Clifton

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Suncor Energy Products Partnership

Risk Management & Contingency Plan-Based Soil Vapour Sampling Report, March 2021

Hounsfield Heights, Adjacent 1620 14 Ave NW, Calgary Alberta 9445

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Executive Summary

Clifton Engineering Group Inc. (“Clifton”) is pleased to present this Risk Management & Contingency Plan-Based Soil Vapour Sampling Report, March 2021 (the “Report”) prepared for Suncor Energy Products Partnership (“Suncor EPP)”. The Report describes in detail the activities in the Hounsfield Heights community area (the “Site”) conducted by Clifton on 11 and 12 March 2021 as a part of the Risk Management and Contingency Plan implementation.

As a part of the management of the Site, a community-wide soil vapour sampling program has been carried out by Clifton since 2016. The sampling program at the Site is conducted in accordance with the Clifton Associates Ltd.: *Sears Canada Inc., Revised Soil Vapour Monitoring Program (Update Fall 2016), Hounsfield Heights and North Hill Mall, Calgary, Alberta* document approved by the Alberta Environment and Parks (the “Regulator”), using an established network of soil vapour sampling points.

Soil vapour inhalation is currently the only potentially active exposure pathway at the Site that could lead to a deleterious effect for human health. Soil vapour sampling at the Site should thus continue until the exposure risk to the residents at the Site can be considered eliminated.

The soil vapour analytical laboratory results collected during the March 2019 sampling event showed that vapour migration from groundwater or soil in the vicinity of soil vapour monitoring point SV32 might be a potentially active exposure pathway of concern for indoor vapour inhalation. Based upon those findings, Clifton implemented the additional Risk Management and Contingency Plan (RMCP) soil vapour sampling, which included an additional environmental investigation focused on the potentially affected private properties near SV32. Soil vapour samples collected at SV32 on 10 June 2020 and 6 July 2020 again recorded exceedances for several Contaminants of Potential Concern (CoPCs) concentrations in soil vapour.

Clifton carried out the RMCP-based soil vapour sampling event at the Site on 11 and 12 March 2021. A total of nine (eight primary soil vapour samples and one field duplicate) soil vapour samples were collected at sampling points and analysed for the CoPC concentrations. Analytical results for the soil vapour samples collected from the soil vapour monitoring points SV32, SV401, SV402, SV403 and SV404 were compared to Soil Vapour Quality Guidelines (SVQG) for a residential building on fine-textured soil for a depth less than 1.0 m. There were no recorded exceedances for the investigated CoPCs at these soil vapour sampling points.

Analytical results for the soil vapour samples collected from the soil vapour sampling points SV321B, SV322 and SV323 were compared to SVQG protective of indoor air quality based on default attenuation factors. No exceedances for the CoPCs criteria protective of indoor air quality were recorded. Thus an active vapour intrusion pathway into these structures (if present) should not pose immediate health risk for the occupants.

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1.0 Introduction

Clifton Engineering Group Inc. ("Clifton") is pleased to present this Risk Management & Contingency Plan-Based Soil Vapour Sampling Report, March 2021 (the "Report") prepared for Suncor Energy Products Partnership ("Suncor EPP"). The Report describes in detail the activities in the Hounsfield Heights community area (the "Site") within the City of Calgary conducted by Clifton on 11 and 12 March 2021 as a part of the Risk Management and Contingency Plan implementation.

Since 1998, Site investigations have revealed the presence of Petroleum Hydrocarbons (PHCs) in the subsurface soils and groundwater beneath City of Calgary properties in the Hounsfield Heights community. The source of the PHCs is interpreted to be a former gasoline station on the property formerly owned by Sears located at the North Hill Shopping Centre as stipulated in the Revision Remediation Plan (Version 3.0). Evidence suggests that gasoline may have leaked from underground fuel storage tanks prior to their removal in the mid-1990s when the gasoline station was decommissioned.

As a part of the management of the Site, a community-wide soil vapour sampling program has been carried out by Clifton since 2016. The sampling program at the Site is conducted in accordance with the Clifton Associates Ltd. *Sears Canada Inc. Revised Soil Vapour Monitoring Program (Update Fall 2016), Hounsfield Heights and North Hill Mall, Calgary, Alberta* document approved by Alberta Environment and Parks (the "Regulator"), using an established network of soil vapour sampling points.

Soil vapour inhalation is currently the only potentially active exposure pathway at the Site that could lead to a deleterious effect for human health. Soil vapour sampling at the Site should thus continue until the exposure risk to the residents at the Site can be considered eliminated.

A total of 43 soil vapour sampling points are currently installed at the Site. Of these, three soil vapour sampling points were developed as nested sampling points, providing a total of 49 soil vapour samples available at the Site. Except for three sampling points installed at the private residential properties, all installations are within the City of Calgary-owned Right-Of-Ways. The soil vapour sampling network at the Site approved by the Regulator covers both areas to the north of 11th Avenue NW (a total of 17 points), and to the south of 11th Avenue NW (a total of 26 points).

The 2015 Human Health Risk Assessment conducted by Intrinsik Environmental Sciences included detailed investigation of the vapour inhalation pathway for human receptors present at the Site for both soil and groundwater and compared the results against the Residential/Parkland Land Use Guidelines (Hounsfield Heights area) and Commercial Land Use Guidelines (North Hill Mall area) as defined by AEP Tier 1 and 2 Guidelines. The following Contaminants of Potential Concern (CoPC) in soil and groundwater at the Site were identified for the vapour inhalation pathway:

- Benzene, Toluene, Ethylbenzene and Xylene (BTEX);
- Petroleum Hydrocarbons (PHC) fraction F1-BTEX (C_6—C_{10});
- PHC fraction F2 (C_{10}-C_{16});
- Naphthalene; and
- 1,2 Dichloroethane (1,2-DCA).

A total of eight community-wide sampling events have been conducted to-date providing soil vapour concentration distribution. With the exception of soil vapour sampling point SV32, there were no recorded exceedances for the investigated CoPC in soil vapour compared either to the Site-specific Soil Vapour Quality Guidelines (SVQG) protective of indoor air quality, soil vapour remediation guidelines protective of indoor air quality for a commercial building, or to the increased sampling frequency trigger values during these sampling events. Since no exceedances of the SVQG have occurred in areas north of 11th Avenue NW, the program is currently focussed on monitoring points on 11th Avenue and to the south of 11th Avenue.

The soil vapour analytical laboratory results collected during the March 2019 sampling event showed that vapour migration from groundwater or soil in the vicinity of soil vapour monitoring point SV32 might potentially be an active exposure pathway of concern for indoor vapour inhalation. Based upon those findings, Clifton implemented the additional Risk Management and Contingency Plan (RMCP) soil vapour sampling, which included an additional environmental investigation focused on the potentially affected private properties near SV32.

Soil vapour samples collected at SV32 on 10 June 2020 and 6 July 2020 again recorded exceedances for several CoPC concentrations in soil vapour.

2.0 Risk Management and Contingency Plan Implementation

2.1 Risk Management and Contingency Plan Trigger Event

The soil vapour analytical laboratory results collected during the June 2020 sampling event at the Site indicated that vapour migration from groundwater or soil at the Site in the vicinity of the soil vapour sampling point SV32 might be a potentially active exposure pathway of concern for indoor vapour inhalation. Soil vapour sample ID 32 collected on 10 June 2020 exceeded the Site-specific guidelines for soil vapour quality as follows:

- Toluene: recorded value 19,000 µg/m^3 (Site-specific soil vapour quality guideline: 300 µg/m^3);

- Total Xylenes: recorded value 15,900 µg/m3 (Site-specific soil vapour quality guideline: 8,909 µg/m3); and
- Petroleum hydrocarbons Aromatic sub-fraction C_8 – C_{10}: recorded value 9,940 µg/m^3 (Site-specific soil vapour quality guideline: 8,125 µg/m^3).

In addition, the following constituents in soil vapour recorded potential exceedances[1]:

- Naphthalene: recorded value (up to) 660 µg/m^3 (Site-specific soil vapour quality guideline: 103 µg/m^3); and
- 1,2 – Dichloroethane: recorded value (up to) 1,700 µg/m^3 (Site-specific soil vapour quality guideline: 40 µg/m^3).

Based upon the above findings, implementation of the Regulator approved RMCP for the Site per the *Revised Soil Vapour Monitoring Program (Update Fall 2016), Hounsfield Heights and North Hill Mall, Calgary, Alberta* (October 2016) document was recommended. The RMCP implementation included the following steps:

- Increasing soil vapour sampling frequency to quarterly in the area of the concern;
- Communicating exceedance and proposed course of further action to the Regulator and owners of the potentially affected properties;
- Establishing lines of communication with the property owners; arranging meetings outlining reasons for additional environmental work at the property; discussing with the owner available options; and obtaining the owner's approval with one of the following options (options stated in the order from the most to the least desirable):
    - Sub-slab monitoring point installation, followed by concurrent sampling of the sub-slab soil vapour and indoor air quality;
    - Additional installation of at least one (but ideally two) external monitoring points located between structure and contaminant source in an approximate distance of 1.0 m from foundation to a depth of 1.0 m below foundation to be sampled concurrently with indoor air quality; and
    - Standalone indoor air quality sampling.

The RMCP is described in greater detail in Section 7.0 of the Clifton report titled *Revised Soil Vapour Monitoring Program (Update Fall 2016), Hounsfield Heights and North Hill Mall, Calgary, Alberta (20 October 2016).* Since the submission of the Revised Remediation Plan (Version 3.0) in 2021, standalone indoor air quality sampling has been removed as a primary component of the contingency plan. As a summary, any concentrations of soil vapour which are within 90-100% of the soil vapour quality guidelines, or exceed the guidelines, require the frequency of sampling to increase to quarterly. In addition, any residences within a 30 m radius of the exceedance are to be contacted in an effort to obtain additional soil vapour quality data from their properties. This may include the advancement of shallow vapour probes,

[1] Inconclusive results due to the analytical laboratory RDL increased above the Site-specific guidelines for these constituents.

or sub-slab vapour probes, or a combination of any of the two options. Furthermore, the RMCP has been updated as presented within the Revised Remediation Plan (Version 3.0) to not include standalone indoor air quality testing as a means of assessing potential risk from soil vapour constituents.

2.2 Communication with the Property Owners

Considering the location of SV32, six properties were identified as within a radius of potential concern. In May 2019, the owners of one of the properties located within the 30 m radius of SV32 at 10th Avenue NW granted their approval to proceed with an installation of the additional soil vapour sampling points.

Clifton installed two additional soil vapour sampling points in the immediate vicinity of the subject property on 13 May 2019. Both sampling points were installed at an approximate distance of 1.0 m from the foundations of the residence. A total installation depth of 1.0 m bgs was selected considering water table elevation at the location. One of the points (ID SV321)[2] was installed directly between soil vapour sampling point SV32 and the residence. Soil vapour sampling point SV322 was installed along the west wall of the residence. Soil vapour point SV321 required abandonment due to renovations being completed with the private property and a replacement probe, SV321B, was installed in September 2020.

Subsequently, the owners of one of the residential properties within a radius of the potential concern located at 15th Street NW granted their approval to install an additional soil vapour sampling point in November 2019.

Following the property owners' consent, Clifton installed one additional soil vapour sampling point (marked as SV323) in the immediate vicinity of the subject property located at 15th Street NW. The installation location was selected in the direct line between SV32 and the property. The installation is approximately 1.0 m away from the foundations of the structure and has a total installation depth of 1.06 m bgs. This installation was completed on 8 November 2019.

2.3 Additional Environmental Installations – December 2020

In view of the above summarized soil vapour sampling data at the Site, Clifton proposed a refinement/expansion of the environmental monitoring and sampling network in the immediate vicinity of SV32 to address the following environmental data gaps:

- Incomplete soil vapour concentrations delineation in the area around SV32;
- Insufficient understanding of the relationship between groundwater contamination in water-bearing strata closest to the surface in this portion of the Site (Unit 3) and soil vapour concentration; and
- Uncertainty as to whether the underground natural gas utility line to the west of SV32 might present a preferential pathway for soil vapour intrusions.

[2] Soil vapour sampling point SV321 was replaced by Clifton by SV321B in September 2020 upon the request of the property-owner in connection with remodelling of the property exterior. SV321B was installed to a TD 1.09 m bgs in the location to northeast distanced approximately 5.0 m of the nearest property corner.

To rectify these data gaps, Clifton proposed installation of additional four soil vapour sampling points and two groundwater monitoring wells completed in the uppermost water-bearing unit. These recommendations for the soil vapour sampling refinement at the Site were approved by both Suncor and the Regulator for implementation in late 2020.

The additional environmental installation work was completed by Clifton on 22 and 23 December 2020. Detailed rationale beyond these installations and installation methodology used are described in the report issued under a separate cover.[3]

2.4 Extent of the Investigated Area

As a result of the above described work, the Risk Management & Contingency Plan-based soil vapour sampling network at the Site currently includes a total of five soil vapour sampling points (SV32, SV401, SV402, SV403 and SV404, respectively) installed on City of Calgary property, three soil vapour sampling points installed at the private residential properties (SV321B, SV322 and SV323) and two groundwater monitoring wells (MW5001 and MW5002). These soil vapour probes will be sampled quarterly until a minimum of five consecutive soil vapour samples below the SVQG are recorded and that there are no definitive increasing trends being observed at all sampling points in the investigated area.

The extent of the investigated area and the current RMCP sampling network layout is shown in Appendix A, Figure 4. The monitoring and sampling network layout is summarized in the following table.

Table 2.1 – Environmental Monitoring Points Included in RMCP-Based Monitoring

Assigned ID	Location	Class/Type	Reason for Monitoring
SV32	Laneway	External Soil Vapour Sampling Point	Soil Vapour Delineation
SV321B	Residential Property	Soil Vapour Sampling Point In lieu of Sub-slab Point	Indoor Air Quality Estimate/ Indoor Air Quality Protection in the Residential Property at the Site (10 Avenue NW)
SV322	Residential Property	Soil Vapour Sampling Point In lieu of Sub-slab Point	Indoor Air Quality Estimate/ Indoor Air Quality Protection in the Residential Property at the Site (10 Avenue NW)

[3] Please refer for details to Clifton Engineering Group Inc.: *Additional Environmental Installations Report, Hounsfield Heights, Calgary 9445, Alberta.* 12 May 2021.

Table 2.1 – Environmental Monitoring Points Included in RMCP-Based Monitoring

Assigned ID	Location	Class/Type	Reason for Monitoring
SV323	Residential Property	Soil Vapour Sampling Point In lieu of Sub-slab Point	Indoor Air Quality Estimate/ Indoor Air Quality Protection in the Residential Property at the Site (15 Street NW)
SV401	Laneway, N of SV32	External Soil Vapour Sampling Point	Soil Vapour Delineation
SV402	Laneway, Gas Pipe Corridor	External Soil Vapour Sampling Point	Pathway Investigation
SV403	S curb of 10th Ave, NW	External Soil Vapour Sampling Point	Soil Vapour Delineation
SV404	N curb of 10th Ave. NW	External Soil Vapour Sampling Point	Soil Vapour Delineation
MW5001	Laneway, Upgradient of SV32	Groundwater Monitoring Well	Groundwater volatile organic vapours in headspace/ CoPC concentrations in groundwater/ Correlation to the soil vapour concentrations
MW5002	Laneway, Downgradient of SV32	Groundwater Monitoring Well	Groundwater volatile organic vapours in headspace/ CoPC concentrations in groundwater/ Correlation to the soil vapour concentrations

3.0 Soil Vapour Sampling Methodology

3.1 Soil Vapour Sampling Methodology

Where applicable, activities were completed as per the *Compendium of Methods for the Determination of Compounds in Ambient Air, Second Edition, Compendium Method TO-15, Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially-prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GCMS).* EPA/625/R96/01b, 1999.

In order to achieve the required resolution of the laboratory detection limits for the investigated constituents (especially 1,2 – DCA), and to extend validity of collected samples, Clifton collected soil vapour samples in 1.4L Summa™ canisters, which were proofed and cleaned by the laboratory as per the United States Environmental Protection Agency (USEPA) reference method TO-14A. The sampling train included an orifice-equipped flow controller calibrated for a sampling rate of 70 mL/min, and a length of dedicated PTFE tubing with stainless steel fittings to connect to a valve at the top of the soil vapour sampling point.

Before any sampling, Clifton completed a seal integrity check of the sampling point using a helium tracer. All sampling points meeting the seal integrity criteria were subsequently purged by the SKC PGX-R8 vacuum pump calibrated for a flow rate of 70 mL/min for 20 minutes. The purging vacuum rate did not exceed 10” (254 mm) of water column in order to avoid excessive moisture influx to the radius of influence.

The soil vapour sampling also included: measuring the initial and final Summa™ canister vacuum levels by a standalone vacuum gauge; recording the start and finish time of the sampling; sampling point identifier check; and weather observations, including barometric pressure and precipitation at the time of sampling. The stainless-steel valves installed at the top of the soil vapour sampling points were kept in a closed position, except when purging and sampling.

3.2 QA/QC Program

A comprehensive QA/QC program was implemented to ensure that the sampling and analyses follow established protocols and provide defendable, representative results. The program included all aspects of data collection from the field to the laboratory.

The field QA/QC consisted of the following components:

- Labelling air sampling containers with the specific sample number to ensure adequate identification;
- Using laboratory-prepared batch-proofed air sampling containers cleaned as per USEPA TO-14A reference method;
- Conducting a 5-minute shut-in test on sampling trains to eliminate any potentially leaking part of the train that might introduce a negative bias into the collected soil vapour sample;
- Conducting a helium tracer competent seal integrity test by creating and recording an initial helium shroud above the sampling point, maintaining the helium shroud during the pre-sampling purge and recording final helium concentration in the sampling train to prove that the seal integrity of a soil vapour sampling point was not compromised and that the collected soil vapour sample will be representative;
- Limiting purging vacuum to a flow rate of 70 mL/min (*i.e.*, less than 254 mm of water column) in order to avoid excessive moisture influx to the radius of influence;
- Measuring initial vacuum levels at the sampling canisters by the standalone vacuum gauge to ensure initial sampler integrity;
- Collecting field duplicates at a rate of 1 duplicate per 10 primary samples and evaluating Relative Percent Difference (RPD) ratio using the following equation:

$$RPD\ (\%) = [abs(x_1-x_2)/(x_1+x_2)/2] * 100$$ [4]

- Measuring final vacuum levels at the sampling canisters using a standalone vacuum gauge to avoid a potential for soil vapour sample loss during the transport to analytical laboratory;
- Evaluating weather conditions throughout the sampling process duration that might affect recorded soil vapour concentrations;
- Forwarding collected samples under the Chain-of -Custody protocols to an accredited analytical laboratory; and
- Reviewing the laboratory quality assurance data.

3.3 Analytical Suite and Methods

Clifton selected to use soil vapour analytical methods compatible with performance-based reference method USEPA TO-15 based on the gas chromatography and mass spectrometry (GC/MS). All CoPCs for the vapour inhalation pathway as identified by the 2015 HHERA were investigated. Therefore, the proposed analytical suite included the following:

- PHCs fraction F1[5];
- PHCs fraction F2[6];
- BTEX (benzene, toluene, ethylbenzene, xylene);
- Naphthalene; and
- 1,2 Dichloroethane (1,2-DCA).

Clifton used AGAT Labs as a provider of the laboratory services for this SVMP. AGAT Labs are accredited analytical laboratory under the ISO 9001 and ISO 14001 Standards and are certified by the Standards Council of Canada.

4.0 Sampling Results

4.1 Soil Vapour Sampling Results

Clifton carried out the RMCP-based soil vapour sampling event at the Site on 11 and 12 March 2021. A total of 9 (8 primary soil vapour samples and 1 field duplicate) soil vapour samples were collected at external sampling points and analysed for CoPCs concentrations. Analytical results for the soil vapour sample collected from the soil vapour sampling points SV32, SV401, SV402, SV403 and SV404 were

[4] Where x_1 and x_2 are concentration parameters for the primary and secondary sample.
[5] Expressed in form of the constituting aliphatic and aromatic sub-fractions.
[6] Expressed in form of the constituting aliphatic and aromatic sub-fractions.

compared to SVQG for a residential building on fine-textured soil for a depth less than 1.0 m. There were no recorded exceedances for the investigated CoPCs at these soil vapour sampling points.

Tabulated analytical results for SV32, SV401, SV402, SV403 and are presented in Appendix B, Table 3.

Analytical results for the soil vapour samples collected from the soil vapour sampling points SV321B, SV322 and SV323 were compared to SVQG protective of indoor air quality based on default attenuation factors. No exceedances for the CoPC criteria protective of indoor air quality were recorded. Thus an active vapour intrusion pathway into these structures (if present) should not pose an immediate health risk for the occupants.

Analytical Results Tables for these soil vapour sampling points are presented in Appendix B, Tables 1 and 2. A summary of all historical soil vapour results for selected soil vapour sampling probes is provided in Appendix C.

4.2 Groundwater Monitoring Results

As a part of the sampling event, Clifton carried out a limited monitoring (water level and organic vapour concentrations in headspace) of groundwater monitoring wells MW5001 and MW5002. Both wells are screened in an interval providing information about potential correlation between CoPC in groundwater closest to the surface and CoPC concentrations in soil vapour in the investigated area. Groundwater sampling and analysis were not part of the scope of work for the RMCP-based soil vapour sampling. However, these wells will be sampled as a part of the regular groundwater sampling at the Site.

Summary of the groundwater monitoring results is stated in the following table:

Table 4.1 – Summary of Groundwater Monitoring Results

Well ID	Date	Measured Depth to Water (m)	Measured Water Column Height (m)	Recorded Organic Vapour Concentration in Headspace (ppm)
MW5001	12 March 2021	1.52	1.03	0
MW5002	12 March 2021	1.58	1.16	150

4.3 QA/QC Results

One field duplicate (Sample ID 932) was collected and analyzed for CoPC during sampling as a part of QA/QC program. The duplicate was compared against its primary sample and the RPD values were calculated. USEPA TO-15 method recommends the RPD difference to be below 25%. Summary of field duplicates analytical results and the RPD calculations are presented in Appendix D, Table 2.

The calculated RPD threshold for all investigated constituents was below recommended threshold of 25%; therefore, the collected soil vapour samples can be considered reporting soil vapour concentrations at the Site without a significant bias and generally representative.

Prior to the sampling, soil vapour sampling points were tested for seal integrity by a helium tracer gas method. Test results are summarized in Appendix D, Table 1. The threshold limit applied was at least 95% differential between recorded initial He shroud concentration and final recorded concentration of He in the sampling train after purging. Final He shroud concentration was also recorded as a part of the process to ensure that He was still present in a significant concentration. All soil vapour points sampled during the sampling event passed these integrity criteria.

4.4 Meteorological Conditions

As ambient meteorological conditions, especially precipitation and barometric pressure, might affect soil vapour sampling results, Clifton conducted limited meteorological observations during sampling, which are summarized in the following table.

Table 4.2 – Summary of Meteorological Conditions During Soil Vapour Sampling[7]

Date	Average Wind Speed (km/h)	Average Wind Direction	Total Precipitation (mm)	Barometric Pressure (kPa)	Pressure Tendency
11 March 2021	15	SW	0.0	102.00	Falling
12 March 2021	15	NW	0.0	101.84	Falling

As apparent from the presented meteorological data, no major precipitation events occurred and barometric pressure had a predominantly falling trend throughout the duration of the soil vapour sampling. Therefore, prevalent weather conditions were unlikely to affect recorded soil vapour concentrations.

[7] Based on the Calgary International Airport meteorological station data as recorded at 12:00 pm for each sampling day.

5.0 Discussion of Results and Recommendations

The soil vapour analytical laboratory results collected during the RMCP-based soil vapour sampling event on 11 and 12 March 2021 showed that a potential vapour intrusion pathway (if present) into the subject structures located at 10th Avenue NW, and 15th Street NW, respectively, should not pose immediate health risk for the occupants at this time, and therefore, an immediate application of exposure controls is not deemed necessary.

On the other hand, considering recorded exceedances of the SVQG at SV32 in the past, vapour migration from groundwater and/or soil at the Site in the vicinity of the soil vapour sampling point SV32 must be still considered as a potential exposure pathway of concern for indoor vapour inhalation.

In view of the recorded soil vapour sampling results, the recommended further course of action at the Site should include the following steps:

- Risk Management soil vapour sampling in the area of the potential concern must continue. Soil vapour sampling points SV32, SV321B, SV322, SV323, SV401, SV402, SV403 and SV 404 should still be sampled seasonally (i.e., four times a year) until five consecutive readings below 90% of SVQG for all investigated CoPC are recorded, or until instructed otherwise by the Regulator;
- Soil vapour sampling points included in the RMCP-based sampling should be re-sampled in the summer of 2021 (ideally in July 2021) as a part of the regular semi-annual community soil vapour sampling to confirm that the exposure pathway for indoor vapour inhalation is not active at the times of year with different biodegradation and water table levels; and
- Any conclusions regarding a soil vapour preferential pathway following a utility corridor monitored by the probe SV402, and a potential correlation between CoPCs concentrations in groundwater (MW5001 and MW5002) and CoPCs concentration in soil vapour will require as a minimum three sets of the representative comparable environmental monitoring and sampling data.

Possible future mitigation actions/exposure control implementation at the Site will depend on the results obtained from additional environmental investigation described above.

