X | |
| 4. Methods of analysis | | X | | X | |
| 5. Reporting limits | | X | | X | |
| 6. Sample collection date | | X | | X | |
| 7. Laboratory sample received date | | X | | X | |
| 8. Sample preservation verification (as applicable) | | X | | X | |
| 9. Sample preparation/extraction/analysis dates | | X | | X | |
| 10. Fully executed Chain-of-Custody (COC) form | | X | | X | |
| 11. Narrative summary of Quality Assurance (QA) or sample problems provided | | X | | X | |
| 12. Data Package Completeness and Compliance | | X | | X | |

## ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW846 Methods 8260B and 8015B (modified for dissolved gases). Data were reviewed in accordance with USEPA National Functional Guidelines for Superfund Organic Methods Data Review (October 1999). Raw laboratory data was not included in this review.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
  - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
  - UB Compound considered non-detect at the listed value due to associated blank contamination.
  - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
  - R The sample results are rejected as unusable. The compound may or may not be present in the sample.

Two facts should be noted by all data users. First, the “R” flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. “R” values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

## VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| SW-846 8260B | Water | 14 days from collection to analysis | Cool to < 6 °C; pH < 2 with HCl |
| | Soil | 48 hours from collection to extraction and 14 days from collection to analysis | Cool to < 6 °C |

All samples were analyzed within the specified holding time and preservation criteria.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks, trip blanks, and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure sample storage contamination. Rinse blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a compound detected in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Target compounds were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits.

### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked compounds used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Sample MW-48D was used in the MS/MSD analysis. All compounds associated with the MS/MSD analyses exhibited acceptable recoveries and RPDs.

## 5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS analysis must exhibit recoveries within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

## 6. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. The control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate sample results. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for the field duplicate samples are summarized in the following table.

| Sample and Field Duplicate Sample: MW-44I and DUP1 | | | | | | |
|---|---|---|---|---|---|---|
| **Compound** | **Sample Result** | **Duplicate Result** | **RPD** | **Difference** | **RL** | **Evaluation** |
| All compounds | None detected | None detected | N/A | N/A | Varies | Acceptable |

Notes: N/A = Not applicable

The field duplicate samples exhibited acceptable results.

## 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

## DATA VALIDATION CHECKLIST FOR VOCs

| VOCs: USEPA SW-846 8260B | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| **Gas Chromatography/Mass Spectrometry (GC/MS)** | | | | | |
| **Tier II Validation** | | | | | |
| Holding Times/Preservation | | X | | X | |
| Reporting Limits (Units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment and/or Field blanks | | X | | X | |
| C. Trip blanks | | X | | X | |
| Surrogates Accuracy (%R) | | X | | X | |
| Matrix Spike (MS) %R | | X | | X | |
| Matrix Spike Duplicate (MSD) %R | | X | | X | |
| MS/MSD Precision (RPD) | | X | | X | |
| Laboratory Control Sample (LCS) %R | | X | | X | |
| Laboratory Control Sample Duplicate (LCSD) %R | X | | | | X |
| LCS/LCSD RPD | X | | | | X |
| Field Duplicate Sample RPD | | X | | X | |
| Dilution Factor | | X | | X | |

%R Percent recovery
RPD Relative percent difference
%RSD Relative standard deviation
%D Percent difference

## DISSOLVED GASES ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| SW-846 8015B (modified) | Water | 14 days from collection to analysis | Cool to < 6 °C; pH < 2 with HCl |

All samples were analyzed within the specified holding time criteria.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Target analytes were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

### 3. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample MW-48D was used in the MS/MSD analysis. Samples associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

| Sample | Compound | MS Recovery | MSD Recovery |
|---|---|---|---|
| MW-48D | Ethane<br>Ethene | < LL but > 10% | < LL but > 10% |
| | Carbon dioxide | < LL but > 10% | Acceptable |

The criteria used to evaluate the MS/MSD recoveries are presented in the following table; in the case of MS/MSD deviations, the sample results are qualified as documented.

| Control Limit | Sample Result | Qualification |
|---|---|---|
| > the upper control limit (UL) | Non-detect | No Action |
| | Detect | J |
| < the lower control limit (LL) but > 10% | Non-detect | UJ |
| | Detect | J |
| < 10% | Non-detect | R |
| | Detect | J |
| Parent sample concentration > 4x the MS/MSD spiking solution concentration. | Detect | No Action |
| | Non-detect | |

Samples associated with MS/MSDs exhibiting RPDs greater than the control limit are presented in the following table.

| Sample | Compound |
|---|---|
| MW-48D | Carbon dioxide |

The criteria used to evaluate the RPD between the MS and MSD are presented in the following table; in the case of RPD deviations, the sample results are qualified as documented.

| Control Limit | Sample Result | Qualification |
|---|---|---|
| > UL | Non-detect | UJ |
| | Detect | J |

### 4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS analysis must exhibit recoveries within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

### 6. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. The control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate sample results. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for the field duplicate samples are summarized in the following table.

| Sample and Field Duplicate Sample: MW-44I and DUP1 | | | | | | |
|---|---|---|---|---|---|---|
| Compound | Sample Result | Duplicate Result | RPD | Difference | RL | Evaluation |
| Carbon dioxide | 3,700 J | 4,900 J | N/A | 1,200 | 12,000 | Acceptable |

Notes: N/A = Not applicable
J = Estimated (result is < RL)

The field duplicate samples exhibited acceptable results.

## 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

## DATA VALIDATION CHECKLIST FOR DISSOLVED GASES

| Dissolved Gases: SW-846 8015B (modified) | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| **Gas Chromatography/Thermal Conductivity Detector (GC/TCD)** | | | | | |
| **Tier II Validation** | | | | | |
| Holding Times/Temperature/Preservation | | X | | X | |
| Reporting Limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method/Calibration Blanks | | X | | X | |
| B. Equipment and/or Field Blanks | X | | | | X |
| C. Trip Blanks | X | | | | X |
| Matrix Spike Sample (MS) Accuracy (%R) | | X | X | | |
| Matrix Spike Duplicate Sample (MSD) %R | | X | X | | |
| MS/MSD Precision (RPD) | | X | X | | |
| Laboratory Control Sample (LCS) %R | | X | | X | |
| Laboratory Control Sample Duplicate (LCSD) %R | X | | | | X |
| LCS/LCSD RPD | X | | | | X |
| Laboratory Duplicate Sample RPD | X | | | | X |
| Field Duplicate Sample RPD | | X | | X | |
| Dilution Factor | | X | | X | |

Notes:
%R Percent recovery
RPD Relative percent difference

## INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method 300.0, SW-846 Methods 6010B and 6020, and Standard Methods (SM) 2320B and 5310C. Data were reviewed in accordance with USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review (October 2004). Raw laboratory data was not included in this review.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
  - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
  - E The reported value is estimated due to the presence of interference.
  - N Spiked sample recovery is not within the control limits.
  - * Duplicate analysis is not within the control limits.
- Validation Qualifiers
  - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
  - UB Analyte considered non-detect at the listed value due to associated blank contamination.
  - R The sample results are rejected.

Two facts should be noted by all data users. First, the “R” flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. “R” values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

## METALS ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| SW-846 6010B, 6020 | Water | 180 days from collection to analysis | Cool to < 6°C; pH < 2 with $HNO_3$ |
| | Soil | 180 days from collection to analysis | Cool to < 6°C |

All samples were analyzed within the specified holding time criteria.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Target analytes were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

### 3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

### 3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The relative percent difference (RPD) between the MS and MSD results must be no greater than the established acceptance limit of 20%. The MS/MSD recovery control limits do not apply for MS performed on samples where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

Samples MW-48D and MW-48I were used in the MS/MSD analyses. All analytes associated with the MS/MSD analyses exhibited acceptable recoveries and RPDs.

### 3.2 Laboratory Duplicate Sample Analysis

The laboratory duplicate sample relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to five times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when

the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

Samples MW-48D and MW-48I were used in the laboratory duplicate sample analyses. The laboratory duplicate sample analyses exhibited acceptable RPDs.

### 4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit recoveries between the control limits of 80% and 120%.

All analytes associated with the LCS analyses exhibited recoveries within the control limits.

### 5. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. The control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate sample results. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for the field duplicate samples are summarized in the following table.

| Sample and Field Duplicate Sample: MW-44I and DUP1 | | | | | | |
|---|---|---|---|---|---|---|
| Compound | Sample Result | Duplicate Result | RPD | Difference | RL | Evaluation |
| Iron | 206 U | 206 U | N/A | N/A | 206 | Acceptable |
| Manganese | 10.6 | 13.1 | N/A | 2.5 | 10.3 | Acceptable |
| Arsenic | 2.5 | 2.5 | N/A | 0.0 | 2.1 | Acceptable |

Notes: N/A = Not applicable
U = Not detected

The field duplicate samples exhibited acceptable results.

### 6. Serial Dilution Analysis

The serial dilution analysis is used to assess if a significant physical or chemical interference exists due to sample matrix. Analytes exhibiting concentrations greater than 50 times the MDL in the undiluted sample are evaluated to determine if matrix interference exists. These analytes are required to have less than a 10% difference (%D) between sample results from the undiluted (parent) sample and results associated with the same sample analyzed with a five-fold dilution.

Samples MW-48D and MW-48I were used in the serial dilution analyses. The serial dilution analyses exhibited acceptable %Ds.

### 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

## DATA VALIDATION CHECKLIST FOR METALS

| METALS: SW-846 6010B, 6020 | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| **Inductively Coupled Plasma - Atomic Emission Spectrometry (ICP-AE)**<br>**Inductively Coupled Plasma - Mass Spectrometry (ICP-MS)** | | | | | |
| **Tier II Validation** | | | | | |
| Holding Times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Instrument Blanks | | X | | X | |
| B. Method Blanks | | X | | X | |
| C. Equipment and/or Field Blanks | X | | | | X |
| Matrix Spike (MS) Accuracy (%R) | | X | | X | |
| Matrix Spike Duplicate (MSD) %R | | X | | X | |
| MS/MSD Precision (RPD) | | X | | X | |
| Laboratory Control Sample (LCS) %R | | X | | X | |
| Laboratory Control Sample Duplicate (LCSD) %R | X | | | | X |
| LCS/LCSD RPD | X | | | | X |
| Laboratory Duplicate Sample RPD | | X | | X | |
| Field Duplicate Sample RPD | | X | | X | |
| ICP Serial Dilution %D | | X | | X | |
| Reporting Limit Verification | | X | | X | |

Notes:
%R Percent recovery
RPD Relative percent difference

## GENERAL CHEMISTRY ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| Alkalinity by SM 2320B | Water | 14 days from collection to analysis | Cool to < 6 °C |
| Chloride and Sulfate by USEPA 300.0 | Water | 28 days from collection to analysis | Cool to < 6 °C |
| Nitrate by USEPA 300.0 | Water | 48 hours from collection to analysis | Cool to < 6 °C |
| Total Organic Carbon (TOC) by SM 5310C | Water | 28 days from collection to analysis | Cool to < 6 °C; pH of < 2 |

All samples were analyzed within the specified holding time criteria.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Target analytes were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

### 3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Sample Analysis

MS/MSD and laboratory duplicate sample data are used to assess the precision and accuracy of the analytical method.

### 3.1 MS/MSD Analysis

All analytes must exhibit recoveries within the established acceptance limits of 75% to 125%. When an MSD is analyzed, the relative percent difference (RPD) between the MS and MSD results must be no greater than the established acceptance limit of 20%. The MS/MSD control limits do not apply for MS/MSDs performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. In instance where this is true, the data will not be qualified, and the laboratory qualifier will be removed. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Sample MW-48D was used in the MS analyses. The MS analyses exhibited acceptable recoveries.

### 3.2 Laboratory Duplicate Sample Analysis

The laboratory duplicate sample RPD criterion is applied when both the parent and duplicate sample concentrations are greater than or equal to five times the reporting limit (RL). A control limit of 20% for

water matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the detection limit, a control limit of two times the RL for water matrices is applied to the difference between the results.

Sample MW-48D was used in the laboratory duplicate sample analyses, which all exhibited acceptable results.

## 4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit recoveries between the control limits of 80% and 120%.

All analytes associated with the LCS analyses exhibited recoveries within the control limits.

## 5. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. The control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate sample results. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for the field duplicate samples are summarized in the following table.

| Sample and Field Duplicate Sample: MW-44I and DUP1 | | | | | | |
|---|---|---|---|---|---|---|
| Compound | Sample Result | Duplicate Result | RPD | Difference | RL | Evaluation |
| Chloride | 3,800 | 3,700 | 2.7 % | 100 | 2,000 | Acceptable |
| Nitrate Nitrogen | 1,300 | 1,300 | 0.0 % | 0 | 500 | Acceptable |
| Sulfate | 9,600 | 9,000 | 6.5 % | 600 | 5,000 | Acceptable |
| Total Alkalinity | 80,500 | 80,100 | 0.5 % | 400 | 8,000 | Acceptable |
| Total Organic Carbon | 1,000 U | 1,000 U | N/A | 0 | 1,000 | Acceptable |

Notes: N/A = Not applicable
U = Not detected

The field duplicate samples exhibited acceptable results.

## 6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

## DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

| General Chemistry: USEPA 300.0, SM 2320B, 5310C | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| **Various Instrumentation** | | | | | |
| **Tier II Validation** | | | | | |
| Holding Times | | X | | X | |
| Reporting Limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method Blanks | | X | | X | |
| B. Equipment and/or Field Blanks | X | | | | X |
| Matrix Spike Sample (MS) Accuracy (%R) | | X | | X | |
| Matrix Spike Duplicate Sample (MSD) %R | X | | | | X |
| MS/MSD Precision (RPD) | X | | | | X |
| Laboratory Control Sample (LCS) %R | | X | | X | |
| Laboratory Control Sample Duplicate (LCSD) %R | X | | | | X |
| LCS/LCSD RPD | X | | | | X |
| Laboratory Duplicate Sample RPD | | X | | X | |
| Field Duplicate Sample RPD | | X | | X | |
| Dilution Factor | | X | | X | |

Notes:
%R - percent recovery
RPD - relative percent difference

Validation Performed By: Dennis Dyke

Signature:

Date: April 6, 2020

# CHAIN OF CUSTODY AND CORRECTED SAMPLE ANALYSIS DATA SHEETS

# Chevron Generic Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

Acct. # 11408 For Eurofins Lancaster Laboratories Environmental use only Group # 2085883 Sample # 125137-99

1 of 2

## Client Information

Facility # Purity Oil WBS

Site Address 3281 South Maple Avenue Fresno, CA

Chevron PM Nate Bloomgren Lead Consultant ARCADIS

Consultant/Office ARCADIS 3109 W. Dr. Martin Luther King Rd. Tampa Florida 33607

Consultant Project Mgr. Sam Miles

Sampler Heather Tauscher / Trevor Darraugh

State where samples were collected: California For Compliance: Yes ☒ No ☐

SCR #:

## Matrix

Soil ☐ Sediment ☐ Water ☒ Ground ☐ Potable ☐ NPDES ☐ Surface ☐ Oil ☐ Air ☐

## Analyses Requested

Preservation and Filtration Codes

| Sample Identification | Collected Date | Collected Time | Grab | Composite | Total Number of Containers | BTEX + MTBE 8021 ☐ 8260 ☐ Naphth ☐ | 8260 full scan VOC's | Oxygenates ____ | TPH-GRO 8015 ☐ 8260 ☐ | TPH-DRO without Silica Gel Cleanup ☐ | TPH-DRO with Silica Gel Cleanup ☐ | VPH ☐ EPH ☐ Method ____ | Lead Total ☐ Diss. ☐ Method ____ | Arsenic 6020 (Field Filtered) | Fe + Mn 6010 (Field Filtered) | Nitrate | MNA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-24I | 01/30/20 | 0949 | X | | 12 | | X | | | | | | | X | X | | X |
| MW-23 | 01/30/20 | 1161 | X | | 12 | | X | | | | | | | X | X | | X |
| MW-34I | 01/30/20 | 1147 | X | | 3 | | X | | | | | | | X | X | | |
| MW-25I | 01/30/20 | 1239 | X | | 12 | | X | | | | | | | X | X | | X |
| MW-44I | 01/30/20 | 1411 | X | | 12 | | X | | | | | | | X | X | | X |
| DUP1 | 01/30/20 | 1419 | X | | 12 | | X | | | | | | | X | X | | X |
| MW-44D | 01/30/20 | 1457 | X | | 12 | | X | | | | | | | X | X | | X |
| MW-11IP | 01/30/20 | 1525 | X | | 12 | | X | | | | | | | X | X | | X |
| MW-2D | 01/30/20 | 1609 | X | | 9 | | | | | | | | | X | X | | X |
| MW-48D | 01/30/20 | 1651 | X | | 36 | | X | | | | | | | X | X | | X |

Preservation Codes: H = HCl, T = Thiosulfate, N = $HNO_3$, B = NaOH, S = $H_2SO_4$, P = $H_3PO_4$, F = Field Filtered, O = Other

