Suncor Energy Products Partnership
Soil Vapour Sampling Report, July 2021
Hounsfield Heights, Calgary, Alberta 9445

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Executive Summary

Clifton Engineering Group Inc. is pleased to present this Soil Vapour Sampling Report, Summer 2021 (the "Report") prepared for Suncor Energy Products Partnership ("Suncor EPP"). The presented Report describes in detail the methodology of soil vapour sample collection, Quality Assurance/Quality Control (QA/QC), implementation and interpretation of soil vapour sampling results in the community of Hounsfield Heights within the City of Calgary (the "Site") conducted by Clifton in July 2021.

The executed soil vapour sampling event conducted during July 2021 included two components:

- Semi-annual soil vapour sampling; and
- Risk Management and Contingency Plan (RM & C)-based soil vapour sampling.

The soil vapour sampling event described in this report constituted an extension of the soil vapour sampling program with three-years duration at the Site, stipulated in the document: 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, and approved by AEP for the implementation at the Site. A total of eight community-wide sampling events have been executed to date at the Site providing data regarding the soil vapour concentrations distribution.

Clifton carried out the soil vapour sampling event at the Site from 7 July 2021 to 16 July 2021. A total of 32 (30 primary soil vapour samples and 2 field duplicates) soil vapour samples were collected at external, nested and delineation sampling points and analysed for Contaminants of Potential Concern (CoPCs) concentrations. Neither soil vapour samples collected as a part of the semi-annual sampling, nor samples collected as a part of the RM & C Plan recorded exceedances for the investigated CoPCs compared either to the soil vapour quality guidelines protective of indoor air quality, soil vapour remediation guidelines protective of indoor air quality for a residential property at the Site, or to the increased sampling frequency trigger values.

The soil vapour analytical laboratory results collected during the Summer 2021 sampling event showed that a potential vapour intrusion pathway into the residential and commercial structures within the investigated area should not pose immediate health risk for the occupants, and therefore, exposure controls are not deemed necessary at this time.

Soil vapour inhalation is currently the only potentially active exposure pathway at the Site that could potentially 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. Collected information for the Site, in Clifton's opinion, supports the case for the recommended further course of the action and refinement of the soil vapour sampling program at the Site outlined in Section 7.0 of this Report.

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1.0 Introduction

Clifton Engineering Group Inc. (Clifton) is pleased to present this Soil Vapour Sampling Report, Summer 2021 (Report) prepared for Suncor Energy Products Partnership (Suncor EPP). The presented Report describes in detail the methodology of soil vapour sample collection, Quality Assurance/Quality Control (QA/QC), implementation and interpretation of soil vapour sampling results in the community of Hounsfield Heights within the City of Calgary (the "Site") conducted by Clifton in July 2021.

The executed soil vapour sampling event in July 2021 included two components:

- Semi-annual soil vapour sampling; and
- Risk Management and Contingency (RM & C) Plan-based soil vapour sampling.

The presented document is partially based on the previous environmental work completed for Sears Canada Ltd. (Sears) as the previous Site owner in both the Mall area and the Hounsfield Heights area by Clifton and by Intrinsik Environmental Sciences Inc. (Intrinsik). Therefore, the presented Report should be read and understood in conjunction with the following reports:

- 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 (Revised SVMP);
- Clifton Associates Ltd.: *Sears Canada Inc., Soil Vapour Monitoring Points Installation Report, Hounsfield Heights and North Hill Mall, Calgary, Alberta,* 20 October 2016 (Installation Report);
- Clifton Associates Ltd.: *Subsurface Investigation-Mall Area and Hounsfield Heights,* 22 January 2016 (2016 SI);
- Clifton Associates Ltd.: *Updated Site Management Plan (2014), Hounsfield Heights-Briar Hill Community, Calgary, Alberta,* April 2014 (2014 Updated SMP);
- Intrinsik Environmental Sciences Inc.: *Draft Report-Human Health and Ecological Risk Assessment for the Hounsfield Heights Community and North Hill Mall Areas, Calgary, Alberta,* December 2015 (2015 HHERA); and
- Intrinsik Environmental Sciences Inc.: *Final Report-Development of Soil Vapour Quality Guidelines*, 31 August 2016.

The presented Report follows guidance, protocols, scientific rationale and best practices as outlined in the following documents:

- Alberta Environment and Parks: *Alberta Tier 1 Soil and Groundwater Remediation Guidelines*, 2019 (2019 AEP Tier 1 Guidelines);
- Alberta Environment and Parks: *Alberta Tier 2 Soil and Groundwater Remediation Guidelines*, 2019 (2019 AEP Tier 2 Guidelines);

- Canadian Council of Ministers of the Environment: *A Protocol for the Derivation of Soil Vapour Quality Guidelines for Protection of Human Exposures via Inhalation of Vapors*, 2014 (2014 CCME Protocol);
- British Columbia Ministry of Environment: *Technical Guidance on Contaminated Sites 4,* version 1, September 2010 (BC TG-4);
- Golder Associates Ltd.: *Guidance on Site Characterization for Evaluation of Soil Vapour Intrusion into Buildings,* Submitted to the British Columbia Ministry of Environment by Science Advisory Board for Contaminated Sites in British Columbia, May 2011 (2011 Golder Guidance);
- Health Canada: *Federal Contaminated Site Risk Assessment in Canada, Part VII: Guidance for Soil Vapour Intrusion Assessment at Contaminated Sites*, September 2010 (2010 HC); and
- Johnson, P.C., & R. Ettinger: *Heuristic Model for predicting the Intrusion Rate of Contaminant Vapours into Buildings*, 1991(J&E Model).

2.0 Project Background

A detailed project background and the rationale for the selected constituents analyzed as part of this assessment is provided in the following report:

- 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 (Revised SVMP);

3.0 Site Overview

The Site consists of two distinctive portions separated by 14th Avenue NW: the Hounsfield Heights area and the North Hill Mall (Mall) area:

- The Hounsfield Heights area is bound by the southern edge of the LRT line to the north; 14th Street NW to the east; 10th Avenue SW (extending west to 17A Street NW) to the south; and 17A Street NW to the west. The area is zoned as residential, as it primarily consists of single detached dwellings with basements. There are three areas of the Site that are zoned as Special Purpose: Hounsfield Heights Park; a parcel of land along 10th Avenue SW between 16th Street NW and 16th A Street NW; and the area between the LRT line and 13th Avenue NW.
- The Mall area is bound by 16th Avenue NW to the north; 14th Street NW to the east; the northern edge of the LRT line to the south; and, to the west by the western edge of the North Hill Centre property and a line extending south to the northern edge of the LRT line.

Capitol Hill, a residential area, is located to the north of the Site. To the east is SAIT Polytechnic and the Alberta College of Art + Design. Hillhurst and Briar Hill, both residential areas, are found south and west of the Site, respectively. The Site layout and land use are shown in Appendix A, Figures 1 and 2.

The Site topography is characterized by a gently south-sloping river valley plateau on the northern portion of the Site, and a more moderately sloping valley wall towards the southeast portion. The Site varies in elevation from approximately 1,094 m above sea level in the northwestern corner along 13th Avenue NW, to approximately 1,068 m above sea level in the southeastern corner, north of the intersection of 15th Street NW and 10th Avenue NW.

3.1 Soil Vapour Sampling Area Extent Modification

As a part of the updated Site Management Plan, a community-wide soil vapour sampling program has been carried out by Clifton since 2016. The sampling program is conducted in accordance with guidance provided in the Clifton Associates Ltd. report entitled *Sears Canada Inc., Revised Soil Vapour Monitoring Program (Update Fall 2016), Hounsfield Heights and North Hill Mall, Calgary, Alberta.* This document was approved by the regulator (Alberta Environment and Parks), utilizing an established network of soil vapour sampling points throughout the community.

Based on the recorded soil vapour concentration distribution recorded throughout the community-wide soil vapour sampling events executed to the date, Clifton recommended in the Clifton Associates Ltd.: *Soil Vapour Monitoring Report, Winter 2019/2020, Hounsfield Heights and North Hill Mall, Calgary, Alberta,* dated 1 June 2020, document, discontinuing of the regular soil vapour sampling in the North Hill Mall area and the areas to the north of 11th Avenue NW in Hounsfield Heights. Based on the collected sampling data since 2016, the likelihood of the soil vapour intrusions in concentrations considered as a potential health hazard into the residential or commercial buildings in these areas was assessed as very low, or negligible, respectively.

In lieu, Clifton proposed to focus future soil vapour sampling on the areas along 11th Avenue NW and to the south of 11th Avenue NW. Based on the collected soil vapour sampling data, this area for the time being should be considered as an area where soil vapour intrusions in concentrations considered as a potential health hazard into the residential buildings in the area cannot be excluded.

Alberta Environment and Parks (AEP) accepted the above recommendations in the letter dated 18 November 2020. The resulting modified soil vapour sampling area applied to the Summer 2021 sampling event described in this Report is shown in Appendix A, Figure 3.

3.2 Semi-Annual Soil Vapour Sampling Area Extent

The semi-annual soil vapour sampling area included a total of 20 primary soil vapour sampling points installed along and to the south of 11 Avenue NW as shown in Appendix A, Figure 3. Sampling included one nested soil vapour sampling point resulting in a total of 22 primary soil vapour samples collected.

Soil vapour sampling points SV27, SV28 and SV29 were inaccessible due to the construction work in the area, and as a result, soil vapour samples from these soil vapour sampling points were not collected.

3.3 RM&C Plan-Based Soil Vapour Sampling Area Extent

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 sampling point SV32 might be an active exposure pathway of concern for indoor vapour inhalation. Soil vapour probe SV32 is situated in the residential laneway between 15 and 14 Street NW close to the southeast extremity of the Site. Based upon those findings, Clifton implemented the RM&C Plan, 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 CoPC concentrations in soil vapour.