6.0 Closure

This report was prepared by Clifton Engineering Group Inc. for the account of Suncor Energy Products Partnership. The material in it reflects Clifton Engineering Group Inc. best judgment available to it at the time of preparation. Any use that a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Clifton Engineering Group Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

This report has been prepared in accordance with generally accepted engineering practice common to the local area. No other warranty expressed or implied is made.

This report focuses exclusively on soil vapour quality at the investigated areas. No conclusions should be made based on this report regarding any concentrations of substances in other areas of the Site. Other Contaminants of Concern may be present at the Site in areas that were not investigated. Clifton Engineering Group Inc. accepts no responsibility for any deficiencies or inaccuracies in the information provided in this report that are the direct result of intentional or unintentional misrepresentations, errors or omissions of the persons interviewed, or information reviewed.

No environmental site investigation or remediation can wholly eliminate uncertainty regarding environmental conditions in connection with a property. This investigation is intended to reduce, but not eliminate the uncertainty regarding environmental conditions. Conclusions regarding the condition of the Site do not represent a warranty that all areas within the site and beneath structures are of the same quality as those sampled. Further, contamination could also exist in forms not indicated by the investigation.

The work was based in part upon the environmental quality guidelines and regulations in effect when the work was begun. Future regulatory changes may require reassessment of the findings of this investigation.

Reference List

Clifton Engineering Group Inc.: *Suncor EPP, Additional Environmental Installation Report, Hounsfield Heights, Calgary, Alberta 9445,* dated 12 May 2021

Clifton Engineering Group Inc.: *Suncor Energy Products Partnership*, *Soil Vapour Monitoring Report, Winter 2020, Hounsfield Heights, Calgary, Alberta 9445,* dated 18 February 2021

Clifton Associates Ltd.: *Soil Vapour Monitoring Report, Winter 2019/2020, Hounsfield Heights and North Hill Mall, Calgary, Alberta,* dated 1 June 2020

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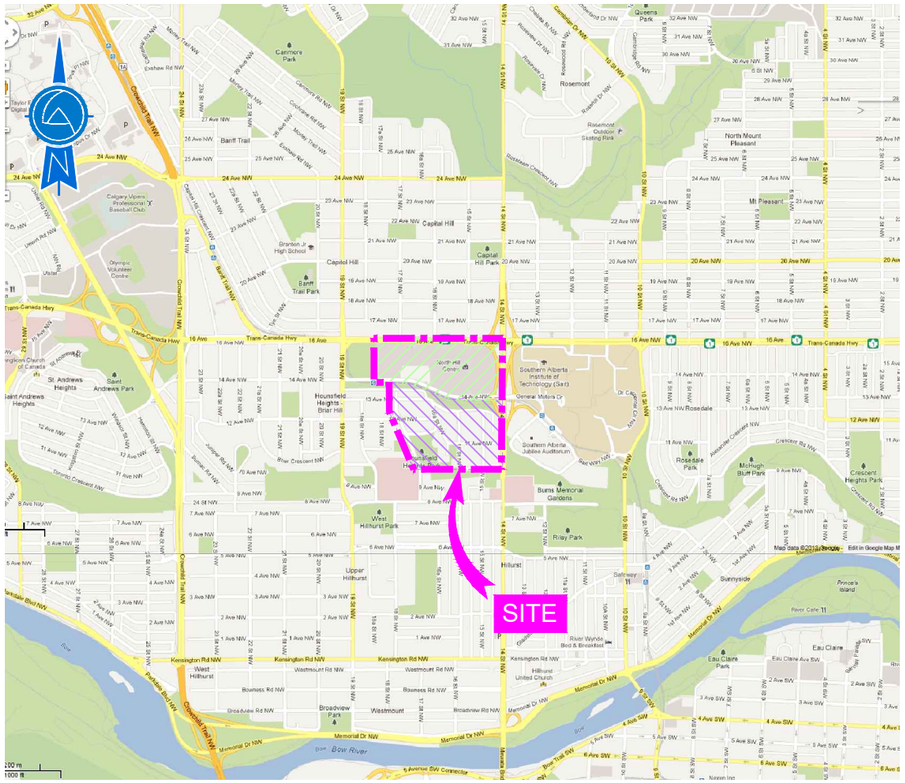
Clifton Associates Ltd.: *Sears Canada Inc., Revised Soil Vapour Monitoring Program (Update Fall 2016), Hounsfield Heights and North Hill Mall, Calgary, Alberta*, 20 October 2016.

Clifton Associates Ltd.: *Sears Canada Inc., Soil Vapour Monitoring Points Installation Report, Hounsfield Heights and North Hill Mall, Calgary, Alberta*, 20 October 2016.

Appendix A
Figures

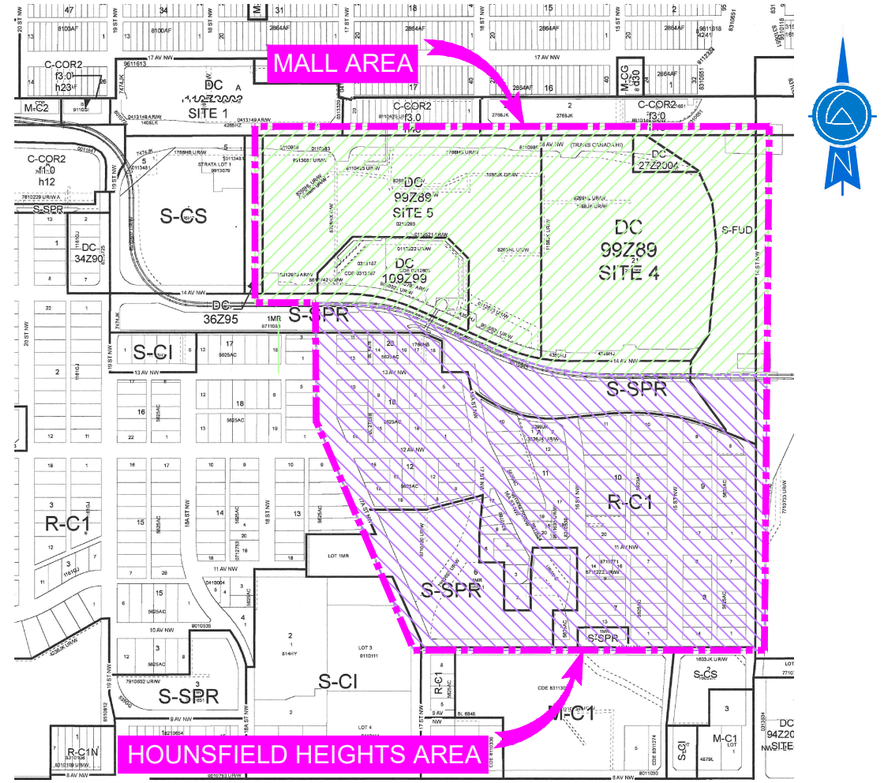
Clifton



GENERAL SITE LOCATION

SCALE 1:30,000

0 0.5 1.0 1.5 km



SURROUNDING LAND USE

SCALE 1:7,500

0 100 200 300 m

LEGEND:

- SITE BOUNDARY
- MALL AREA
- HOUNSFIELD HEIGHTS AREA
- CITY OF CALGARY BY-LAW ZONING

LAND USE DISTRICTS:

RESIDENTIAL - CONTEXTUAL ONE DWELLING DISTRICT	R-C1
MULTI-RESIDENTIAL - CONTEXTUAL LOW-PROFILE DISTRICT	MC-1
MULTI-RESIDENTIAL - CONTEXTUAL GRADE-ORIENTED DISTRICT	MC-G
COMMERCIAL - CORRIDOR 2 DISTRICT	C-COR2
SPECIAL PURPOSE - SCHOOL, PARK, AND COMMUNITY RESERVE DISTRICT	S-SPR
SPECIAL PURPOSE - COMMUNITY INSTITUTION DISTRICT	S-CI
SPECIAL PURPOSE - COMMUNITY SERVICE DISTRICT	S-CS
SPECIAL PURPOSE - FUTURE URBAN DEVELOPMENT DISTRICT	S-FUD
DIRECT CONTROL DISTRICT	DC

NOTES:

1. CITY OF CALGARY ROAD MAP PROVIDED BY CANADIAN CARTOGRAPHICS CORPORATION, 2012.
2. LAND USE MAP PROVIDED BY THE CITY OF CALGARY.

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT

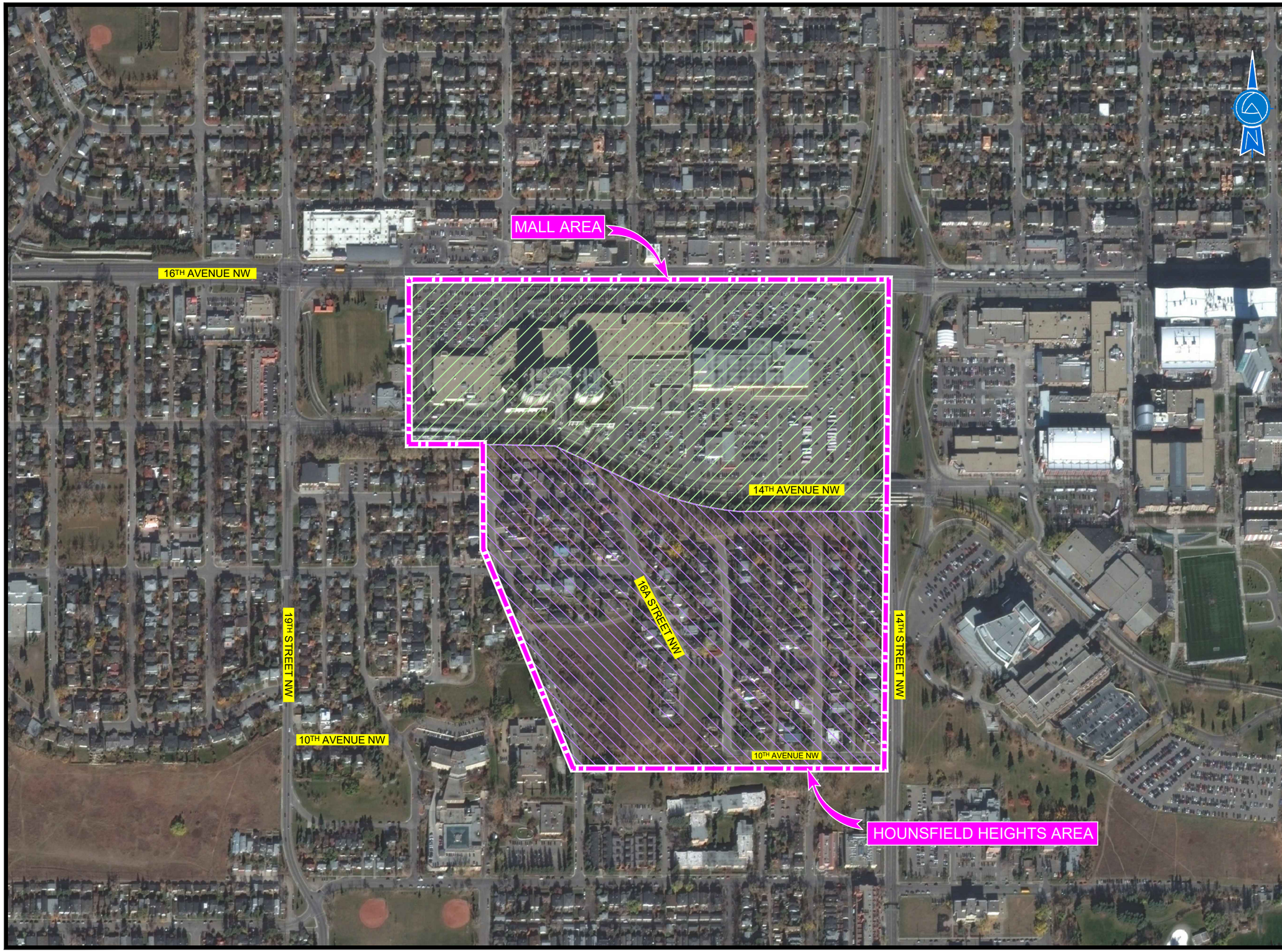
RISK MANAGEMENT & CONTINGENCY PLAN-BASED SOIL VAPOUR SAMPLING MARCH 2021
HOUNSFIELD HEIGHTS, CALGARY 9445, ALBERTA

TITLE

SITE LOCATION AND SURROUNDING LAND USE

DESIGNED	SCALE AS SHOWN	DATE 2021-04-27
DRAWN DMP	PROJECT NO. CG3418E04	FIG. 1
CHECKED DB	FILE NO. CG3418E04-1	

A:\Projects\Calgary\CG3418E04\CURRENT DRAWINGS\CG3418E04-1.dwg, 04/27/2021 2:29:20 PM



LEGEND:

- SITE BOUNDARY
- MALL AREA
- HOUNSFIELD HEIGHTS AREA

NOTES:

1. AERIAL PHOTOGRAPH PROVIDED BY GOOGLE EARTH PRO. AIR PHOTO DATE: OCT 23, 2015.

0 50 100 150 200 250 m

SCALE 1:5000 PLOT SIZE 11x17

ENGINEER: Clifton

CLIENT: SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT: RISK MANAGEMENT & CONTINGENCY PLAN-BASED SOIL VAPOUR SAMPLING MARCH 2021 HOUNSFIELD HEIGHTS, CALGARY 9445, ALBERTA

TITLE: SITE AND SURROUNDING PROPERTIES

DESIGNED	SCALE 1:5000	DATE 2021-04-27
DRAWN DMP	PROJECT NO. CG3418E04	FIG. 2
CHECKED DB	FILE NO. CG3418E04-2	

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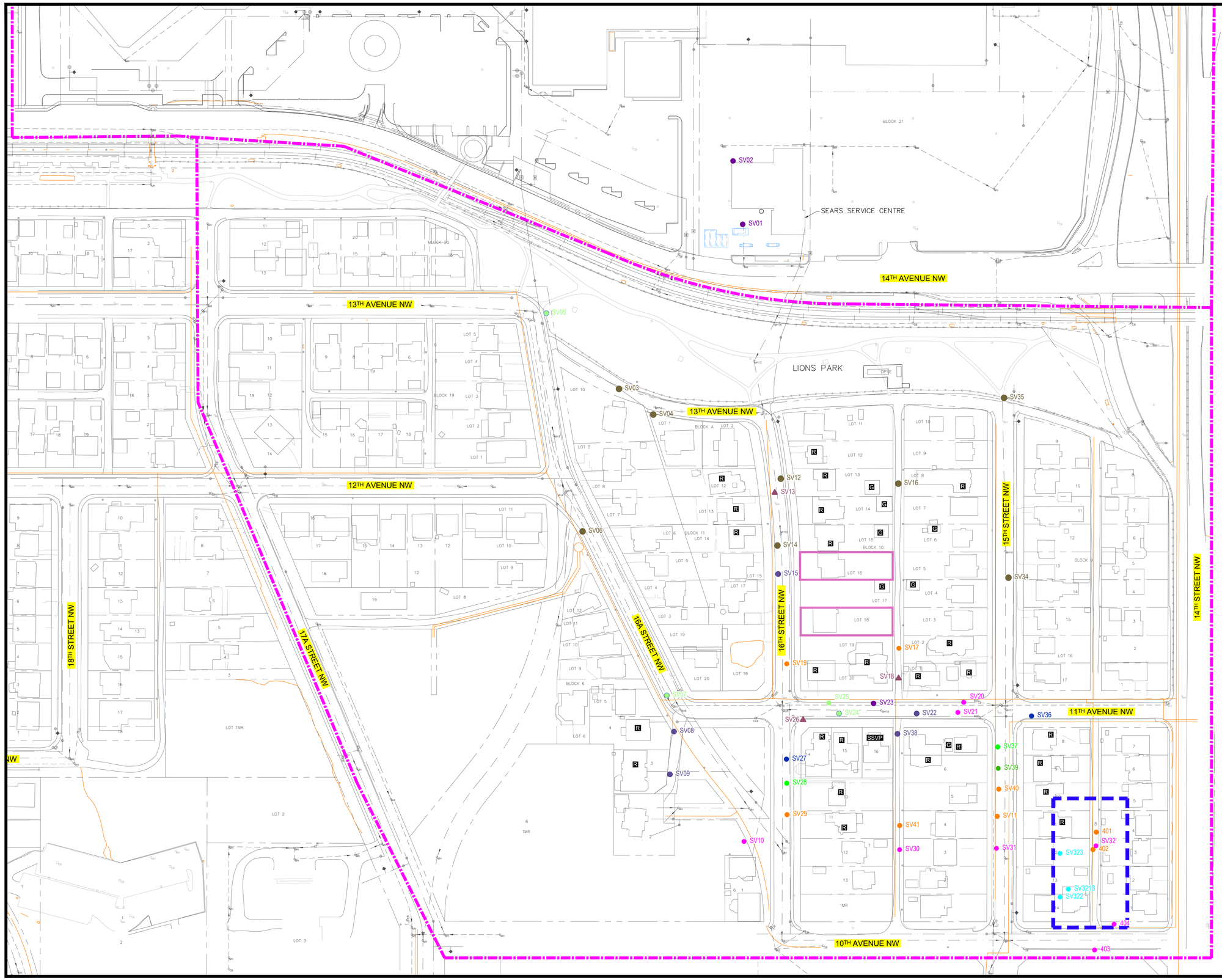


LEGEND

SITE BOUNDARY	
LRT TRACKS	
FENCE LINE	
LEGAL LINE	
FORMER FACILITY/FEATURE	
BUILDING	
SOIL VAPOUR PROBES INSTALLED AT 1.0 mbgs	SV#
SOIL VAPOUR PROBES INSTALLED AT 1.5 mbgs	SV#
SOIL VAPOUR PROBES INSTALLED AT 2.0 mbgs	SV#
SOIL VAPOUR PROBES INSTALLED AT 2.5 mbgs	SV#
SOIL VAPOUR PROBES INSTALLED AT 3.0 mbgs	SV#
SOIL VAPOUR PROBES INSTALLED AT 3.5 mbgs	SV#
SOIL VAPOUR PROBES INSTALLED AT 4.0 mbgs	SV#
SOIL VAPOUR PROBES INSTALLED AT 4.5 mbgs	SV#
SOIL VAPOUR PROBES INSTALLED AT 5.0 mbgs	SV#
SOIL VAPOUR PROBES INSTALLED AT 5.5 mbgs	SV#
SOIL VAPOUR PROBES INSTALLED AT 6.0 mbgs	SV#
SOIL VAPOUR SAMPLING POINT	SV#
SOIL VAPOUR SAMPLING POINTS INSTALLED AT RESIDENTIAL PROPERTIES	SV#
RESIDENTIAL STRUCTURES WITH REPORTED UNUSUAL FEATURES (EARTHEN FLOORS)	
RESIDENTIAL	R
DETACHED GARAGE	G
SUB-SLAB SOIL VAPOUR POINT	SSVP

UTILITY LINES & SYMBOLS

NATURAL GAS LINE	
SANITARY SEWER	
STORM SEWER	
WATER	
CATCH BASIN	
FIRE HYDRANT	
LIGHT STANDARD	
MANHOLE	
UTILITY POLE	
INVESTIGATED AREA	

NOTES:

1 DRAWING COMPILED FROM PLANIMETRIC FILES SUPPLIED BY THE CITY OF CALGARY (INCLUDING U/G UTILITIES) & FROM SITE ASSESSMENT INFORMATION. ADDITIONAL REFERENCES FROM SEACOR ENVIRONMENTAL ENGINEERING INC., DRAWINGS 149-5A11.DWG, 149-5A6.DWG.

0 10 20 30 40 50 m
PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

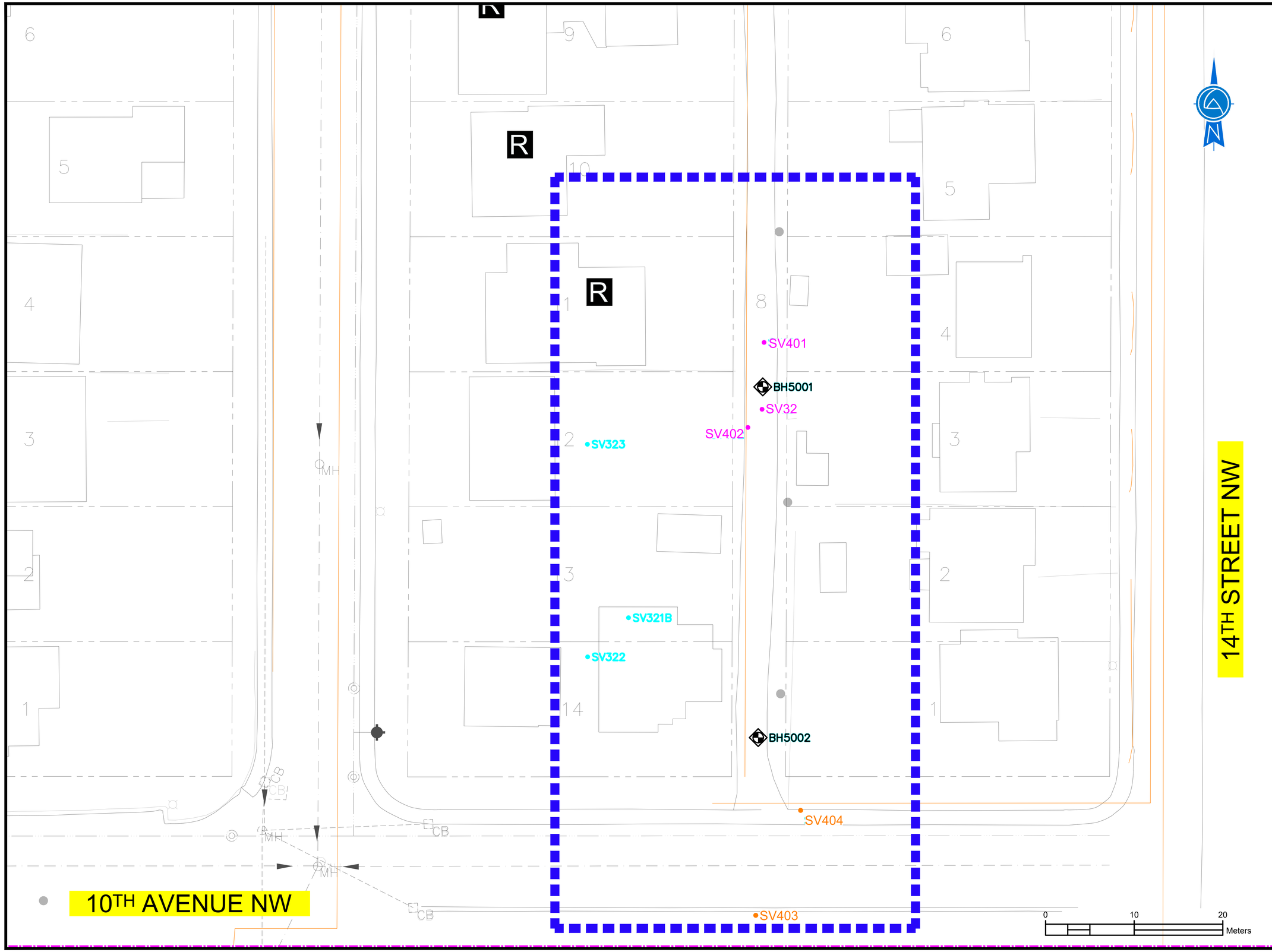
PROJECT

RISK MANAGEMENT & CONTINGENCY PLAN-BASED SOIL VAPOUR SAMPLING, MARCH 2021
HOUNSFIELD HEIGHTS, CALGARY 9445, ALBERTA

TITLE

SOIL VAPOUR MONITORING POINTS INSTALLATION LAYOUT (AS OF MARCH 2021)

DESIGNED	SCALE 1:1000	DATE 2021-04-27	
DRAWN DMP	PROJECT NO. CG3418E04	FIG. 3	
CHECKED DB	FILE NO. CG3418E04-3		



LEGEND

SITE BOUNDARY
LRT TRACKS
FENCE LINE
LEGAL LINE
FORMER FACILITY/FEATURE
BUILDING
GROUNDWATER MONITORING WELL
SOIL VAPOUR PROBES INSTALLED AT 1.0 mbgs — SV#
SOIL VAPOUR PROBES INSTALLED AT 1.5 mbgs — SV#
NESTED SOIL VAPOUR SAMPLING POINT — SV#
SOIL VAPOUR SAMPLING POINTS INSTALLED AT RESIDENTIAL PROPERTIES — SV#
RESIDENTIAL STRUCTURES WITH REPORTED UNUSUAL FEATURES (EARTHEN FLOORS)

RESIDENTIAL — R
DETACHED GARAGE — G
SUB-SLAB SOIL VAPOUR POINT — SSVP

UTILITY LINES & SYMBOLS
NATURAL GAS LINE
SANITARY SEWER
STORM SEWER
WATER
CATCH BASIN
FIRE HYDRANT
LIGHT STANDARD
MANHOLE
UTILITY POLE

INSTALLATION AREA

NOTES:

1 DRAWING COMPILED FROM PLANIMETRIC FILES SUPPLIED BY THE CITY OF CALGARY (INCLUDING U/G UTILITIES) & FROM SITE ASSESSMENT INFORMATION. ADDITIONAL REFERENCES FROM SEACOR ENVIRONMENTAL ENGINEERING INC., DRAWINGS 149-5A11.DWG, 149-5A6.DWG.