☐ Results in Dry Weight

☐ J value reporting needed

☐ Must meet lowest detection limits possible for 8260 compounds

Remarks: MS/MSD

**Turnaround Time Requested (TAT)** (please circle)

Standard | 5 day | 4 day | 72 hour | 48 hour | 24 hour

**Data Package** (circle if required)

Type I - Full | Type III | Type VI (Raw Data)

**EDD** (circle if required)

CVX-RTBU-FI_05 (default) Other: ____

| Relinquished by | Date | Time | Received by | Date | Time |
|---|---|---|---|---|---|
| Heather Tauscher | 01/31/20 | 0930 | FED EX | 01/31/20 | 0930 |
| Relinquished by | Date | Time | Received by | Date | Time |
| Relinquished by | Date | Time | Received by | Date | Time |
| Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____ | | | Received by | Date 2/1/2020 | Time 942 |

Temperature Upon Receipt 0.9/0.1 °C

Custody Seals Intact? Yes No

# Chevron Generic Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

Acct. # 11408 Group # 2085883 For Eurofins Lancaster Laboratories Environmental use only 251371-99

202

SCR #:

**Client Information**

Facility # Purity Oil WBS

Site Address 3281 South Maple Avenue Fresno, CA

Chevron PM Nate Bloomgren Lead Consultant ARCADIS

Consultant/Office 3109 W. Dr. Martin Luther King Road Tampa, Florida

Consultant Project Mgr. Sam Miles

Sampler Heather Tauscher / Trevor Darragh

State where samples were collected: California For Compliance: Yes ☒ No ☐

**Matrix**

Soil ☐ Sediment ☐ Water ☐ Potable ☒ Ground ☐ NPDES ☐ Surface ☐ Oil ☐ Air ☐

**Analyses Requested**

Preservation and Filtration Codes

| Sample Identification | Collected Date | Collected Time | Grab | Composite | Total Number of Containers | BTEX + MTBE 8021 ☐ 8260 ☐ Naphth ☐ | 8260 full scan VOC's | Oxygenates ___ | TPH-GRO 8015 ☐ 8260 ☐ | TPH-DRO without Silica Gel Cleanup ☐ | TPH-DRO with Silica Gel Cleanup ☐ | VPH ☐ EPH ☐ Method ___ | Lead Total ☐ Diss. ☐ Method ___ | Arsenic 6020 (Field Filtered) N | Fe + Mn 6010 N | MNA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-48I | 01/30/20 | 1727 | X | | 12 | | X | | | | | | (4) | X | X | X |
| TB01302020 | 01/30/20 | 0730 | X | | 2 | | X | | | | | | | | | |
| EB01302020 | 01/30/20 | 0745 | X | | 3 | | X | | | | | | | | | |

**Preservation Codes**

H = HCl T = Thiosulfate
N = $HNO_3$ B = NaOH
S = $H_2SO_4$ P = $H_3PO_4$
F = Field Filtered O = Other

☐ Results in Dry Weight

☐ J value reporting needed

☐ Must meet lowest detection limits possible for 8260 compounds

**Remarks**

**Turnaround Time Requested (TAT)** (please circle)

Standard 5 day 4 day
72 hour 48 hour 24 hour

**Data Package** (circle if required)

Type I - Full Type III Type VI (Raw Data)

**EDD** (circle if required)

CVX-RTBU-FI_05 (default) Other: ___

| Relinquished by | Date | Time | Received by | Date | Time |
|---|---|---|---|---|---|
| Heather Tauscher | 01/31/20 | 0930 | FED EX | 01/31/20 | 0930 |
| Relinquished by | Date | Time | Received by | Date | Time |
| Relinquished by | Date | Time | Received by | Date | Time |

Relinquished by Commercial Carrier: UPS ___ FedEx X Other ___

Received by Date 2/1/2020 Time 942

Temperature Upon Receipt 0.9 °C

Custody Seals Intact? Yes No

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300

The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

7047 1117

**Sample Description:** **MW-24I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 09:49
SDG#: PUP93-01

**Chevron Env Management Company**
**ELLE Sample #: GW 1251371**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-24I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 09:49
SDG#: PUP93-01

**Chevron Env Management Company**
**ELLE Sample #: GW 1251371**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 12,000 | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 16,800 | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 5,600 | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 49,500 | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-24I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 09:49
SDG#: PUP93-01

**Chevron Env Management Company**
**ELLE Sample #: GW 1251371**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 288,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 22:14 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 22:13 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:05 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 15:09 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 2 | 20032720113A | 02/04/2020 06:25 | Drew M Gerhart | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:26 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/04/2020 06:25 | Drew M Gerhart | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 12:22 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005202A | 02/11/2020 00:14 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005202A | 02/11/2020 00:14 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-24I-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 09:49
SDG#: PUP93-02

**Chevron Env Management Company**
**ELLE Sample #: GW 1251372**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | | **SW-846 6010B** | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | 39.9 | 3.1 | 10.3 | 1 |
| | | **SW-846 6020** | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 1.4 J | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:27 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:27 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200351511401A | 02/04/2020 18:19 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200351511401 | 02/04/2020 05:50 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-23-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 11:01
SDG#: PUP93-03

**Chevron Env Management Company**
**ELLE Sample #: GW 1251373**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-23-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 11:01
SDG#: PUP93-03

**Chevron Env Management Company**
**ELLE Sample #: GW 1251373**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 9,300 | J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | 4.4 | J | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 14,000 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 2,900 | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 34,900 | | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-23-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 11:01
SDG#: PUP93-03

**Chevron Env Management Company**
**ELLE Sample #: GW 1251373**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 169,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 22:36 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 22:35 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:13 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 15:27 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:41 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:41 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:41 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 12:35 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005202A | 02/11/2020 00:20 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005202A | 02/11/2020 00:20 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-23-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 11:01
SDG#: PUP93-04

**Chevron Env Management Company**
**ELLE Sample #: GW 1251374**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | N.D. | 3.1 | 10.3 | 1 |
| | **SW-846 6020** | | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 2.3 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:30 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:30 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200351511401A | 02/04/2020 18:08 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200351511401 | 02/04/2020 05:50 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-34I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 11:47
SDG#: PUP93-05

**Chevron Env Management Company**
**ELLE Sample #: GW 1251375**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-34I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 11:47
SDG#: PUP93-05

**Chevron Env Management Company**
**ELLE Sample #: GW 1251375**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | 0.05 | 0.5 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 22:59 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 22:58 | Miranda Campbell | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-25I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 12:39
SDG#: PUP93-06

**Chevron Env Management Company**
**ELLE Sample #: GW 1251376**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-25I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 12:39
SDG#: PUP93-06

**Chevron Env Management Company**
**ELLE Sample #: GW 1251376**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | 0.1 | J | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 5,200 | J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 9,400 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 3,600 | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 22,100 | | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-25I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 12:39
SDG#: PUP93-06

**Chevron Env Management Company**
**ELLE Sample #: GW 1251376**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 166,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 23:21 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 23:20 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:21 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 15:45 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:56 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:56 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 11:56 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 12:49 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:56 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:56 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-25I-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 12:39
SDG#: PUP93-07

**Chevron Env Management Company**
**ELLE Sample #: GW 1251377**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | N.D. | 3.1 | 10.3 | 1 |
| | **SW-846 6020** | | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 2.6 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:33 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:33 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200371511402A | 02/11/2020 10:35 | Janeyah Rivers-Hamilton | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200371511402 | 02/06/2020 16:20 | JoElla L Rice | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:11
SDG#: PUP93-08

**Chevron Env Management Company**
**ELLE Sample #: GW 1251378**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:11
SDG#: PUP93-08

**Chevron Env Management Company**
**ELLE Sample #: GW 1251378**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 3,700 | J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 3,800 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 1,300 | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 9,600 | | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:11
SDG#: PUP93-08

**Chevron Env Management Company**
**ELLE Sample #: GW 1251378**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 80,500 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 23:43 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 23:42 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:36 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 16:03 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:12 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:12 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:12 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 13:02 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:29 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:29 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44I-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:11
SDG#: PUP93-09

**Chevron Env Management Company**
**ELLE Sample #: GW 1251379**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | 10.6 | 3.1 | 10.3 | 1 |
| | **SW-846 6020** | | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 2.5 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:37 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:37 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200351511401A | 02/04/2020 18:02 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200351511401 | 02/04/2020 05:50 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **DUP1-WD-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:19
SDG#: PUP93-10FD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251380**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **DUP1-WD-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:19
SDG#: PUP93-10FD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251380**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 4,900 | J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 3,700 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 1,300 | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 9,000 | | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **DUP1-WD-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:19
SDG#: PUP93-10FD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251380**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 80,100 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/06/2020 01:35 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/06/2020 01:34 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:44 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 16:21 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:27 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:27 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:27 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 13:15 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:23 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:23 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **DUP1-WD-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:19
SDG#: PUP93-11FD

**Chevron Env Management Company**
**ELLE Sample #: GW 1251381**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | 13.1 | 3.1 | 10.3 | 1 |
| | **SW-846 6020** | | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 2.5 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:40 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:40 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200351511401A | 02/04/2020 18:12 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200351511401 | 02/04/2020 05:50 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:57
SDG#: PUP93-12

**Chevron Env Management Company**
**ELLE Sample #: GW 1251382**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:57
SDG#: PUP93-12

**Chevron Env Management Company**
**ELLE Sample #: GW 1251382**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | N.D. | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 2,800 | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 1,600 | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 7,900 | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:57
SDG#: PUP93-12

**Chevron Env Management Company**
**ELLE Sample #: GW 1251382**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 102,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/06/2020 01:57 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/06/2020 01:56 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:52 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 16:40 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:42 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:42 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:42 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 13:29 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:43 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:43 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-44D-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 14:57
SDG#: PUP93-13

**Chevron Env Management Company**
**ELLE Sample #: GW 1251383**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | N.D. | 3.1 | 10.3 | 1 |
| | **SW-846 6020** | | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 9.6 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:43 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:43 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200351511401A | 02/04/2020 18:04 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200351511401 | 02/04/2020 05:50 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-11IP-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 15:25
SDG#: PUP93-14

**Chevron Env Management Company**
**ELLE Sample #: GW 1251384**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-11IP-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 15:25
SDG#: PUP93-14

**Chevron Env Management Company**
**ELLE Sample #: GW 1251384**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | 0.05 J | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | 0.1 J | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 8,600 J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 16,400 | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 3,800 | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 82,800 | 3,000 | 10,000 | 10 |
| | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-11IP-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 15:25
SDG#: PUP93-14

**Chevron Env Management Company**
**ELLE Sample #: GW 1251384**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 145,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/06/2020 02:19 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/06/2020 02:18 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 12:59 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 16:57 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:57 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 12:57 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/04/2020 07:17 | Drew M Gerhart | 10 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 13:42 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:36 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:36 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-11IP-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 15:25
SDG#: PUP93-15

**Chevron Env Management Company**
**ELLE Sample #: GW 1251385**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | | **SW-846 6010B** | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | N.D. | 3.1 | 10.3 | 1 |
| | | **SW-846 6020** | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 2.0 J | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:46 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:46 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200371511402A | 02/11/2020 10:37 | Janeyah Rivers-Hamilton | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200371511402 | 02/06/2020 16:20 | JoElla L Rice | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-2D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:09
SDG#: PUP93-16

**Chevron Env Management Company**
**ELLE Sample #: GW 1251386**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | N.D. | | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 6,100 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 760 | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 4,800 | J | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | | 500 | 1,000 | 1 |
| | **SM 2320 B-1997** | | **ug/l as CaCO3** | | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 75,300 | | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 13:07 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 17:15 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:12 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:12 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:12 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 13:56 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:49 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 22:49 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-2D-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:09
SDG#: PUP93-17

**Chevron Env Management Company**
**ELLE Sample #: GW 1251387**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | | **SW-846 6010B** | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | 5.3 J | 3.1 | 10.3 | 1 |
| | | **SW-846 6020** | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 3.5 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:49 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:49 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200351511401A | 02/04/2020 17:58 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200351511401 | 02/04/2020 05:50 | James L Mertz | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18BKG

**Chevron Env Management Company**
**ELLE Sample #: GW 1251388**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18BKG

**Chevron Env Management Company**
**ELLE Sample #: GW 1251388**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 5,400 | J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | UJ | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | UJ | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | 1,000 | | 15 | 25 | 5 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 3,900 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | N.D. | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 6,600 | | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48D-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-18BKG

**Chevron Env Management Company**
**ELLE Sample #: GW 1251388**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 142,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/06/2020 00:06 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/06/2020 00:05 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 11:27 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 12:13 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/04/2020 16:39 | Esther Kathryn Lane | 5 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:27 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:27 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 13:27 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 14:37 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005202A | 02/10/2020 23:34 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005202A | 02/10/2020 23:34 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48D-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 16:51
SDG#: PUP93-19BKG

**Chevron Env Management Company**
**ELLE Sample #: GW 1251392**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **Metals Dissolved** | | **SW-846 6010B** | **ug/l** | | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | 58.4 | J | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | 539 | | 3.1 | 10.3 | 1 |
| | | **SW-846 6020** | **ug/l** | | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 7.9 | | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 21:52 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 21:52 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200341511401A | 02/04/2020 16:34 | Bradley M Berlot | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200341511401 | 02/03/2020 19:55 | JoElla L Rice | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 17:27
SDG#: PUP93-20

**Chevron Env Management Company**
**ELLE Sample #: GW 1251396**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 17:27
SDG#: PUP93-20

**Chevron Env Management Company**
**ELLE Sample #: GW 1251396**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | | 0.05 | 0.5 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08097 | CO2 by Headspace | 124-38-9 | 5,300 | J | 2,600 | 12,000 | 1 |
| 07105 | Ethane | 74-84-0 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Ethene | 74-85-1 | N.D. | | 1.0 | 5.0 | 1 |
| 07105 | Methane | 74-82-8 | N.D. | | 3.0 | 5.0 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **ug/l** | | **ug/l** | **ug/l** | |
| 00224 | Chloride | 16887-00-6 | 10,500 | | 1,000 | 2,000 | 5 |
| 00368 | Nitrate Nitrogen | 14797-55-8 | 3,300 | | 250 | 500 | 5 |
| 00228 | Sulfate | 14808-79-8 | 16,400 | | 1,500 | 5,000 | 5 |
| | **SM 5310 C-2000** | | **ug/l** | | **ug/l** | **ug/l** | |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48I-W-200130 Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 17:27
SDG#: PUP93-20

**Chevron Env Management Company**
**ELLE Sample #: GW 1251396**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Wet Chemistry** | **SM 5310 C-2000** | | **ug/l** | **ug/l** | **ug/l** | |
| 00273 | Total Organic Carbon | n.a. | N.D. | 500 | 1,000 | 1 |
| **Wet Chemistry** | **SM 2320 B-1997** | | **ug/l as CaCO3** | **ug/l as CaCO3** | **ug/l as CaCO3** | |
| 12150 | Total Alkalinity to pH 4.5 | n.a. | 169,000 | 2,600 | 8,000 | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | n.a. | N.D. | 2,600 | 8,000 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/06/2020 02:42 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/06/2020 02:41 | Miranda Campbell | 1 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 200340011A | 02/03/2020 13:15 | Esther Kathryn Lane | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 200340009A | 02/03/2020 17:34 | Esther Kathryn Lane | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 20032720113A | 02/01/2020 14:42 | Samantha Faverio | 5 |
| 00368 | Nitrate Nitrogen | EPA 300.0 | 1 | 20032720113A | 02/01/2020 14:42 | Samantha Faverio | 5 |
| 00228 | Sulfate | EPA 300.0 | 1 | 20032720113A | 02/01/2020 14:42 | Samantha Faverio | 5 |
| 00273 | Total Organic Carbon | SM 5310 C-2000 | 1 | 20035304501A | 02/04/2020 15:19 | Bethany Sandone | 1 |
| 12150 | Total Alkalinity to pH 4.5 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 23:02 | Jeremy L Bolf | 1 |
| 12707 | Phenolphthalein Alk. to pH 8.3 | SM 2320 B-1997 | 1 | 20041005201A | 02/10/2020 23:02 | Jeremy L Bolf | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-48I-W-200130 Filtered Grab Groundwater**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 17:27
SDG#: PUP93-21

**Chevron Env Management Company**
**ELLE Sample #: GW 1251397**
**ELLE Group #: 2085883**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals Dissolved** | | **SW-846 6010B** | **ug/l** | **ug/l** | **ug/l** | |
| 01754 | Iron | 7439-89-6 | N.D. | 41.2 | 206 | 1 |
| 07058 | Manganese | 7439-96-5 | N.D. | 3.1 | 10.3 | 1 |
| | | **SW-846 6020** | **ug/l** | **ug/l** | **ug/l** | |
| 06025 | Arsenic | 7440-38-2 | 2.3 | 0.70 | 2.1 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792
This sample was field filtered for dissolved metals.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01754 | Iron | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:52 | Cindy M Gehman | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 200341486603 | 02/03/2020 22:52 | Cindy M Gehman | 1 |
| 06025 | Arsenic | SW-846 6020 | 1 | 200371511402A | 02/11/2020 10:24 | Janeyah Rivers-Hamilton | 1 |
| 14866 | ICP filtered no-digest SW-846 | SW-846 3005A | 1 | 200341486603 | 02/03/2020 19:55 | JoElla L Rice | 1 |
| 15114 | ICPMS filtered no digest SW846 | SW-846 3020A | 1 | 200371511402 | 02/06/2020 16:20 | JoElla L Rice | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **TB-T-200130 NA Water**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 07:30
SDG#: PUP93-22TB