The RM&C Plan-based soil vapour sampling included a total of eight soil vapour sampling points, namely:

- Soil vapour sampling point SV32;
- Soil vapour sampling points SV321B and SV322 installed adjacent to a residential property at 10th Avenue NW in lieu of a sub-slab monitoring point;
- Soil vapour sampling point SV323 installed adjacent to a residential property at 15th Street NW in lieu of a sub-slab monitoring point; and
- Soil vapour sampling points SV401, SV402, SV403 and SV404 installed in the area in December 2020 to increase density of the sampling network.

The RM&C Plan-based soil vapour sampling area extent is shown in Appendix A, Figure 3.

4.0 Objective and Scope of Work

The principle objective of the executed Soil Vapour Sampling Program (SVSP) was to evaluate potential risk to human health from inhalation of subsurface vapours in indoor air in the residential structures present at the Site. To address this objective, Clifton carried out the following Scope of Work within the SVSP:

- Collected representative soil vapour samples from the selected area along and to the south of 11th Avenue NW identified by 2015 Site Investigation as having CoPCs concentrations in groundwater or soil exceeding the 2019 AEP Tier 1 Guidelines for the vapour inhalation exposure pathway;
- Sampled nested soil vapour sampling point (SV26) at the location representing changing stratigraphy of the Site to provide representative data for evaluation of the Site-specific vertical soil vapour migration and biodegradation;

- Sampled soil vapour sampling locations constituting lateral transects to facilitate lateral delineation of the soil vapour plume extent at the Site;
- Forwarded collected soil vapour and air samples to AGAT Laboratories under Chain-of -Custody protocols for laboratory analyses of CoPCs;
- Implemented QA/QC procedures to assure quality and defensibility of the collected data;
- Compared CoPCs concentrations in soil vapour from soil vapour sampling points against the Site-specific soil vapour quality guidelines (SVQG) developed based on the 2014 CCME Protocol by Intrinsik (August 2016); and
- Compared CoPCs concentrations in soil vapour from soil vapour sampling points against trigger threshold values for additional investigation set as 90% of guidelines.

5.0 Sampling Methodology

The following sections provide a description of the soil vapour sampling methodology. Where applicable, activities were completed as per *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.

5.1 Soil Vapour Sampling Methodology

In order to achieve required resolution of the laboratory detection limits for 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 the dedicated PTFE tubing with stainless steel fitting 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 helium tracer. All sampling points meeting 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. 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 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 valve installed at the top of a soil vapour sampling point were kept in a closed position, except when purging and sampling.

5.2 Quality Assurance/Quality Control (QA/QC)

A comprehensive QA/QC program was implemented to ensure that the sampling and analyses follow established protocols and provide defensible, 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 helium tracer competent seal integrity testing by creating and recording an initial helium shroud above sampling point, maintaining helium shroud during pre-sampling purge and recording final helium concentration in the sampling train to prove that seal integrity of a soil vapour sampling point was not compromised and 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;
- Collecting field duplicates and evaluating Relative Percent Difference (RPD) ratio using the following equation:

$$RPD\ (\%) = [abs(x_1-x_2)/(x_1+x_2)/2] * 100$$ [1]

- Measuring initial vacuum levels at the sampling canisters by the standalone vacuum gauge to ensure initial sampler integrity;
- Measuring final vacuum levels at the sampling canisters by the standalone vacuum gauge to avoid a potential for soil vapour sample contamination 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.

QA/QC results and weather observations are discussed in Sections 6.3 and 6.4 of this Report.

5.3 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

[1] Where x_1 and x_2 are concentration parameters for the primary and secondary sample.

the vapour inhalation pathway as identified by the 2015 HHERA were investigated. Therefore, the applied analytical suite included the following:

- PHCs fraction F1[2];
- PHCs fraction F2[3];
- BTEX (benzene, toluene, ethylbenzene, xylenes);
- Naphthalene;
- 1,2 Dichloroethane (1,2-DCA); and
- Matrix Gases (O_2, N_2, CO_2, CH_4)[4]

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

6.0 Sampling Results

6.1 6.1 Selection of Assessment Criteria

The selection of the assessment criteria outlines the rationale for selecting applicable exposure pathways and indicates which guidelines should apply at the investigated Site. This evaluation is based on guidance presented in the documents further referenced in the text.

The owners of the two residential properties located in the Hounsfield Heights area at 10th Avenue NW and 15th Street NW, respectively, are included in the RM&C Plan-based soil vapour sampling. In lieu of sub-slab soil vapour sampling, Clifton used the following conservative approach to estimate indoor air quality in these structures based on the Revised SVMP, Section 6.1:

- An external soil vapour sampling point located in the shortest distance from the property was used for an estimate of indoor air quality. No allowance was made for either lateral or vertical biodegradation of soil vapour regardless of the soil vapour sampling point installation depth, i.e., recorded concentrations of CoPCs in soil vapour were directly projected within the property and compared against SVQG for depth of 0 m bgs (Appendix B, Tables 1 and 2).

Soil vapour sampling analytical results were generally compared to SVQG for fine-textured soils and protective of indoor air quality for a residential building (Appendix B, Tables 3 -11) based on the installation depth. The 2014 CCME Protocol assumes that at least 1 m of clean soil is present immediately beneath

[2] Expressed in form of the constituting aliphatic and aromatic sub-fractions.

[3] Expressed in form of the constituting aliphatic and aromatic sub-fractions.

[4] Applicable for soil vapour samples collected from sub-slab, nested monitoring points and external soil vapour monitoring points located in the vicinity of the residential properties.

the building as a condition for validity of the provided SVQG derivation model. Considering shallow groundwater in a portion of the Site to the south of 11th Avenue NW and default basement depth of 2.44 m bgs (2019 Alberta Tier 1), this assumption may not be met for soil vapour sampling points listed in Appendix B, Tables 3 and 4. Analytical results for these sampling points were thus compared to SVQG based on the default attenuation factors.

In addition, AEP approved on a trial basis increased sampling frequency triggers for soil vapour and sub-slab soil vapour sampling points at the Site. These trigger values were set at 90% of a pertaining SVQG for CoPCs. Comparison of analytical results to the trigger values is shown in Appendix B, Tables 3-11.

6.2 Semi-Annual Soil Vapour Sampling Results

Clifton carried out the semi-annual soil vapour sampling event at the Site from 9 July 2021 to 16 July 2021. A total of 23 (22 primary soil vapour samples and 1 field duplicate) soil vapour samples were collected at external, nested and delineation sampling points and analysed for CoPC concentrations. There were no recorded exceedances for the investigated CoPCs compared either to the SVQG protective of indoor air quality, soil vapour remediation guidelines protective of indoor air quality for a residential building, or to the increased sampling frequency trigger values.

Distribution of the investigated CoPCs in soil vapour at the Site based on the analytical results for the Summer 2021 sampling event is shown in Appendix A. Analytical Results Tables for these soil vapour sampling points are presented in Appendix B, Tables 3-11. A summary of all historical soil vapour results for each probe is provided in Appendix C.

6.3 Sampling Results – RM&C Plan-Based Soil Vapour Sampling

Clifton carried out the RM&C Plan-based soil vapour sampling event at the Site from 7 July to 8 July 2021. A total of 9 (8 primary soil vapour samples and 1 field duplicate) soil vapour samples were collected at external monitoring points and analysed for CoPCs concentrations. Analytical results for the soil vapour samples collected from the soil vapour monitoring points SV32, SV401, SV402, SV403 and SV404 were 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 sampling points.

Tabulated analytical results for SV32, SV401, SV402, SV403 and SV404 are presented in Appendix B, Table 3 and Table 4, respectively.

Analytical results for the soil vapour samples collected from the soil vapour sampling points SV321B, SV322 and SV323 were compared to SVQG based on default attenuation factors using the methodology described in Section 6.1. No exceedances for CoPCs 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 each probe is provided in Appendix C.

6.4 QA/QC Results

A total of two field duplicates (Sample IDs 99 and 932) were collected and analyzed for CoPCs during sampling as a part of QA/QC program. These duplicates were compared against primary samples and 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 collected duplicates and investigated constituents were below the recommended threshold of 25% except for toluene concentration in samples ID 9 and 99 where the RPD value was calculated at 32.3%. This exceedance has been investigated with the analytical laboratory and seems to be caused by a difference in the remaining vacuum levels at the sampling canisters. Generally, the QA/QC results indicate that the collected soil vapour samples can be considered reliable soil vapour concentrations at the Site without a significant bias and are 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, Tables 1 A -1 C. 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. The 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 sampling points sampled during the sampling event passed these integrity criteria.

6.5 Meteorological Conditions

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

Table 6.1 – Summary of Meteorological Conditions – Sampling Event Summer 2021[5,6]

Date	Average Wind Speed (km/h)	Average Wind Direction	Total Precipitation (mm)	Barometric Pressure (kPa)	Pressure Tendency
7 July 2021	15	SW	0.0	101.31	Falling
8 July 2021	6	N	0.0	101.31	Stable

[5] Based on the Calgary International Airport meteorological station data as recorded at 12:00 pm for each sampling day.
[6] Weather data stated only for the actual sampling days.

Table 6.1 – Summary of Meteorological Conditions – Sampling Event Summer 2021[5,6]

Date	Average Wind Speed (km/h)	Average Wind Direction	Total Precipitation (mm)	Barometric Pressure (kPa)	Pressure Tendency
9 July 2021	0.1	N	0.0	101.84	Rising
10 July 2021	15	S	0.0	101.50	Falling
11 July 2021	7	SW	0.3	101.95	Falling
12 July 2021	13	S	0.0	102.11	Falling
13 July 2021	9	S	0.0	101.92	Falling
14 July 2021	4	N	0.0	100.74	Falling
15 July 2021	19	NE	0.0	100.76	Falling
16 July 2021	9	NE	0.0	101.17	Stable

As apparent from the presented meteorological data, no major precipitation events occurred, and barometric pressure had predominantly stable or falling trends throughout the soil vapour sampling duration. Therefore, in our opinion, the prevalent weather conditions were unlikely to affect recorded soil vapour concentrations in any significant way.