ENGINEER: Clifton

CLIENT: SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT: RISK MANAGEMENT & CONTINGENCY PLAN-BASED SOIL VAPOUR SAMPLING, MARCH 2021 HOUNSFIELD HEIGHTS, CALGARY 9445, ALBERTA

TITLE: DETAILED LAYOUT OF THE INVESTIGATED AREA

DESIGNED	SCALE 1:200	DATE 2021-04-27
DRAWN DMP	PROJECT NO. CG3418E04	FIG. 4
CHECKED DB	FILE NO. CG3418E04-4	

Appendix B
Analytical Results Tables

Clifton

Table 1 - Summary of Soil Vapour Laboratory Analysis

Chemicals of Potential Concern in Soil Vapour

Estimate of Indoor Air Quality for Residential Property at 10th Avenue NW, Calgary, Alberta

Sample ID	321B	322	Guideline[1]	RDL
Sampling Date	11-Mar-21	11-Mar-21		
Parameter				
Benzene	<0.50	<0.50	3.0E+02	0.50
Toluene	1.13	<0.75	1.9E+05	0.75
Ethylbenzene	<0.87	<0.87	5.0E+04	0.87
Xylenes	<1.8	<1.8	8.9E+03	1.8
Aliphatic C6-C8	<15	<15	9.2E+05	15
Aliphatic C8-C10	<15	<15	4.8E+04	15
Aromatic C8-C10	<15	<15	8.1E+03	15
Aliphatic >C10-C12	<15	<15	5.0E+04	15
Aliphatic >C12-C16	<15	<15	5.0E+04	15
Aromatic >C10-C12	<15	<15	1.0E+04	15
Aromatic >C12-C16	<15	<15	1.0E+04	15
1,2-Dichloroethane (1,2-DCA)	<0.41	<0.41	4.0E+01	0.41
Naphthalene	<5.2	<5.2	1.0E+02	5.2

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth < 100 cm, Intrinsik 31/8/2016

Indicates that the concentration exceeds guideline

RDL Reportable Detection Limit

ND No data available

NG No applicable guideline

All results are expressed as µg/m^3 unless otherwise noted.

Testing was conducted by AGAT Labs

Clifton

Job No.	CG3418E04
Client	Suncor EPP
Project	RMCP Soil Vapour Sampling, March 2021
Location	Hounsfield Heights, Calgary, AB 9445

Table 2 - Summary of Soil Vapour Laboratory Analysis

Chemicals of Potential Concern in Soil Vapour

Estimate of Indoor Air Quality for Residential Property at 15th Street NW, Calgary, Alberta

Sample ID	323	Guideline[1]	RDL
Sampling Date	11-Mar-21		
Parameter			
Benzene	<0.50	3.0E+02	0.50
Toluene	<0.75	1.9E+05	0.75
Ethylbenzene	<0.87	5.0E+04	0.87
Xylenes	<1.8	8.9E+03	1.8
Aliphatic C6-C8	<15	9.2E+05	15
Aliphatic C8-C10	<15	4.8E+04	15
Aromatic C8-C10	<15	8.1E+03	15
Aliphatic >C10-C12	<15	5.0E+04	15
Aliphatic >C12-C16	<15	5.0E+04	15
Aromatic >C10-C12	<15	1.0E+04	15
Aromatic >C12-C16	<15	1.0E+04	15
1,2-Dichloroethane (1,2-DCA)	<0.41	4.0E+01	0.41
Naphthalene	<5.2	1.0E+02	5.2

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth < 100 cm, Intrinsik 31/8/2016

Indicates that the concentration exceeds guideline

RDL Reportable Detection Limit

NG No applicable guideline

All results are expressed as µg/m^3 unless otherwise noted.

Testing was conducted by AGAT Labs

Clifton

Job No.	CG3418E03/E04
Client	Suncor EPP
Project	RMCP Soil Vapour Sampling, March 2021
Location	Hounsfield Heights, Calgary, AB 9445

Table 3 - Summary of Soil Vapour Laboratory Analysis

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Samples - Residential Buildings - Installation Depths 1.0 - 1.5 m bgs

Sample ID	32	401	402	403	404	Guideline[1]	Guideline[2]	RDL
Sampling Date	12-Mar-21	12-Mar-21	12-Mar-21	12-Mar-21	12-Mar-21			
Parameter								
Benzene	<0.50	<0.50	0.7	<0.50	0.5	3.0E+02	2.7E+02	0.50
Toluene	<0.75	<0.75	3.2	<0.75	1.0	1.9E+05	1.7E+05	0.75
Ethylbenzene	<0.87	<0.87	1.4	<0.87	<0.87	5.0E+04	4.5E+04	0.87
Xylenes	<1.8	<1.8	4.9	<1.8	<1.8	8.9E+03	8.0E+03	1.8
Aliphatic C6-C8	<15	<15	<150	<15	<15	9.2E+05	8.2E+05	15
Aliphatic C8-C10	<15	<15	1,100	<15	<15	4.8E+04	4.3E+04	15
Aromatic C8-C10	<15	<15	<150	<15	<15	8.1E+03	7.3E+03	15
Aliphatic >C10-C12	<15	<15	18,200	<15	<15	5.0E+04	4.5E+04	15
Aliphatic >C12-C16	<15	<15	9,140	<15	<15	5.0E+04	4.5E+04	15
Aromatic >C10-C12	<15	<15	<150	<15	<15	1.0E+04	9.0E+03	15
Aromatic >C12-C16	<15	<15	<150	<15	<15	1.0E+04	9.0E+03	15
1,2-Dichloroethane (1,2-DCA)	<0.41	<0.41	<0.41	<0.41	<0.41	4.0E+01	3.6E+01	0.41
Naphthalene	<5.2	<5.2	22.5	<5.2	<5.2	1.0E+02	9.3E+01	5.2
Oxygen (O_2) (%)	17.2	ND	ND	ND	ND	NG	NG	0.001
Nitrogen (N_2) (%)	80.8	ND	ND	ND	ND	NG	NG	0.001
Carbon Dioxide (CO_2) (%)	1.8	ND	ND	ND	ND	NG	NG	0.001
Methane (CH_4) (%)	<0.001	ND	ND	ND	ND	NG	NG	0.001

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth < 100 cm, Intrinsik 31/8/2016

2 Increased sampling frequency trigger values

Indicates that the concentration exceeds guideline

Inreased monitoring frequency trigger values

RDL Reportable Detection Limit

NG No applicable guideline

ND No available data

All results are expressed as µg/m^3 unless otherwise noted.

Testing was conducted by AGAT Labs

Clifton

Job No.	CG3418E04
Client	Suncor EPP
Project	RMCP Soil Vapour Sampling, March 2021
Location	Hounsfield Heights, Calgary, AB 9445

Appendix C
Historical Analytical Results Tables

Clifton

Table 1 - Summary of Soil Vapour Historical Analytical Results
Chemicals of Potential Concern in Soil Vapour
Soil Vapour Monitoring Point SV32

Sample ID	32/398	SV32/1309	SV32/358	32/1508	SV32/1421	SV32CS/1521	32	32 / 1302	32	32/9774	32	32C/9943	32	32	Guideline[1]	Guideline[3]
Installation Depth (m bgs)																
1.0																
Sampling Date	8-Jun-16	30-Jan-17	21-Jul-17	14-Apr-18	31-Jan-19	20-Mar-19	16-May-19	22-Aug-19	12-Nov-19	29-Jan-20	10-Jun-20	6-Jul-20	18-Nov-20	12-Mar-21		
Parameter																
Benzene	5.19	0.61	<0.32	0.86	<140	**332**	10.1	0.96	0.51	<0.32	**19000**	**2020**	0.51	<0.50	3.0E+02	2.7E+02
Toluene	111	0.74	0.4	0.86	<170	1030	225	1.04	0.81	0.62	44000	4680	0.81	<0.75	1.9E+05	1.7E+05
Ethylbenzene	95.8	<0.43	<0.43	<0.43	<190	<40	<0.434	<0.43	<0.43	<0.43	3740	466	<0.43	<0.87	5.0E+04	4.5E+04
Xylenes	447	<1.3	<1.3	<1.3	<580	<120	1.94	<1.3	<1.3	<1.3	**15900**	2370	<1.3	<1.8	8.9E+03	8.0E+03
Aliphatic C6-C8[2]	135.5	<10.0	<10.0	<10.0	**1220000**	130670	2244	191590	<56.3	<23.7	636000	47400	<56.3	<15	9.2E+05	8.2E+05
Aliphatic C8-C10	198	<5.0	<5.0	<5.0	<2200	<460	22.6	337	<5.0	11.6	16000	1340	<5.0	<15	4.8E+04	4.3E+04
Aromatic C8-C10	692	<5.0	<5.0	<5.0	<2200	<460	<5.0	<5.0	<5.0	<5.0	**9940**	1340	<5.0	<15	8.1E+03	7.3E+03
Aliphatic >C10-C12	1140	<5.0	<5.0	34.7	<2200	<460	7.1	29.5	<5.0	37.1	<8200	<270	<5.0	<15	5.0E+04	4.5E+04
Aliphatic >C12-C16	490	<5.0	<5.0	7.7	<2200	<460	<5.0	<5.0	<5.0	10.9	<8200	<270	<5.0	<15	5.0E+04	4.5E+04
Aromatic >C10-C12	569	<5.0	<5.0	<5.0	<2200	<460	<5.0	<5.0	<5.0	<5.0	<8200	1340	<5.0	<15	1.0E+04	9.0E+03
Aromatic >C12-C16	76.8	<5.0	<5.0	<5.0	<2200	<460	<5.0	<5.0	<5.0	<5.0	<8200	647	<5.0	<15	1.0E+04	9.0E+03
1,2-Dichloroethane (1,2-DCA)	<0.40	<0.40	<0.40	<0.40	**<180**	**<37**	0.482	<0.40	<0.40	<0.40	**<660**	<22	<0.40	<0.41	4.0E+01	3.6E+01
Naphtalene	3.1	<2.6	<2.6	<2.6	**<1200**	**<97**	<1.05	<1.0	<1.0	<1.0	**<1700**	<58	<1.0	<5.2	1.0E+02	9.3E+01

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth < 100 cm, Intrinsik 31/8/2016

Indicates that the concentration exceeds guideline

Potential guideline exceedance-increased RDL

2 Aliphatic C6-C8 values calculated by summing Aliphatic >C5-C6 and Aliphatic >C6-C8 fractions

3 Increased sampling frequency trigger values

ND No Data Available

NG No applicable guideline

All results are expressed as µg/m^3 unless otherwise noted.

Testing conducted by Maxxam Analytics/Bureau Veritas Laboratories/AGAT Labs

Clifton

Job No.	CG3418E04
Client	Suncor EPP
Project	RMCP Soil Vapour Sampling, March 2021
Location	Hounsfield Heights, Calgary, AB 9445

Table 2 - Summary of Soil Vapour Historical Analytical Results
Chemicals of Potential Concern in Soil Vapour
Soil Vapour Monitoring Point SV321/SV321B

Sample ID	321	SV321/1283	321	321/1893	321	321B	321B	Guideline[1]	Guideline[3]
Installation Depth (m bgs)									
1.0									
Sampling Date	16-May-19	22-Aug-19	12-Nov-19	29-Jan-20	10-Jun-20	18-Nov-20	11-Mar-21		
Parameter									
Benzene	<0.638	<0.32	<0.32	1.55	<0.32	<0.50	<0.50	3.0E+02	2.7E+02
Toluene	3.59	0.96	<0.38	5.87	0.41	<0.75	1.13	1.9E+05	1.7E+05
Ethylbenzene	1.85	<0.43	<0.43	0.96	<0.43	<0.87	<0.87	5.0E+04	4.5E+04
Xylenes	10.7	<1.3	<1.3	4.6	<1.3	<1.8	<1.8	8.9E+03	8.0E+03
Aliphatic C6-C8[2]	<20.0	<10.0	<10.0	<11.9	<10.0	<15	<15	9.2E+05	8.2E+05
Aliphatic C8-C10	46	<5.0	<5.0	<5.0	11.8	<15	<15	4.8E+04	4.3E+04
Aromatic C8-C10	18	<5.0	14.2	<5.0	<5.0	<15	<15	8.1E+03	7.3E+03
Aliphatic >C10-C12	1840	<5.0	7.9	10.7	17.6	<15	<15	5.0E+04	4.5E+04
Aliphatic >C12-C16	265	<5.0	<5.0	<5.0	<5.0	<15	<15	5.0E+04	4.5E+04
Aromatic >C10-C12	37	<5.0	<5.0	<5.0	<5.0	<15	<15	1.0E+04	9.0E+03
Aromatic >C12-C16	<10	<5.0	<5.0	<5.0	<5.0	<15	<15	1.0E+04	9.0E+03
1,2-Dichloroethane (1,2-DCA)	<0.810	<0.40	<0.40	<0.40	<0.40	<0.41	<0.41	4.0E+01	3.6E+01
Naphtalene	<2.10	<1.0	<1.0	<1.0	<1.0	<5.2	<5.2	1.0E+02	9.3E+01

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth < 100 cm, Intrinsik 31/8/2016

Indicates that the concentration exceeds guideline

2 Aliphatic C6-C8 values calculated by summing Aliphatic >C5-C6 and Aliphatic >C6-C8 fractions

3 Increased sampling frequency trigger values

ND No Data Available

NG No applicable guideline

All results are expressed as µg/m^3 unless otherwise noted.

Testing conducted by Maxxam Analytics/Bureau Veritas Laboratories/AGAT Labs

Clifton

Job No.	CG3418E04
Client	Suncor EPP
Project	RMCP Soil Vapour Sampling, March 2021
Location	Hounsfield Heights, Calgary, AB 9445

Table 3 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV322

Sample ID	322	SV322/6875	322/9780	322	322	322	Guideline[1]	Guideline[3]
Installation Depth (m bgs)								
1.0								
Sampling Date	16-May-19	22-Aug-19	29-Jan-20	10-Jun-20	18-Nov-20	11-Mar-21		
Parameter								
Benzene	<0.319	<0.32	0.37	0.33	<0.50	<0.50	3.0E+02	2.7E+02
Toluene	2.06	<0.38	1.21	0.57	0.98	<0.75	1.9E+05	1.7E+05
Ethylbenzene	1.25	<0.43	<0.43	<0.43	<0.87	<0.87	5.0E+04	4.5E+04
Xylenes	8.02	<1.3	<1.3	<1.3	<1.8	<1.8	8.9E+03	8.0E+03
Aliphatic C6-C8[2]	<10.0	<10.0	<10.0	<10.0	<15	<15	9.2E+05	8.2E+05
Aliphatic C8-C10	11.3	<5.0	<5.0	<5.0	<15	<15	4.8E+04	4.3E+04
Aromatic C8-C10	13.6	<5.0	<5.0	<5.0	<15	<15	8.1E+03	7.3E+03
Aliphatic >C10-C12	250	<5.0	9.2	7.2	<15	<15	5.0E+04	4.5E+04
Aliphatic >C12-C16	73.2	<5.0	<5.0	<5.0	<15	<15	5.0E+04	4.5E+04
Aromatic >C10-C12	27.8	<5.0	<5.0	<5.0	<15	<15	1.0E+04	9.0E+03
Aromatic >C12-C16	<5.0	<5.0	<5.0	<5.0	<15	<15	1.0E+04	9.0E+03
1,2-Dichloroethane (1,2-DCA)	<0.405	<0.40	<0.40	<0.40	<0.41	<0.41	4.0E+01	3.6E+01
Naphtalene	<1.05	<1.0	<1.0	<1.0	<5.2	<5.2	1.0E+02	9.3E+01

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth < 100 cm, Intrinsik 31/8/2016

Indicates that the concentration exceeds guideline

2 Aliphatic C6-C8 values calculated by summing Aliphatic >C5-C6 and Aliphatic >C6-C8 fractions

3 Increased sampling frequency trigger values

ND No Data Available

NG No applicable guideline

All results are expressed as µg/m^3 unless otherwise noted.

Testing conducted by Maxxam Analytics/Bureau Veritas Laboratories/AGAT Labs

Clifton

Job No.	CG3418E04
Client	Suncor EPP
Project	RMCP Soil Vapour Sampling, March 2021
Location	Hounsfield Heights, Calgary, AB 9445

Table 4 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV323

Sample ID	323	323/9778	323	323	323	Guideline[1]	Guideline[3]
Installation Depth (m bgs)							
1.0							
Sampling Date	12-Nov-19	29-Jan-20	10-Jun-20	18-Nov-20	11-Mar-21		
Parameter							
Benzene	0.52	1.02	<0.32	0.51	<0.50	3.0E+02	2.7E+02
Toluene	1.57	2.20	0.48	2.37	<0.75	1.9E+05	1.7E+05
Ethylbenzene	<0.43	<0.43	<0.43	<0.87	<0.87	5.0E+04	4.5E+04
Xylenes	<1.3	1.8	<1.3	<1.8	<1.8	8.9E+03	8.0E+03
Aliphatic C6-C8[2]	<10.0	<10.0	<10.0	<15	<15	9.2E+05	8.2E+05
Aliphatic C8-C10	<5.0	<5.0	<5.0	<15	<15	4.8E+04	4.3E+04
Aromatic C8-C10	<5.0	<5.0	<5.0	<15	<15	8.1E+03	7.3E+03
Aliphatic >C10-C12	18.0	9.4	6.1	<15	<15	5.0E+04	4.5E+04
Aliphatic >C12-C16	<5.0	<5.0	<5.0	<15	<15	5.0E+04	4.5E+04
Aromatic >C10-C12	<5.0	<5.0	<5.0	<15	<15	1.0E+04	9.0E+03
Aromatic >C12-C16	<5.0	<5.0	<5.0	<15	<15	1.0E+04	9.0E+03
1,2-Dichloroethane (1,2-DCA)	<0.40	<0.40	<0.40	<0.41	<0.41	4.0E+01	3.6E+01
Naphtalene	<1.0	<1.0	<1.0	<5.2	<5.2	1.0E+02	9.3E+01

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth < 100 cm, Intrinsik 31/8/2016

Indicates that the concentration exceeds guideline

2 Aliphatic C6-C8 values calculated by summing Aliphatic >C5-C6 and Aliphatic >C6-C8 fractions

3 Increased sampling frequency trigger values

ND No Data Available

NG No applicable guideline

All results are expressed as µg/m^3 unless otherwise noted.

Testing conducted by Maxxam Analytics/Bureau Veritas Laboratories/AGAT Labs

Clifton

Job No.	CG3418E04
Client	Suncor EPP
Project	RMCP Soil Vapour Sampling, March 2021
Location	Hounsfield Heights, Calgary, AB 9445

Appendix D
QA/QC Tables

Clifton

Table 1 - Summary of Integrity Testing by Helium Tracer

SVMP ID		SV321B	SV322	SV323	SV32	SV401	SV402	SV403	SV404
Installation Date		15-Sep-20	13-May-19	12-Nov-19	01-Jun-16	22-Dec-20	22-Dec-20	22-Dec-20	22-Dec-20
Testing Date Date		11-Mar-21	11-Mar-21	11-Mar-21	12-Mar-21	12-Mar-21	12-Mar-21	12-Mar-21	12-Mar-21
Helium Analyzer	**Units**	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002
Initial Recorded He Shroud Concentration	%	26.2	25.8	25.5	27.2	27.4	29.0	30.8	29.9
Final Recorded He Shroud Concentration	%	14.1	12.9	14.1	12.8	16.4	17.2	17.1	12.8
Final Sampling Train He Concentration	%	0.03	0.02	0.02	0.01	0.03	0.02	0.0	0.25
Percentage of He Concentration Decrease (Initial Shroud vs.Final Sampling Train)	%	99.9	99.9	99.9	100.0	99.9	99.9	100.0	99.2
Integrity Test Result	PASS/FAIL	**PASS**	**PASS**	**PASS**	**PASS**	**FAIL**	**PASS**	**PASS**	**PASS**

Notes:

He 99.99% commercial grade helium tracer
Testing conducted by Clifton

Clifton

Job No.	CG3418E04
Client	Suncor EPP
Project	RMCP Soil Vapour Sampling, March 2021
Location	Hounsfield Heights, Calgary, AB 9445

Table 2 - Summary of Field Duplicates - Laboratory Analysis and Relative Percent Difference Calculations

Sample ID	RDL	32	932	RPD (%)
Sample Date		12-Mar-21		
Parameter				
Benzene	0.50	<0.50	<0.50	N/A
Toluene	0.75	<0.75	3.28	N/A
Ethylbenzene	0.87	<0.87	<0.87	N/A
Total Xylenes	1.8	<1.8	<1.8	N/A
Aliphatic >C6-C8	15	<15	<15	N/A
Aliphatic >C8-C10	15	<15	<15	N/A
Aromatic >C8-C10	15	<15	<15	N/A
Aliphatic >C10-C12	15	<15	<15	N/A
Aliphatic >C12-C16	15	<15	<15	N/A
Aromatic >C10-C12	15	<15	<15	N/A
Aromatic >C12-C16	15	<15	<15	N/A
1,2-Dichloroethane (1,2-DCA)	0.41	<0.41	<0.41	N/A
Naphtalene	5.2	<5.2	<5.2	N/A

Notes:

RDL Reportable Detection Limit
RPD Relative Percent Difference
N/A Not applicable
Bold RPD > 25%

All results are expressed as µg/m^3 unless otherwise noted
Testing was conducted by AGAT Labs

Clifton

Job No.	CG3418E04
Client	Suncor EPP
Project	RMCP Soil Vapour Sampling, March 2021
Location	Hounsfield Heights, Calgary, AB 9445

Appendix E
Certificate of Analysis

Clifton

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP
1155 GLENAYRE DRIVE PO BOX 100
PORT MOODY, BC V3H 3E1

ATTENTION TO: Paul Gordon

PROJECT: CG3418E04 / Suncor

AGAT WORK ORDER: 21T714273

AIR QUALITY MONITORING REVIEWED BY: Theresa Stephenson, Manager of Technical Services

DATE REPORTED: Apr 01, 2021

PAGES (INCLUDING COVER): 19

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days following analysis, unless expressly agreed otherwise in writing. Please contact your Client Project Manager if you require additional sample storage time.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*

Air Quality Summary

AGAT WORK ORDER: 21T714273

PROJECT: CG3418E04 / Suncor

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Paul Gordon

SAMPLING SITE:

SAMPLED BY:

Parameter	Unit	Number of Samples	Peak Reading	Network Average
Benzene	µg/m3	9	0.73	<0.50
Propylene	µg/m3	9	1.57	<0.52
Dichlorodifluoromethane	µg/m3	9	2.62	2.37
Toluene	µg/m3	9	3.28	0.96
1,2-Dichlorotetrafluoroethane	µg/m3	9	<1.4	<1.4
Ethylbenzene	µg/m3	9	1.35	<0.87
Ethanol	µg/m3	9	7.90	3.46
m&p-Xylene	µg/m3	9	2.9	<1.3
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/m3	9	<1.5	<1.5
o-Xylene	µg/m3	9	1.95	<0.87
Chloromethane	µg/m3	9	1.51	<0.62
Total Xylenes	µg/m3	9	4.9	<1.8
C6-C8 Aliphatic	µg/m3	9	<15	<15
Vinyl Chloride	µg/m3	9	<0.51	<0.51
1,3-Butadiene	µg/m3	9	<1.1	<1.1
>C8-C10 Aliphatic	µg/m3	9	1100	122
>C10-C12 Aliphatic	µg/m3	9	18200	2022
Bromomethane	µg/m3	9	<1.9	<1.9
>C12-C16 Aliphatic	µg/m3	9	9140	1016
Chloroethane	µg/m3	9	<1.1	<1.1
C6-C8 Aromatic	µg/m3	9	<15	<15
Vinyl Bromide	µg/m3	9	<0.88	<0.88
>C8-C10 Aromatic	µg/m3	9	<15	<15
Trichlorofluoromethane	µg/m3	9	<2.2	<2.2
>C10-C12 Aromatic	µg/m3	9	<15	<15
Acetone	µg/m3	9	21.6	9.1
>C12-C16 Aromatic	µg/m3	9	<15	<15
Isopropanol	µg/m3	9	16.3	4.3
1,1-Dichloroethene	µg/m3	9	<1.2	<1.2
C6-C10 (F1)	µg/m3	9	1100	122
C6-C10 (F1 minus BTEX)	µg/m3	9	1090	121

Air Quality Summary

AGAT WORK ORDER: 21T714273

PROJECT: CG3418E04 / Suncor

5835 COOPERS AVENUE
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CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Paul Gordon

SAMPLING SITE:

SAMPLED BY:

Parameter	Unit	Number of Samples	Peak Reading	Network Average
Dichloromethane (Methylene Chloride)	µg/m3	9	42.0	8.9
>C10-C16 (F2)	µg/m3	9	27300	3033
Carbon Disulfide	µg/m3	9	4.1	<1.5
4-Bromofluorobenzene	%	9	117	100
trans-1,2-Dichloroethene	µg/m3	9	<0.80	<0.80
Methyl tert-Butyl ether (MTBE)	µg/m3	9	<0.72	<0.72
1,1-Dichloroethane	µg/m3	9	<1.2	<1.2
Vinyl Acetate	µg/m3	9	<1.8	<1.8
n-Hexane	µg/m3	9	6.2	1.1
Methyl Ethyl Ketone	µg/m3	9	2.1	<1.5
cis-1,2-Dichloroethene	µg/m3	9	<0.80	<0.80
Chloroform	µg/m3	9	7.5	1.5
Ethyl Acetate	µg/m3	9	2.6	<1.8
Tetrahydrofuran	µg/m3	9	<1.2	<1.2
1,2-Dichloroethane	µg/m3	9	<0.41	<0.41
1,1,1-Trichloroethane	µg/m3	9	<1.6	<1.6
2,2,4-Trimethylpentane (Iso octane)	µg/m3	9	3.4	<2.3
Cyclohexane	µg/m3	9	<0.69	<0.69
Carbon Tetrachloride	µg/m3	9	<1.9	<1.9
Benzene	µg/m3	9	0.73	<0.64
1,2-Dichloropropane	µg/m3	9	<1.8	<1.8
n-Heptane	µg/m3	9	<1.2	<1.2
Trichloroethene	µg/m3	9	8.5	1.1
Bromodichloromethane	µg/m3	9	<1.3	<1.3
1,4-Dioxane	µg/m3	9	<2.2	<2.2
Methyl Methacrylate	µg/m3	9	<2.0	<2.0
cis-1,3-Dichloropropene	µg/m3	9	<0.91	<0.91
trans-1,3-Dichloropropene	µg/m3	9	<0.91	<0.91
Methyl Isobutyl Ketone (MIBK)	µg/m3	9	<2.0	<2.0
1,1,2-Trichloroethane	µg/m3	9	<1.1	<1.1
Toluene	µg/m3	9	3.28	0.96

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Air Quality Summary

AGAT WORK ORDER: 21T714273

PROJECT: CG3418E04 / Suncor

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Paul Gordon

SAMPLING SITE:

SAMPLED BY:

Parameter	Unit	Number of Samples	Peak Reading	Network Average
2-Hexanone	µg/m3	9	<2.0	<2.0
Dibromochloromethane	µg/m3	9	<1.7	<1.7
1,2-Dibromoethane	µg/m3	9	<1.5	<1.5
Tetrachloroethene	µg/m3	9	<1.0	<1.0
Chlorobenzene	µg/m3	9	<0.92	<0.92
Ethylbenzene	µg/m3	9	1.35	<0.87
m&p-Xylene	µg/m3	9	2.9	<1.3
Bromoform	µg/m3	9	<2.1	<2.1
Styrene	µg/m3	9	<0.85	<0.85
1,1,2,2-Tetrachloroethane	µg/m3	9	<1.4	<1.4
o-Xylene	µg/m3	9	1.95	<0.87
1-Ethyl-4-Methylbenzene	µg/m3	9	5.2	<2.5
1,3,5-Trimethylbenzene	µg/m3	9	4.6	<2.5
1,2,4-Trimethylbenzene	µg/m3	9	7.0	<2.5
1,3-Dichlorobenzene	µg/m3	9	<2.5	<2.5
Benzyl Chloride	µg/m3	9	<2.6	<2.6
1,4-Dichlorobenzene	µg/m3	9	<2.4	<2.4
1,2-Dichlorobenzene	µg/m3	9	<2.4	<2.4
1,2,4-Trichlorobenzene	µg/m3	9	9.2	<3.7
Naphthalene	µg/m3	9	22.5	<5.2
Hexachlorobutadiene	µg/m3	9	<5.3	<5.3
Total Xylenes	µg/m3	9	4.9	<2.2
4-Bromofluorobenzene	%	9	117	100

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Certificate of Analysis

AGAT WORK ORDER: 21T714273

PROJECT: CG3418E04 / Suncor

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Paul Gordon

SAMPLING SITE:

SAMPLED BY:

BTEX/F1/F2 Fractionation in Air (Canister) (µg/m3)

DATE RECEIVED: 2021-03-16

DATE REPORTED: 2021-04-01

		SAMPLE DESCRIPTION:		322	321B	404	403		402		32
		SAMPLE TYPE:		Air	Air	Air	Air		Air		Air
		DATE SAMPLED:		2021-03-11	2021-03-11	2021-03-11	2021-03-11		2021-03-12		2021-03-12
Parameter	Unit	G / S	RDL	2227815	2227817	2227818	2227819	RDL	2227820	RDL	2227821
pressure upon receipt	inHg			-5.0	-5.0	-4.0	-6.0		-8.0		-6.0
Benzene	µg/m3		0.50	<0.50	<0.50	0.54	<0.50	0.50	0.73	0.50	<0.50
Toluene	µg/m3		0.75	<0.75	1.13	0.98	<0.75	0.75	3.24	0.75	<0.75
Ethylbenzene	µg/m3		0.87	<0.87	<0.87	<0.87	<0.87	0.87	1.35	0.87	<0.87
m&p-Xylene	µg/m3		1.3	<1.3	<1.3	<1.3	<1.3	1.3	2.9	1.3	<1.3
o-Xylene	µg/m3		0.87	<0.87	<0.87	<0.87	<0.87	0.87	1.95	0.87	<0.87
Total Xylenes	µg/m3		1.8	<1.8	<1.8	<1.8	<1.8	1.8	4.9	1.8	<1.8
C6-C8 Aliphatic	µg/m3		15	<15	<15	<15	<15	150	<150	15	<15
>C8-C10 Aliphatic	µg/m3		15	<15	<15	<15	<15	150	1100	15	<15
>C10-C12 Aliphatic	µg/m3		15	<15	<15	<15	<15	150	18200	15	<15
>C12-C16 Aliphatic	µg/m3		15	<15	<15	<15	<15	150	9140	15	<15
C6-C8 Aromatic	µg/m3		15	<15	<15	<15	<15	150	<150	15	<15
>C8-C10 Aromatic	µg/m3		15	<15	<15	<15	<15	150	<150	15	<15
>C10-C12 Aromatic	µg/m3		15	<15	<15	<15	<15	150	<150	15	<15
>C12-C16 Aromatic	µg/m3		15	<15	<15	<15	<15	150	<150	15	<15
C6-C10 (F1)	µg/m3		15	<15	<15	<15	<15	15	1100	15	<15
C6-C10 (F1 minus BTEX)	µg/m3		15	<15	<15	<15	<15	15	1090	15	<15
>C10-C16 (F2)	µg/m3		15	<15	<15	<15	<15	15	27300	15	<15
Surrogate	Unit	Acceptable Limits									
4-Bromofluorobenzene	%	70-130		100	98	98	97	0	117	0	95

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T714273

PROJECT: CG3418E04 / Suncor

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Paul Gordon

SAMPLING SITE:

SAMPLED BY:

BTEX/F1/F2 Fractionation in Air (Canister) (µg/m3)

DATE RECEIVED: 2021-03-16

DATE REPORTED: 2021-04-01

		SAMPLE DESCRIPTION:		932	401	323
		SAMPLE TYPE:		Air	Air	Air
		DATE SAMPLED:		2021-03-12	2021-03-12	2021-03-12
Parameter	Unit	G / S	RDL	2227822	2227823	2227824
pressure upon receipt	inHg			-6.0	-5.0	-4.0
Benzene	µg/m3		0.50	<0.50	<0.50	<0.50
Toluene	µg/m3		0.75	3.28	<0.75	<0.75
Ethylbenzene	µg/m3		0.87	<0.87	<0.87	<0.87
m&p-Xylene	µg/m3		1.3	<1.3	<1.3	<1.3
o-Xylene	µg/m3		0.87	<0.87	<0.87	<0.87
Total Xylenes	µg/m3		1.8	<1.8	<1.8	<1.8
C6-C8 Aliphatic	µg/m3		15	<15	<15	<15
>C8-C10 Aliphatic	µg/m3		15	<15	<15	<15
>C10-C12 Aliphatic	µg/m3		15	<15	<15	<15
>C12-C16 Aliphatic	µg/m3		15	<15	<15	<15
C6-C8 Aromatic	µg/m3		15	<15	<15	<15
>C8-C10 Aromatic	µg/m3		15	<15	<15	<15
>C10-C12 Aromatic	µg/m3		15	<15	<15	<15
>C12-C16 Aromatic	µg/m3		15	<15	<15	<15
C6-C10 (F1)	µg/m3		15	<15	<15	<15
C6-C10 (F1 minus BTEX)	µg/m3		15	<15	<15	<15
>C10-C16 (F2)	µg/m3		15	<15	<15	<15
Surrogate	Unit	Acceptable Limits				
4-Bromofluorobenzene	%	70-130		100	100	97

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

2227815-2227819 BTEX and fractionation analysis was performed from an air canister sample, using a Cold Vapor Trap preconcentrator and GC/MSD.

2227820 BTEX and fractionation analysis was performed from an air canister sample, using a Cold Vapor Trap preconcentrator and GC/MSD.

Due to the presence of high levels of hydrocarbons the nominal volume could not be used, this is considered a dilution.
Dilution factor=10.
The Reporting Detection Limit has been adjusted accordingly.

2227821-2227824 BTEX and fractionation analysis was performed from an air canister sample, using a Cold Vapor Trap preconcentrator and GC/MSD.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories
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Certificate of Analysis

AGAT WORK ORDER: 21T714273

PROJECT: CG3418E04 / Suncor

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Paul Gordon

SAMPLING SITE:

SAMPLED BY:

VOCs in Air (Canister) - TO15 Full List (µg/m3)

DATE RECEIVED: 2021-03-16

DATE REPORTED: 2021-04-01

		SAMPLE DESCRIPTION:		322	321B	404	403	402	32	932	401
		SAMPLE TYPE:		Air	Air	Air	Air	Air	Air	Air	Air
		DATE SAMPLED:		2021-03-11	2021-03-11	2021-03-11	2021-03-11	2021-03-12	2021-03-12	2021-03-12	2021-03-12
Parameter	Unit	G / S	RDL	2227815	2227817	2227818	2227819	2227820	2227821	2227822	2227823
pressure upon receipt	inHg			-5.0	-5.0	-4.0	-6.0	-8.0	-6.0	-6.0	-5.0
Propylene	µg/m3		0.52	<0.52	<0.52	1.57	<0.52	<0.52	<0.52	<0.52	<0.52
Dichlorodifluoromethane	µg/m3		0.99	2.47	2.42	2.52	2.37	2.62	2.08	2.13	2.18
1,2-Dichlorotetrafluoroethane	µg/m3		1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Ethanol	µg/m3		0.94	1.87	4.86	7.08	2.49	7.90	1.94	3.11	1.85
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/m3		1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Chloromethane	µg/m3		0.62	<0.62	<0.62	1.51	<0.62	<0.62	<0.62	<0.62	<0.62
Vinyl Chloride	µg/m3		0.51	<0.51	<0.51	<0.51	<0.51	<0.51	<0.51	<0.51	<0.51
1,3-Butadiene	µg/m3		1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Bromomethane	µg/m3		1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9
Chloroethane	µg/m3		1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Vinyl Bromide	µg/m3		0.88	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88	<0.88
Trichlorofluoromethane	µg/m3		2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Acetone	µg/m3		1.2	3.4	21.6	6.1	4.0	18.6	3.6	17.0	3.0
Isopropanol	µg/m3		1.2	1.4	3.3	1.9	2.4	16.3	1.8	8.1	<1.2
1,1-Dichloroethene	µg/m3		1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
Dichloromethane (Methylene Chloride)	µg/m3		1.0	2.4	5.3	4.2	5.5	42.0	3.9	13.0	1.6
Carbon Disulfide	µg/m3		1.5	<1.5	<1.5	<1.5	<1.5	4.1	<1.5	<1.5	<1.5
trans-1,2-Dichloroethene	µg/m3		0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80
Methyl tert-Butyl ether (MTBE)	µg/m3		0.72	<0.72	<0.72	<0.72	<0.72	<0.72	<0.72	<0.72	<0.72
1,1-Dichloroethane	µg/m3		1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
Vinyl Acetate	µg/m3		1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
n-Hexane	µg/m3		1.1	<1.1	<1.1	<1.1	<1.1	3.7	<1.1	6.2	<1.1
Methyl Ethyl Ketone	µg/m3		1.5	<1.5	1.9	<1.5	<1.5	<1.5	<1.5	2.1	<1.5
cis-1,2-Dichloroethene	µg/m3		0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80
Chloroform	µg/m3		1.0	<1.0	<1.0	<1.0	7.5	3.9	<1.0	<1.0	<1.0
Ethyl Acetate	µg/m3		1.8	1.9	<1.8	<1.8	2.6	<1.8	<1.8	<1.8	<1.8
Tetrahydrofuran	µg/m3		1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
1,2-Dichloroethane	µg/m3		0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41

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Certificate of Analysis

AGAT WORK ORDER: 21T714273

PROJECT: CG3418E04 / Suncor

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Paul Gordon

SAMPLING SITE:

SAMPLED BY:

VOCs in Air (Canister) - TO15 Full List (µg/m3)

DATE RECEIVED: 2021-03-16

DATE REPORTED: 2021-04-01

		SAMPLE DESCRIPTION:		322	321B	404	403	402	32	932	401
		SAMPLE TYPE:		Air	Air	Air	Air	Air	Air	Air	Air
		DATE SAMPLED:		2021-03-11	2021-03-11	2021-03-11	2021-03-11	2021-03-12	2021-03-12	2021-03-12	2021-03-12
Parameter	Unit	G / S	RDL	2227815	2227817	2227818	2227819	2227820	2227821	2227822	2227823
1,1,1-Trichloroethane	µg/m3		1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
2,2,4-Trimethylpentane (Iso octane)	µg/m3		2.3	<2.3	<2.3	<2.3	<2.3	3.4	<2.3	3.0	<2.3
Cyclohexane	µg/m3		0.69	<0.69	<0.69	<0.69	<0.69	<0.69	<0.69	<0.69	<0.69
Carbon Tetrachloride	µg/m3		1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9
Benzene	µg/m3		0.64	<0.64	<0.64	<0.64	<0.64	0.73	<0.64	<0.64	<0.64
1,2-Dichloropropane	µg/m3		1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
n-Heptane	µg/m3		1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
Trichloroethene	µg/m3		1.1	<1.1	<1.1	<1.1	<1.1	8.5	<1.1	<1.1	<1.1
Bromodichloromethane	µg/m3		1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
1,4-Dioxane	µg/m3		2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Methyl Methacrylate	µg/m3		2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
cis-1,3-Dichloropropene	µg/m3		0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91
trans-1,3-Dichloropropene	µg/m3		0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91
Methyl Isobutyl Ketone (MIBK)	µg/m3		2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,1,2-Trichloroethane	µg/m3		1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Toluene	µg/m3		0.75	<0.75	1.13	0.98	<0.75	3.24	<0.75	3.28	<0.75
2-Hexanone	µg/m3		2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Dibromochloromethane	µg/m3		1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
1,2-Dibromoethane	µg/m3		1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Tetrachloroethene	µg/m3		1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	µg/m3		0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92	<0.92
Ethylbenzene	µg/m3		0.87	<0.87	<0.87	<0.87	<0.87	1.35	<0.87	<0.87	<0.87
m&p-Xylene	µg/m3		1.3	<1.3	<1.3	<1.3	<1.3	2.9	<1.3	<1.3	<1.3
Bromoform	µg/m3		2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
Styrene	µg/m3		0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85
1,1,2,2-Tetrachloroethane	µg/m3		1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
o-Xylene	µg/m3		0.87	<0.87	<0.87	<0.87	<0.87	1.95	<0.87	<0.87	<0.87
1-Ethyl-4-Methylbenzene	µg/m3		2.5	<2.5	<2.5	<2.5	<2.5	5.2	<2.5	<2.5	<2.5
1,3,5-Trimethylbenzene	µg/m3		2.5	<2.5	<2.5	<2.5	<2.5	4.6	<2.5	<2.5	<2.5
1,2,4-Trimethylbenzene	µg/m3		2.5	<2.5	<2.5	<2.5	<2.5	7.0	<2.5	<2.5	<2.5

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Certificate of Analysis

AGAT WORK ORDER: 21T714273

PROJECT: CG3418E04 / Suncor

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Paul Gordon

SAMPLING SITE:

SAMPLED BY:

VOCs in Air (Canister) - TO15 Full List (µg/m3)

DATE RECEIVED: 2021-03-16

DATE REPORTED: 2021-04-01

		SAMPLE DESCRIPTION:		322	321B	404	403	402	32	932	401
		SAMPLE TYPE:		Air	Air	Air	Air	Air	Air	Air	Air
		DATE SAMPLED:		2021-03-11	2021-03-11	2021-03-11	2021-03-11	2021-03-12	2021-03-12	2021-03-12	2021-03-12
Parameter	Unit	G / S	RDL	2227815	2227817	2227818	2227819	2227820	2227821	2227822	2227823
1,3-Dichlorobenzene	µg/m3		2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Benzyl Chloride	µg/m3		2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6
1,4-Dichlorobenzene	µg/m3		2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4
1,2-Dichlorobenzene	µg/m3		2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4
1,2,4-Trichlorobenzene	µg/m3		3.7	<3.7	<3.7	<3.7	<3.7	9.2	<3.7	<3.7	<3.7
Naphthalene	µg/m3		5.2	<5.2	<5.2	<5.2	<5.2	22.5	<5.2	<5.2	<5.2
Hexachlorobutadiene	µg/m3		5.3	<5.3	<5.3	<5.3	<5.3	<5.3	<5.3	<5.3	<5.3
Total Xylenes	µg/m3		2.2	<2.2	<2.2	<2.2	<2.2	4.9	<2.2	<2.2	<2.2
Surrogate	Unit	Acceptable Limits									
4-Bromofluorobenzene	%	70-130		100	98	98	97	117	95	100	100

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SAMPLED BY:

VOCs in Air (Canister) - TO15 Full List (µg/m3)

DATE RECEIVED: 2021-03-16

DATE REPORTED: 2021-04-01

		SAMPLE DESCRIPTION:		323
		SAMPLE TYPE:		Air
		DATE SAMPLED:		2021-03-12
Parameter	Unit	G / S	RDL	2227824
pressure upon receipt	inHg			-4.0
Propylene	µg/m3		0.52	<0.52
Dichlorodifluoromethane	µg/m3		0.99	2.57
1,2-Dichlorotetrafluoroethane	µg/m3		1.4	<1.4
Ethanol	µg/m3		0.94	<0.94
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/m3		1.5	<1.5
Chloromethane	µg/m3		0.62	<0.62
Vinyl Chloride	µg/m3		0.51	<0.51
1,3-Butadiene	µg/m3		1.1	<1.1
Bromomethane	µg/m3		1.9	<1.9
Chloroethane	µg/m3		1.1	<1.1
Vinyl Bromide	µg/m3		0.88	<0.88
Trichlorofluoromethane	µg/m3		2.2	<2.2
Acetone	µg/m3		1.2	4.6
Isopropanol	µg/m3		1.2	3.3
1,1-Dichloroethene	µg/m3		1.2	<1.2
Dichloromethane (Methylene Chloride)	µg/m3		1.0	2.6
Carbon Disulfide	µg/m3		1.5	<1.5
trans-1,2-Dichloroethene	µg/m3		0.80	<0.80
Methyl tert-Butyl ether (MTBE)	µg/m3		0.72	<0.72
1,1-Dichloroethane	µg/m3		1.2	<1.2
Vinyl Acetate	µg/m3		1.8	<1.8
n-Hexane	µg/m3		1.1	<1.1
Methyl Ethyl Ketone	µg/m3		1.5	<1.5
cis-1,2-Dichloroethene	µg/m3		0.80	<0.80
Chloroform	µg/m3		1.0	1.7
Ethyl Acetate	µg/m3		1.8	<1.8
Tetrahydrofuran	µg/m3		1.2	<1.2
1,2-Dichloroethane	µg/m3		0.41	<0.41

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Certificate of Analysis

AGAT WORK ORDER: 21T714273

PROJECT: CG3418E04 / Suncor

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Paul Gordon

SAMPLING SITE:

SAMPLED BY:

VOCs in Air (Canister) - TO15 Full List (µg/m3)

DATE RECEIVED: 2021-03-16

DATE REPORTED: 2021-04-01

		SAMPLE DESCRIPTION:		323
		SAMPLE TYPE:		Air
		DATE SAMPLED:		2021-03-12
Parameter	Unit	G / S	RDL	2227824
1,1,1-Trichloroethane	µg/m3		1.6	<1.6
2,2,4-Trimethylpentane (Iso octane)	µg/m3		2.3	<2.3
Cyclohexane	µg/m3		0.69	<0.69
Carbon Tetrachloride	µg/m3		1.9	<1.9
Benzene	µg/m3		0.64	<0.64
1,2-Dichloropropane	µg/m3		1.8	<1.8
n-Heptane	µg/m3		1.2	<1.2
Trichloroethene	µg/m3		1.1	1.8
Bromodichloromethane	µg/m3		1.3	<1.3
1,4-Dioxane	µg/m3		2.2	<2.2
Methyl Methacrylate	µg/m3		2.0	<2.0
cis-1,3-Dichloropropene	µg/m3		0.91	<0.91
trans-1,3-Dichloropropene	µg/m3		0.91	<0.91
Methyl Isobutyl Ketone (MIBK)	µg/m3		2.0	<2.0
1,1,2-Trichloroethane	µg/m3		1.1	<1.1
Toluene	µg/m3		0.75	<0.75
2-Hexanone	µg/m3		2.0	<2.0
Dibromochloromethane	µg/m3		1.7	<1.7
1,2-Dibromoethane	µg/m3		1.5	<1.5
Tetrachloroethene	µg/m3		1.0	<1.0
Chlorobenzene	µg/m3		0.92	<0.92
Ethylbenzene	µg/m3		0.87	<0.87
m&p-Xylene	µg/m3		1.3	<1.3
Bromoform	µg/m3		2.1	<2.1
Styrene	µg/m3		0.85	<0.85
1,1,2,2-Tetrachloroethane	µg/m3		1.4	<1.4
o-Xylene	µg/m3		0.87	<0.87
1-Ethyl-4-Methylbenzene	µg/m3		2.5	<2.5
1,3,5-Trimethylbenzene	µg/m3		2.5	<2.5
1,2,4-Trimethylbenzene	µg/m3		2.5	<2.5

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Certificate of Analysis

AGAT WORK ORDER: 21T714273

PROJECT: CG3418E04 / Suncor

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Paul Gordon

SAMPLING SITE:

SAMPLED BY:

VOCs in Air (Canister) - TO15 Full List (µg/m3)

DATE RECEIVED: 2021-03-16

DATE REPORTED: 2021-04-01

		SAMPLE DESCRIPTION:		323
		SAMPLE TYPE:		Air
		DATE SAMPLED:		2021-03-12
Parameter	Unit	G / S	RDL	2227824
1,3-Dichlorobenzene	µg/m3		2.5	<2.5
Benzyl Chloride	µg/m3		2.6	<2.6
1,4-Dichlorobenzene	µg/m3		2.4	<2.4
1,2-Dichlorobenzene	µg/m3		2.4	<2.4
1,2,4-Trichlorobenzene	µg/m3		3.7	<3.7
Naphthalene	µg/m3		5.2	<5.2
Hexachlorobutadiene	µg/m3		5.3	<5.3
Total Xylenes	µg/m3		2.2	<2.2
Surrogate	Unit	Acceptable Limits		
4-Bromofluorobenzene	%	70-130		97

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

2227815-2227819 VOC analysis was performed from an air canister sample, using a Cold Vapor Trap preconcentrator and GC/MSD.

2227820 VOC analysis was performed from an air canister sample, using a Cold Vapor Trap preconcentrator and GC/MSD.

Due to the presence of high levels of hydrocarbons the nominal volume could not be used, this is considered a dilution.
Dilution factor=10.
The Reporting Detection Limit has been adjusted accordingly.

2227821-2227824 VOC analysis was performed from an air canister sample, using a Cold Vapor Trap preconcentrator and GC/MSD.