**Chevron Env Management Company**
**ELLE Sample #: GW 1251398**
**ELLE Group #: 2085883**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **TB-T-200130 NA Water**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 07:30
SDG#: PUP93-22TB

**Chevron Env Management Company**
**ELLE Sample #: GW 1251398**
**ELLE Group #: 2085883**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | 0.05 | 0.5 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 21:29 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 21:28 | Miranda Campbell | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **EB-R-200130 Grab Water**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 07:45
SDG#: PUP93-23EB

**Chevron Env Management Company**
**ELLE Sample #: GW 1251399**
**ELLE Group #: 2085883**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 1.1 | 5.0 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 0.7 | 5.0 | 1 |
| 02898 | t-Butyl Alcohol | 75-65-0 | N.D. | 1.6 | 10 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.07 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Carbon Disulfide | 75-15-0 | N.D. | 0.09 | 1.0 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.05 | 0.5 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **EB-R-200130 Grab Water**
**Purity Oil**
**3281 S Maple Malaga 24CH.67004.08**

**Project Name:** **Purity Oil**

Submittal Date/Time: 02/01/2020 09:42
Collection Date/Time: 01/30/2020 07:45
SDG#: PUP93-23EB

**Chevron Env Management Company**
**ELLE Sample #: GW 1251399**
**ELLE Group #: 2085883**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.6 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Naphthalene | 91-20-3 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.09 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.06 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.06 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.05 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | m+p-Xylene | 179601-23-1 | N.D. | 0.08 | 0.5 | 1 |
| 02898 | o-Xylene | 95-47-6 | N.D. | 0.05 | 0.5 | 1 |

## Sample Comments

CA ELAP Lab Certification No. 2792

## Laboratory Sample Analysis Record

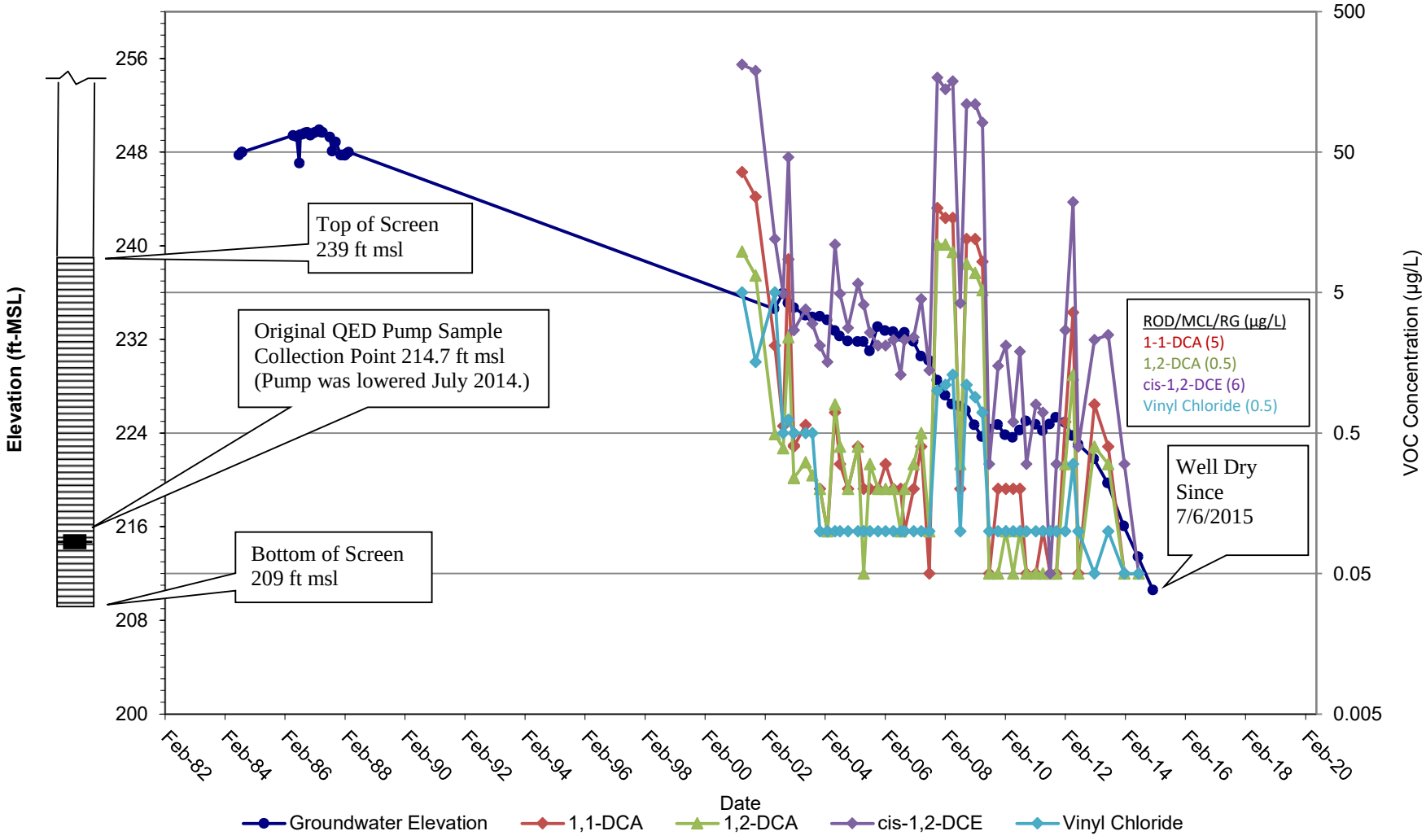
| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 02898 | VOCs 25 ml purge 8260 | SW-846 8260B 25mL purge | 1 | C200361AA | 02/05/2020 21:52 | Miranda Campbell | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C200361AA | 02/05/2020 21:51 | Miranda Campbell | 1 |

*=This limit was used in the evaluation of the final result

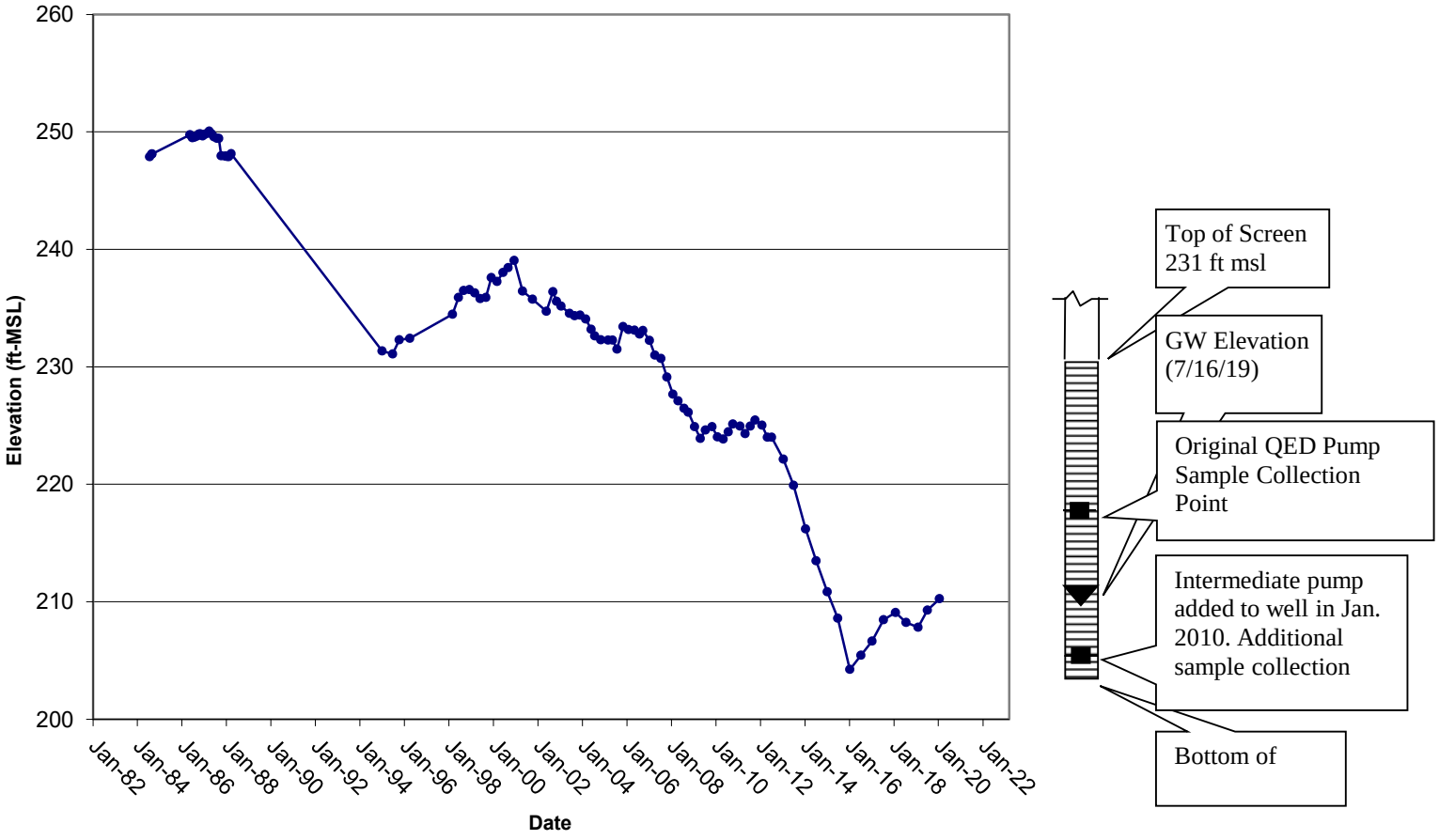
# APPENDIX F

## Hydrographs and VOC Trend Charts

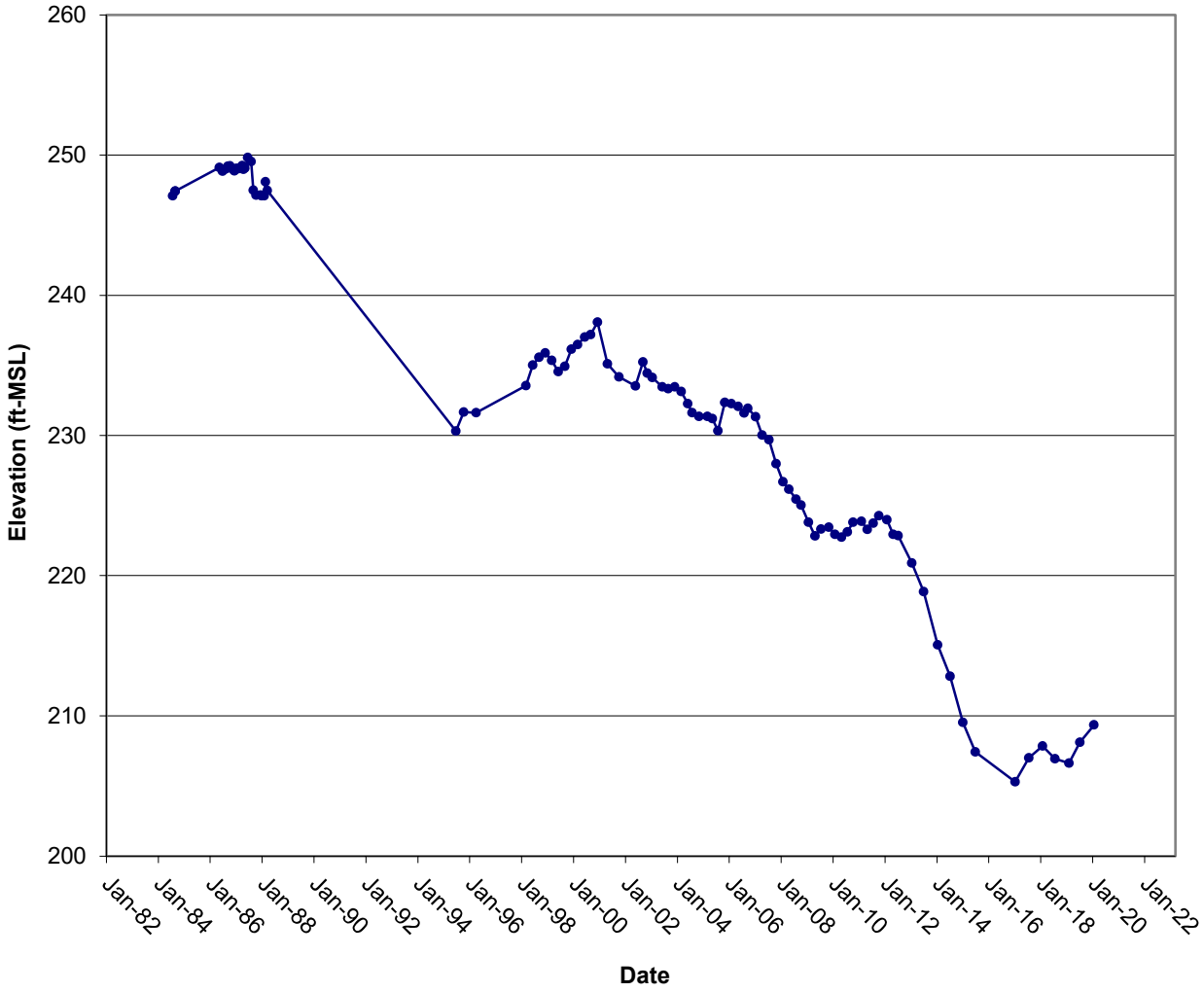
## Groundwater Elevations and VOC Concentrations
## Well MW-9