6.6 Groundwater Monitoring

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 CoPCs in groundwater closest to the surface and CoPCs concentrations in soil vapour in the investigated area. Groundwater sampling and analysis were out of scope of work for RMCP-based soil vapour sampling; however, these wells will be sampled as a part of the regular groundwater monitoring and sampling at the Site. Results are presented in the report titled *June and September 2021 Monitoring and Sampling Event* (Clifton, December 2021). The results from monitoring wells BH5001 and BH5002 were below the detection limit for the CoPCs.

OVA concentrations were measured concurrently with the soil vapour collection at SV32 using an appropriately calibrated photo-ionization detector. Summary of the groundwater monitoring results is stated in the following table:

Table 6.2 – 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	7 July 2021	1.62	0.93	0.0
MW5002	7 July 2021	1.73	1.01	0.0

7.0 Discussion of Results

A total of 30 soil vapour samples were collected at external, nested and delineation sampling points and analysed for CoPC concentrations throughout the duration of the Summer 2021 soil vapour sampling event. Neither soil vapour samples collected as a part of the semi-annual sampling, nor samples collected as a part of the RM&C Plan recorded exceedances for the investigated CoPCs compared either to the SVQG protective of indoor air quality, soil vapour remediation guidelines protective of indoor air quality for a residential property at the Site, or to the increased sampling frequency trigger values.

The soil vapour concentrations measured during the Summer 2021 sampling event are below the applicable guidelines for the protection of human health through the vapour inhalation pathway. Therefore, the application of exposure controls is not deemed necessary at this time.

Soil vapour inhalation is currently the only potentially active exposure pathway at the Site that might lead to a deleterious effect for human health. Soil vapour sampling at the Site in areas south of 11th Avenue NW should continue until the exposure risk to the residents at the Site can be considered eliminated. Based on the collected information, and the recently approved Revised Remediation Plan (RRP) for the Site, in our opinion, support the case for the following recommended course of action provided approval from the regulator:

- Risk Management and Contingency Plan – based soil vapour sampling at the Site will continue 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;

- The next Risk Management and Contingency Plan – based soil vapour sampling event at the Site should be carried out in November 2021 to confirm that the exposure pathway for indoor vapour inhalation is not active in this area;
- The next semi-annual soil vapour sampling event at the Site is recommended to be carried out in January or February 2022 to record soil vapour concentrations representative of typical winter meteorological conditions and an assumed minimal soil biodegradation of the CoPC at the Site; and
- Soil vapour sampling points SV321B, SV322 and SV323 should be immediately re-sampled in the case of any future SVQG exceedances recorded at SV32, SV401, SV402, SV403 and SV404, or recorded elevated OVA readings at MW5001 or MW5002.

Any possible additional soil vapour-related mitigation action recommended at the Site will depend on the results obtained from additional environmental investigation described above.

8.0 Closure

This report was prepared by Clifton Engineering Group Inc. for 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.

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 Report 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 Report.

Reference List

Alberta Environment and Parks. (2019). *Alberta Tier 1 Soil and Groundwater Remediation Guidelines*

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Appendix A

Figures

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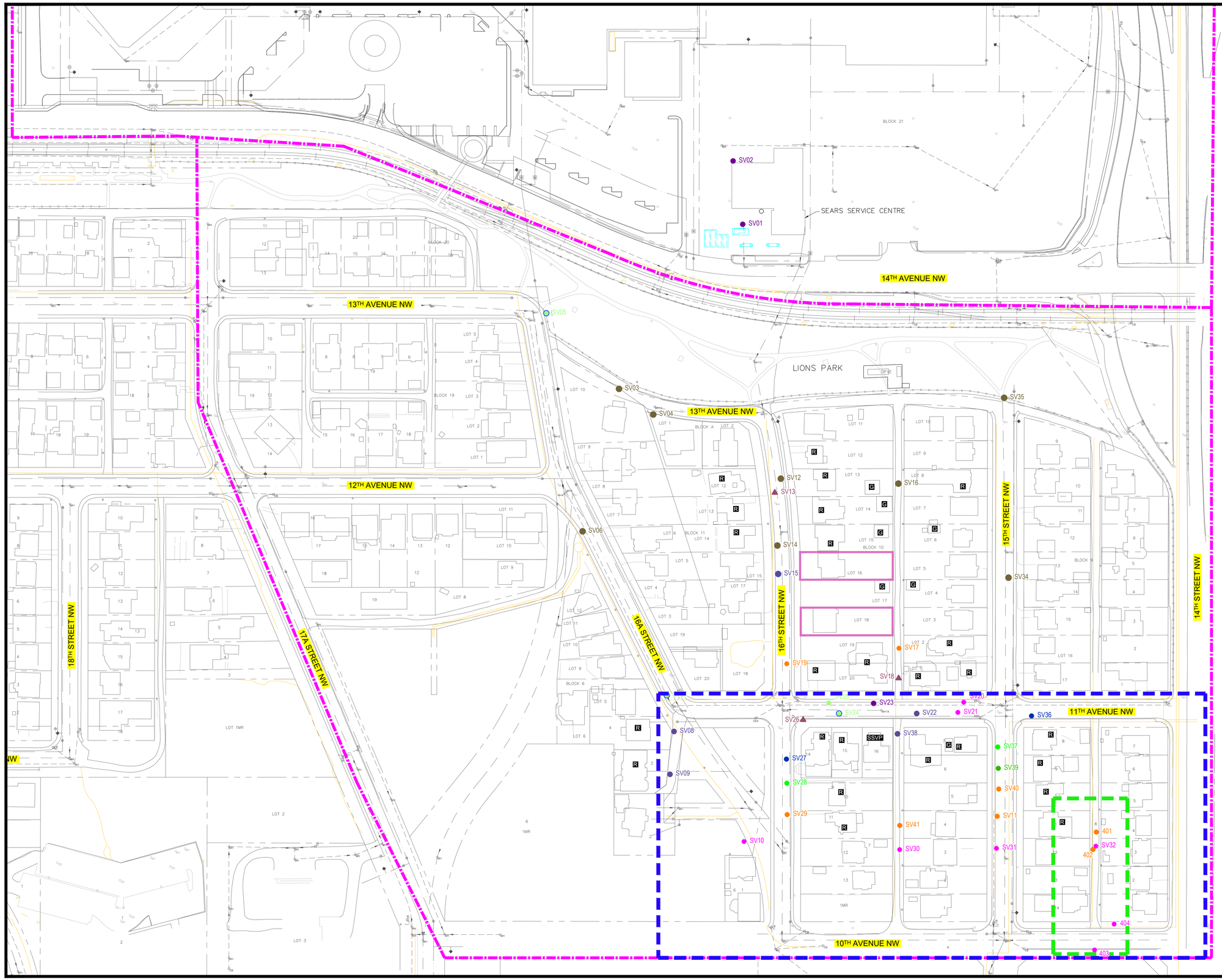

LEGEND

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#
NESTED SOIL VAPOUR SAMPLING POINT	SV#
ADDITIONAL SOIL VAPOUR SAMPLING POINTS INSTALLED IN MAY 2019	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

EXTENT OF SEMI-ANNUAL SOIL VAPOUR SAMPLING, SUMMER 2021

EXTENT OF ERP SOIL VAPOUR SAMPLING, SUMMER 2021

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

SOIL VAPOUR SAMPLING REPORT
SUMMER 2021
HOUNSFIELD HEIGHTS
CALGARY 9445, ALBERTA

TITLE

SOIL VAPOUR SAMPLING POINT
INSTALLATION LAYOUT

DESIGNED	SCALE	DATE
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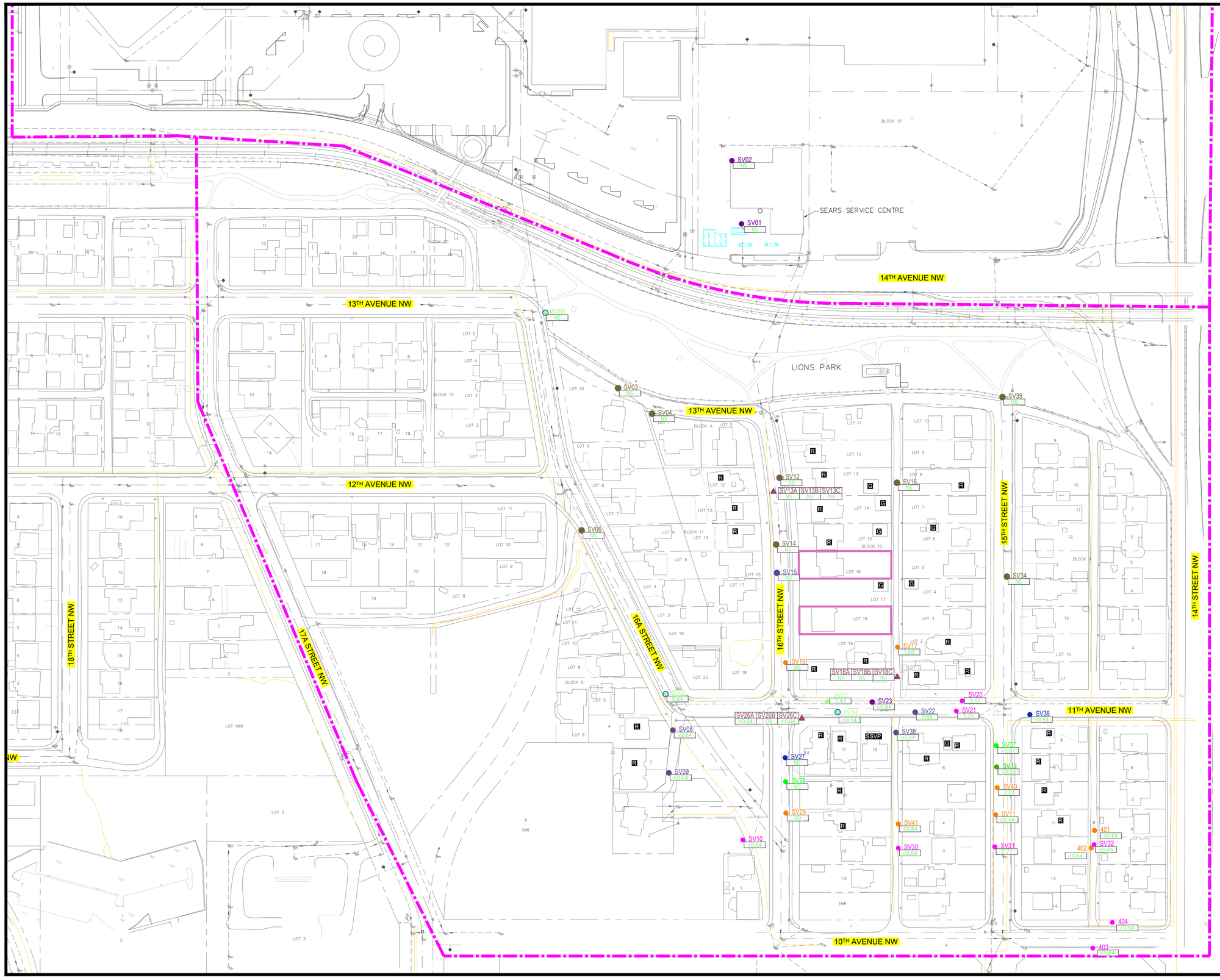