Analysis performed at AGAT Toronto (unless marked by *)

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Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 21T714273

PROJECT: CG3418E04 / Suncor

ATTENTION TO: Paul Gordon

SAMPLING SITE:

SAMPLED BY:

Air Quality Monitoring

RPT Date: Apr 01, 2021			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
BTEX/F1/F2 Fractionation in Air (Canister) (µg/m3)															
Benzene	2227822	2227822	< 0.50	< 0.50	0.0%	< 0.50	116%	60%	140%	118%	50%	140%	NA		
Toluene	2227822	2227822	3.28	3.73	NA	< 0.75	114%	60%	140%	111%	50%	140%	NA		
Ethylbenzene	2227822	2227822	< 0.87	< 0.87	0.0%	< 0.87	112%	60%	140%	113%	50%	140%	NA		
m&p-Xylene	2227822	2227822	< 1.3	< 1.3	0.0%	< 1.3	99%	60%	140%	99%	50%	140%	NA		
o-Xylene	2227822	2227822	< 0.87	< 0.87	0.0%	< 0.87	111%	60%	140%	110%	50%	140%	NA		
C6-C8 Aliphatic	2227822	2227822	< 15	< 15	0.0%	< 15	116%	60%	140%	104%	50%	140%			
>C8-C10 Aliphatic	2227822	2227822	< 15	< 15	0.0%	< 15	113%	60%	140%	103%	50%	140%			
>C10-C12 Aliphatic	2227822	2227822	< 15	< 15	0.0%	< 15	134%	60%	140%	126%	50%	140%			
C6-C8 Aromatic	2227822	2227822	< 15	< 15	0.0%	< 15	115%	60%	140%	103%	50%	140%			
>C8-C10 Aromatic	2227822	2227822	< 15	< 15	0.0%	< 15	110%	60%	140%	137%	50%	140%			
>C10-C12 Aromatic	2227822	2227822	< 15	< 15	0.0%	< 15	108%	60%	140%	86%	50%	140%			
C6-C10 (F1)	2227822	2227822	< 15	< 15	0.0%	< 15	114%	60%	140%	104%	50%	140%			
>C10-C16 (F2)	2227822	2227822	< 15	< 15	0.0%	< 15	125%	60%	140%	106%	50%	140%			
VOCs in Air (Canister) - TO15 Full List (µg/m3)															
Propylene	2227822	2227822	<0.52	<0.52	NA	< 0.52	116%	60%	140%	122%	50%	140%	NA		
Dichlorodifluoromethane	2227822	2227822	2.13	2.18	NA	< 0.99	100%	60%	140%	104%	50%	140%	NA		
1,2-Dichlorotetrafluoroethane	2227822	2227822	<1.4	<1.4	NA	< 1.4	87%	60%	140%	92%	50%	140%	NA		
Ethanol	2227822	2227822	3.11	4.11	NA	< 0.94	116%	60%	140%	100%	50%	140%	NA		
1,1,2-Trichloro-1,2,2-trifluoroethane	2227822	2227822	<1.5	<1.5	NA	< 1.5	119%	50%	140%	124%	60%	140%	NA		
Chloromethane	2227822	2227822	<0.62	<0.62	NA	< 0.62	161%	60%	140%	87%	50%	140%	NA		
Vinyl Chloride	2227822	2227822	<0.51	<0.51	NA	< 0.51	88%	60%	140%	92%	50%	140%	NA		
1,3-Butadiene	2227822	2227822	<1.1	<1.1	NA	< 1.1	88%	60%	140%	92%	50%	140%	NA		
Bromomethane	2227822	2227822	<1.9	<1.9	NA	< 1.9	89%	60%	140%	94%	50%	140%	NA		
Chloroethane	2227822	2227822	<1.1	<1.1	NA	< 1.1	90%	60%	140%	86%	50%	140%	NA		
Vinyl Bromide	2227822	2227822	<0.88	<0.88	NA	< 0.88	NA			90%	50%	140%	NA		
Trichlorofluoromethane	2227822	2227822	<2.2	<2.2	NA	< 2.2	84%	60%	140%	95%	50%	140%	NA		
Acetone	2227822	2227822	17.0	20.7	19.6%	< 1.2	83%	60%	140%	94%	50%	140%	NA		
Isopropanol	2227822	2227822	8.1	9.2	12.2%	< 1.2	97%	60%	140%	97%	50%	140%	NA		
1,1-Dichloroethene	2227822	2227822	<1.2	<1.2	NA	< 1.2	99%	60%	140%	105%	50%	140%	NA		
Dichloromethane (Methylene Chloride)	2227822	2227822	13.0	12.1	7.5%	< 1.0	136%	60%	140%	113%	50%	140%	NA		
Carbon Disulfide	2227822	2227822	<1.5	<1.5	NA	< 1.5	106%	60%	140%	131%	50%	140%	NA		
trans-1,2-Dichloroethene	2227822	2227822	<0.80	<0.80	NA	< 0.80	122%	60%	140%	115%	50%	140%	NA		
Methyl tert-Butyl ether (MTBE)	2227822	2227822	<0.72	<0.72	NA	< 0.72	110%	60%	140%	118%	50%	140%	NA		
1,1-Dichloroethane	2227822	2227822	<1.2	<1.2	NA	< 1.2	114%	60%	140%	113%	50%	140%	NA		
Vinyl Acetate	2227822	2227822	<1.8	<1.8	NA	< 1.8	128%	60%	140%	121%	50%	140%	NA		
n-Hexane	2227822	2227822	6.2	6.8	8.1%	< 1.1	117%	60%	140%	117%	50%	140%	NA		
Methyl Ethyl Ketone	2227822	2227822	2.1	<1.5	NA	< 1.5	112%	60%	140%	113%	50%	140%	NA		
cis-1,2-Dichloroethene	2227822	2227822	<0.80	<0.80	NA	< 0.80	106%	60%	140%	114%	50%	140%	NA		

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Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP
AGAT WORK ORDER: 21T714273
PROJECT: CG3418E04 / Suncor
ATTENTION TO: Paul Gordon
SAMPLING SITE:
SAMPLED BY:

Air Quality Monitoring (Continued)

RPT Date: Apr 01, 2021			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Chloroform	2227822	2227822	<1.0	<1.0	NA	< 1.0	109%	60%	140%	111%	50%	140%	NA		
Ethyl Acetate	2227822	2227822	<1.8	<1.8	NA	< 1.8	112%	60%	140%	114%	50%	140%	NA		
Tetrahydrofuran	2227822	2227822	<1.2	<1.2	NA	< 1.2	128%	60%	140%	115%	50%	140%	NA		
1,2-Dichloroethane	2227822	2227822	<0.41	<0.41	NA	< 0.41	105%	60%	140%	109%	50%	140%	NA		
1,1,1-Trichloroethane	2227822	2227822	<1.6	<1.6	NA	< 1.6	108%	60%	140%	111%	50%	140%	NA		
2,2,4-Trimethylpentane (Iso octane)	2227822	2227822	3.0	3.3	NA	< 2.3	NA			117%	50%	140%	NA		
Cyclohexane	2227822	2227822	<0.69	<0.69	NA	< 0.69	112%	60%	140%	117%	50%	140%	NA		
Carbon Tetrachloride	2227822	2227822	<1.9	<1.9	NA	< 1.9	104%	60%	140%	105%	50%	140%	NA		
Benzene	2227822	2227822	<0.64	<0.64	NA	< 0.64	116%	60%	140%	118%	50%	140%	NA		
1,2-Dichloropropane	2227822	2227822	<1.8	<1.8	NA	< 1.8	112%	60%	140%	116%	50%	140%	NA		
n-Heptane	2227822	2227822	<1.2	<1.2	NA	< 1.2	108%	60%	140%	115%	50%	140%	NA		
Trichloroethene	2227822	2227822	<1.1	<1.1	NA	< 1.1	107%	60%	140%	112%	50%	140%	NA		
Bromodichloromethane	2227822	2227822	<1.3	<1.3	NA	< 1.3	106%	60%	140%	109%	50%	140%	NA		
1,4-Dioxane	2227822	2227822	<2.2	<2.2	NA	< 2.2	108%	60%	140%	114%	50%	140%	NA		
Methyl Methacrylate	2227822	2227822	<2.0	<2.0	NA	< 2.0	117%	60%	140%	113%	50%	140%	NA		
cis-1,3-Dichloropropene	2227822	2227822	<0.91	<0.91	NA	< 0.91	114%	60%	140%	114%	50%	140%	NA		
trans-1,3-Dichloropropene	2227822	2227822	<0.91	<0.91	NA	< 0.91	116%	60%	140%	113%	50%	140%	NA		
Methyl Isobutyl Ketone (MIBK)	2227822	2227822	<2.0	<2.0	NA	< 2.0	104%	60%	140%	107%	50%	140%	NA		
1,1,2-Trichloroethane	2227822	2227822	<1.1	<1.1	NA	< 1.1	110%	60%	140%	109%	50%	140%	NA		
Toluene	2227822	2227822	3.28	3.73	NA	< 0.75	114%	60%	140%	111%	50%	140%	NA		
2-Hexanone	2227822	2227822	<2.0	<2.0	NA	< 2.0	101%	60%	140%	105%	50%	140%	NA		
Dibromochloromethane	2227822	2227822	<1.7	<1.7	NA	< 1.7	111%	60%	140%	106%	50%	140%	NA		
1,2-Dibromoethane	2227822	2227822	<1.5	<1.5	NA	< 1.5	113%	60%	140%	109%	50%	140%	NA		
Tetrachloroethene	2227822	2227822	<1.0	<1.0	NA	< 1.0	115%	60%	140%	112%	50%	140%	NA		
Chlorobenzene	2227822	2227822	<0.92	<0.92	NA	< 0.92	112%	60%	140%	111%	50%	140%	NA		
Ethylbenzene	2227822	2227822	<0.87	<0.87	NA	< 0.87	112%	60%	140%	113%	50%	140%	NA		
m&p-Xylene	2227822	2227822	<1.3	<1.3	NA	< 1.3	99%	60%	140%	99%	50%	140%	NA		
Bromoform	2227822	2227822	<2.1	<2.1	NA	< 2.1	107%	60%	140%	106%	50%	140%	NA		
Styrene	2227822	2227822	<0.85	<0.85	NA	< 0.85	115%	60%	140%	114%	50%	140%	NA		
1,1,2,2-Tetrachloroethane	2227822	2227822	<1.4	<1.4	NA	< 1.4	100%	60%	140%	97%	50%	140%	NA		
o-Xylene	2227822	2227822	<0.87	<0.87	NA	< 0.87	111%	60%	140%	110%	50%	140%	NA		
1-Ethyl-4-Methylbenzene	2227822	2227822	<2.5	<2.5	NA	< 2.5	100%	60%	140%	102%	50%	140%	NA		
1,3,5-Trimethylbenzene	2227822	2227822	<2.5	<2.5	NA	< 2.5	99%	60%	140%	100%	50%	140%	NA		
1,2,4-Trimethylbenzene	2227822	2227822	<2.5	<2.5	NA	< 2.5	98%	60%	140%	98%	50%	140%	NA		
1,3-Dichlorobenzene	2227822	2227822	<2.5	<2.5	NA	< 2.5	100%	60%	140%	102%	50%	140%	NA		
Benzyl Chloride	2227822	2227822	<2.6	<2.6	NA	< 2.6	106%	60%	140%	98%	50%	140%	NA		
1,4-Dichlorobenzene	2227822	2227822	<2.4	<2.4	NA	< 2.4	98%	60%	140%	100%	50%	140%	NA		
1,2-Dichlorobenzene	2227822	2227822	<2.4	<2.4	NA	< 2.4	98%	60%	140%	100%	50%	140%	NA		
1,2,4-Trichlorobenzene	2227822	2227822	<3.7	<3.7	NA	< 3.7	117%	60%	140%	111%	50%	140%	NA		

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Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 21T714273

PROJECT: CG3418E04 / Suncor

ATTENTION TO: Paul Gordon

SAMPLING SITE:

SAMPLED BY:

Air Quality Monitoring (Continued)

RPT Date: Apr 01, 2021			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Naphthalene	2227822	2227822	<5.2	<5.2	NA	< 5.2	110%	60%	140%	112%	50%	140%	NA		
Hexachlorobutadiene	2227822	2227822	<5.3	<5.3	NA	< 5.3	113%	60%	140%	105%	50%	140%	NA		

Certified By:

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QA Violation

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 21T714273

PROJECT: CG3418E04 / Suncor

ATTENTION TO: Paul Gordon

RPT Date: Apr 01, 2021			REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Sample Id	Sample Description	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
				Lower	Upper		Lower	Upper		Lower	Upper
VOCs in Air (Canister) - TO15 Full List (µg/m3)											
Chloromethane	2227822	322	161%	60%	140%	87%	50%	140%	NA		

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Method Summary

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP
AGAT WORK ORDER: 21T714273
PROJECT: CG3418E04 / Suncor
ATTENTION TO: Paul Gordon
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Air Quality Monitoring			
pressure upon receipt			N/A
Benzene	AQM-248-16000	modified from EPA TO15	GC/MS
Toluene	AQM-248-16000	modified from EPA TO15	GC/MS
Ethylbenzene	AQM-248-16000	modified from EPA TO15	GC/MS
m&p-Xylene	AQM-248-16000	modified from EPA TO15	GC/MS
o-Xylene	AQM-248-16000	modified from EPA TO15	GC/MS
Total Xylenes	AQM-248-16000	modified from EPA TO15	CALCULATION
C6-C8 Aliphatic	AQM-248-16001	modified from MASS APH, Rev. 1, Dec. 2009	GC/MS
>C8-C10 Aliphatic	AQM-248-16001	modified from MASS APH, Rev. 1, Dec. 2009	GC/MS
>C10-C12 Aliphatic	AQM-248-16001	modified from MASS APH, Rev. 1, Dec. 2009	GC/MS
>C12-C16 Aliphatic	AQM-248-16001	modified from MASS APH, Rev. 1, Dec. 2009	GC/MS
C6-C8 Aromatic	AQM-248-16001	modified from MASS APH, Rev. 1, Dec. 2009	GC/MS
>C8-C10 Aromatic	AQM-248-16001	modified from MASS APH, Rev. 1, Dec. 2009	GC/MS
>C10-C12 Aromatic	AQM-248-16001	modified from MASS APH, Rev. 1, Dec. 2009	GC/MS
>C12-C16 Aromatic	AQM-248-16001	modified from MASS APH, Rev. 1, Dec. 2009	GC/MS
C6-C10 (F1)	AQM-248-16001	modified from MASS APH, Rev. 1, Dec. 2009	GC/MS
C6-C10 (F1 minus BTEX)	AQM-248-16001	modified from MASS APH, Rev. 1, Dec. 2009	GC/MS
>C10-C16 (F2)	AQM-248-16001	modified from MASS APH, Rev. 1, Dec. 2009	GC/MS
4-Bromofluorobenzene	AQM-248-16000	modified from EPA TO15	GC/MS
Propylene	AQM-248-16000	modified from EPA TO15	GC/MS
Dichlorodifluoromethane	AQM-248-16000	modified from EPA TO15	GC/MS
1,2-Dichlorotetrafluoroethane	AQM-248-16000	modified from EPA TO15	GC/MS
Ethanol	AQM-248-16000	modified from EPA TO15	GC/MS
1,1,2-Trichloro-1,2,2-trifluoroethane	AQM 248-16000	modified from EPA TO15	GC/MS
Chloromethane	AQM-248-16000	modified from EPA TO15	GC/MS
Vinyl Chloride	AQM-248-16000	modified from EPA TO15	GC/MS
1,3-Butadiene	AQM-248-16000	modified from EPA TO15	GC/MS
Bromomethane	AQM-248-16000	modified from EPA TO15	GC/MS
Chloroethane	AQM-248-16000	modified from EPA TO15	GC/MS
Vinyl Bromide	AQM-248-16000	modified from EPA TO15	GC/MS
Trichlorofluoromethane	AQM-248-16000	modified from EPA TO15	GC/MS
Acetone	AQM-248-16000	modified from EPA TO15	GC/MS
Isopropanol	AQM-248-16000	modified from EPA TO15	GC/MS
1,1-Dichloroethene	AQM-248-16000	modified from EPA TO15	GC/MS
Dichloromethane (Methylene Chloride)	AQM-248-16000	modified from EPA TO15	GC/MS
Carbon Disulfide	AQM-248-16000	modified from EPA TO15	GC/MS
trans-1,2-Dichloroethene	AQM-248-16000	modified from EPA TO15	GC/MS
Methyl tert-Butyl ether (MTBE)	AQM-248-16000	modified from EPA TO15	GC/MS
1,1-Dichloroethane	AQM-248-16000	modified from EPA TO15	GC/MS
Vinyl Acetate	AQM-248-16000	modified from EPA TO15	GC/MS

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Method Summary

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 21T714273

PROJECT: CG3418E04 / Suncor

ATTENTION TO: Paul Gordon

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
n-Hexane	AQM-248-16000	modified from EPA TO15	GC/MS
Methyl Ethyl Ketone	AQM-248-16000	modified from EPA TO15	GC/MS
cis-1,2-Dichloroethene	AQM 248-16000	modified from EPA TO15	GC/MS
Chloroform	AQM-248-16000	modified from EPA TO15	GC/MS
Ethyl Acetate	AQM 248-16000	modified from EPA TO15	GC/MS
Tetrahydrofuran	AQM-248-16000	modified from EPA TO15	GC/MS
1,2-Dichloroethane	AQM-248-16000	modified from EPA TO15	GC/MS
1,1,1-Trichloroethane	AQM-248-16000	modified from EPA TO15	GC/MS
2,2,4-Trimethylpentane (Iso octane)	AQM-248-16000	modified from EPA TO15	GC/MS
Cyclohexane	AQM-248-16000	modified from EPA TO15	GC/MS
Carbon Tetrachloride	AQM-248-16000	modified from EPA TO15	GC/MS
1,2-Dichloropropane	AQM-248-1600	modified from EPA TO15	GC/MS
n-Heptane	AQM-248-16000	modified from EPA TO15	GC/MS
Trichloroethene	AQM-248-16000	modified from EPA TO15	GC/MS
Bromodichloromethane	AQM-248-16000	modified from EPA TO15	GC/MS
1,4-Dioxane	AQM-248-16000	modified from EPA TO15	GC/MS
Methyl Methacrylate	AQM-248-16000	modified from EPA TO15	GC/MS
cis-1,3-Dichloropropene	AQM-248-16000	modified from EPA TO15	GC/MS
trans-1,3-Dichloropropene	AQM-248-16000	modified from EPA TO15	GC/MS
Methyl Isobutyl Ketone (MIBK)	AQM-248-16000	modified from EPA TO15	GC/MS
1,1,2-Trichloroethane	AQM-248-16000	modified from EPA TO15	GC/MS
2-Hexanone	AQM-248-16000	modified from EPA TO15	GC/MS
Dibromochloromethane	AQM-248-16000	modified from EPA TO15	GC/MS
1,2-Dibromoethane	AQM-248-16000	modified from EPA TO15	GC/MS
Tetrachloroethene	AQM-248-16000	modified from EPA TO15	GC/MS
Chlorobenzene	AQM-248-16000	modified from EPA TO15	GC/MS
Bromoform	AQM-248-16000	modified from EPA TO15	GC/MS
Styrene	AQM-248-16000	modified from EPA TO15	GC/MS
1,1,2,2-Tetrachloroethane	AQM-248-16000	modified from EPA TO15	GC/MS
1-Ethyl-4-Methylbenzene	AQM-248-16000	modified from EPA TO15	GC/MS
1,3,5-Trimethylbenzene	AQM-248-16000	modified from EPA TO15	GC/MS
1,2,4-Trimethylbenzene	AQM-248-16000	modified from EPA TO15	GC/MS
1,3-Dichlorobenzene	AQM-248-16000	modified from EPA TO15	GC/MS
Benzyl Chloride	AQM-248-16000	modified from EPA TO15	GC/MS
1,4-Dichlorobenzene	AQM-248-16000	modified from EPA TO15	GC/MS
1,2-Dichlorobenzene	AQM-248-16000	modified from EPA TO15	GC/MS
1,2,4-Trichlorobenzene	AQM-248-16000	modified from EPA TO15	GC/MS
Naphthalene	AQM-248-16000	modified from EPA TO15	GC/MS
Hexachlorobutadiene	AQM-248-16000	modified from EPA TO15	GC/MS

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Laboratory Use Only

AGAT WO#: 21T714273

Notes:

Air Analysis Chain of Custody Record

Report Information

Company: CLIFTON ENGINEERING GROUP INC.
Contact: DANIEL BUDAI
Address: 2222 30 AVE NE CALGARY, AB T2E7K9
Phone: 403 690 6940 Fax:
Client Project #: CG341 PO: E04/SUB
AGAT Quote #:

Invoice To Same Yes ☐ / No ☐

Company:
Contact:
Address:

Report Information

1. Name: DANIEL BUDAI
Email: Daniel_Budai@clifton
2. Name: 9447
Email:

Turnaround Time Required (TAT)

Regular TAT* ☒ 10 working days
Rush TAT* ☐ 3 working days
☐ 2 working days

UPON FILLING OUT THIS SECTION, THE CLIENT ACCEPTS THAT SURCHARGES WILL BE ATTACHED TO THIS ANALYSIS. IF NOT COMPLETED, REGULAR TAT WILL BE DEFAULT.

*TATs ARE EXCLUSIVE OF WEEKENDS AND STATUTORY HOLIDAYS

FOR RUSH TAT, CONFIRM AVAILABILITY WITH LABORATORY.

Regulatory Guidelines

153 CCME
419 Other:

SAMPLE ID	CANISTER #	FLOW CONTROLLER #	DATE SAMPLED	INITIAL PRESSURE	FINAL PRESSURE	AMBIENT TEMPERATURE	SAMPLE TYPE: AMBIENT	SOIL-VAPOUR	SUB-SLAB	INDOOR-RES	INDOOR-COMM	PAC FI-FZ	FI-FZ FRACTIONS	VOCs (TO-15)		MATRIX GASES	CHROMATOGRAM					REPORT UNITS mg/m³	REPORT UNIT ppmv	REPORT UNITS ug/m³
322	9440		11/3/21	28.5	5.0	5°C		X				X	X	X			X							
321B	9186		—"—	28.5	5.5	5°C		X				X	X	X			X							
404	10056		—"—	28.0	4.5	5°C		X				X	X	X			X							
403	6457		—"—	28.0	5.0	5°C		X				X	X	X			X							
402	00142		12/3/21	29.0	6.0	10°C		X				X	X	X			X							
32	3592		—"—	28.5	5.5	10°C		X				X	X	X		X	X							
932	3090		—"—	29.0	5.5	10°C		X				X	X	X			X							
401	00190		—"—	28.0	4.5	10°C		X				X	X	X			X							
323	00123		—"—	27.0	4.0	10°C		X				X	X	X			X							

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
DANIEL BUDAI	12/3/21 15:15	[illegible] 12/21 @ 1655	
		[illegible] March 16 12:04	

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page 1 of 1

C 52184

Document #: DIV 248-1515.003

Date Revised: May 15, 2020

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)299-2000
FAX (403)299-2010
http://www.agatlabs.com

CLIENT NAME: CLIFTON ENGINEERING GROUP INC.
2222 30 AVE NE
CALGARY, AB T2E7K9
(403) 260-3386
ATTENTION TO: c/o Ansheerena Agron
PROJECT:
AGAT WORK ORDER: 21C726609
OCCUPATIONAL HYGIENE REVIEWED BY: Gerry Ecker, Analyst
DATE REPORTED: Apr 01, 2021
PAGES (INCLUDING COVER): 3
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (403) 299-2000

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days following analysis, unless expressly agreed otherwise in writing. Please contact your Client Project Manager if you require additional sample storage time.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)299-2000
FAX (403)299-2010
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 21C726609

PROJECT:

CLIENT NAME: CLIFTON ENGINEERING GROUP INC.

ATTENTION TO: c/o Ansheerena Agron

SAMPLING SITE:

SAMPLED BY:

Gas C10+ (Including O2) (%)

DATE RECEIVED: 2021-03-26

DATE REPORTED: 2021-04-01

		SAMPLE DESCRIPTION:		NOT AVAILABLE
		SAMPLE TYPE:		Gas
		DATE SAMPLED:		2021-03-12
Parameter	Unit	G / S	RDL	CAN03592
Helium (He)	%		0.001	0.2606
Hydrogen (H2)	%		0.001	0.0083
Oxygen (O2)	%		0.001	17.1833
Nitrogen (N2)	%		0.001	80.7652
Carbon Dioxide (CO2)	%		0.001	1.7826
Hydrogen Sulphide (H2S)	%		0.0001	<0.0001
Methane (C1)	%		0.001	<0.001
Ethane (C2)	%		0.001	<0.001
Propane (C3)	%		0.001	<0.001
I-Butane (IC4)	%		0.001	<0.001
N-Butane (NC4)	%		0.001	<0.001
I-Pentane (IC5)	%		0.001	<0.001
N-Pentane (NC5)	%		0.001	<0.001
Hexanes (C6)	%		0.001	<0.001
Heptanes (C7)	%		0.001	<0.001
Octanes (C8)	%		0.001	<0.001
Nonanes (C9)	%		0.001	<0.001
Decanes+ (C10+)	%		0.001	<0.001

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

CAN03592 Analysis Conducted Using GPA 2286-14 (Modified)

Analysis performed at AGAT Calgary (unless marked by *)

Certified By:

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)299-2000
FAX (403)299-2010
http://www.agatlabs.com

Method Summary

CLIENT NAME: CLIFTON ENGINEERING GROUP INC.