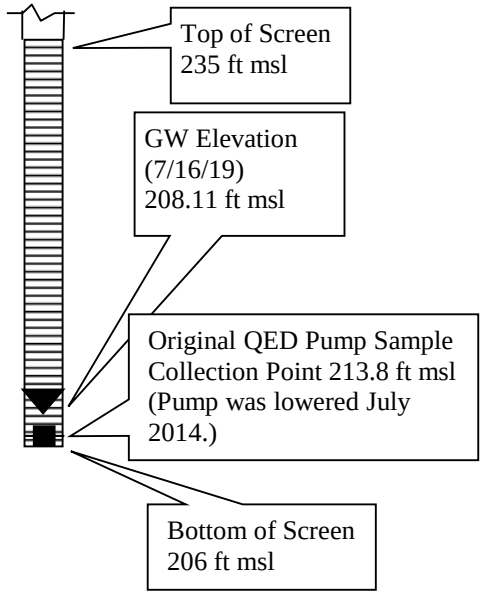


## Groundwater Level Elevations
## Well MW-11

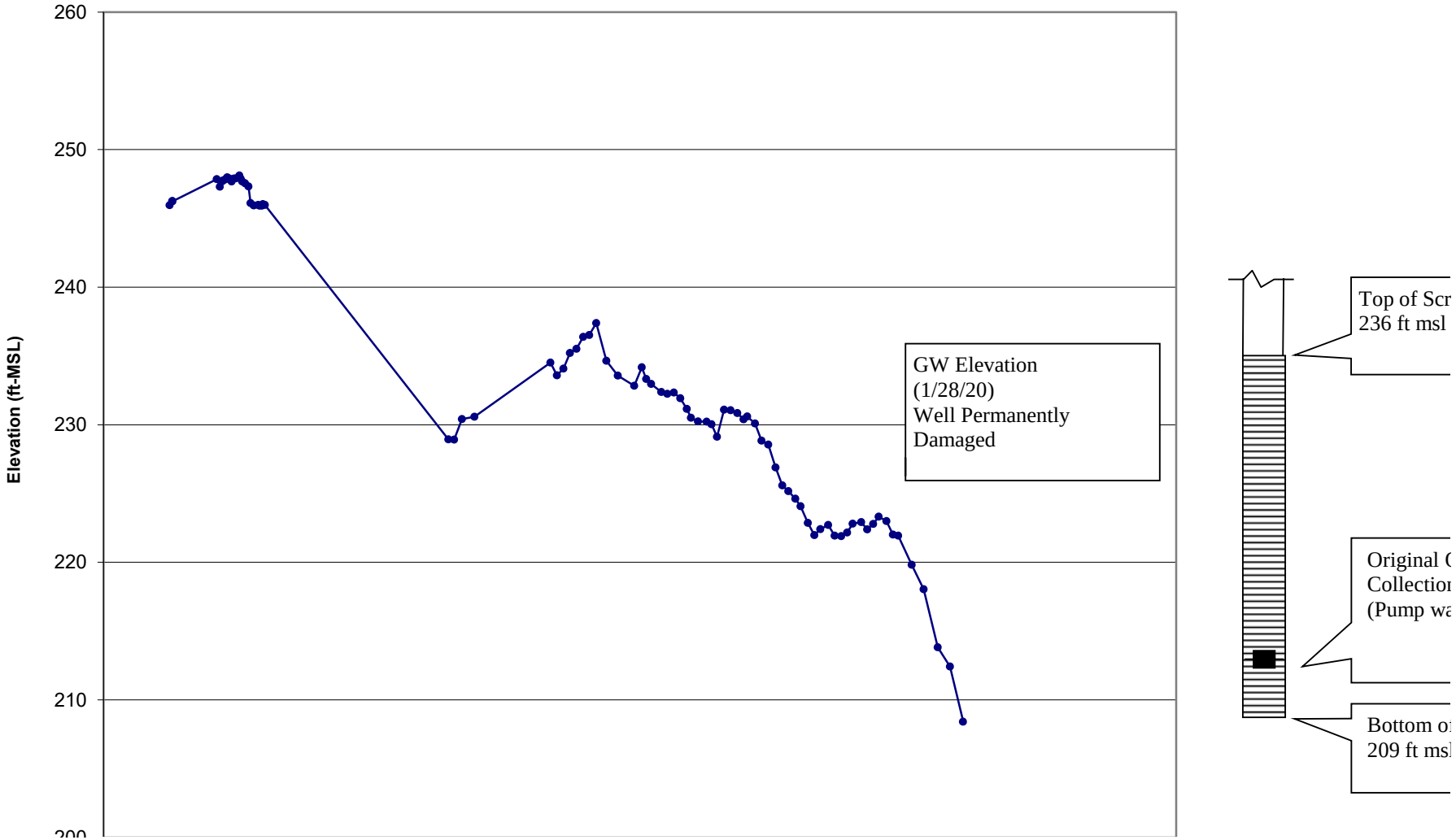


## Groundwater Elevations
## Well MW-13

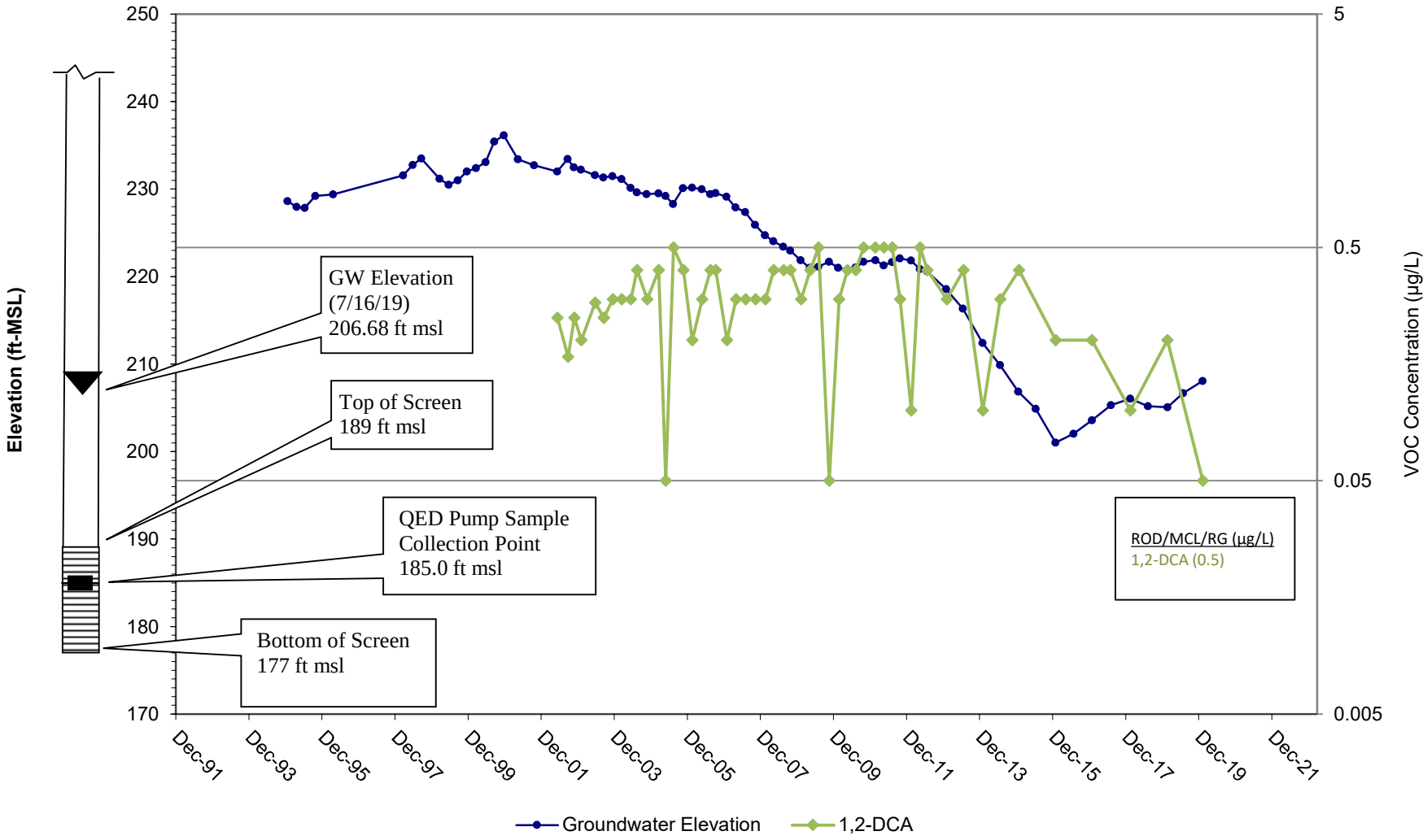


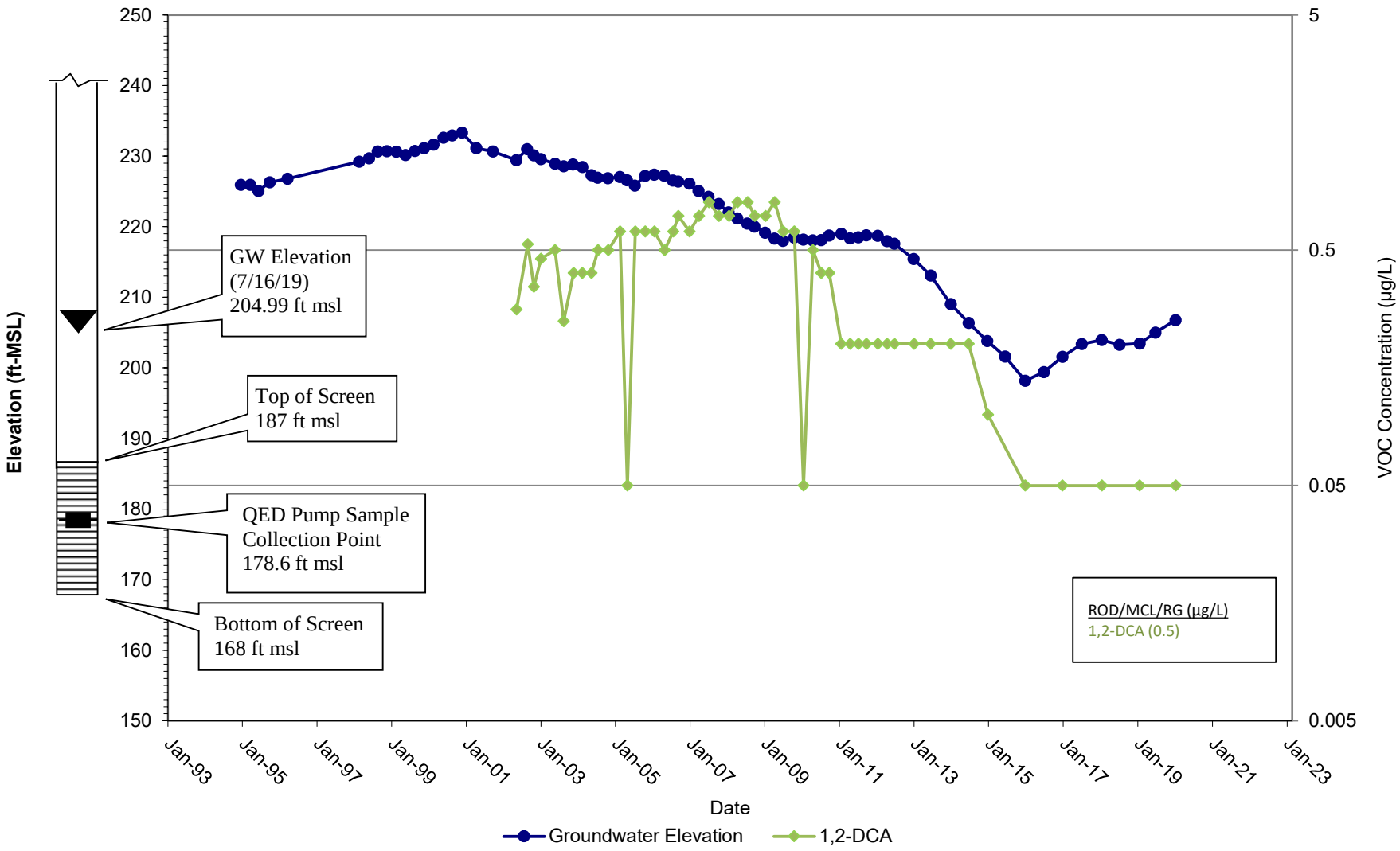
## Groundwater Level Elevations
## Well MW-21



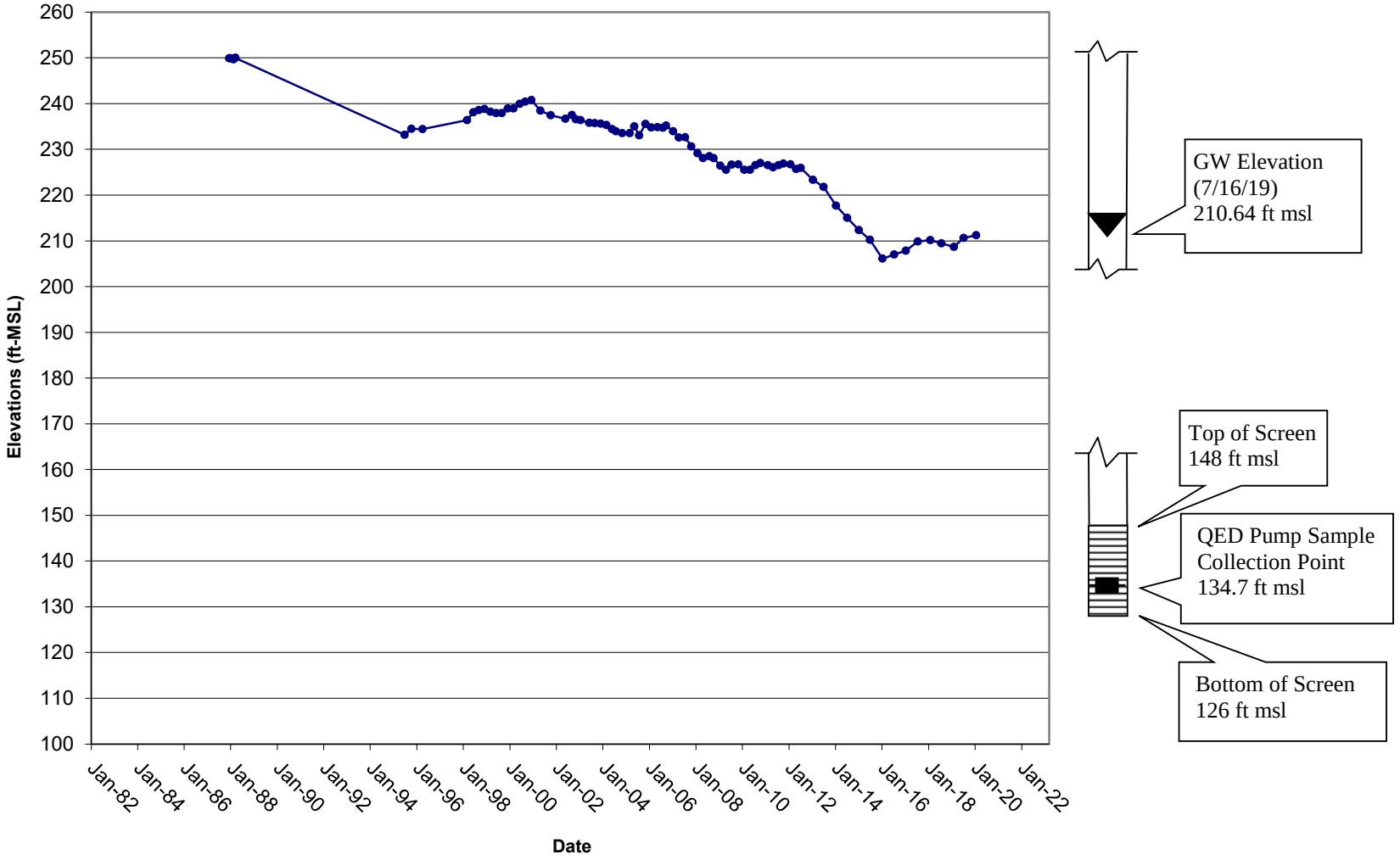
# Groundwater Elevations and VOCs
# Well MW-23



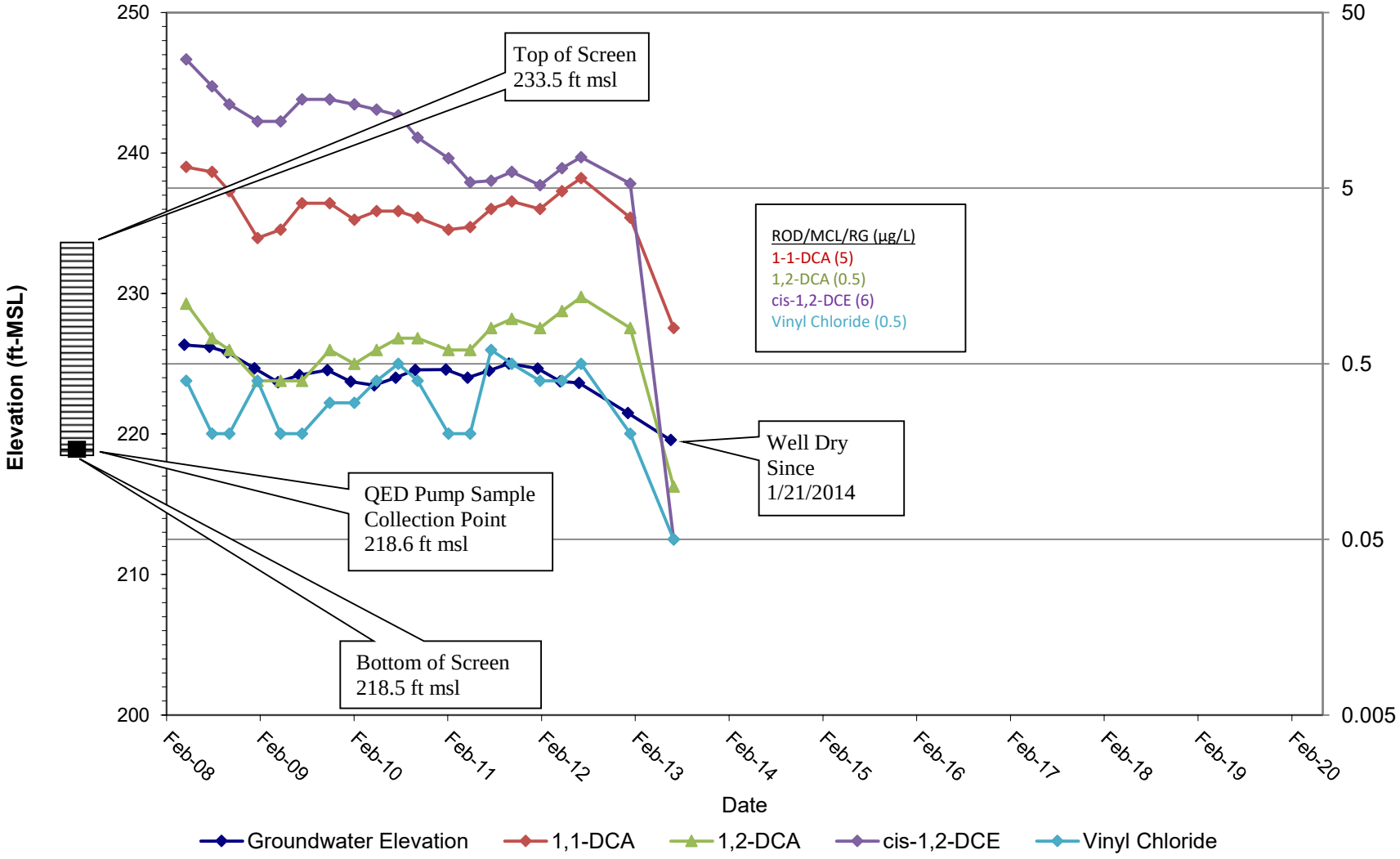
## Groundwater Elevations and VOCs
## Well MW-34I