LEGEND

- SITE BOUNDARY
- LRT TRACKS
- FENCE LINE
- LEGAL LINE
- FORMER FACILITY/FEATURE
- BUILDING
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- SOIL VAPOUR PROBES INSTALLED AT 1.5 mbgs — SV#
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- SOIL VAPOUR PROBES INSTALLED AT 5.5 mbgs — SV#
- SOIL VAPOUR PROBES INSTALLED AT 6.0 mbgs — SV#
- NESTED SOIL VAPOUR SAMPLING POINT — SV#
- ADDITIONAL SOIL VAPOUR SAMPLING POINTS INSTALLED IN MAY 2019 — SV#
- RESIDENTIAL STRUCTURES WITH REPORTED UNUSUAL FEATURES (EARTHEN FLOORS)
- SOIL VAPOUR SAMPLING POINT ID AND RECORDED CONCENTRATION IN SUMMER 2019 — SV# / 6.06
- NOT SAMPLED
- NO DATA
- 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

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

SOIL VAPOUR SAMPLING REPORT
SUMMER 2021
HOUNSFIELD HEIGHTS
CALGARY 9445, ALBERTA

TITLE

DISTRIBUTION OF BENZENE IN SOIL VAPOUR

DESIGNED	SCALE	DATE
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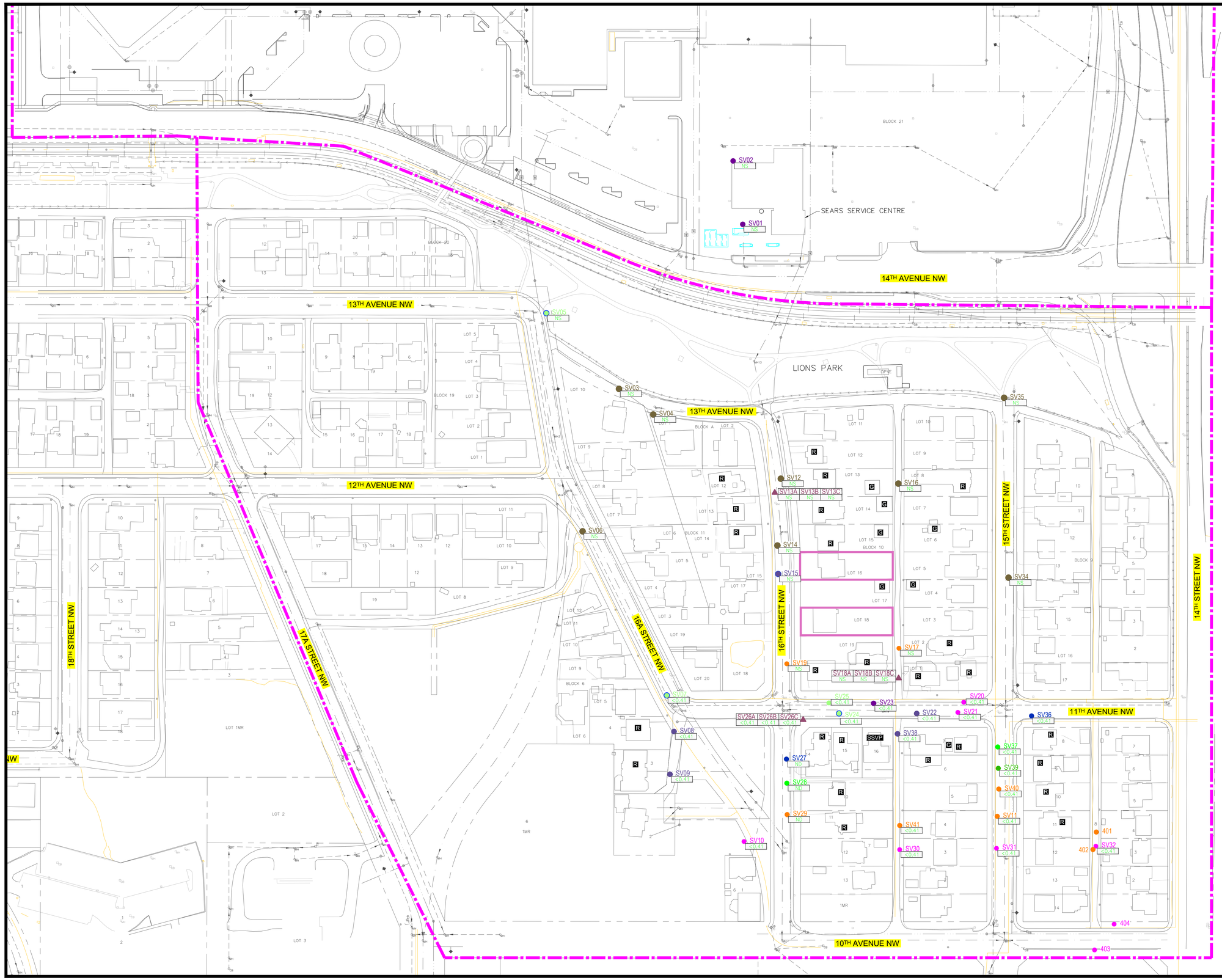

LEGEND

SITE BOUNDARY	
LRT TRACKS	
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LEGAL LINE	
FORMER FACILITY/FEATURE	
BUILDING	
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SOIL VAPOUR PROBES INSTALLED AT 2.0 mbgs	SV#
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SOIL VAPOUR PROBES INSTALLED AT 4.5 mbgs	SV#
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NESTED SOIL VAPOUR SAMPLING POINT	SV#
ADDITIONAL SOIL VAPOUR SAMPLING POINTS INSTALLED IN MAY 2019	SV#
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NO DATA	
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

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

SOIL VAPOUR SAMPLING REPORT
SUMMER 2021
HOUNSFIELD HEIGHTS
CALGARY 9445, ALBERTA

TITLE

DISTRIBUTION OF 1, 2-DICHLOROETHANE IN SOIL VAPOUR

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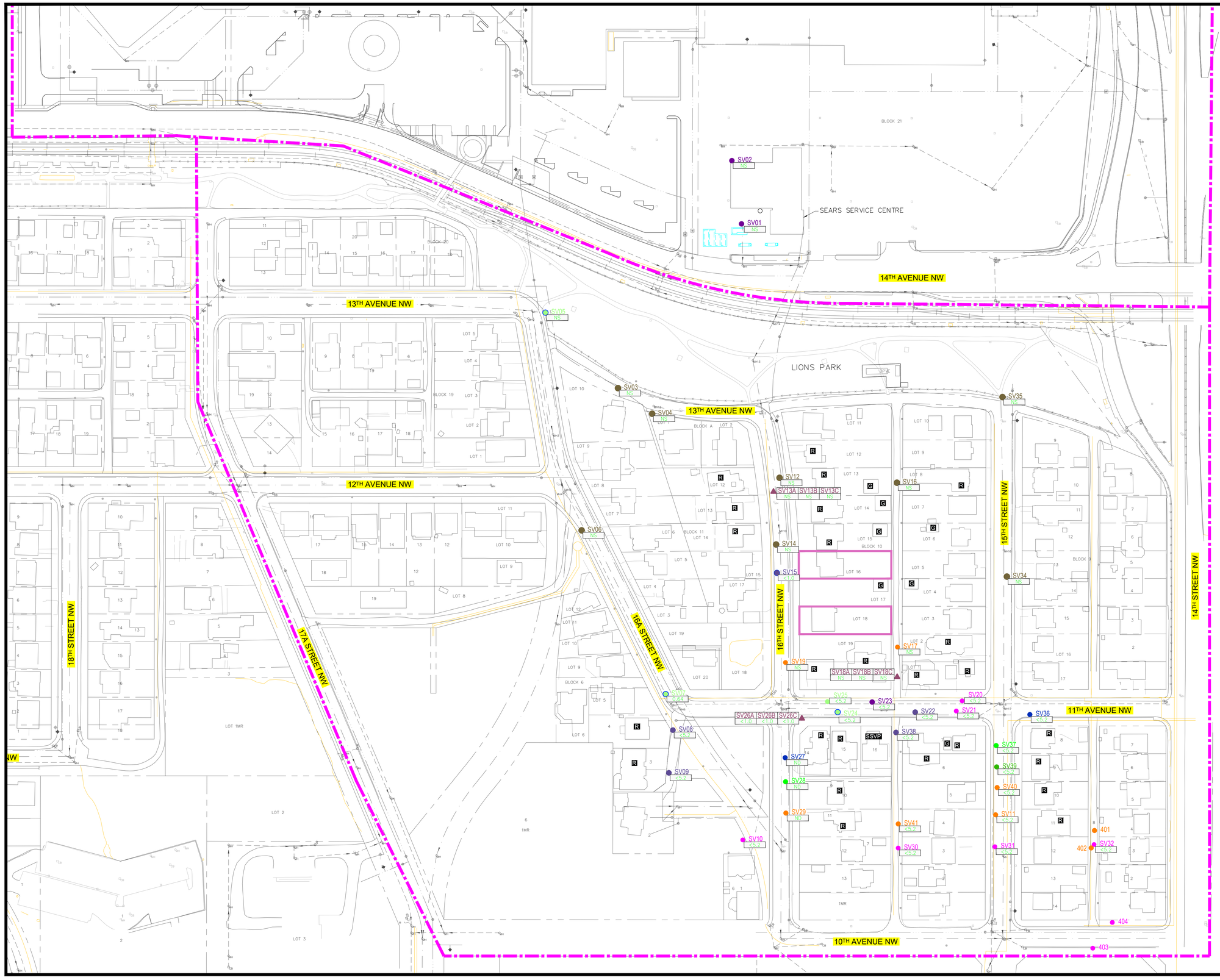