AGAT WORK ORDER: 21C726609

PROJECT:

ATTENTION TO: c/o Ansheerena Agron

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Occupational Hygiene Analysis			
Helium (He)	HC-0160	GPA 2286-14	GC/TCD/FID
Hydrogen (H2)	HC-0160	GPA 2286-14	GC/TCD/FID
Oxygen (O2)	HC-0160	GPA 2286-14	GC/TCD/FID
Nitrogen (N2)	HC-0160	GPA 2286-14	GC/TCD/FID
Carbon Dioxide (CO2)	HC-0160	GPA 2286-14	GC/TCD/FID
Hydrogen Sulphide (H2S)	HC-0160	GPA 2286-14	GC/TCD/FID
Methane (C1)	HC-0160	GPA 2286-14	GC/TCD/FID
Ethane (C2)	HC-0160	GPA 2286-14	GC/TCD/FID
Propane (C3)	HC-0160	GPA 2286-14	GC/TCD/FID
I-Butane (IC4)	HC-0160	GPA 2286-14	GC/TCD/FID
N-Butane (NC4)	HC-0160	GPA 2286-14	GC/TCD/FID
I-Pentane (IC5)	HC-0160	GPA 2286-14	GC/TCD/FID
N-Pentane (NC5)	HC-0160	GPA 2286-14	GC/TCD/FID
Hexanes (C6)	HC-0160	GPA 2286-14	GC/FID
Heptanes (C7)	HC-0160	GPA 2286-14	GC/FID
Octanes (C8)	HC-0160	GPA 2286-14	GC/FID
Nonanes (C9)	HC-0160	GPA 2286-14	GC/FID
Decanes+ (C10+)	HC-0160	GPA 2286-14	GC/FID

Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 017.D
Acq On : 23 Mar 2021 08:17 am
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227815
Misc : 200cc
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 24 11:06:38 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) BromoChloroMethane	5.976	49	2912710	20.00 ppbv	# 0.02
43) 1,4-Difluorobenzene	7.910	114	10965646	20.00 ppbv	# 0.01
58) Chlorobenzene-d5	11.368	117	9395534	20.00 ppbv	# 0.01
System Monitoring Compounds					
69) BromoFluoroBenzene (Surr)	12.524	95	6990280	20.10 ppbv	0.00
Target Compounds					Qvalue
2) Propylene	0.000		0	N.D. d	
3) Dichlorodifluoromethane	1.930	85	832346	0.50 ppbv #	92
4) Dichlorotetrafluoroethane	0.000		0	N.D.	
5) Ethanol	2.624	45	84912	0.99 ppbv #	100
6) Freon-113	3.814	101	99789	0.09 ppbv #	73
7) Chloromethane	0.000		0	N.D.	
8) Vinyl Chloride	0.000		0	N.D.	
9) 1,3-Butadiene	0.000		0	N.D.	
10) Bromomethane	0.000		0	N.D.	
11) Chloroethane	0.000		0	N.D.	
12) Vinyl Bromide	0.000		0	N.D.	
13) Trichlorofluoromethane	3.045	101	386295	0.23 ppbv #	100
14) Acetone	3.175	43	780227	1.44 ppbv #	29
15) Isopropanol	3.144	45	228938	0.56 ppbv #	93
16) 1,1-Dichloroethene	0.000		0	N.D.	
17) Dichloromethane	3.728	84	275952	0.70 ppbv #	1
18) Carbon Disulfide	3.882	76	101414	0.07 ppbv #	19
19) Trans 1,2-Dichloroethene	0.000		0	N.D.	
20) Methyl t-Butyl Ether	0.000		0	N.D.	
21) 1,1-Dichloroethane	0.000		0	N.D.	
22) Vinyl Acetate	0.000		0	N.D.	
23) Hexane	5.613	57	43813	0.07 ppbv #	1
24) Methyl Ethyl Ketone	5.670	43	59488m	0.06 ppbv	
25) Cis-1,2-Dichloroethene	0.000		0	N.D.	
26) Chloroform	6.076	83	135934	0.11 ppbv	98
27) Ethyl Acetate	6.228	61	72830	0.53 ppbv	93
28) Tetrahydrofuran	0.000		0	N.D.	
29) 1,2-Dichloroethane	0.000		0	N.D.	
30) 1,1,1-Trichloroethane	0.000		0	N.D.	
31) Iso-octane	8.114	57	54443	0.03 ppbv #	58
32) Cyclohexane	0.000		0	N.D.	
33) Carbon Tetrachloride	0.000		0	N.D.	
34) Benzene	7.530	78	39049	0.02 ppbv #	28
35) 1,2-Dichloropropane	0.000		0	N.D.	
36) Heptane	0.000		0	N.D.	
37) Trichloroethene	8.314	130	47513	0.05 ppbv #	17
38) Bromodichloromethane	0.000		0	N.D.	
39) 1,4-Dioxane	0.000		0	N.D.	
40) Methyl methacrylate	0.000		0	N.D.	
41) Cis-1,3-Dichloropropene	0.000		0	N.D.	
42) Trans-1,3-Dichloropropene	0.000		0	N.D.	
44) Methyl Isobutyl Ketone	0.000		0	N.D.	
45) 1,1,2- Trichloroethane	0.000		0	N.D.	
46) Toluene	9.958	91	107185	0.06 ppbv	99
47) 2-Hexanone	0.000		0	N.D.	
48) Dibromochloromethane	0.000		0	N.D.	
49) 1,2-Dibromoethane	0.000		0	N.D.	
50) Tetrachloroethene	0.000		0	N.D.	
51) Chlorobenzene	0.000		0	N.D.	
52) Ethylbenzene	0.000		0	N.D.	
53) m&p-Xylene	0.000		0	N.D.	
54) Bromoform	0.000		0	N.D.	
55) Styrene	0.000		0	N.D.	
56) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	

Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 017.D
Acq On : 23 Mar 2021 08:17 am
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227815
Misc : 200cc
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 24 11:06:38 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration

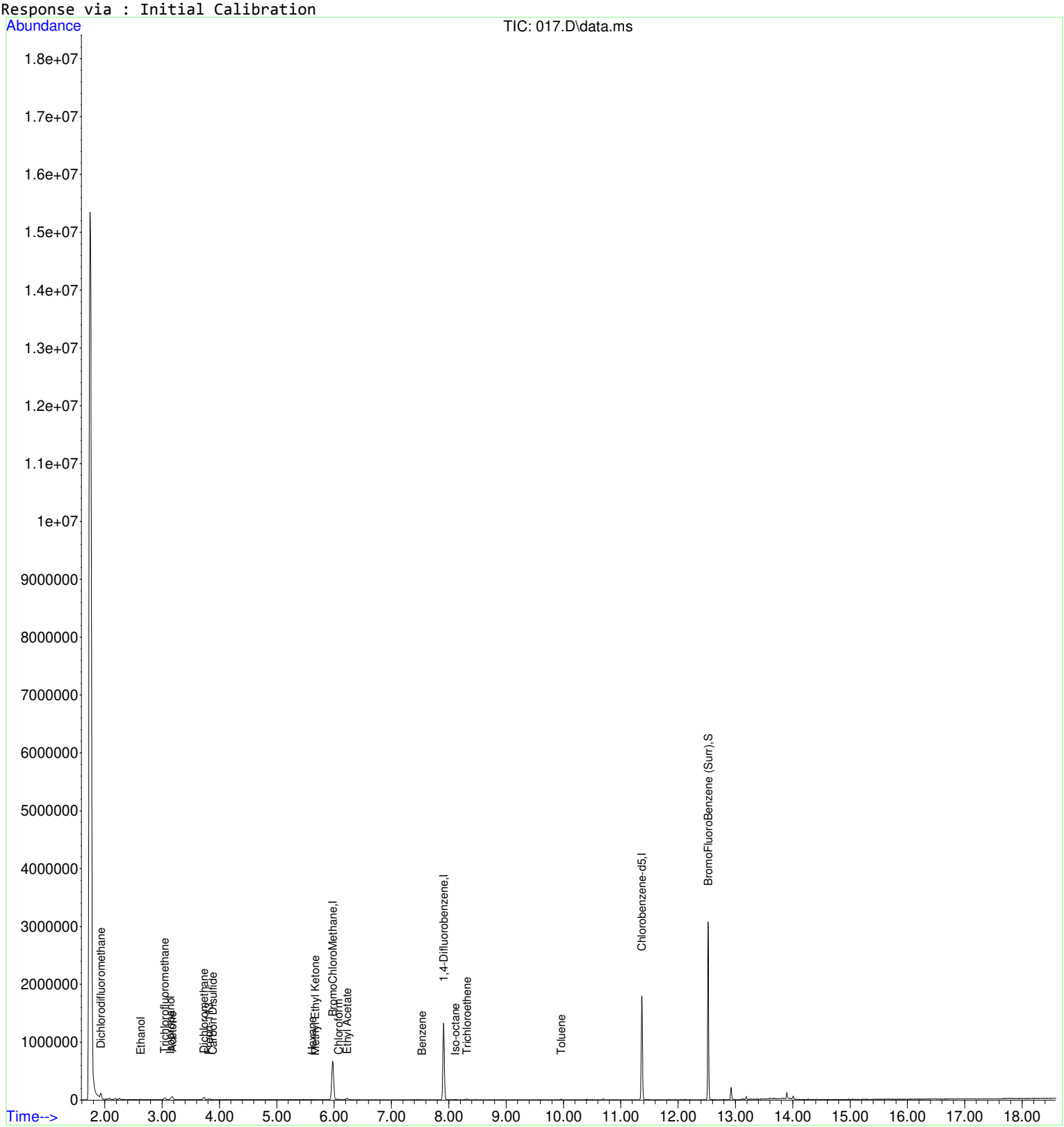
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
57) o-Xylene	0.000		0	N.D.	
59) 1-ethyl-4-methylbenzene	0.000		0	N.D. d	
60) 1,3,5-Trimethylbenzene	13.119	105	-527	Below Cal #	34
61) 1,2,4-Trimethylbenzene	0.000		0	N.D. d	
62) 1,3-Dichlorobenzene	0.000		0	N.D.	
63) Benzyl Chloride	0.000		0	N.D.	
64) 1,4-Dichlorobenzene	0.000		0	N.D.	
65) 1,2-Dichlorobenzene	0.000		0	N.D.	
66) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
67) Naphthalene	0.000		0	N.D.	
68) HCBD	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 017.D
Acq On : 23 Mar 2021 08:17 am
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227815
Misc : 200cc
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 24 11:06:38 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 018.D
Acq On : 23 Mar 2021 08:52 am
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227817
Misc : 200c
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 24 11:07:53 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) BromoChloroMethane	5.978	49	3021877	20.00 ppbv	# 0.02
43) 1,4-Difluorobenzene	7.911	114	11446307	20.00 ppbv	# 0.01
58) Chlorobenzene-d5	11.367	117	10291551	20.00 ppbv	# 0.01
System Monitoring Compounds					
69) BromoFluoroBenzene (Surr)	12.525	95	7480161	19.64 ppbv	0.00
Target Compounds					Qvalue
2) Propylene	0.000		0	N.D. d	
3) Dichlorodifluoromethane	1.930	85	847683	0.49 ppbv #	92
4) Dichlorotetrafluoroethane	0.000		0	N.D.	
5) Ethanol	2.628	45	228728	2.58 ppbv #	100
6) Freon-113	3.810	101	87594	0.07 ppbv #	78
7) Chloromethane	0.000		0	N.D. d	
8) Vinyl Chloride	0.000		0	N.D.	
9) 1,3-Butadiene	0.000		0	N.D.	
10) Bromomethane	0.000		0	N.D.	
11) Chloroethane	0.000		0	N.D.	
12) Vinyl Bromide	0.000		0	N.D.	
13) Trichlorofluoromethane	3.048	101	316786	0.18 ppbv #	99
14) Acetone	3.174	43	5115652	9.10 ppbv #	36
15) Isopropanol	3.144	45	563546	1.33 ppbv #	93
16) 1,1-Dichloroethene	0.000		0	N.D.	
17) Dichloromethane	3.732	84	626406	1.54 ppbv #	1
18) Carbon Disulfide	3.885	76	159870	0.10 ppbv #	1
19) Trans 1,2-Dichloroethene	0.000		0	N.D.	
20) Methyl t-Butyl Ether	0.000		0	N.D.	
21) 1,1-Dichloroethane	0.000		0	N.D.	
22) Vinyl Acetate	0.000		0	N.D.	
23) Hexane	5.606	57	106481m	0.16 ppbv	
24) Methyl Ethyl Ketone	5.654	43	680995m	0.66 ppbv	
25) Cis-1,2-Dichloroethene	0.000		0	N.D.	
26) Chloroform	6.078	83	49661	0.04 ppbv #	19
27) Ethyl Acetate	6.222	61	55646	0.39 ppbv	93
28) Tetrahydrofuran	0.000		0	N.D.	
29) 1,2-Dichloroethane	0.000		0	N.D.	
30) 1,1,1-Trichloroethane	0.000		0	N.D.	
31) Iso-octane	8.112	57	222420	0.11 ppbv #	72
32) Cyclohexane	0.000		0	N.D.	
33) Carbon Tetrachloride	0.000		0	N.D.	
34) Benzene	7.533	78	244434	0.15 ppbv #	41
35) 1,2-Dichloropropane	0.000		0	N.D.	
36) Heptane	0.000		0	N.D.	
37) Trichloroethene	8.316	130	65903	0.07 ppbv #	16
38) Bromodichloromethane	0.000		0	N.D.	
39) 1,4-Dioxane	0.000		0	N.D.	
40) Methyl methacrylate	0.000		0	N.D.	
41) Cis-1,3-Dichloropropene	0.000		0	N.D.	
42) Trans-1,3-Dichloropropene	0.000		0	N.D.	
44) Methyl Isobutyl Ketone	9.316	43	41930	0.05 ppbv #	64
45) 1,1,2- Trichloroethane	0.000		0	N.D.	
46) Toluene	9.960	91	562539	0.30 ppbv	95
47) 2-Hexanone	0.000		0	N.D. d	
48) Dibromochloromethane	0.000		0	N.D.	
49) 1,2-Dibromoethane	0.000		0	N.D.	
50) Tetrachloroethene	10.705	166	43889	0.04 ppbv #	30
51) Chlorobenzene	0.000		0	N.D.	
52) Ethylbenzene	11.641	106	27113m	0.04 ppbv	
53) m&p-Xylene	11.851	106	128094	0.11 ppbv #	71
54) Bromoform	0.000		0	N.D.	
55) Styrene	0.000		0	N.D.	
56) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	

Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 018.D
Acq On : 23 Mar 2021 08:52 am
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227817
Misc : 200c
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 24 11:07:53 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration

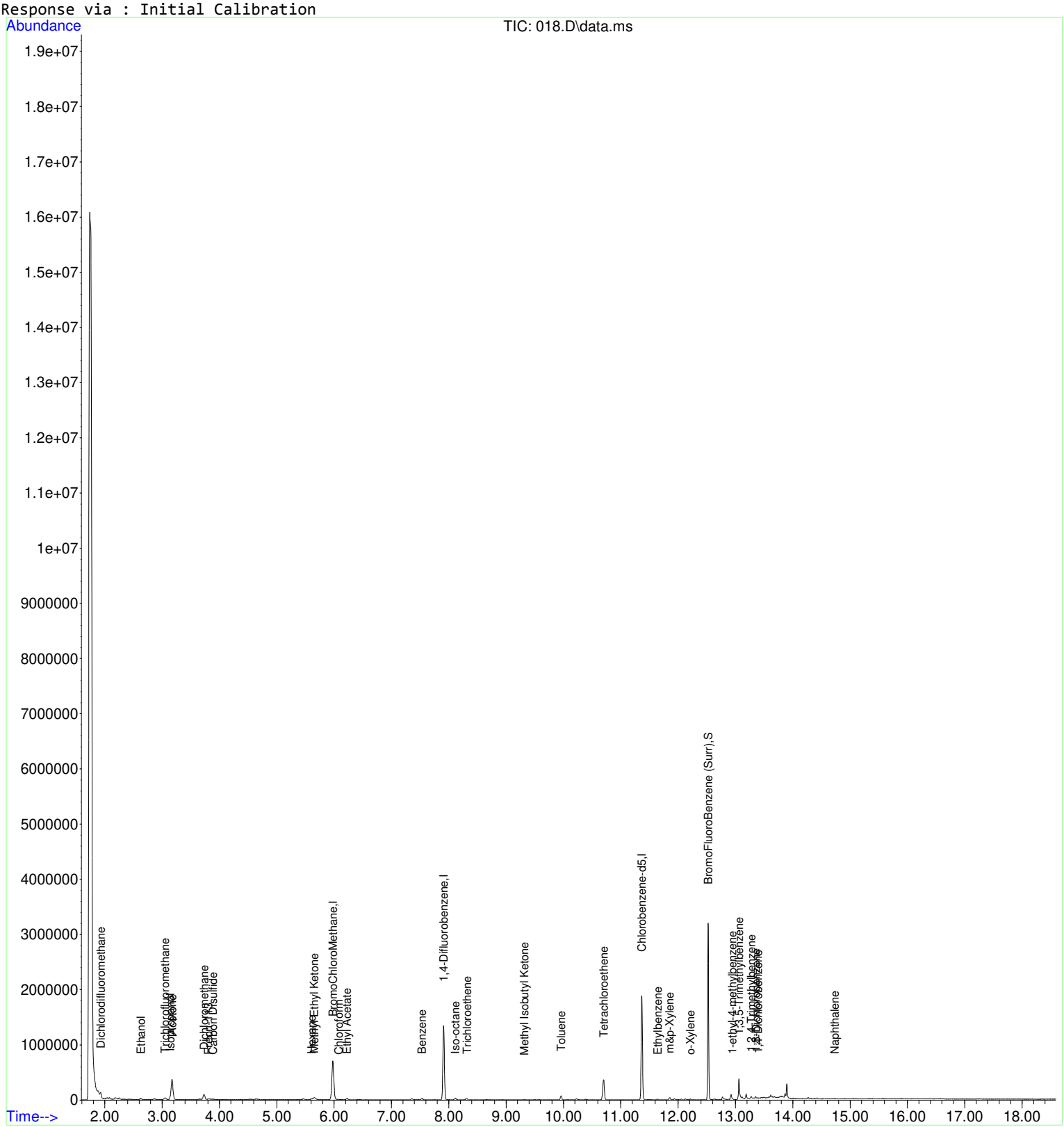
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
57) o-Xylene	12.210	106	40166m	0.04 ppbv	
59) 1-ethyl-4-methylbenzene	12.947	105	51155m	0.02 ppbv	
60) 1,3,5-Trimethylbenzene	13.061	105	61286	0.02 ppbv #	34
61) 1,2,4-Trimethylbenzene	13.275	105	114816m	0.04 ppbv	
62) 1,3-Dichlorobenzene	13.355	146	85970	0.04 ppbv #	84
63) Benzyl Chloride	0.000		0	N.D.	
64) 1,4-Dichlorobenzene	13.394	146	10392m	0.01 ppbv	
65) 1,2-Dichlorobenzene	0.000		0	N.D.	
66) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
67) Naphthalene	14.728	128	38592	0.02 ppbv #	100
68) HCBD	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 018.D
Acq On : 23 Mar 2021 08:52 am
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227817
Misc : 200c
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 24 11:07:53 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 020.D
Acq On : 23 Mar 2021 12:00 pm
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227818
Misc : 200cc
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 24 11:09:57 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) BromoChloroMethane	5.976	49	3085907	20.00	ppbv	# 0.02
43) 1,4-Difluorobenzene	7.910	114	11759726	20.00	ppbv	# 0.01
58) Chlorobenzene-d5	11.368	117	10334154	20.00	ppbv	# 0.01
System Monitoring Compounds						
69) BromoFluoroBenzene (Surr)	12.525	95	7459409	19.50	ppbv	0.00
Target Compounds						Qvalue
2) Propylene	1.884	41	239987	0.91	ppbv	81
3) Dichlorodifluoromethane	1.927	85	892430	0.51	ppbv #	93
4) Dichlorotetrafluoroethane	0.000		0	N.D.		
5) Ethanol	2.624	45	341667	3.76	ppbv #	100
6) Freon-113	3.811	101	106117	0.09	ppbv #	76
7) Chloromethane	2.047	52	74751m	0.73	ppbv	
8) Vinyl Chloride	0.000		0	N.D.		
9) 1,3-Butadiene	0.000		0	N.D.		
10) Bromomethane	0.000		0	N.D.		
11) Chloroethane	0.000		0	N.D.		
12) Vinyl Bromide	0.000		0	N.D.		
13) Trichlorofluoromethane	3.045	101	375893	0.21	ppbv #	97
14) Acetone	3.174	43	1477758	2.57	ppbv #	29
15) Isopropanol	3.145	45	335401	0.78	ppbv #	93
16) 1,1-Dichloroethene	0.000		0	N.D.		
17) Dichloromethane	3.731	84	510180	1.22	ppbv #	1
18) Carbon Disulfide	3.881	76	45507	0.03	ppbv #	19
19) Trans 1,2-Dichloroethene	0.000		0	N.D.		
20) Methyl t-Butyl Ether	0.000		0	N.D.		
21) 1,1-Dichloroethane	0.000		0	N.D.		
22) Vinyl Acetate	0.000		0	N.D.		
23) Hexane	5.610	57	129030	0.18	ppbv #	41
24) Methyl Ethyl Ketone	5.661	43	167635m	0.16	ppbv	
25) Cis-1,2-Dichloroethene	0.000		0	N.D.		
26) Chloroform	6.074	83	41123	0.03	ppbv #	19
27) Ethyl Acetate	0.000		0	N.D.		
28) Tetrahydrofuran	0.000		0	N.D.		
29) 1,2-Dichloroethane	0.000		0	N.D.		
30) 1,1,1-Trichloroethane	0.000		0	N.D.		
31) Iso-octane	8.112	57	134733	0.06	ppbv #	84
32) Cyclohexane	0.000		0	N.D.		
33) Carbon Tetrachloride	7.461	117	107239	0.06	ppbv	98
34) Benzene	7.534	78	287326	0.17	ppbv #	42
35) 1,2-Dichloropropane	0.000		0	N.D.		
36) Heptane	0.000		0	N.D.		
37) Trichloroethene	8.314	130	96918	0.10	ppbv #	19
38) Bromodichloromethane	0.000		0	N.D.		
39) 1,4-Dioxane	0.000		0	N.D.		
40) Methyl methacrylate	0.000		0	N.D.		
41) Cis-1,3-Dichloropropene	0.000		0	N.D.		
42) Trans-1,3-Dichloropropene	0.000		0	N.D.		
44) Methyl Isobutyl Ketone	0.000		0	N.D.		
45) 1,1,2- Trichloroethane	0.000		0	N.D.		
46) Toluene	9.961	91	499123	0.26	ppbv	97
47) 2-Hexanone	0.000		0	N.D.		
48) Dibromochloromethane	0.000		0	N.D.		
49) 1,2-Dibromoethane	0.000		0	N.D.		
50) Tetrachloroethene	0.000		0	N.D.		
51) Chlorobenzene	0.000		0	N.D.		
52) Ethylbenzene	11.641	106	21549m	0.03	ppbv	
53) m&p-Xylene	11.854	106	80906	0.07	ppbv #	67
54) Bromoform	0.000		0	N.D.		
55) Styrene	0.000		0	N.D.		
56) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		

Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 020.D
Acq On : 23 Mar 2021 12:00 pm
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227818
Misc : 200cc
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 24 11:09:57 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration

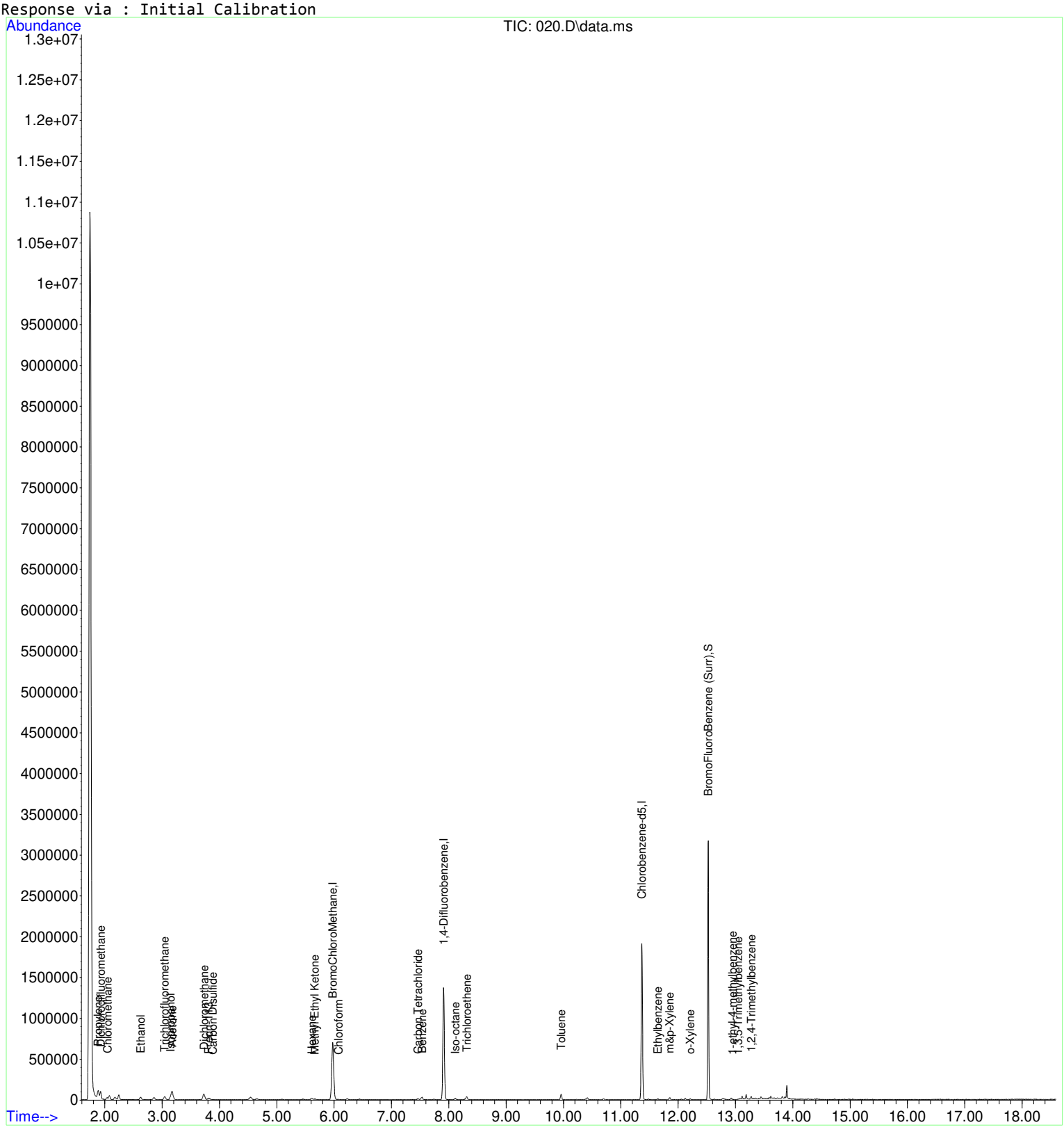
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
57) o-Xylene	12.207	106	34156m	0.03 ppbv	
59) 1-ethyl-4-methylbenzene	12.950	105	31860m	0.01 ppbv	
60) 1,3,5-Trimethylbenzene	13.046	105	11938m	0.00 ppbv	
61) 1,2,4-Trimethylbenzene	13.276	105	112633	0.04 ppbv #	83
62) 1,3-Dichlorobenzene	0.000		0	N.D.	
63) Benzyl Chloride	0.000		0	N.D.	
64) 1,4-Dichlorobenzene	0.000		0	N.D.	
65) 1,2-Dichlorobenzene	0.000		0	N.D.	
66) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
67) Naphthalene	0.000		0	N.D. d	
68) HCBD	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 020.D
Acq On : 23 Mar 2021 12:00 pm
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227818
Misc : 200cc
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 24 11:09:57 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 021.D
Acq On : 23 Mar 2021 12:35 pm
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227819
Misc : 200cc
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 24 11:11:28 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) BromoChloroMethane	5.979	49	2947988	20.00	ppbv	# 0.02
43) 1,4-Difluorobenzene	7.912	114	11338206	20.00	ppbv	# 0.01
58) Chlorobenzene-d5	11.369	117	9963482	20.00	ppbv	# 0.01
System Monitoring Compounds						
69) BromoFluoroBenzene (Surr)	12.526	95	7162659	19.42	ppbv	0.00
Target Compounds						Qvalue
2) Propylene	0.000		0	N.D.	d	
3) Dichlorodifluoromethane	1.926	85	800866	0.48	ppbv	# 92
4) Dichlorotetrafluoroethane	0.000		0	N.D.		
5) Ethanol	2.626	45	113809m	1.32	ppbv	
6) Freon-113	3.820	101	68138	0.06	ppbv	# 69
7) Chloromethane	0.000		0	N.D.	d	
8) Vinyl Chloride	0.000		0	N.D.		
9) 1,3-Butadiene	0.000		0	N.D.		
10) Bromomethane	0.000		0	N.D.		
11) Chloroethane	0.000		0	N.D.		
12) Vinyl Bromide	0.000		0	N.D.		
13) Trichlorofluoromethane	3.046	101	254721	0.15	ppbv	# 95
14) Acetone	3.178	43	923945	1.69	ppbv	# 29
15) Isopropanol	3.146	45	396634	0.96	ppbv	# 84
16) 1,1-Dichloroethene	0.000		0	N.D.	d	
17) Dichloromethane	3.734	84	632810	1.59	ppbv	# 1
18) Carbon Disulfide	3.882	76	353541	0.23	ppbv	# 64
19) Trans 1,2-Dichloroethene	0.000		0	N.D.		
20) Methyl t-Butyl Ether	0.000		0	N.D.		
21) 1,1-Dichloroethane	0.000		0	N.D.		
22) Vinyl Acetate	0.000		0	N.D.		
23) Hexane	5.611	57	165142	0.25	ppbv	# 47
24) Methyl Ethyl Ketone	5.667	43	97957m	0.10	ppbv	
25) Cis-1,2-Dichloroethene	0.000		0	N.D.		
26) Chloroform	6.081	83	1939644	1.53	ppbv	96
27) Ethyl Acetate	6.229	61	101761	0.73	ppbv	93
28) Tetrahydrofuran	0.000		0	N.D.		
29) 1,2-Dichloroethane	0.000		0	N.D.		
30) 1,1,1-Trichloroethane	0.000		0	N.D.		
31) Iso-octane	8.115	57	181681	0.09	ppbv	# 83
32) Cyclohexane	0.000		0	N.D.		
33) Carbon Tetrachloride	0.000		0	N.D.		
34) Benzene	7.534	78	46193	0.03	ppbv	# 28
35) 1,2-Dichloropropane	0.000		0	N.D.		
36) Heptane	0.000		0	N.D.		
37) Trichloroethene	8.315	130	166890	0.17	ppbv	# 65
38) Bromodichloromethane	0.000		0	N.D.		
39) 1,4-Dioxane	0.000		0	N.D.		
40) Methyl methacrylate	0.000		0	N.D.		
41) Cis-1,3-Dichloropropene	0.000		0	N.D.		
42) Trans-1,3-Dichloropropene	0.000		0	N.D.		
44) Methyl Isobutyl Ketone	0.000		0	N.D.		
45) 1,1,2- Trichloroethane	0.000		0	N.D.		
46) Toluene	9.961	91	221374	0.12	ppbv	94
47) 2-Hexanone	0.000		0	N.D.		
48) Dibromochloromethane	0.000		0	N.D.		
49) 1,2-Dibromoethane	0.000		0	N.D.		
50) Tetrachloroethene	0.000		0	N.D.		
51) Chlorobenzene	0.000		0	N.D.		
52) Ethylbenzene	0.000		0	N.D.		
53) m&p-Xylene	11.850	106	20795m	0.02	ppbv	
54) Bromoform	0.000		0	N.D.		
55) Styrene	0.000		0	N.D.		
56) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		

Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 021.D
Acq On : 23 Mar 2021 12:35 pm
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227819
Misc : 200cc
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 24 11:11:28 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration

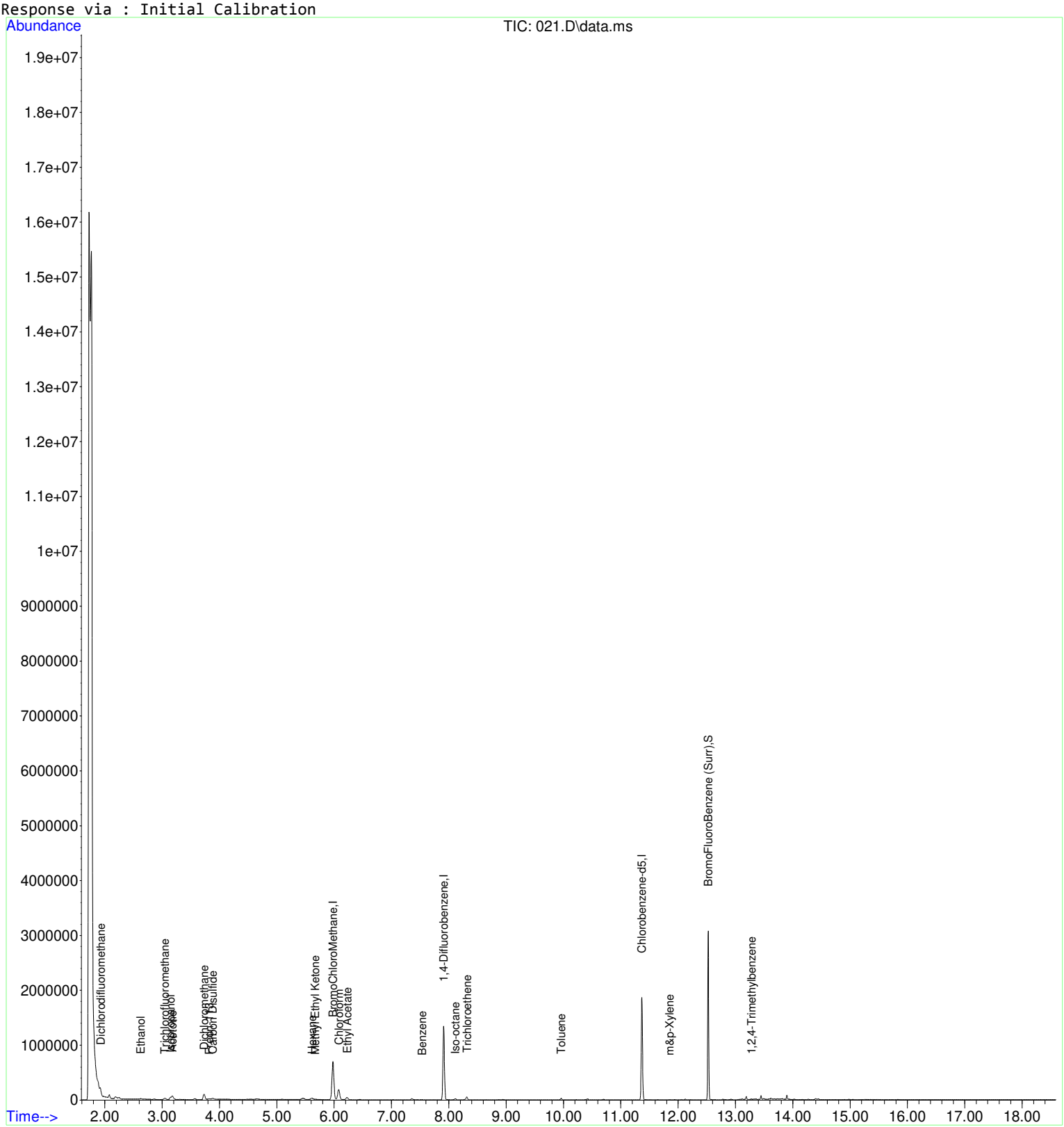
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
57) o-Xylene	0.000		0	N.D.	
59) 1-ethyl-4-methylbenzene	0.000		0	N.D.	
60) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
61) 1,2,4-Trimethylbenzene	13.278	105	40481	0.02 ppbv #	37
62) 1,3-Dichlorobenzene	0.000		0	N.D.	
63) Benzyl Chloride	0.000		0	N.D.	
64) 1,4-Dichlorobenzene	0.000		0	N.D.	
65) 1,2-Dichlorobenzene	0.000		0	N.D.	
66) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
67) Naphthalene	0.000		0	N.D.	
68) HCBD	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 021.D
Acq On : 23 Mar 2021 12:35 pm
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227819
Misc : 200cc
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 24 11:11:28 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 011.D
Acq On : 22 Mar 2021 05:54 pm
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227820
Misc : 20cc
ALS Vial : 5 Sample Multiplier: 10

Quant Time: Mar 23 06:45:41 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) BromoChloroMethane	5.974	49	2893050	20.00 ppbv	# 0.02
43) 1,4-Difluorobenzene	7.910	114	11551490	20.00 ppbv	# 0.01
58) Chlorobenzene-d5	11.369	117	8484813	20.00 ppbv	# 0.01
System Monitoring Compounds					
69) BromoFluoroBenzene (Surr)	12.525	95	7334691	23.35 ppbv	0.00
Target Compounds					Qvalue
2) Propylene	0.000		0	N.D. d	
3) Dichlorodifluoromethane	1.928	85	87573	0.53 ppbv #	44
4) Dichlorotetrafluoroethane	0.000		0	N.D.	
5) Ethanol	2.622	45	35533	4.19 ppbv #	100
6) Freon-113	0.000		0	N.D.	
7) Chloromethane	0.000		0	N.D.	
8) Vinyl Chloride	0.000		0	N.D.	
9) 1,3-Butadiene	0.000		0	N.D.	
10) Bromomethane	0.000		0	N.D.	
11) Chloroethane	0.000		0	N.D.	
12) Vinyl Bromide	0.000		0	N.D.	
13) Trichlorofluoromethane	3.042	101	30940	0.19 ppbv #	26
14) Acetone	3.179	43	421689	7.84 ppbv #	53
15) Isopropanol	3.147	45	268565	6.64 ppbv #	93
16) 1,1-Dichloroethene	0.000		0	N.D.	
17) Dichloromethane	3.725	84	472584	12.10 ppbv #	1
18) Carbon Disulfide	3.881	76	198662	1.32 ppbv #	19
19) Trans 1,2-Dichloroethene	0.000		0	N.D.	
20) Methyl t-Butyl Ether	0.000		0	N.D.	
21) 1,1-Dichloroethane	0.000		0	N.D.	
22) Vinyl Acetate	0.000		0	N.D.	
23) Hexane	5.603	57	68342	1.04 ppbv #	52
24) Methyl Ethyl Ketone	5.605	43	40858	0.41 ppbv #	1
25) Cis-1,2-Dichloroethene	0.000		0	N.D.	
26) Chloroform	6.076	83	98416	0.79 ppbv	96
27) Ethyl Acetate	0.000		0	N.D.	
28) Tetrahydrofuran	0.000		0	N.D.	
29) 1,2-Dichloroethane	0.000		0	N.D.	
30) 1,1,1-Trichloroethane	0.000		0	N.D.	
31) Iso-octane	8.110	57	145952	0.72 ppbv #	85
32) Cyclohexane	0.000		0	N.D.	
33) Carbon Tetrachloride	0.000		0	N.D.	
34) Benzene	7.535	78	35191	0.23 ppbv #	28
35) 1,2-Dichloropropane	0.000		0	N.D.	
36) Heptane	0.000		0	N.D.	
37) Trichloroethene	8.315	130	150189	1.58 ppbv #	63
38) Bromodichloromethane	0.000		0	N.D.	
39) 1,4-Dioxane	0.000		0	N.D.	
40) Methyl methacrylate	0.000		0	N.D.	
41) Cis-1,3-Dichloropropene	0.000		0	N.D.	
42) Trans-1,3-Dichloropropene	0.000		0	N.D.	
44) Methyl Isobutyl Ketone	0.000		0	N.D.	
45) 1,1,2- Trichloroethane	0.000		0	N.D.	
46) Toluene	9.958	91	159773	0.86 ppbv	94
47) 2-Hexanone	0.000		0	N.D.	
48) Dibromochloromethane	0.000		0	N.D.	
49) 1,2-Dibromoethane	0.000		0	N.D.	
50) Tetrachloroethene	0.000		0	N.D.	
51) Chlorobenzene	0.000		0	N.D.	
52) Ethylbenzene	11.641	106	23807m	0.31 ppbv	
53) m&p-Xylene	11.854	106	81036	0.67 ppbv #	64
54) Bromoform	0.000		0	N.D.	
55) Styrene	0.000		0	N.D.	
56) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	

Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 011.D
Acq On : 22 Mar 2021 05:54 pm
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227820
Misc : 20cc
ALS Vial : 5 Sample Multiplier: 10

Quant Time: Mar 23 06:45:41 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration

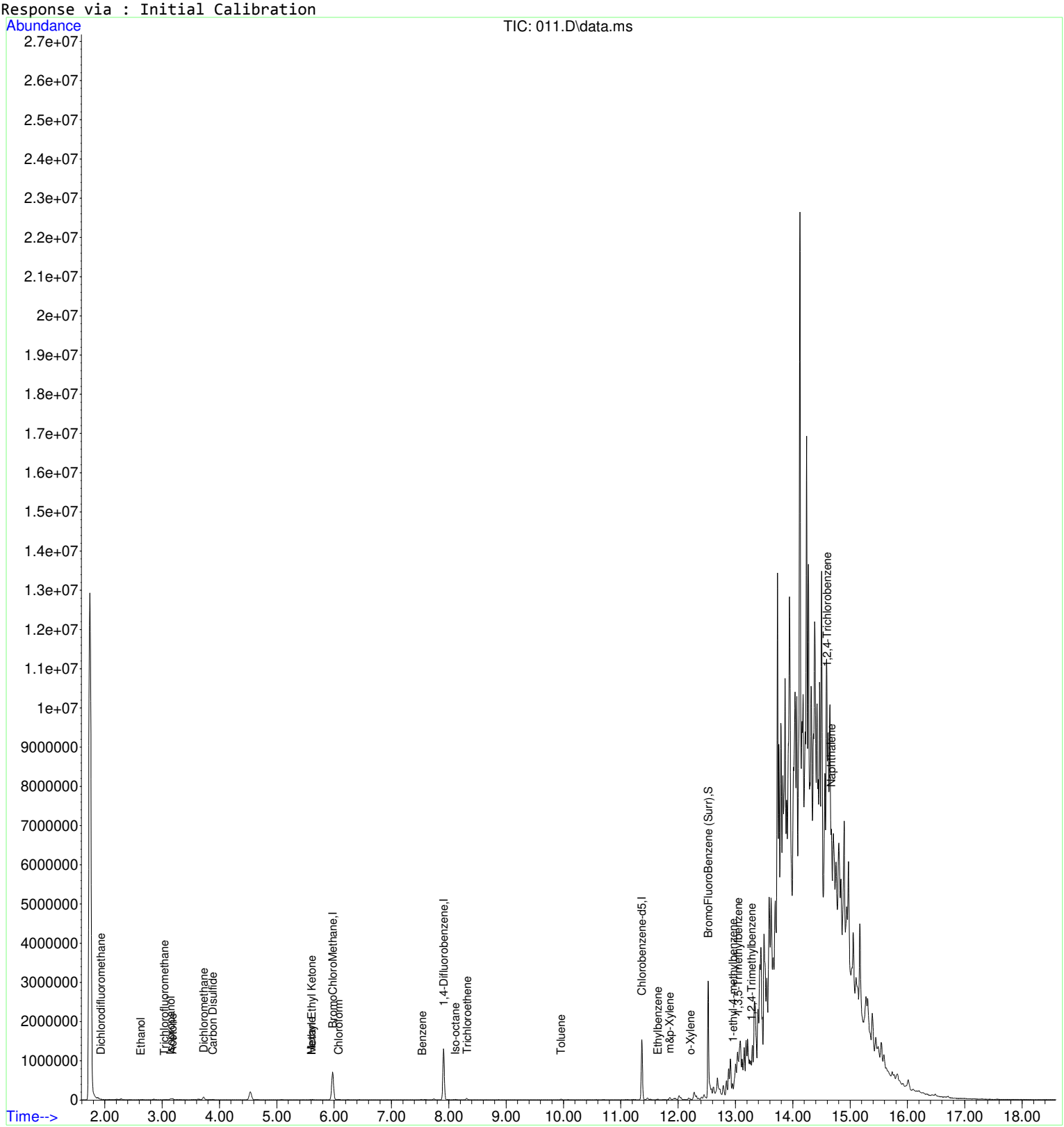
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
57) o-Xylene	12.214	106	44266	0.45 ppbv #	67
59) 1-ethyl-4-methylbenzene	12.956	105	293045	1.06 ppbv	99
60) 1,3,5-Trimethylbenzene	13.047	105	213110	0.93 ppbv #	84
61) 1,2,4-Trimethylbenzene	13.278	105	310207	1.43 ppbv #	80
62) 1,3-Dichlorobenzene	0.000		0	N.D.	
63) Benzyl Chloride	0.000		0	N.D. d	
64) 1,4-Dichlorobenzene	0.000		0	N.D.	
65) 1,2-Dichlorobenzene	0.000		0	N.D.	
66) 1,2,4-Trichlorobenzene	14.597	180	109859	1.24 ppbv	83
67) Naphthalene	14.674	128	813525	4.29 ppbv #	100
68) HCBD	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 011.D
Acq On : 22 Mar 2021 05:54 pm
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227820
Misc : 20cc
ALS Vial : 5 Sample Multiplier: 10

Quant Time: Mar 23 06:45:41 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 022.D
Acq On : 23 Mar 2021 01:10 pm
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227821
Misc : 200cc
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 24 08:46:05 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) BromoChloroMethane	5.980	49	2881206	20.00	ppbv	# 0.02
43) 1,4-Difluorobenzene	7.913	114	10997122	20.00	ppbv	# 0.02
58) Chlorobenzene-d5	11.369	117	9716189	20.00	ppbv	# 0.01
System Monitoring Compounds						
69) BromoFluoroBenzene (Surr)	12.525	95	6833422	19.00	ppbv	0.00
Target Compounds						Qvalue
2) Propylene	0.000		0	N.D. d		
3) Dichlorodifluoromethane	1.927	85	691566	0.42	ppbv	# 92
4) Dichlorotetrafluoroethane	2.095	85	2868m	0.00	ppbv	
5) Ethanol	2.625	45	87441m	1.03	ppbv	
6) Freon-113	3.815	101	49538	0.04	ppbv	# 22
7) Chloromethane	0.000		0	N.D.		
8) Vinyl Chloride	0.000		0	N.D.		
9) 1,3-Butadiene	0.000		0	N.D.		
10) Bromomethane	0.000		0	N.D.		
11) Chloroethane	2.571	64	801	0.00	ppbv	# 38
12) Vinyl Bromide	0.000		0	N.D.		
13) Trichlorofluoromethane	3.045	101	219466	0.13	ppbv	# 94
14) Acetone	3.180	43	805282	1.50	ppbv	# 31
15) Isopropanol	3.148	45	294529	0.73	ppbv	# 93
16) 1,1-Dichloroethene	0.000		0	N.D.		
17) Dichloromethane	3.732	84	437678	1.13	ppbv	# 1
18) Carbon Disulfide	3.885	76	35529	0.02	ppbv	# 19
19) Trans 1,2-Dichloroethene	0.000		0	N.D.		
20) Methyl t-Butyl Ether	0.000		0	N.D.		
21) 1,1-Dichloroethane	0.000		0	N.D.		
22) Vinyl Acetate	0.000		0	N.D.		
23) Hexane	5.612	57	124953	0.19	ppbv	# 35
24) Methyl Ethyl Ketone	5.673	43	58693m	0.06	ppbv	
25) Cis-1,2-Dichloroethene	0.000		0	N.D.		
26) Chloroform	6.082	83	69470	0.06	ppbv	97
27) Ethyl Acetate	0.000		0	N.D.		
28) Tetrahydrofuran	0.000		0	N.D.		
29) 1,2-Dichloroethane	0.000		0	N.D.		
30) 1,1,1-Trichloroethane	0.000		0	N.D.		
31) Iso-octane	8.115	57	105592	0.05	ppbv	# 79
32) Cyclohexane	0.000		0	N.D.		
33) Carbon Tetrachloride	0.000		0	N.D.		
34) Benzene	0.000		0	N.D.		
35) 1,2-Dichloropropane	0.000		0	N.D.		
36) Heptane	0.000		0	N.D.		
37) Trichloroethene	8.316	130	136178	0.14	ppbv	# 64
38) Bromodichloromethane	0.000		0	N.D.		
39) 1,4-Dioxane	0.000		0	N.D.		
40) Methyl methacrylate	0.000		0	N.D.		
41) Cis-1,3-Dichloropropene	0.000		0	N.D.		
42) Trans-1,3-Dichloropropene	0.000		0	N.D.		
44) Methyl Isobutyl Ketone	0.000		0	N.D.		
45) 1,1,2- Trichloroethane	0.000		0	N.D.		
46) Toluene	9.959	91	134862	0.08	ppbv	100
47) 2-Hexanone	0.000		0	N.D. d		
48) Dibromochloromethane	0.000		0	N.D.		
49) 1,2-Dibromoethane	0.000		0	N.D.		
50) Tetrachloroethene	0.000		0	N.D.		
51) Chlorobenzene	0.000		0	N.D.		
52) Ethylbenzene	11.644	106	24458m	0.03	ppbv	
53) m&p-Xylene	11.849	106	55906	0.05	ppbv	# 71
54) Bromoform	0.000		0	N.D.		
55) Styrene	0.000		0	N.D.		
56) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		

Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 022.D
Acq On : 23 Mar 2021 01:10 pm
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227821
Misc : 200cc
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 24 08:46:05 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration

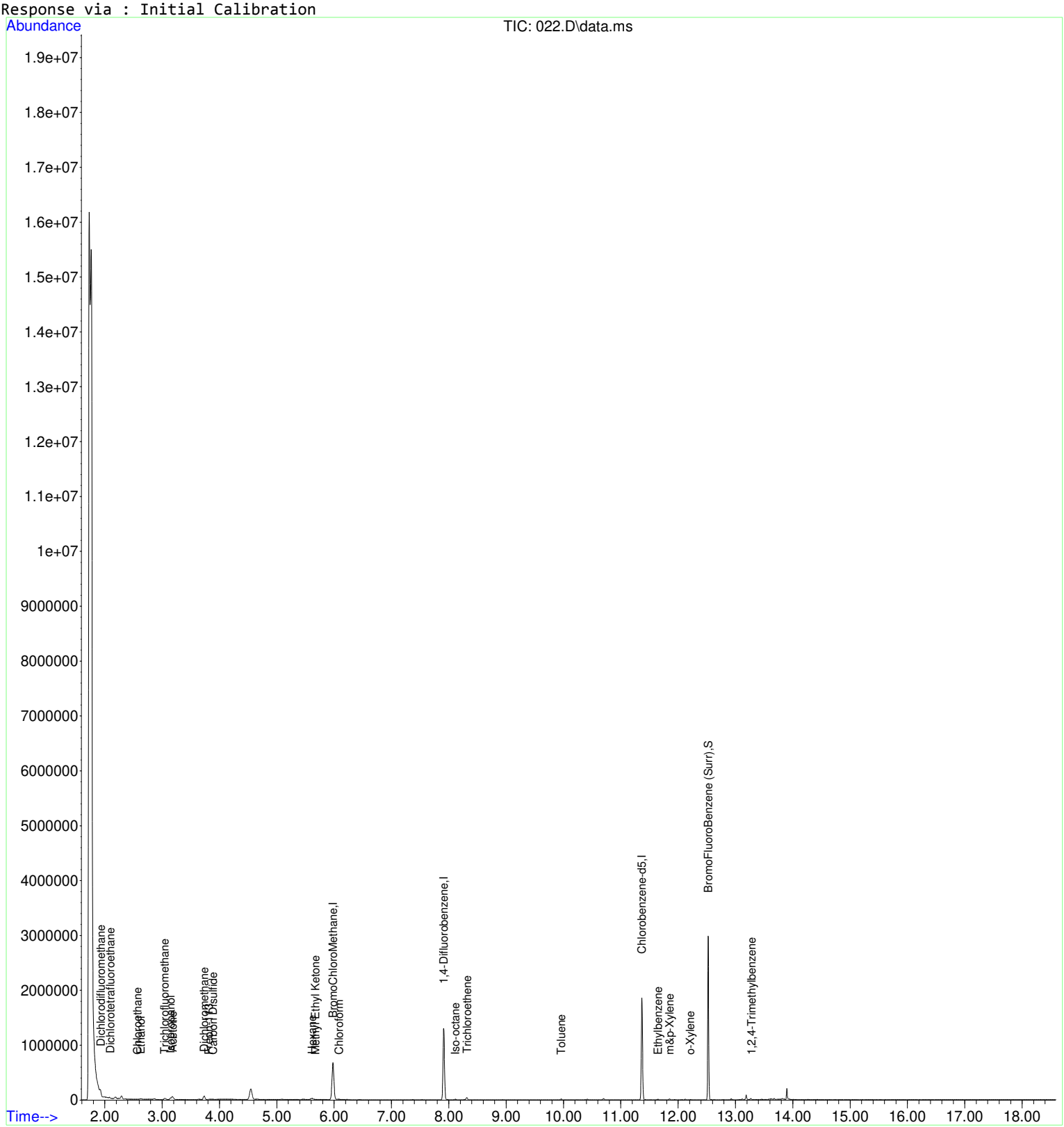
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
57) o-Xylene	12.207	106	13591m	0.01 ppbv	
59) 1-ethyl-4-methylbenzene	0.000		0	N.D.	
60) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
61) 1,2,4-Trimethylbenzene	13.277	105	27723	0.01 ppbv #	37
62) 1,3-Dichlorobenzene	0.000		0	N.D.	
63) Benzyl Chloride	0.000		0	N.D.	
64) 1,4-Dichlorobenzene	0.000		0	N.D.	
65) 1,2-Dichlorobenzene	0.000		0	N.D.	
66) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
67) Naphthalene	0.000		0	N.D.	
68) HCBD	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 022.D
Acq On : 23 Mar 2021 01:10 pm
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227821
Misc : 200cc
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 24 08:46:05 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 023.D
Acq On : 23 Mar 2021 01:44 pm
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227822
Misc : 200cc
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 24 06:27:24 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) BromoChloroMethane	5.982	49	2854490	20.00 ppbv	# 0.02
43) 1,4-Difluorobenzene	7.914	114	10495493	20.00 ppbv	# 0.02
58) Chlorobenzene-d5	11.370	117	9288788	20.00 ppbv	# 0.01
System Monitoring Compounds					
69) BromoFluoroBenzene (Surr)	12.500	95	6894176	20.05 ppbv	-0.02
Target Compounds					Qvalue
2) Propylene	0.000		0	N.D. d	
3) Dichlorodifluoromethane	1.927	85	694995	0.43 ppbv #	92
4) Dichlorotetrafluoroethane	0.000		0	N.D.	
5) Ethanol	2.630	45	137898	1.65 ppbv #	100
6) Freon-113	3.816	101	56718	0.05 ppbv #	73
7) Chloromethane	0.000		0	N.D.	
8) Vinyl Chloride	0.000		0	N.D.	
9) 1,3-Butadiene	0.000		0	N.D.	
10) Bromomethane	0.000		0	N.D.	
11) Chloroethane	0.000		0	N.D.	
12) Vinyl Bromide	0.000		0	N.D.	
13) Trichlorofluoromethane	3.047	101	235390	0.14 ppbv #	92
14) Acetone	3.177	43	3797210	7.15 ppbv #	40
15) Isopropanol	3.145	45	1315554	3.30 ppbv #	82
16) 1,1-Dichloroethene	0.000		0	N.D.	
17) Dichloromethane	3.734	84	1442318	3.74 ppbv #	1
18) Carbon Disulfide	3.885	76	68884	0.05 ppbv #	19
19) Trans 1,2-Dichloroethene	0.000		0	N.D.	
20) Methyl t-Butyl Ether	4.792	73	35109	0.03 ppbv #	28
21) 1,1-Dichloroethane	0.000		0	N.D.	
22) Vinyl Acetate	0.000		0	N.D.	
23) Hexane	5.615	57	1146026	1.77 ppbv #	54
24) Methyl Ethyl Ketone	5.615	43	704158	0.72 ppbv #	1
25) Cis-1,2-Dichloroethene	0.000		0	N.D.	
26) Chloroform	6.083	83	62624	0.05 ppbv #	93
27) Ethyl Acetate	6.230	61	18666m	0.14 ppbv	
28) Tetrahydrofuran	0.000		0	N.D.	
29) 1,2-Dichloroethane	0.000		0	N.D.	
30) 1,1,1-Trichloroethane	0.000		0	N.D.	
31) Iso-octane	8.117	57	1287188	0.65 ppbv	94
32) Cyclohexane	0.000		0	N.D.	
33) Carbon Tetrachloride	0.000		0	N.D. d	
34) Benzene	7.534	78	52937	0.03 ppbv #	28
35) 1,2-Dichloropropane	0.000		0	N.D.	
36) Heptane	0.000		0	N.D.	
37) Trichloroethene	8.319	130	107821	0.12 ppbv #	66
38) Bromodichloromethane	0.000		0	N.D.	
39) 1,4-Dioxane	0.000		0	N.D.	
40) Methyl methacrylate	0.000		0	N.D.	
41) Cis-1,3-Dichloropropene	0.000		0	N.D.	
42) Trans-1,3-Dichloropropene	0.000		0	N.D.	
44) Methyl Isobutyl Ketone	0.000		0	N.D.	
45) 1,1,2- Trichloroethane	0.000		0	N.D.	
46) Toluene	9.963	91	1476919	0.87 ppbv	96
47) 2-Hexanone	0.000		0	N.D. d	
48) Dibromochloromethane	0.000		0	N.D.	
49) 1,2-Dibromoethane	0.000		0	N.D.	
50) Tetrachloroethene	0.000		0	N.D.	
51) Chlorobenzene	0.000		0	N.D.	
52) Ethylbenzene	11.641	106	26393m	0.04 ppbv	
53) m&p-Xylene	11.853	106	69769	0.06 ppbv #	71
54) Bromoform	0.000		0	N.D.	
55) Styrene	0.000		0	N.D.	
56) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	

Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 023.D
Acq On : 23 Mar 2021 01:44 pm
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227822
Misc : 200cc
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 24 06:27:24 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration

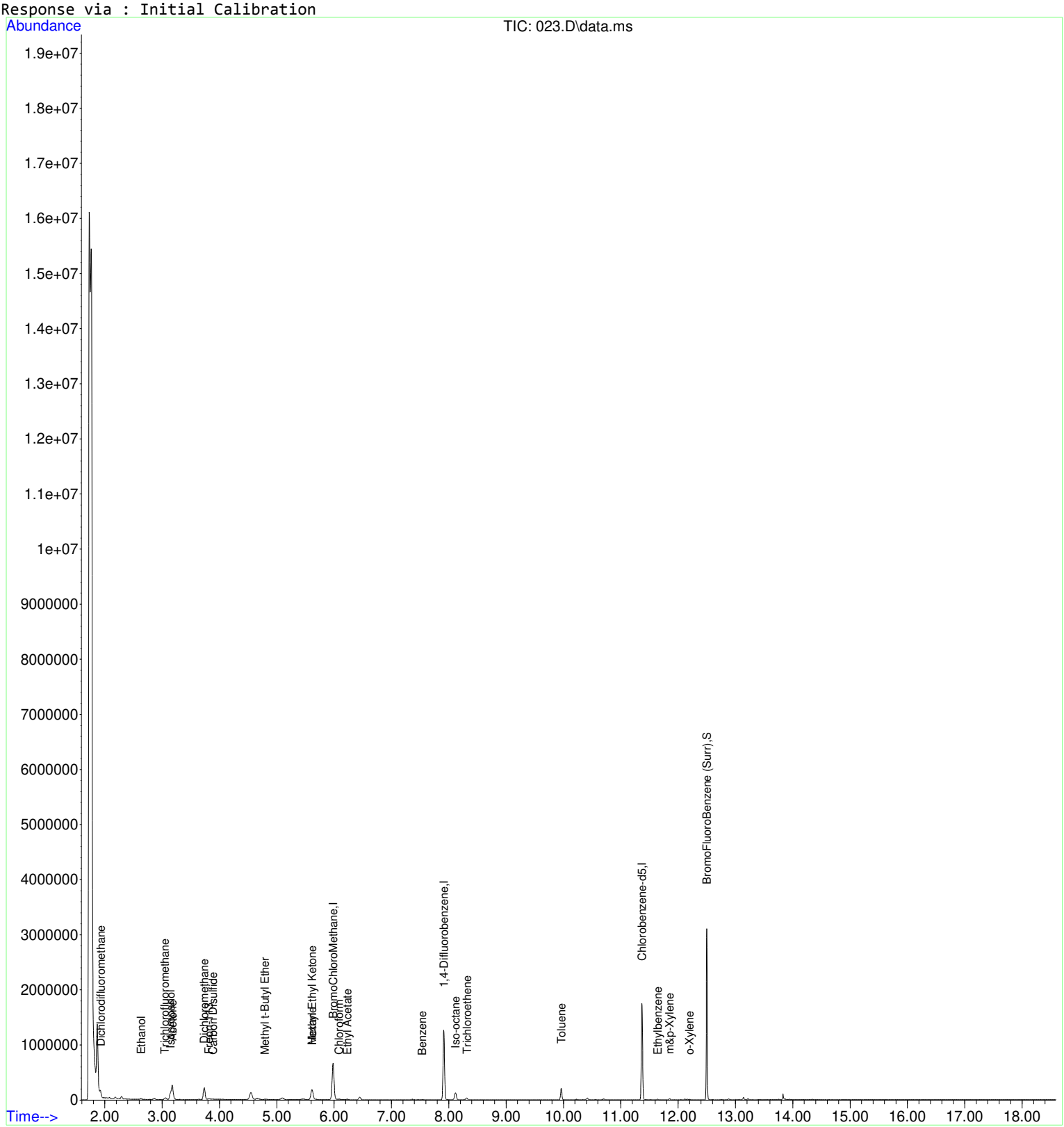
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
57) o-Xylene	12.197	106	24561m	0.03 ppbv	
59) 1-ethyl-4-methylbenzene	0.000		0	N.D.	
60) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
61) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
62) 1,3-Dichlorobenzene	0.000		0	N.D.	
63) Benzyl Chloride	0.000		0	N.D.	
64) 1,4-Dichlorobenzene	0.000		0	N.D.	
65) 1,2-Dichlorobenzene	0.000		0	N.D.	
66) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
67) Naphthalene	0.000		0	N.D.	
68) HCBD	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 023.D
Acq On : 23 Mar 2021 01:44 pm
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227822
Misc : 200cc
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 24 06:27:24 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 025.D
Acq On : 24 Mar 2021 07:19 am
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227823
Misc : 200cc
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 24 11:14:30 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) BromoChloroMethane	5.995	49	2748384	20.00 ppbv	# 0.04
43) 1,4-Difluorobenzene	7.925	114	9682853	20.00 ppbv	# 0.03
58) Chlorobenzene-d5	11.379	117	8644362	20.00 ppbv	# 0.02
System Monitoring Compounds					
69) BromoFluoroBenzene (Surr)	12.532	95	6408161	20.03 ppbv	0.01
Target Compounds					Qvalue
2) Propylene	0.000		0	N.D. d	
3) Dichlorodifluoromethane	1.935	85	691066	0.44 ppbv #	92
4) Dichlorotetrafluoroethane	0.000		0	N.D.	
5) Ethanol	2.641	45	78784m	0.98 ppbv	
6) Freon-113	3.826	101	46857	0.04 ppbv #	22
7) Chloromethane	0.000		0	N.D.	
8) Vinyl Chloride	0.000		0	N.D.	
9) 1,3-Butadiene	0.000		0	N.D.	
10) Bromomethane	0.000		0	N.D.	
11) Chloroethane	0.000		0	N.D.	
12) Vinyl Bromide	0.000		0	N.D.	
13) Trichlorofluoromethane	3.058	101	405015	0.26 ppbv #	99
14) Acetone	3.191	43	652746	1.28 ppbv #	24
15) Isopropanol	3.162	45	170867	0.44 ppbv #	93
16) 1,1-Dichloroethene	0.000		0	N.D.	
17) Dichloromethane	3.747	84	168203	0.45 ppbv #	1
18) Carbon Disulfide	3.898	76	242468	0.17 ppbv #	19
19) Trans 1,2-Dichloroethene	0.000		0	N.D.	
20) Methyl t-Butyl Ether	0.000		0	N.D.	
21) 1,1-Dichloroethane	0.000		0	N.D.	
22) Vinyl Acetate	0.000		0	N.D.	
23) Hexane	5.633	57	46162	0.07 ppbv #	1
24) Methyl Ethyl Ketone	0.000		0	N.D.	
25) Cis-1,2-Dichloroethene	0.000		0	N.D.	
26) Chloroform	6.098	83	105537	0.09 ppbv	95
27) Ethyl Acetate	6.251	61	1366	0.01 ppbv #	37
28) Tetrahydrofuran	0.000		0	N.D.	
29) 1,2-Dichloroethane	0.000		0	N.D.	
30) 1,1,1-Trichloroethane	0.000		0	N.D.	
31) Iso-octane	0.000		0	N.D.	
32) Cyclohexane	0.000		0	N.D.	
33) Carbon Tetrachloride	0.000		0	N.D.	
34) Benzene	0.000		0	N.D.	
35) 1,2-Dichloropropane	0.000		0	N.D.	
36) Heptane	0.000		0	N.D.	
37) Trichloroethene	8.327	130	67457	0.07 ppbv #	18
38) Bromodichloromethane	0.000		0	N.D.	
39) 1,4-Dioxane	0.000		0	N.D.	
40) Methyl methacrylate	0.000		0	N.D.	
41) Cis-1,3-Dichloropropene	0.000		0	N.D.	
42) Trans-1,3-Dichloropropene	0.000		0	N.D.	
44) Methyl Isobutyl Ketone	0.000		0	N.D.	
45) 1,1,2- Trichloroethane	0.000		0	N.D.	
46) Toluene	9.969	91	102654	0.07 ppbv	99
47) 2-Hexanone	0.000		0	N.D.	
48) Dibromochloromethane	0.000		0	N.D.	
49) 1,2-Dibromoethane	0.000		0	N.D.	
50) Tetrachloroethene	0.000		0	N.D.	
51) Chlorobenzene	0.000		0	N.D.	
52) Ethylbenzene	11.655	106	57909	0.09 ppbv #	34
53) m&p-Xylene	11.861	106	114459	0.11 ppbv #	69
54) Bromoform	0.000		0	N.D.	
55) Styrene	0.000		0	N.D.	
56) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	

Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 025.D
Acq On : 24 Mar 2021 07:19 am
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227823
Misc : 200cc
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 24 11:14:30 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration

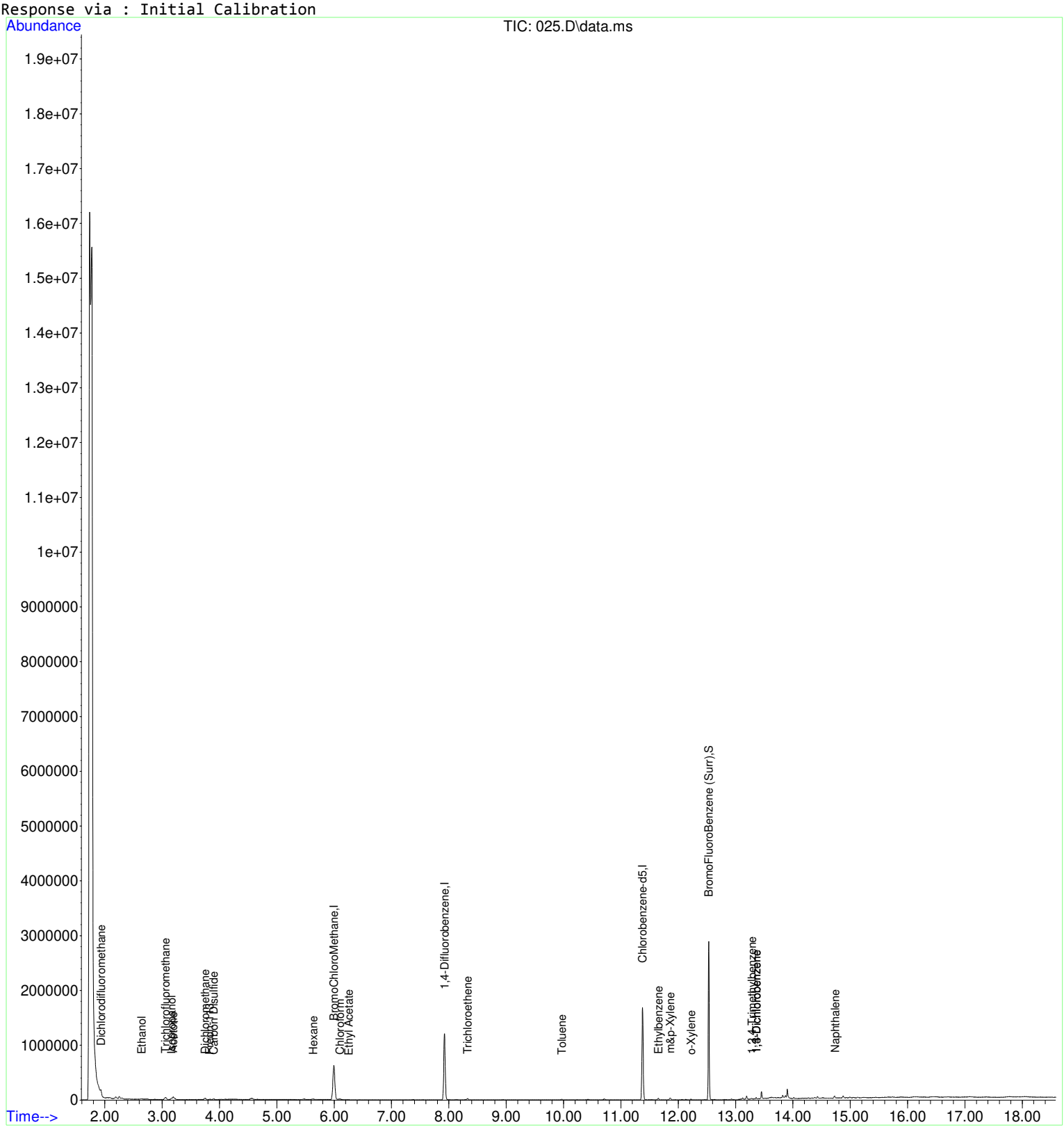
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
57) o-Xylene	12.220	106	31915m	0.04 ppbv	
59) 1-ethyl-4-methylbenzene	0.000		0	N.D.	
60) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
61) 1,2,4-Trimethylbenzene	13.283	105	49704	0.02 ppbv #	37
62) 1,3-Dichlorobenzene	13.360	146	77933	0.05 ppbv #	88
63) Benzyl Chloride	0.000		0	N.D.	
64) 1,4-Dichlorobenzene	13.360	146	77933	0.05 ppbv	91
65) 1,2-Dichlorobenzene	0.000		0	N.D.	
66) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
67) Naphthalene	14.733	128	33106	0.02 ppbv #	100
68) HCBD	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 025.D
Acq On : 24 Mar 2021 07:19 am
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227823
Misc : 200cc
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 24 11:14:30 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 026.D
Acq On : 24 Mar 2021 07:53 am
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227824
Misc : 200cc
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 24 11:15:47 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) BromoChloroMethane	5.993	49	2982263	20.00 ppbv	# 0.03
43) 1,4-Difluorobenzene	7.923	114	11152182	20.00 ppbv	# 0.03
58) Chlorobenzene-d5	11.378	117	10016466	20.00 ppbv	# 0.02
System Monitoring Compounds					
69) BromoFluoroBenzene (Surr)	12.533	95	7210698	19.45 ppbv	0.01
Target Compounds					Qvalue
2) Propylene	0.000		0	N.D. d	
3) Dichlorodifluoromethane	1.936	85	880432	0.52 ppbv #	90
4) Dichlorotetrafluoroethane	0.000		0	N.D.	
5) Ethanol	0.000		0	N.D.	
6) Freon-113	3.831	101	78095	0.07 ppbv #	61
7) Chloromethane	0.000		0	N.D.	
8) Vinyl Chloride	0.000		0	N.D.	
9) 1,3-Butadiene	0.000		0	N.D.	
10) Bromomethane	0.000		0	N.D.	
11) Chloroethane	0.000		0	N.D.	
12) Vinyl Bromide	0.000		0	N.D.	
13) Trichlorofluoromethane	3.059	101	380454	0.22 ppbv #	97
14) Acetone	3.189	43	1074456	1.94 ppbv #	36
15) Isopropanol	3.157	45	559897	1.34 ppbv #	87
16) 1,1-Dichloroethene	0.000		0	N.D.	
17) Dichloromethane	3.743	84	303834	0.75 ppbv #	1
18) Carbon Disulfide	3.901	76	567818	0.37 ppbv #	32
19) Trans 1,2-Dichloroethene	0.000		0	N.D. d	
20) Methyl t-Butyl Ether	0.000		0	N.D.	
21) 1,1-Dichloroethane	0.000		0	N.D.	
22) Vinyl Acetate	0.000		0	N.D.	
23) Hexane	5.627	57	129624	0.19 ppbv #	1
24) Methyl Ethyl Ketone	5.677	43	237242m	0.23 ppbv	
25) Cis-1,2-Dichloroethene	0.000		0	N.D.	
26) Chloroform	6.094	83	443214	0.35 ppbv	96
27) Ethyl Acetate	6.244	61	37674	0.27 ppbv #	51
28) Tetrahydrofuran	0.000		0	N.D.	
29) 1,2-Dichloroethane	0.000		0	N.D.	
30) 1,1,1-Trichloroethane	0.000		0	N.D.	
31) Iso-octane	8.129	57	129643	0.06 ppbv #	80
32) Cyclohexane	0.000		0	N.D.	
33) Carbon Tetrachloride	7.476	117	56639	0.04 ppbv #	85
34) Benzene	7.547	78	35190	0.02 ppbv #	28
35) 1,2-Dichloropropane	0.000		0	N.D.	
36) Heptane	0.000		0	N.D.	
37) Trichloroethene	8.326	130	331847	0.34 ppbv #	63
38) Bromodichloromethane	0.000		0	N.D.	
39) 1,4-Dioxane	0.000		0	N.D.	
40) Methyl methacrylate	0.000		0	N.D.	
41) Cis-1,3-Dichloropropene	0.000		0	N.D.	
42) Trans-1,3-Dichloropropene	0.000		0	N.D.	
44) Methyl Isobutyl Ketone	0.000		0	N.D.	
45) 1,1,2- Trichloroethane	0.000		0	N.D.	
46) Toluene	9.969	91	234018	0.13 ppbv	99
47) 2-Hexanone	0.000		0	N.D.	
48) Dibromochloromethane	0.000		0	N.D.	
49) 1,2-Dibromoethane	0.000		0	N.D.	
50) Tetrachloroethene	0.000		0	N.D.	
51) Chlorobenzene	11.414	112	2371	0.00 ppbv #	3
52) Ethylbenzene	11.654	106	14287m	0.02 ppbv	
53) m&p-Xylene	11.862	106	40987	0.04 ppbv #	73
54) Bromoform	0.000		0	N.D.	
55) Styrene	0.000		0	N.D.	
56) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	

Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 026.D
Acq On : 24 Mar 2021 07:53 am
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227824
Misc : 200cc
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 24 11:15:47 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
57) o-Xylene	12.217	106	12689m	0.01 ppbv	
59) 1-ethyl-4-methylbenzene	0.000		0	N.D.	
60) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
61) 1,2,4-Trimethylbenzene	13.283	105	56143	0.02 ppbv #	67
62) 1,3-Dichlorobenzene	13.358	146	5207m	0.00 ppbv	
63) Benzyl Chloride	0.000		0	N.D.	
64) 1,4-Dichlorobenzene	0.000		0	N.D.	
65) 1,2-Dichlorobenzene	0.000		0	N.D.	
66) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
67) Naphthalene	14.733	128	35081	0.02 ppbv #	100
68) HCBD	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MassHunter\GCMS\1\data\21MAR22\
Data File : 026.D
Acq On : 24 Mar 2021 07:53 am
Operator : AGATCGY\5623-Labtech
Sample : 21T714273-2227824
Misc : 200cc
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 24 11:15:47 2021
Quant Method : C:\MassHunter\GCMS\1\methods\21MAR09TO15.M
Quant Title :
QLast Update : Tue Mar 09 13:15:23 2021
Response via : Initial Calibration