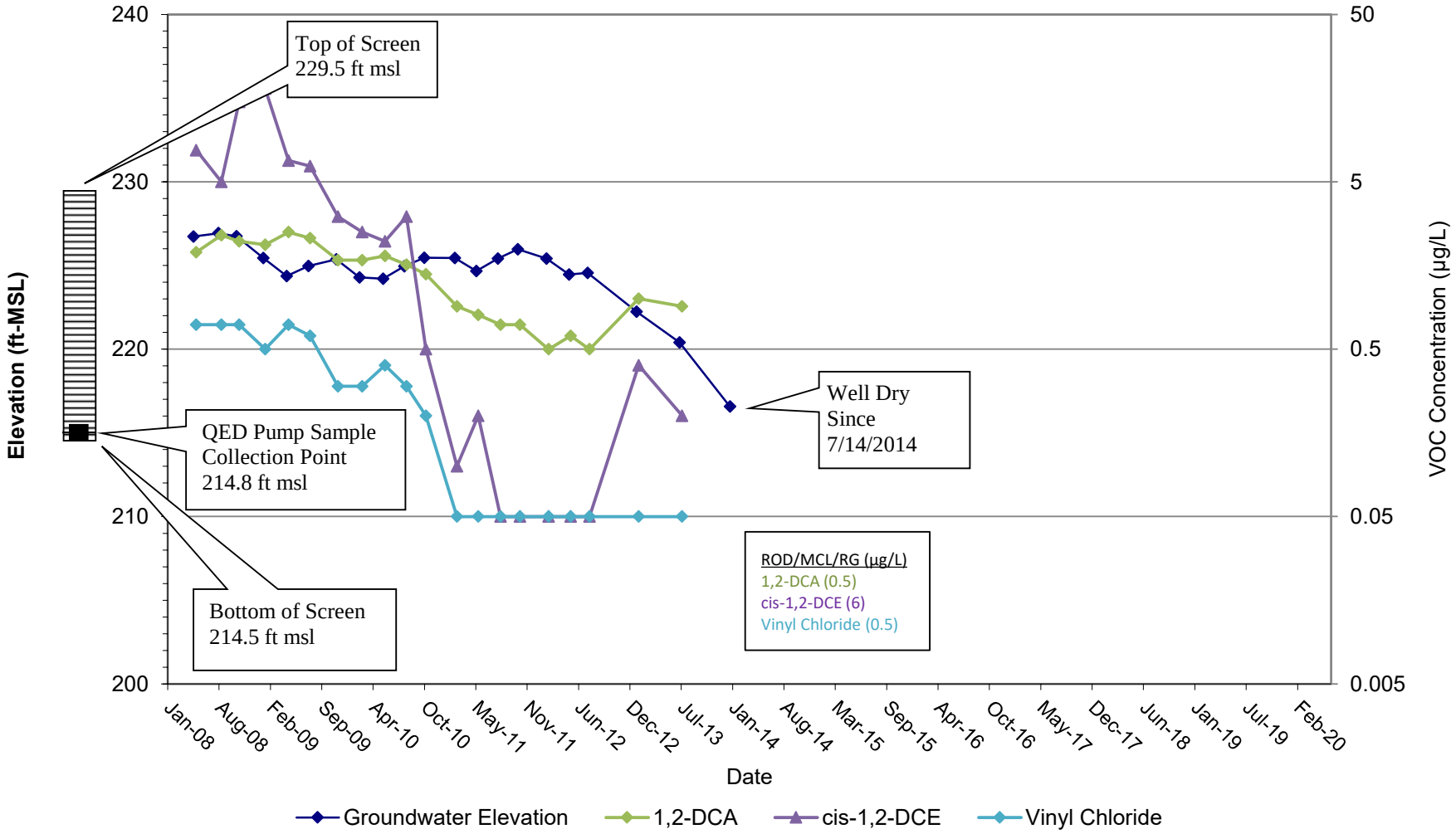
## Groundwater Level Elevations
## Well MW-2D

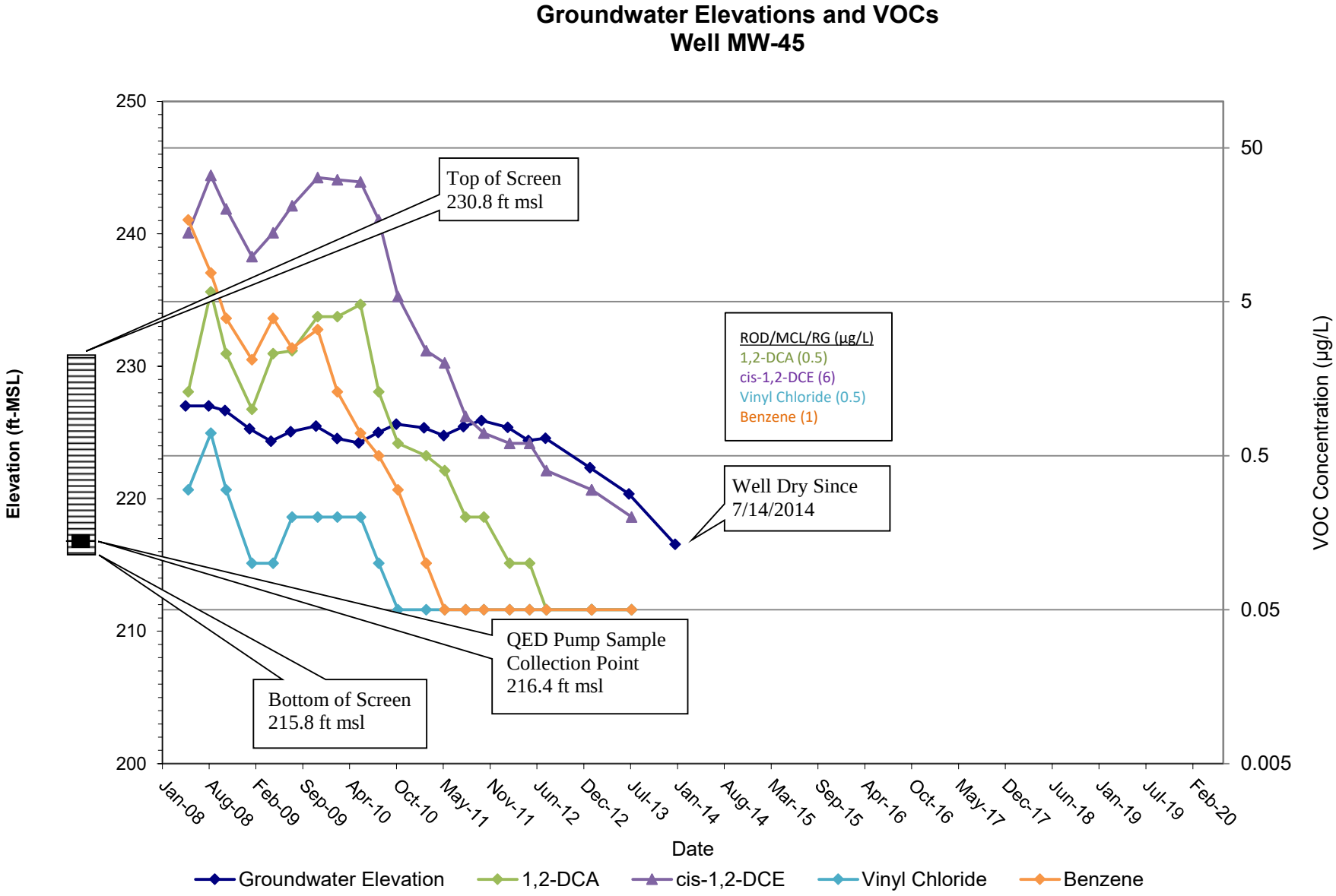


# Groundwater Elevations and VOCs
# Well MW-43

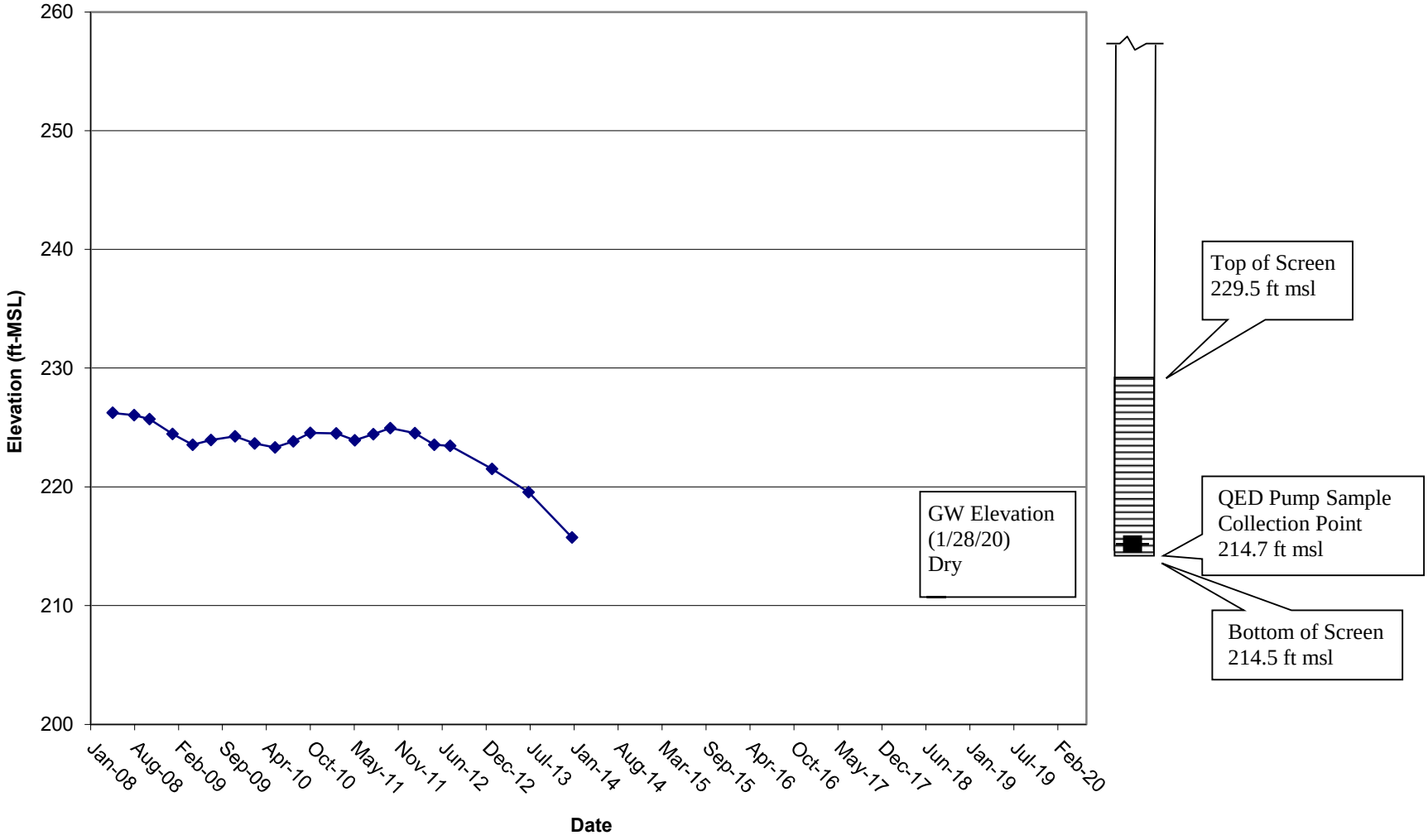


# Groundwater Elevations and VOCs
# Well MW-44S

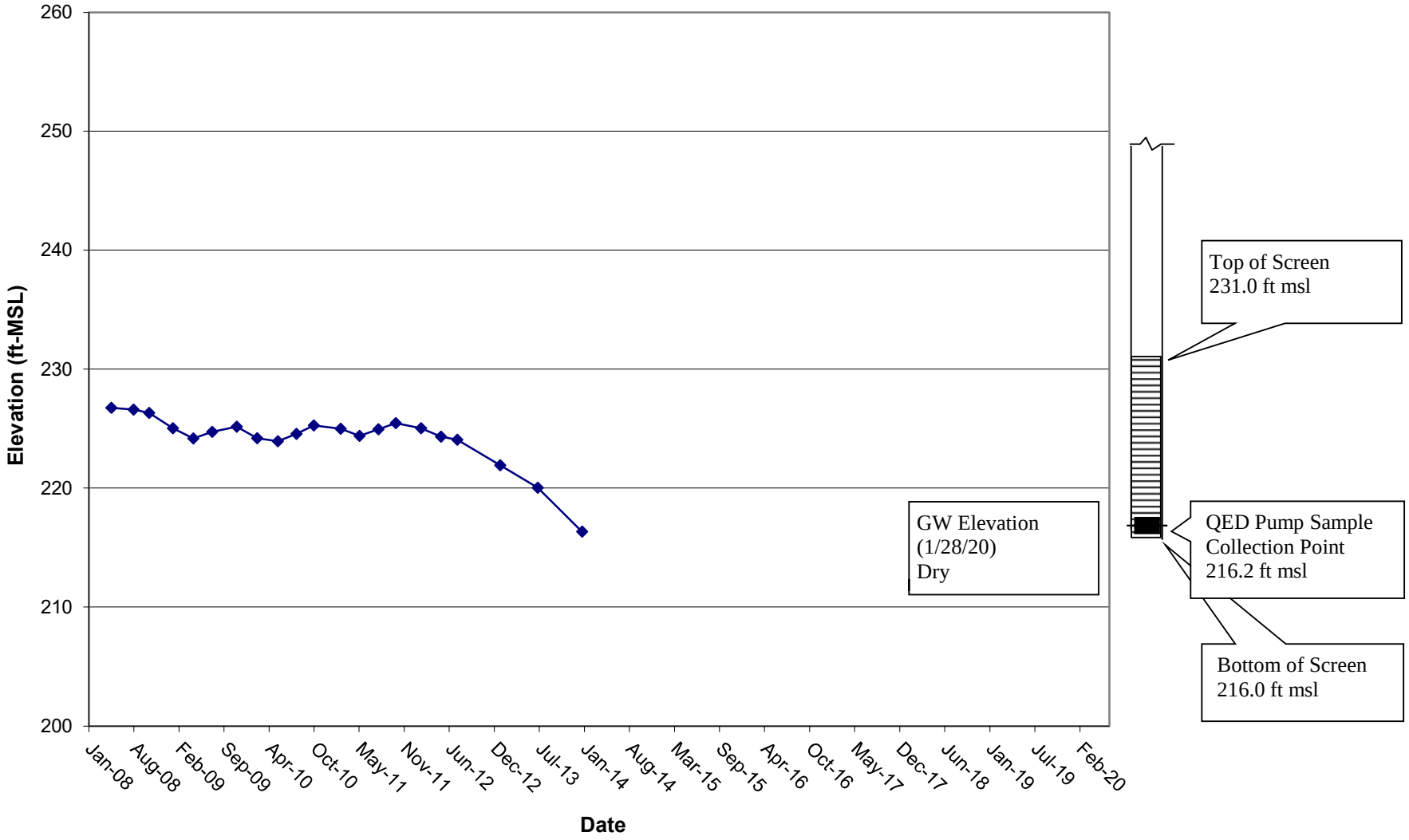



Groundwater Elevations and VOCs
Well MW-45
Elevation (ft-MSL)
VOC Concentration (µg/L)
250
240
230
220
210
200
50
5
0.5
0.05
0.005
Top of Screen
230.8 ft msl
ROD/MCL/RG (µg/L)
1,2-DCA (0.5)
cis-1,2-DCE (6)
Vinyl Chloride (0.5)
Benzene (1)
Well Dry Since
7/14/2014
QED Pump Sample
Collection Point
216.4 ft msl
Bottom of Screen
215.8 ft msl
Jan-08
Aug-08
Feb-09
Sep-09
Apr-10
Oct-10
May-11
Nov-11
Jun-12
Dec-12
Jul-13
Jan-14
Aug-14
Mar-15
Sep-15
Apr-16
Oct-16
May-17
Dec-17
Jun-18
Jan-19
Jul-19
Feb-20
Date
Groundwater Elevation
1,2-DCA
cis-1,2-DCE
Vinyl Chloride
Benzene