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LEGAL LINE	
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RESIDENTIAL	R
DETACHED GARAGE	G
SUB-SLAB SOIL VAPOUR POINT	SSVP

UTILITY LINES & SYMBOLS

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

NOTES:

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0 10 20 30 40 50 m

PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT

SOIL VAPOUR SAMPLING REPORT
SUMMER 2021
HOUNSFIELD HEIGHTS
CALGARY 9445, ALBERTA

TITLE

DISTRIBUTION OF NAPHTHALENE IN SOIL VAPOUR

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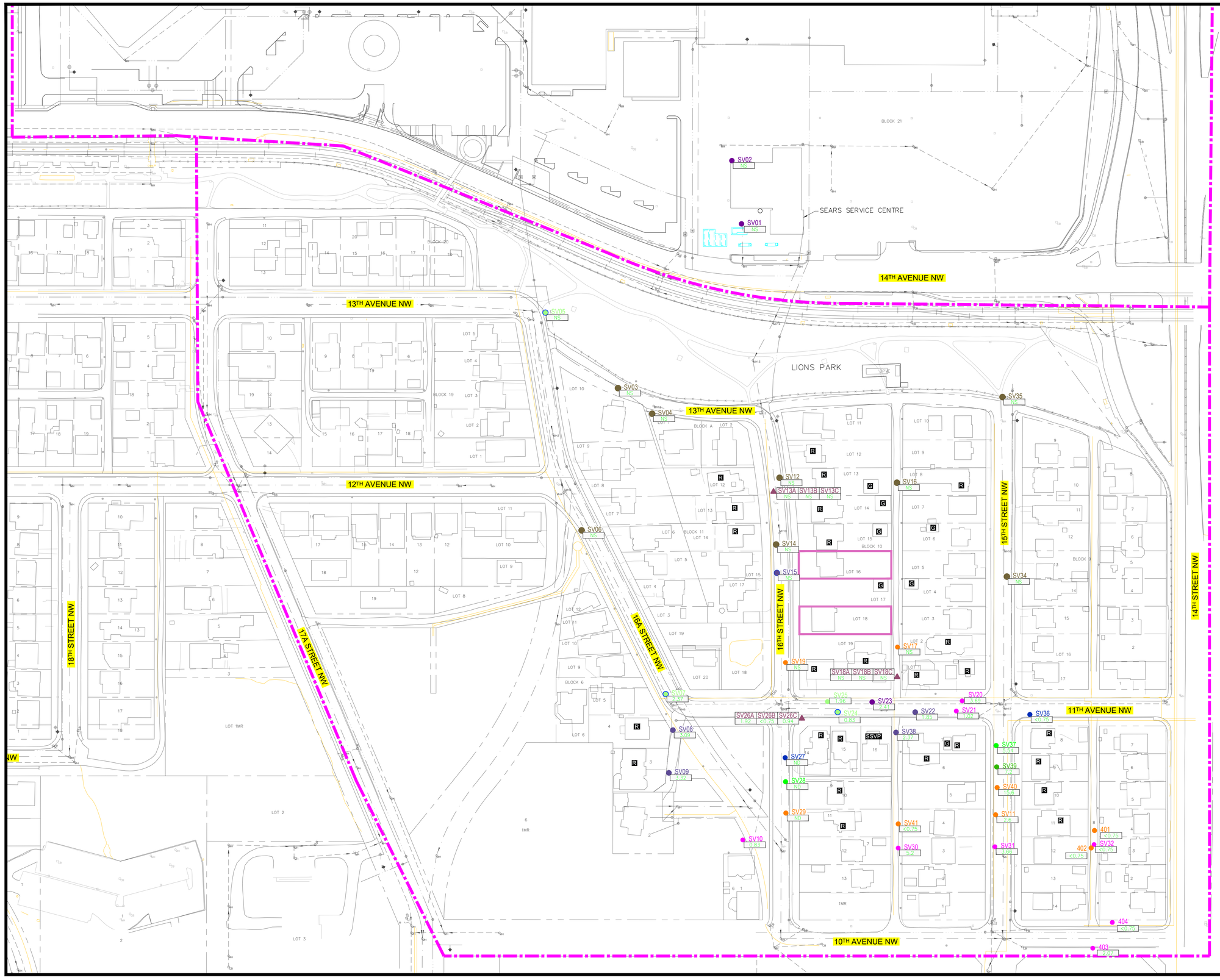

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- NOT SAMPLED
- NO DATA

- 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
- NOT SAMPLED

NOTES:

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0 10 20 30 40 50 m

PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT

SOIL VAPOUR SAMPLING REPORT
SUMMER 2021
HOUNSFIELD HEIGHTS
CALGARY 9445, ALBERTA

TITLE

DISTRIBUTION OF TOLUENE IN SOIL VAPOUR

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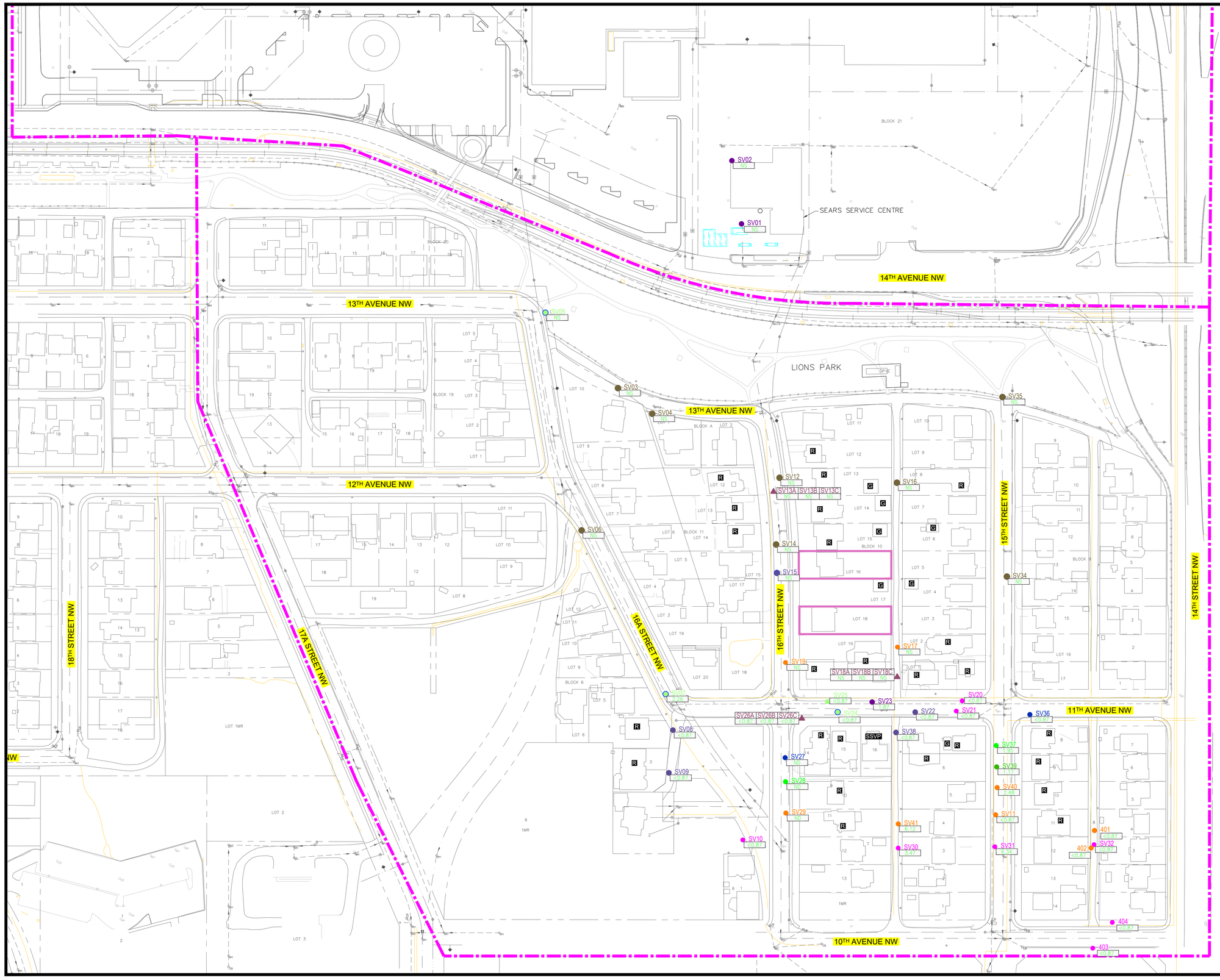

LEGEND

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LRT TRACKS	
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LEGAL LINE	
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BUILDING	
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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

NOT SAMPLED

NOTES:

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0 10 20 30 40 50 m

PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT

SOIL VAPOUR SAMPLING REPORT
SUMMER 2021
HOUNSFIELD HEIGHTS
CALGARY 9445, ALBERTA

TITLE

DISTRIBUTION OF ETHYLBENZENE IN SOIL VAPOUR

DESIGNED	SCALE	DATE
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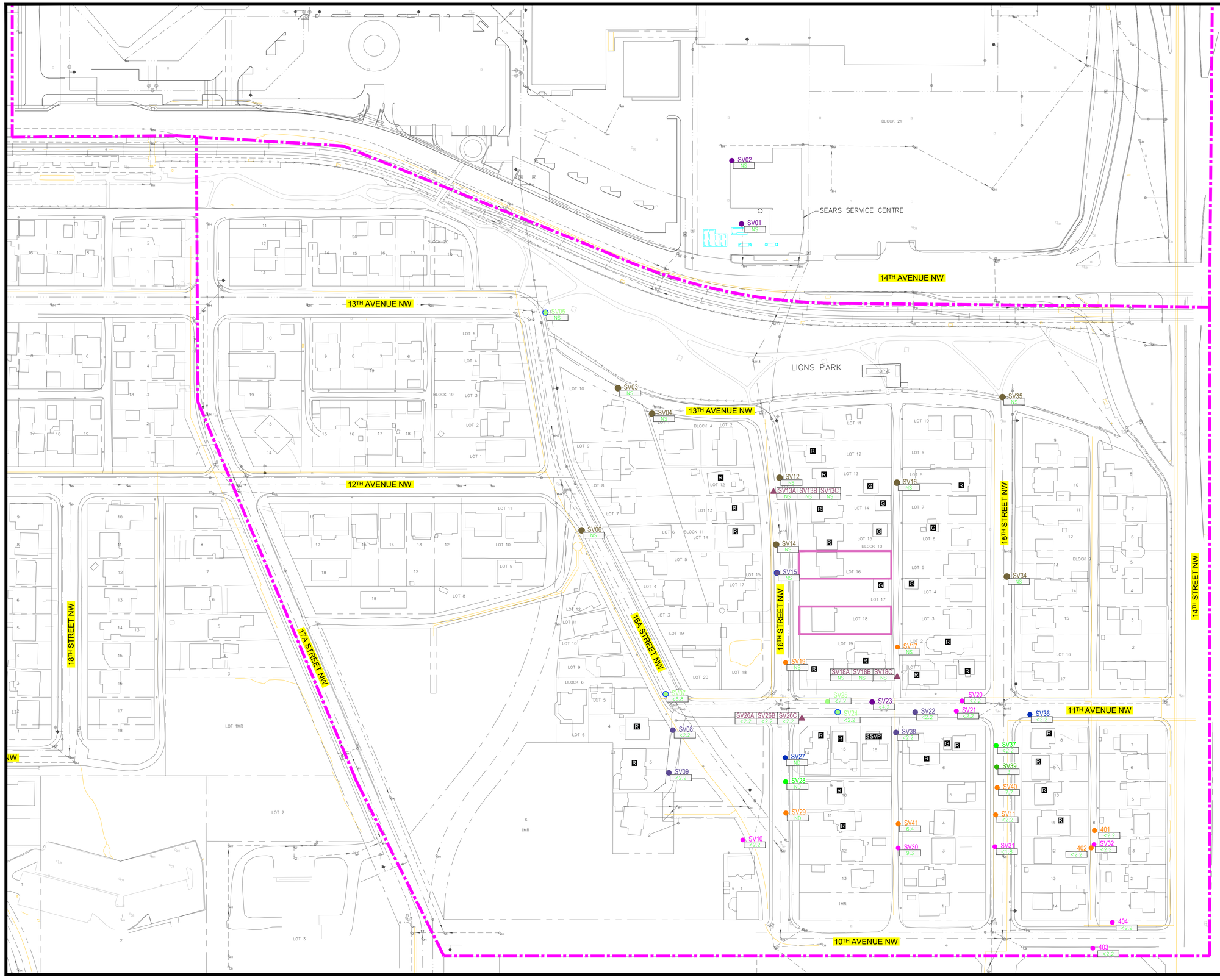

LEGEND

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LRT TRACKS	
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LEGAL LINE	
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BUILDING	
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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#
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NO DATA	
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

NOTES:

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0 10 20 30 40 50 m

PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT

SOIL VAPOUR SAMPLING REPORT
SUMMER 2021
HOUNSFIELD HEIGHTS
CALGARY 9445, ALBERTA

TITLE

DISTRIBUTION OF TOTAL XYLENES IN SOIL VAPOUR

DESIGNED	SCALE	DATE
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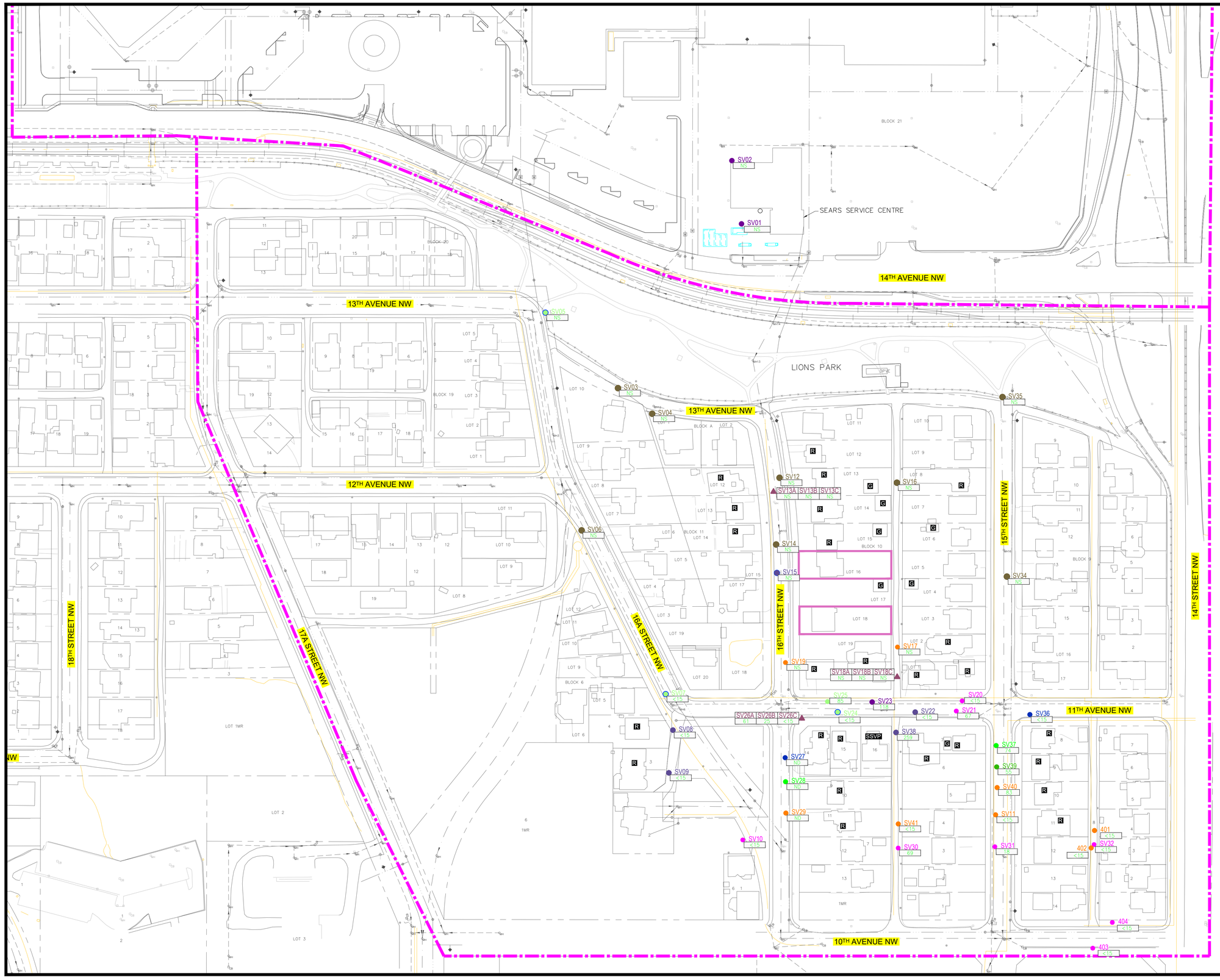

LEGEND

- SITE BOUNDARY
- LRT TRACKS
- FENCE LINE
- LEGAL LINE
- FORMER FACILITY/FEATURE
- BUILDING
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- 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#
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- ADDITIONAL SOIL VAPOUR SAMPLING POINTS INSTALLED IN MAY 2019 — SV#
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- SOIL VAPOUR SAMPLING POINT ID AND RECORDED CONCENTRATION IN SUMMER 2019 — SV# / 6.06
- NOT SAMPLED
- NO DATA

- 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
- NOT SAMPLED
- NO DATA

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.
2. ALIPHATIC C6-C8 VALUES CALCULATED BY SUMMING ALIPHATIC >C5-C6 AND ALIPHATIC >C6-C8 FRACTIONS WITH ANALYTICAL DETECTION LIMIT ADDED FOR INCREASED LEVEL OF CONSERVATIVISM.