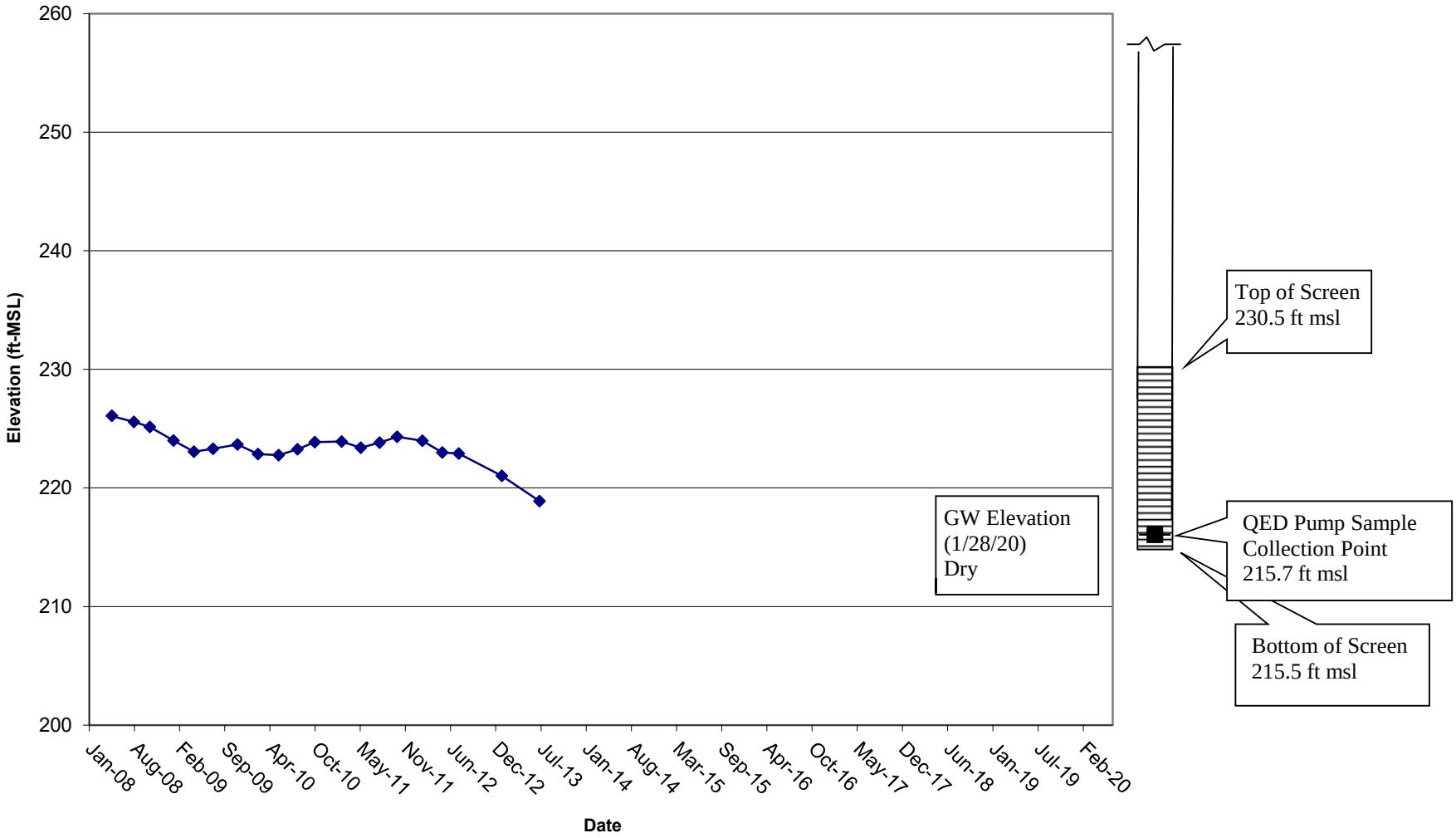
## Groundwater Level Elevations
## Well MW-46



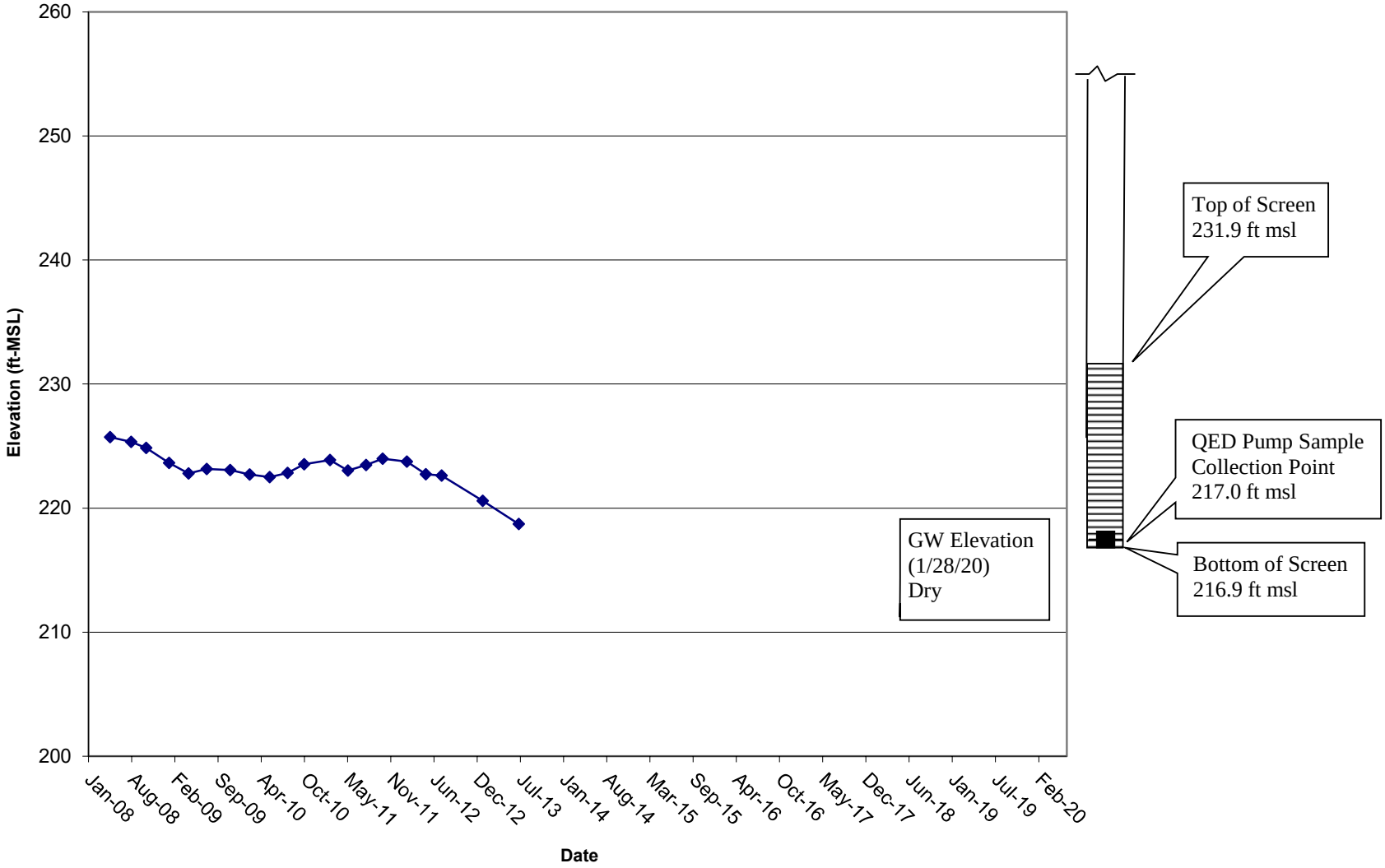
# Groundwater Level Elevations
# Well MW-47



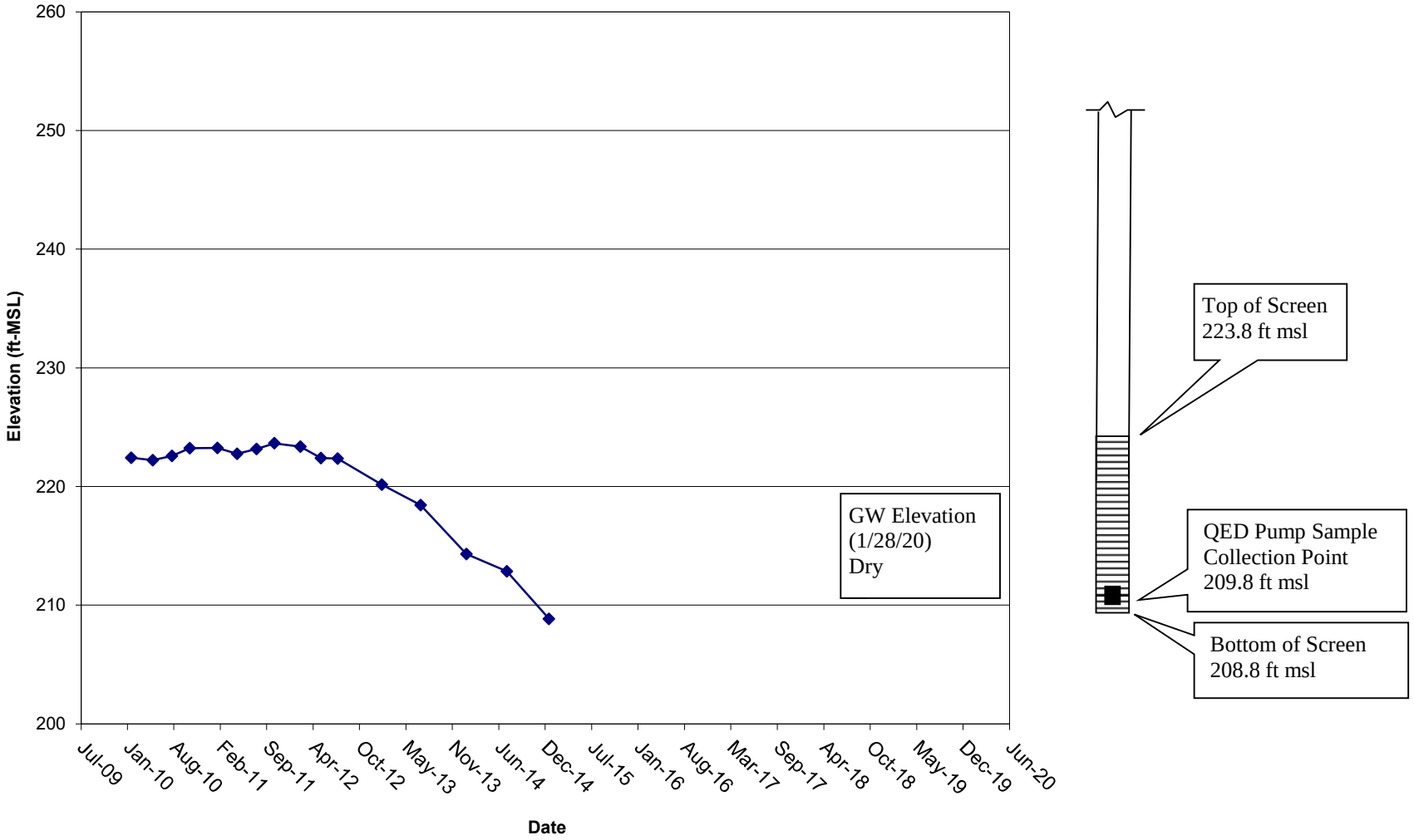
# Groundwater Level Elevations
# Well MW-48S



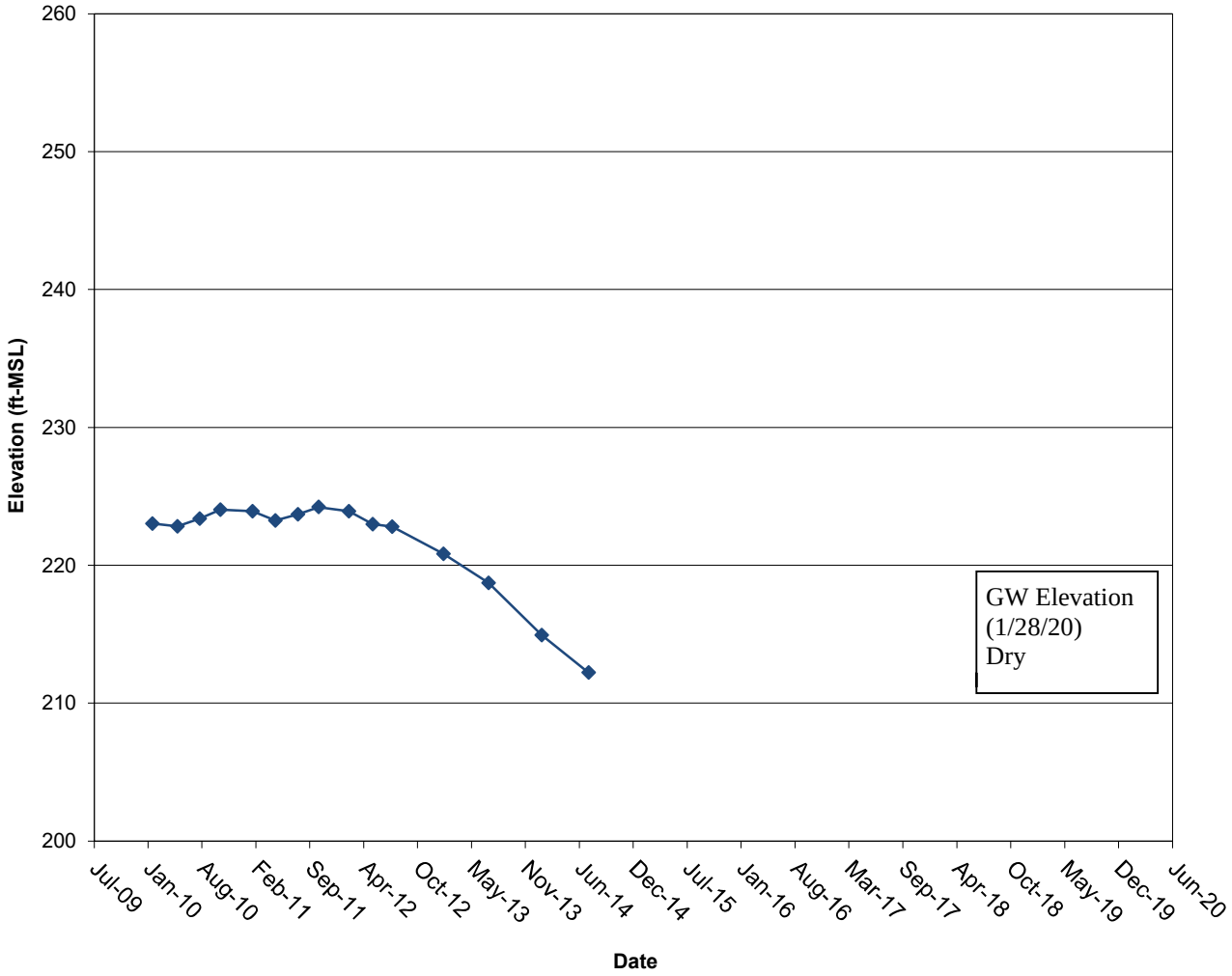
# Groundwater Level Elevations
# Well MW-49

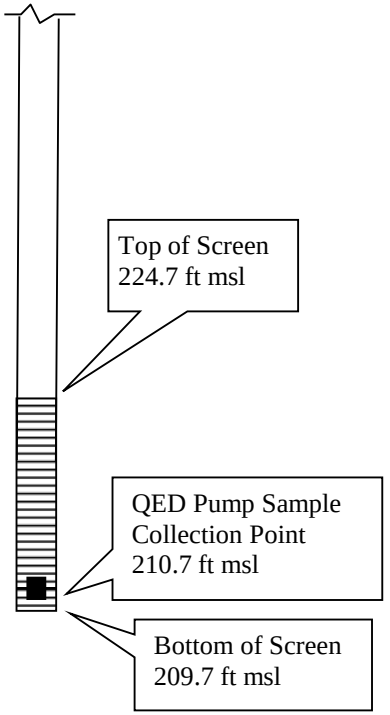


# Groundwater Level Elevations
# Well MW-50

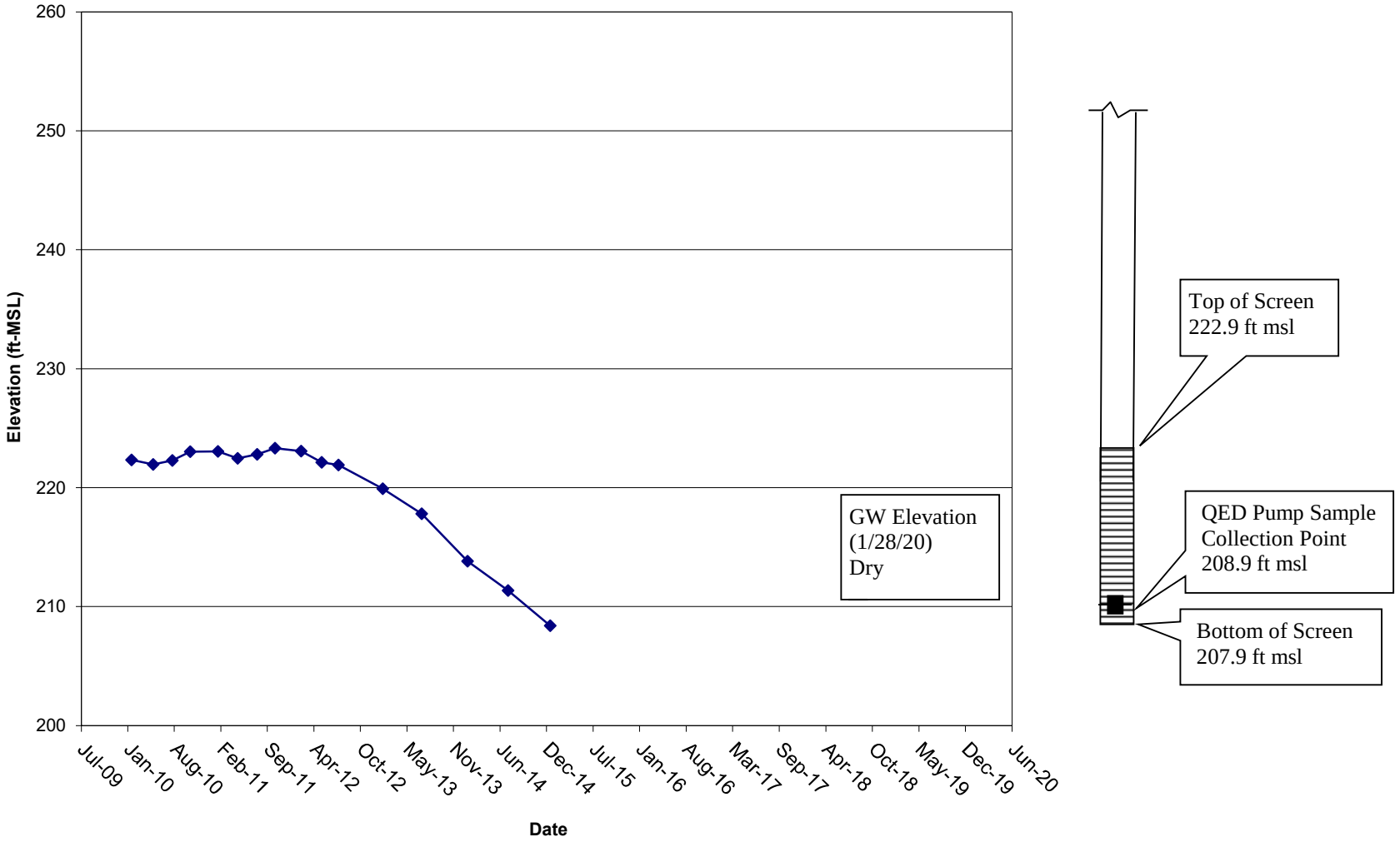


# Groundwater Level Elevations
# Well MW-51

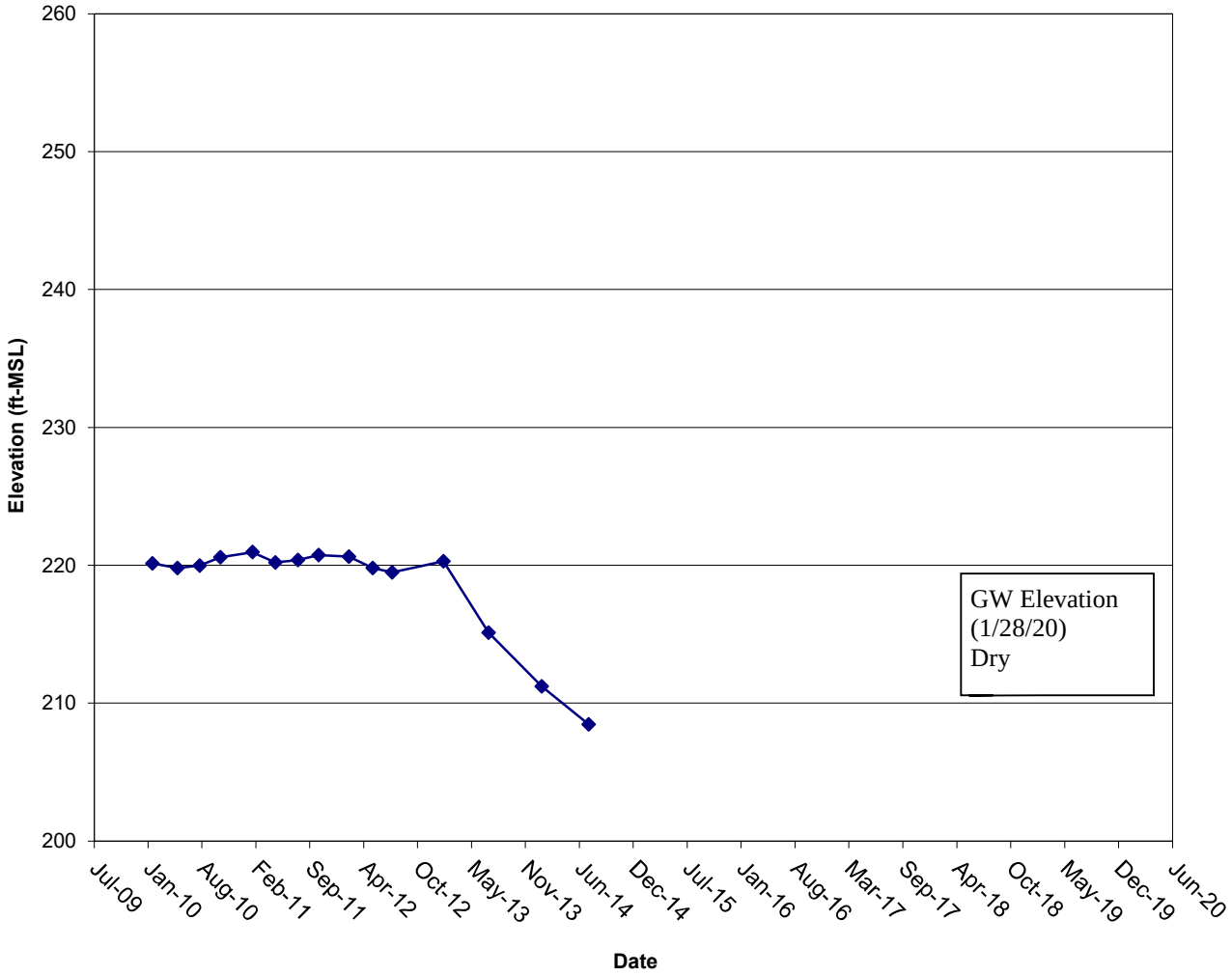


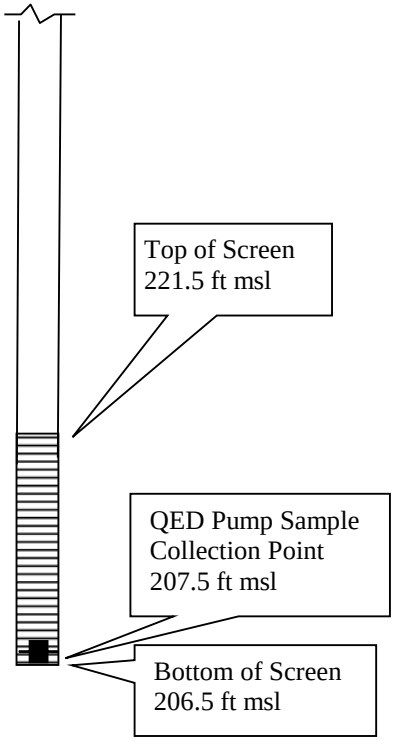



# Groundwater Level Elevations
# Well MW-52

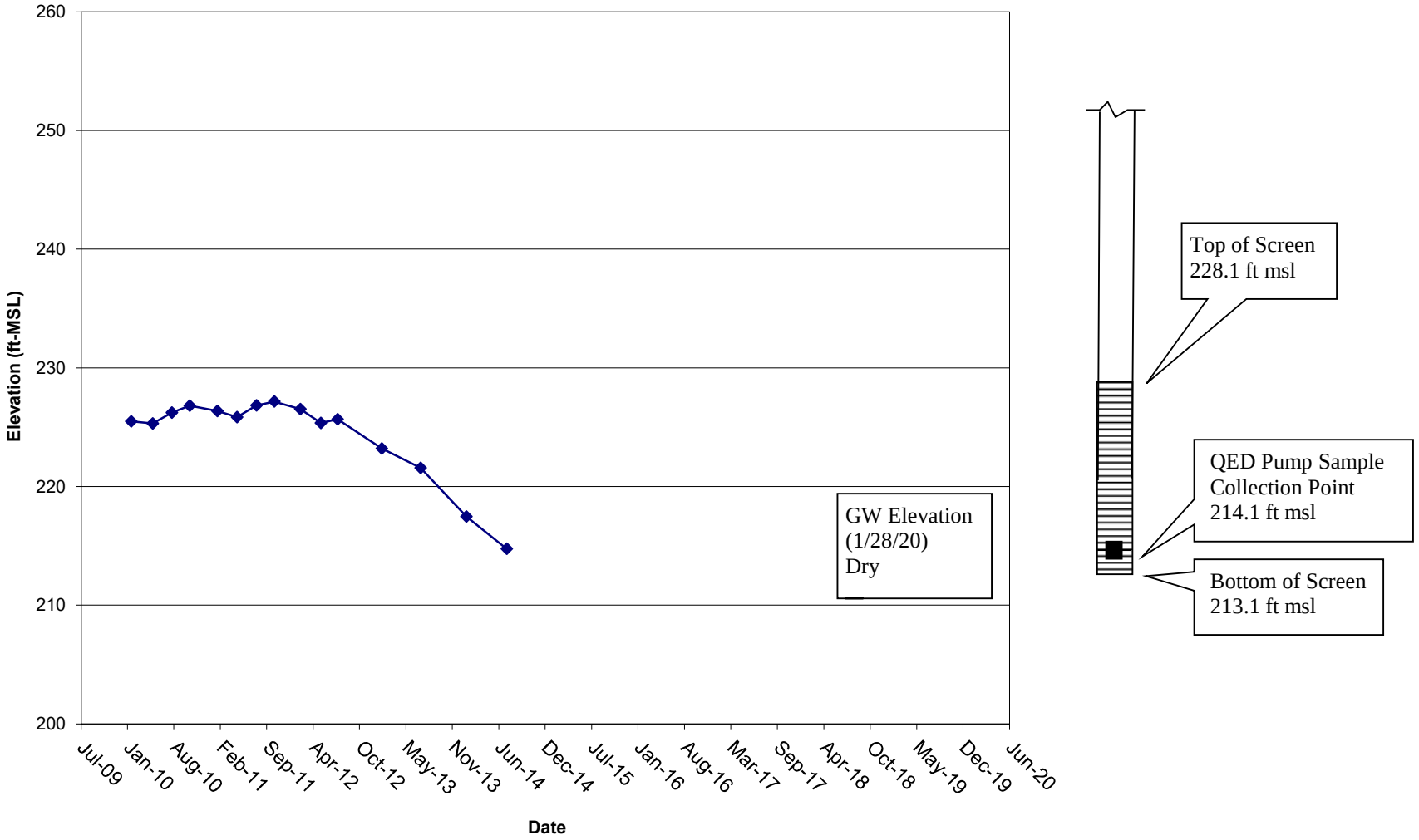


# Groundwater Level Elevations
# Well MW-53

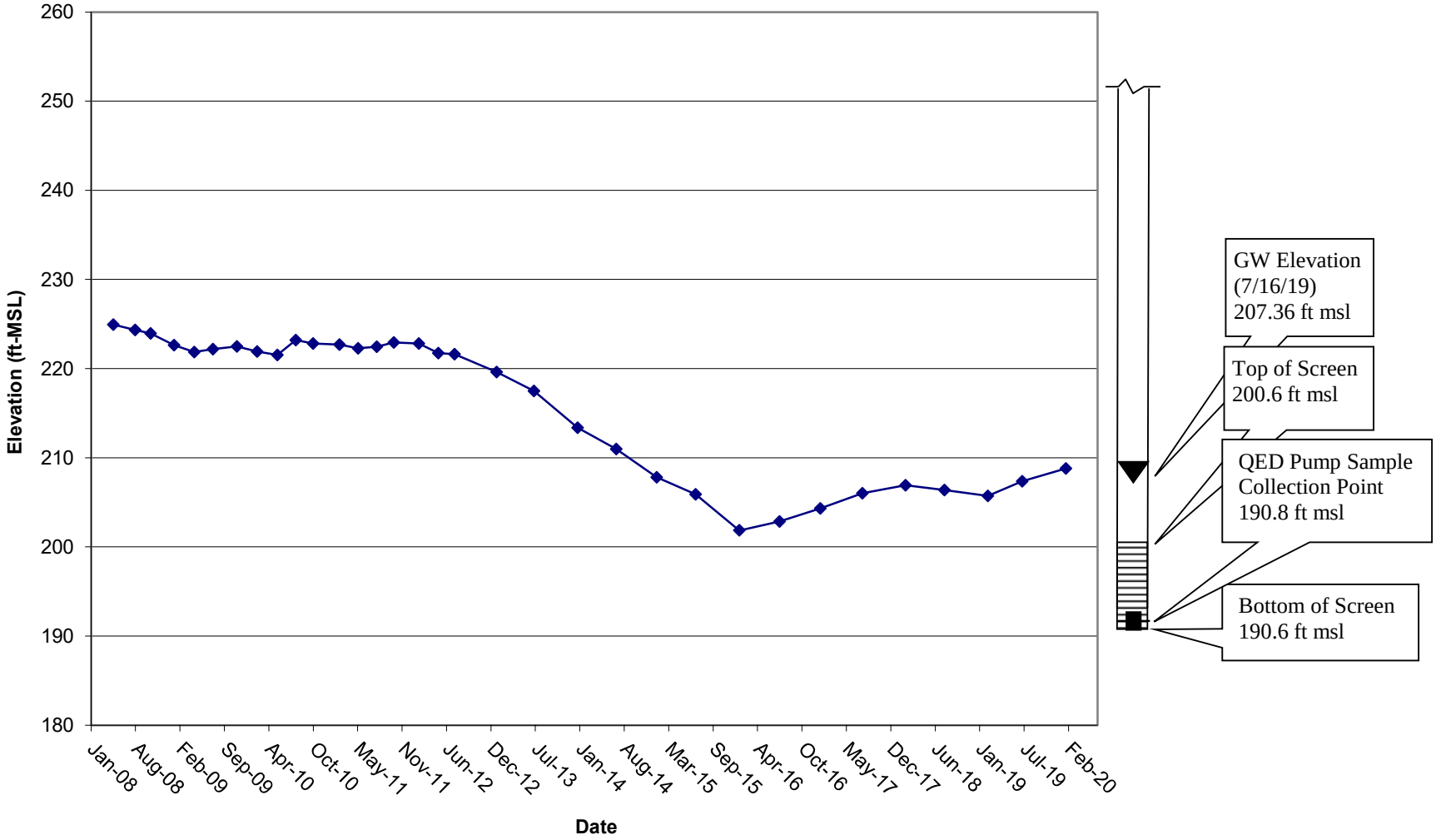


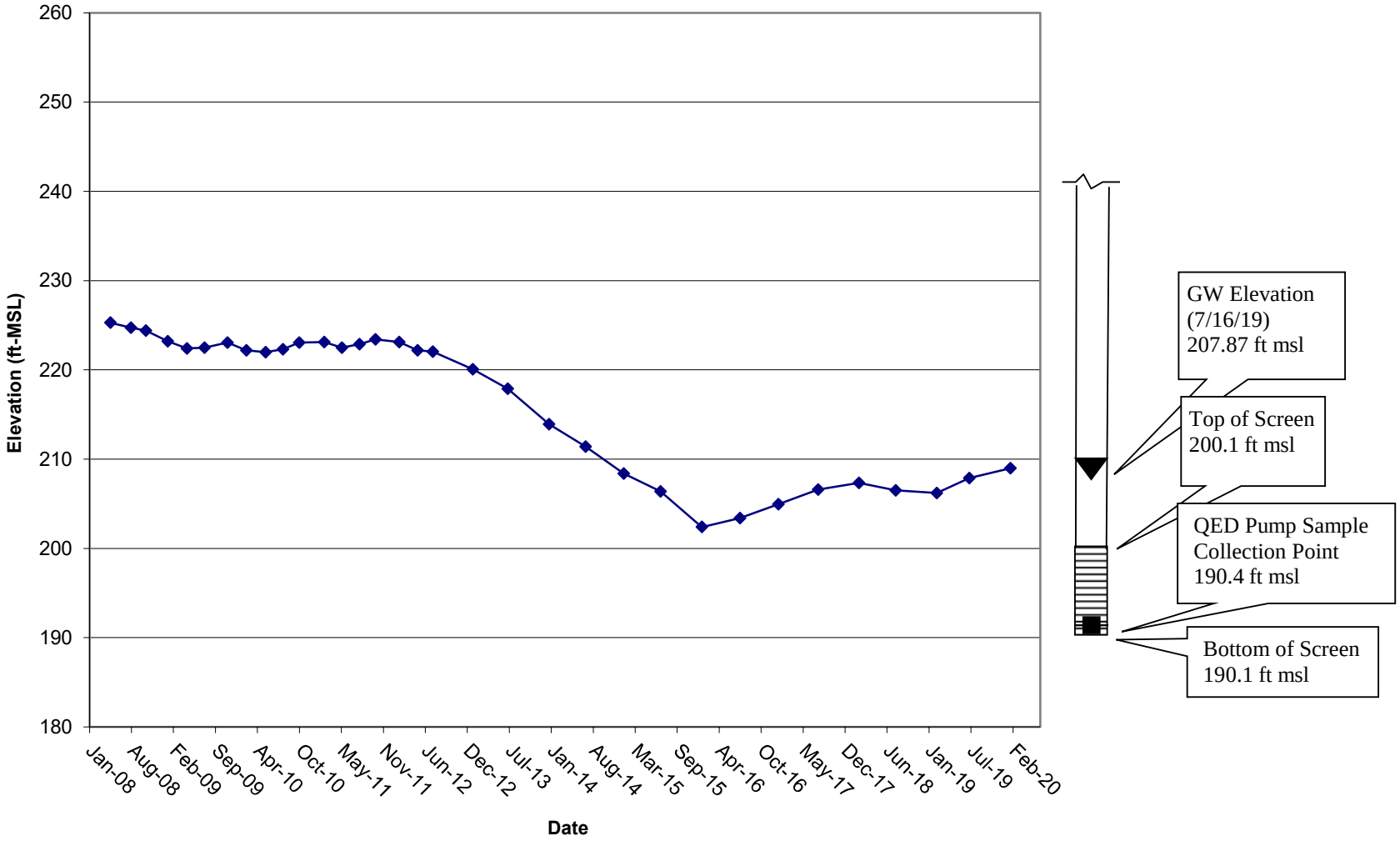
# Groundwater Level Elevations
# Well MW-54



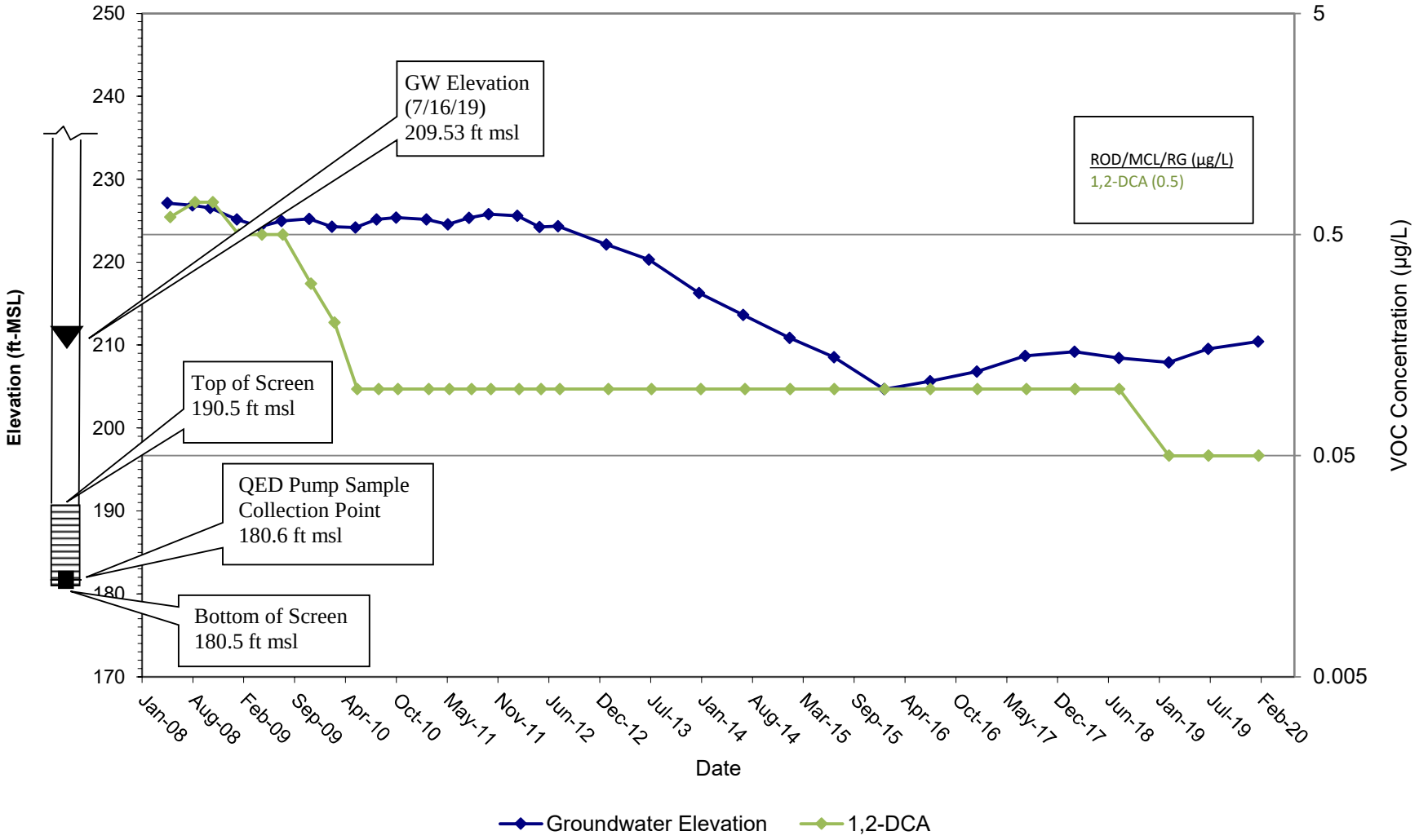
## Groundwater Level Elevations
## Well MW-24I



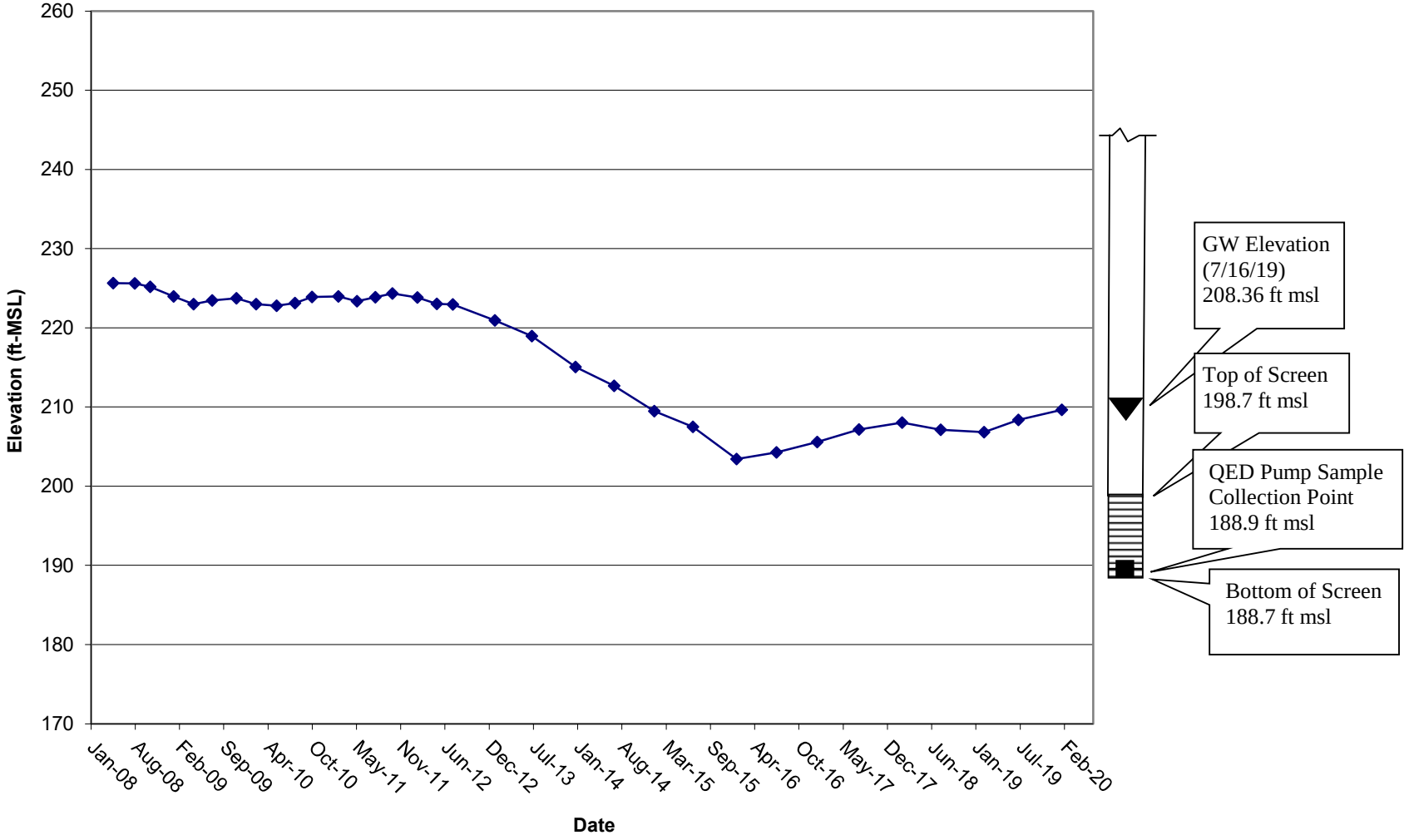
## Groundwater Level Elevations
## Well MW-25I



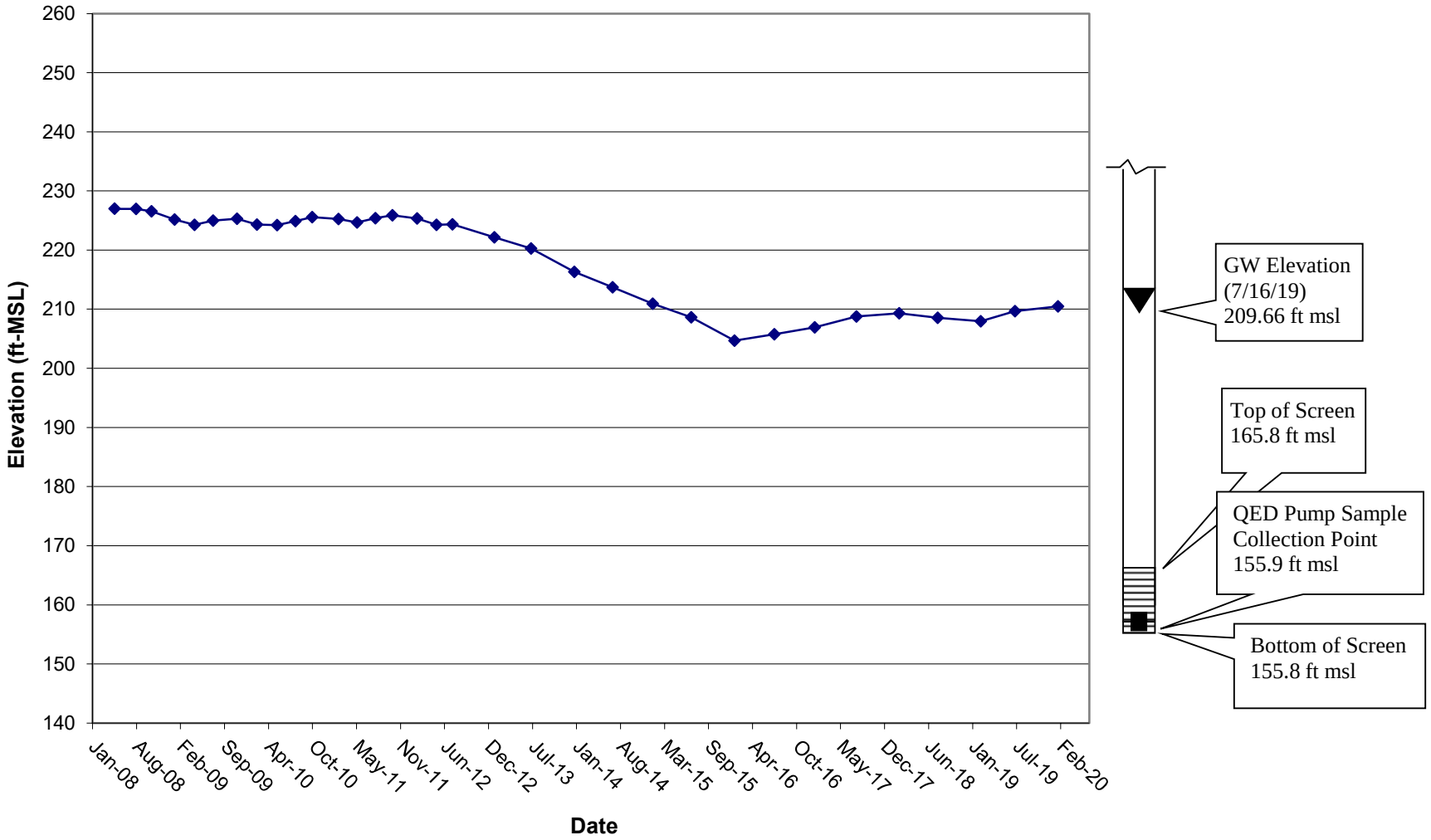
## Groundwater Elevations and VOCs
## Well MW-44I



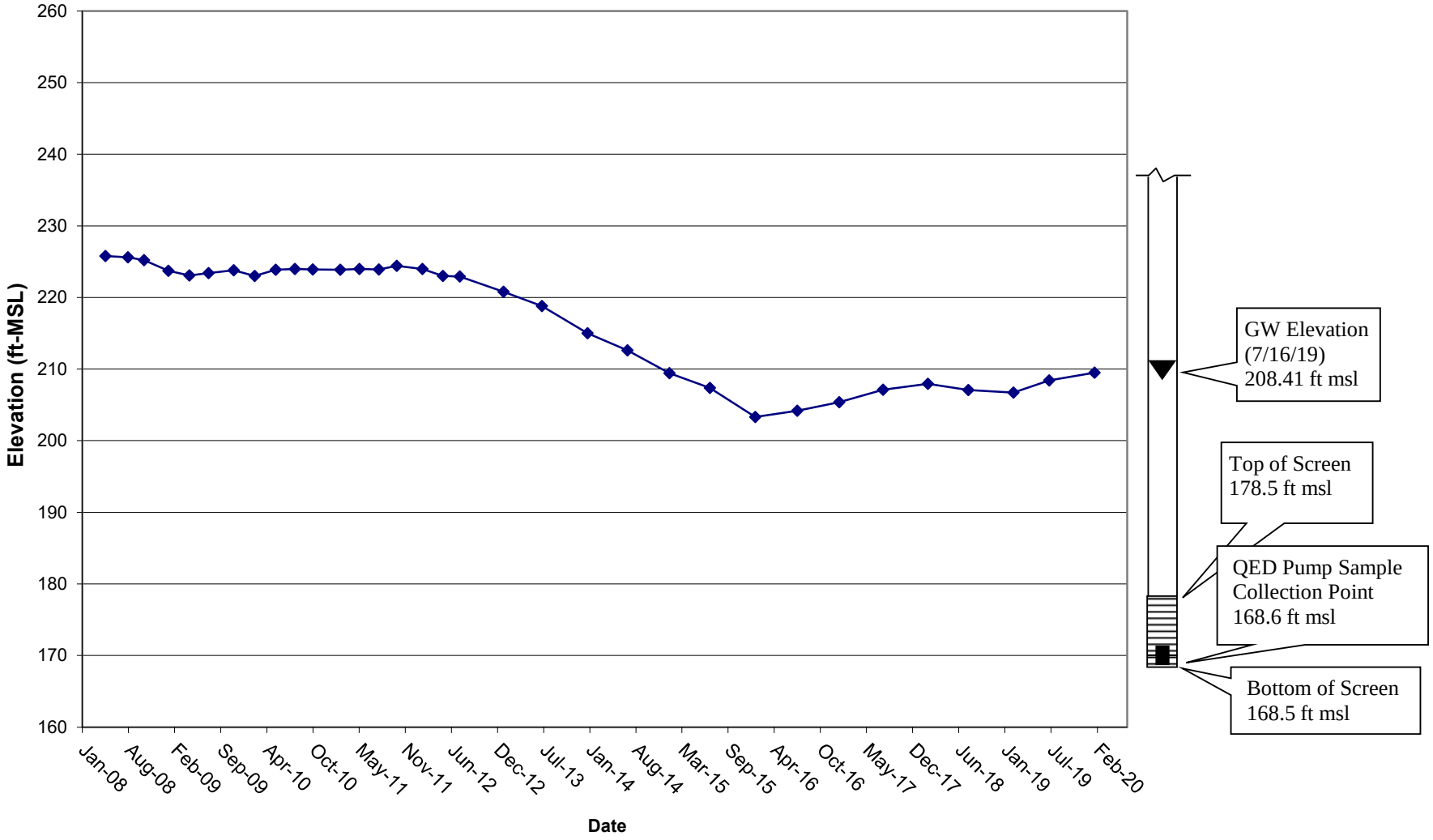
## Groundwater Level Elevations Well MW-48I



## Groundwater Level Elevations
## Well MW-44D



## Groundwater Level Elevations
## Well MW-48D



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