0 10 20 30 40 50 m

PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT

SOIL VAPOUR SAMPLING REPORT
SUMMER 2021
HOUNSFIELD HEIGHTS
CALGARY 9445, ALBERTA

TITLE

DISTRIBUTION OF PETROLEUM HYDROCARBONS SUBFRACTION IN SOIL VAPOUR ALIPHATIC C6-C8

DESIGNED	SCALE	DATE
	1:1000	2021-09-28
DRAWN: DMP	PROJECT NO. CG3418E16	DWG NO.
CHECKED: DB	FILE NO. CG3418E16-4-16	10

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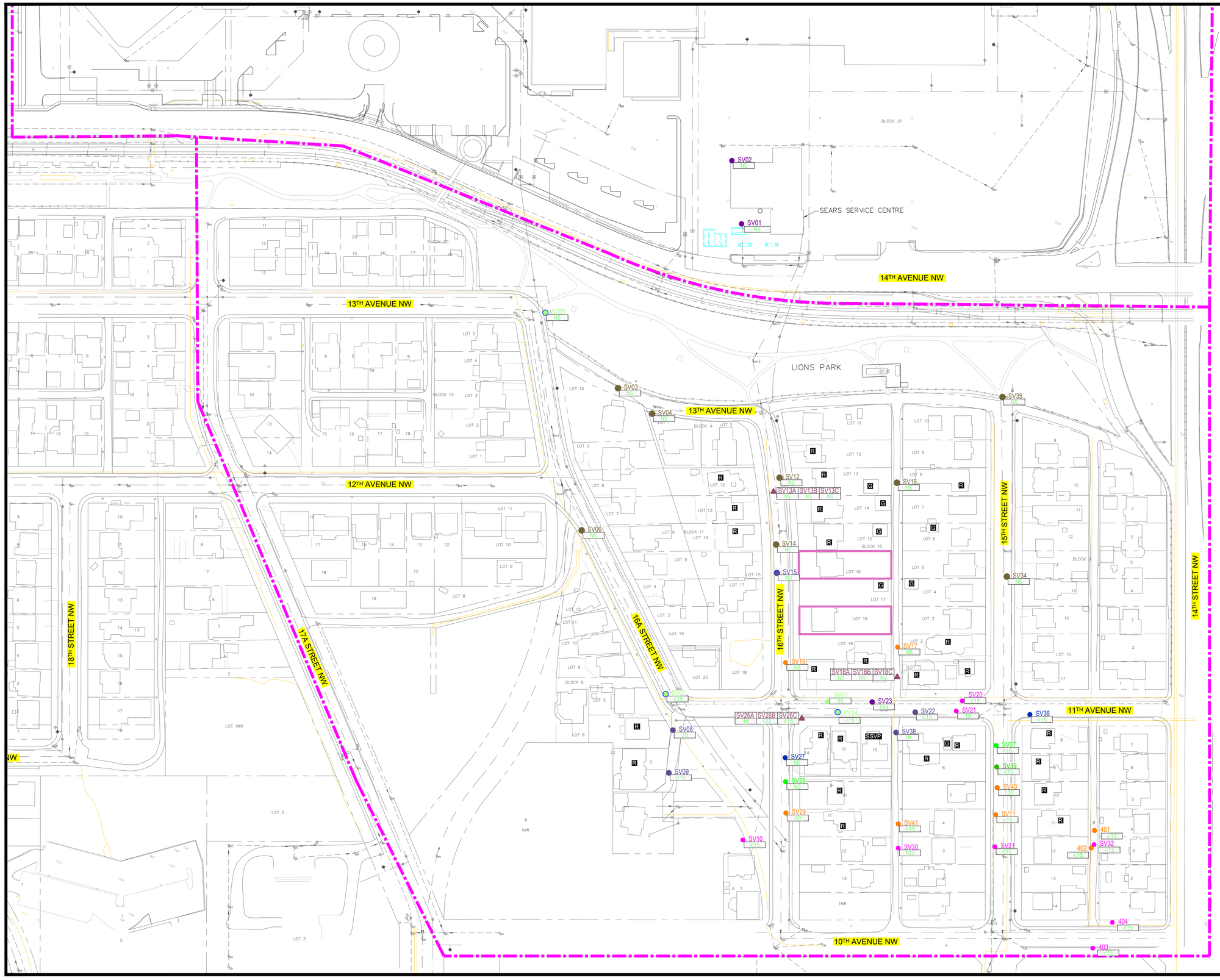

LEGEND

- 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#
- NESTED SOIL VAPOUR SAMPLING POINT — SV#
- ADDITIONAL SOIL VAPOUR SAMPLING POINTS INSTALLED IN MAY 2019 — SV#
- RESIDENTIAL STRUCTURES WITH REPORTED UNUSUAL FEATURES (EARTHEN FLOORS)
- SOIL VAPOUR SAMPLING POINT ID AND RECORDED CONCENTRATION IN SUMMER 2019 — SV# / 6.06
- NOT SAMPLED
- NO DATA

- 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
- NOT SAMPLED
- NO DATA

NOTES:

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0 10 20 30 40 50 m

PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

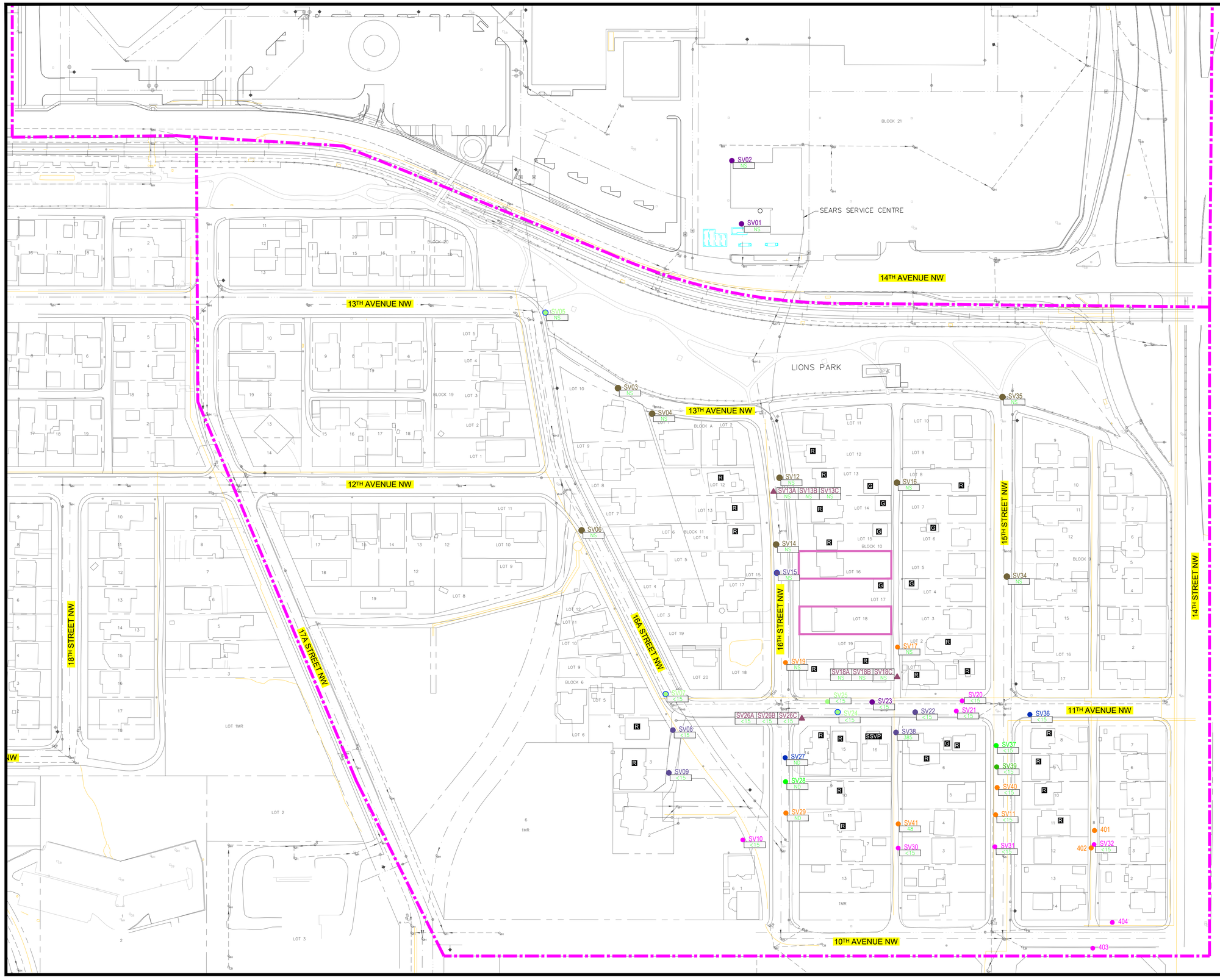
PROJECT

SOIL VAPOUR SAMPLING REPORT
SUMMER 2021
HOUNSFIELD HEIGHTS
CALGARY 9445, ALBERTA

TITLE

DISTRIBUTION OF PETROLEUM HYDROCARBONS SUBFRACTION IN SOIL VAPOUR ALIPHATIC C8-C10

DESIGNED	SCALE	DATE
	1:1000	2021-09-28
DRAWN: DMP	PROJECT NO. CG3418E16	DWG NO. 11
CHECKED: DB	FILE NO. CG3418E16-4-16	



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#
NESTED SOIL VAPOUR SAMPLING POINT	SV#
ADDITIONAL SOIL VAPOUR SAMPLING POINTS INSTALLED IN MAY 2019	SV#
RESIDENTIAL STRUCTURES WITH REPORTED UNUSUAL FEATURES (EARTHEN FLOORS)	
SOIL VAPOUR SAMPLING POINT ID AND RECORDED CONCENTRATION IN SUMMER 2019	SV# 6.06
NOT SAMPLED	
NO DATA	
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

NOTES:

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0 10 20 30 40 50 m

PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT

SOIL VAPOUR SAMPLING REPORT
SUMMER 2021
HOUNSFIELD HEIGHTS
CALGARY 9445, ALBERTA

TITLE

DISTRIBUTION OF PETROLEUM HYDROCARBONS SUBFRACTION IN SOIL VAPOUR AROMATIC C8-C10

DESIGNED	SCALE	DATE
	1:1000	2021-09-28
DRAWN: DMP	PROJECT NO. CG3418E16	DWG NO.
CHECKED: DB	FILE NO. CG3418E16-4-16	12

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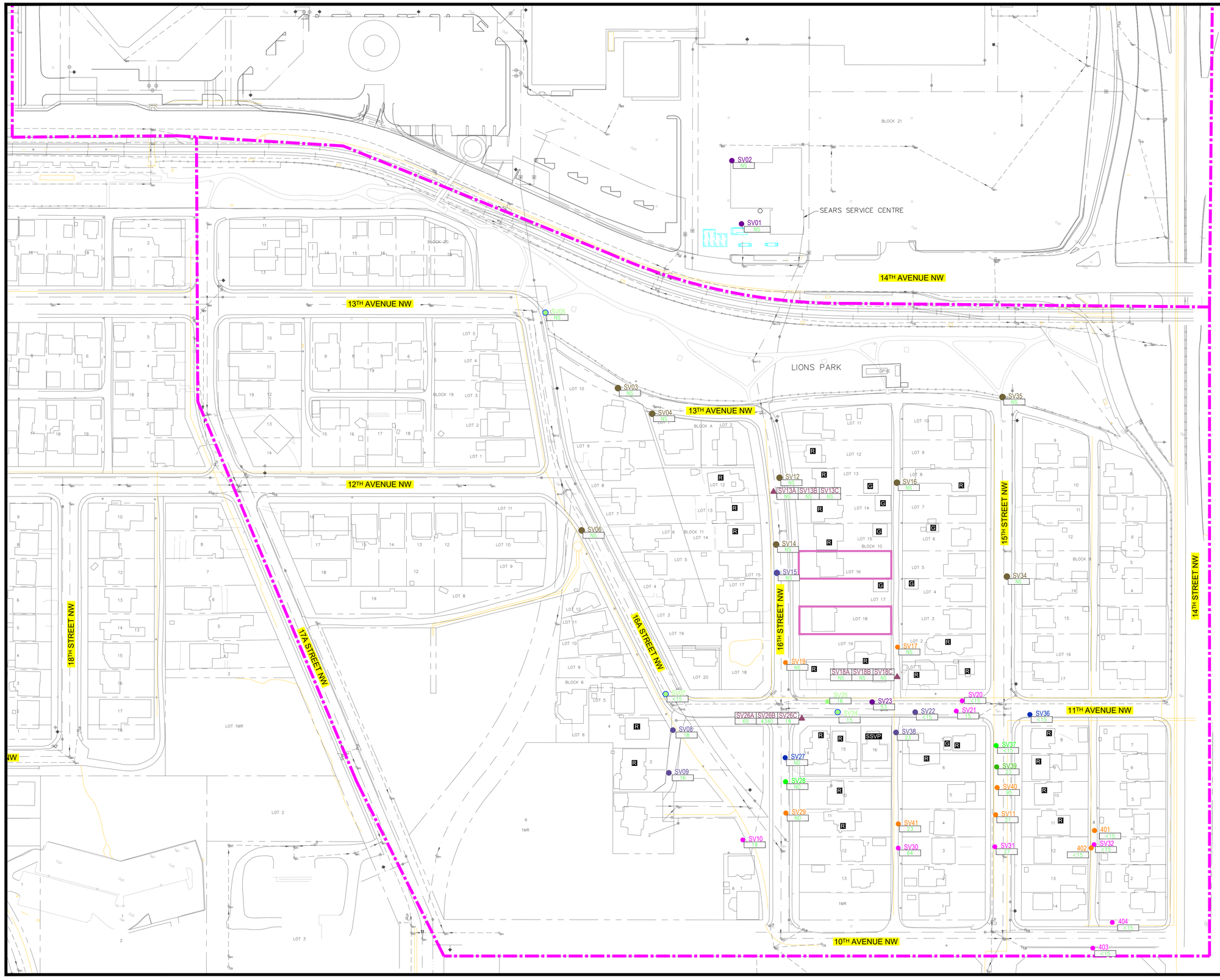

LEGEND

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#
NESTED SOIL VAPOUR SAMPLING POINT	SV#
ADDITIONAL SOIL VAPOUR SAMPLING POINTS INSTALLED IN MAY 2019	SV#
RESIDENTIAL STRUCTURES WITH REPORTED UNUSUAL FEATURES (EARTHEN FLOORS)	
SOIL VAPOUR SAMPLING POINT ID AND RECORDED CONCENTRATION IN SUMMER 2019	SV# / 5.06
NOT SAMPLED	
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

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

SOIL VAPOUR SAMPLING REPORT
SUMMER 2021
HOUNSFIELD HEIGHTS
CALGARY 9445, ALBERTA

TITLE

DISTRIBUTION OF PETROLEUM HYDROCARBONS SUBFRACTION IN SOIL VAPOUR ALIPHATIC C10-C12

DESIGNED	SCALE	DATE
	1:1000	2021-09-28
DRAWN: DMP	PROJECT NO. CG3418E16	DWG NO. 13
CHECKED: DB	FILE NO. CG3418E16-4-16	

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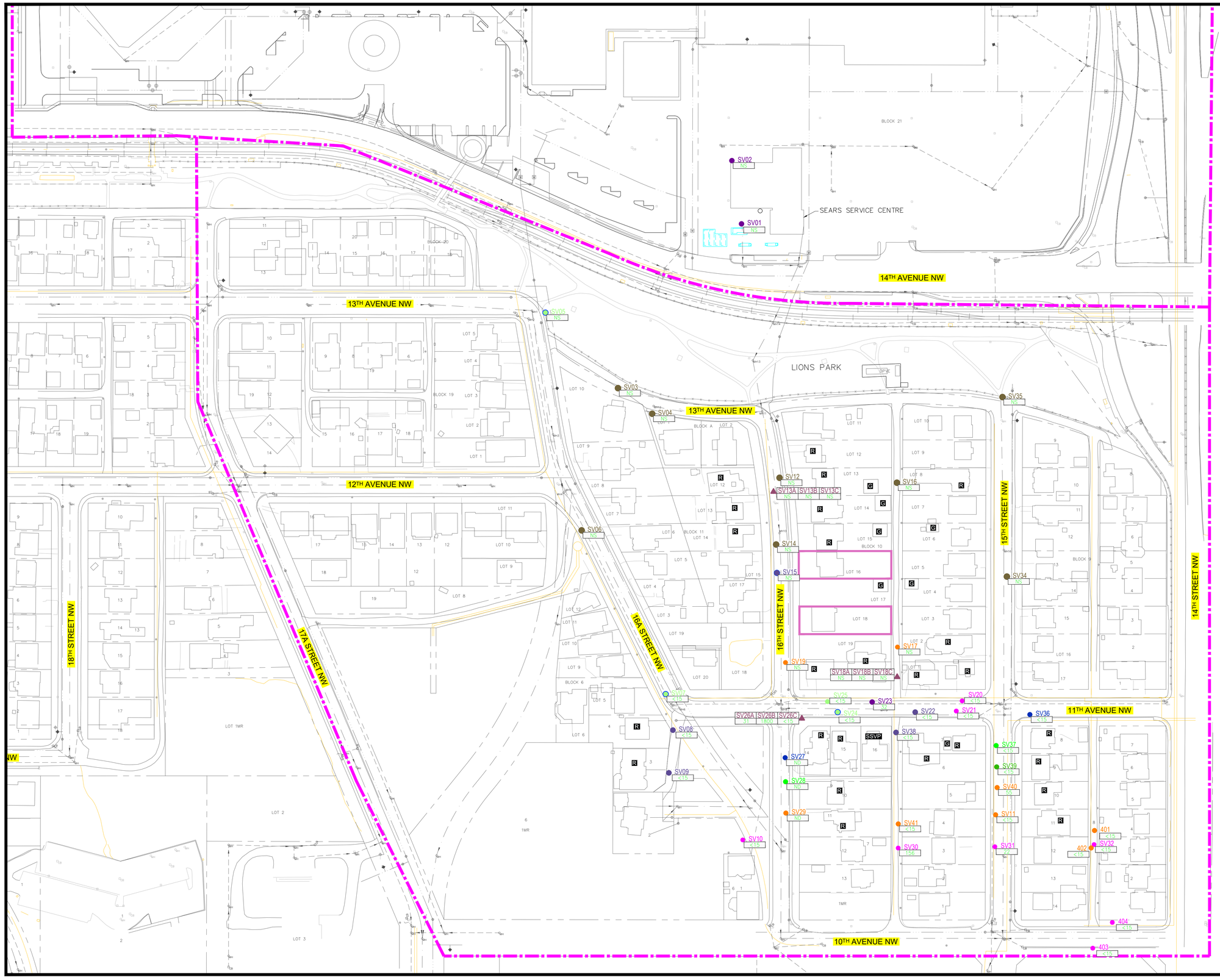

LEGEND

- 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#
- NESTED SOIL VAPOUR SAMPLING POINT — SV#
- ADDITIONAL SOIL VAPOUR SAMPLING POINTS INSTALLED IN MAY 2019 — SV#
- RESIDENTIAL STRUCTURES WITH REPORTED UNUSUAL FEATURES (EARTHEN FLOORS)
- SOIL VAPOUR SAMPLING POINT ID AND RECORDED CONCENTRATION IN SUMMER 2019 — SV# / 6.06
- NOT SAMPLED
- NO DATE

- 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

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

SOIL VAPOUR SAMPLING REPORT
SUMMER 2021
HOUNSFIELD HEIGHTS
CALGARY 9445, ALBERTA

TITLE

DISTRIBUTION OF PETROLEUM HYDROCARBONS SUBFRACTION IN SOIL VAPOUR ALIPHATIC C12-C16

DESIGNED	SCALE	DATE
	1:1000	2021-09-28
DRAWN: DMP	PROJECT NO. CG3418E16	DWG NO. 14
CHECKED: DB	FILE NO. CG3418E16-4-16	

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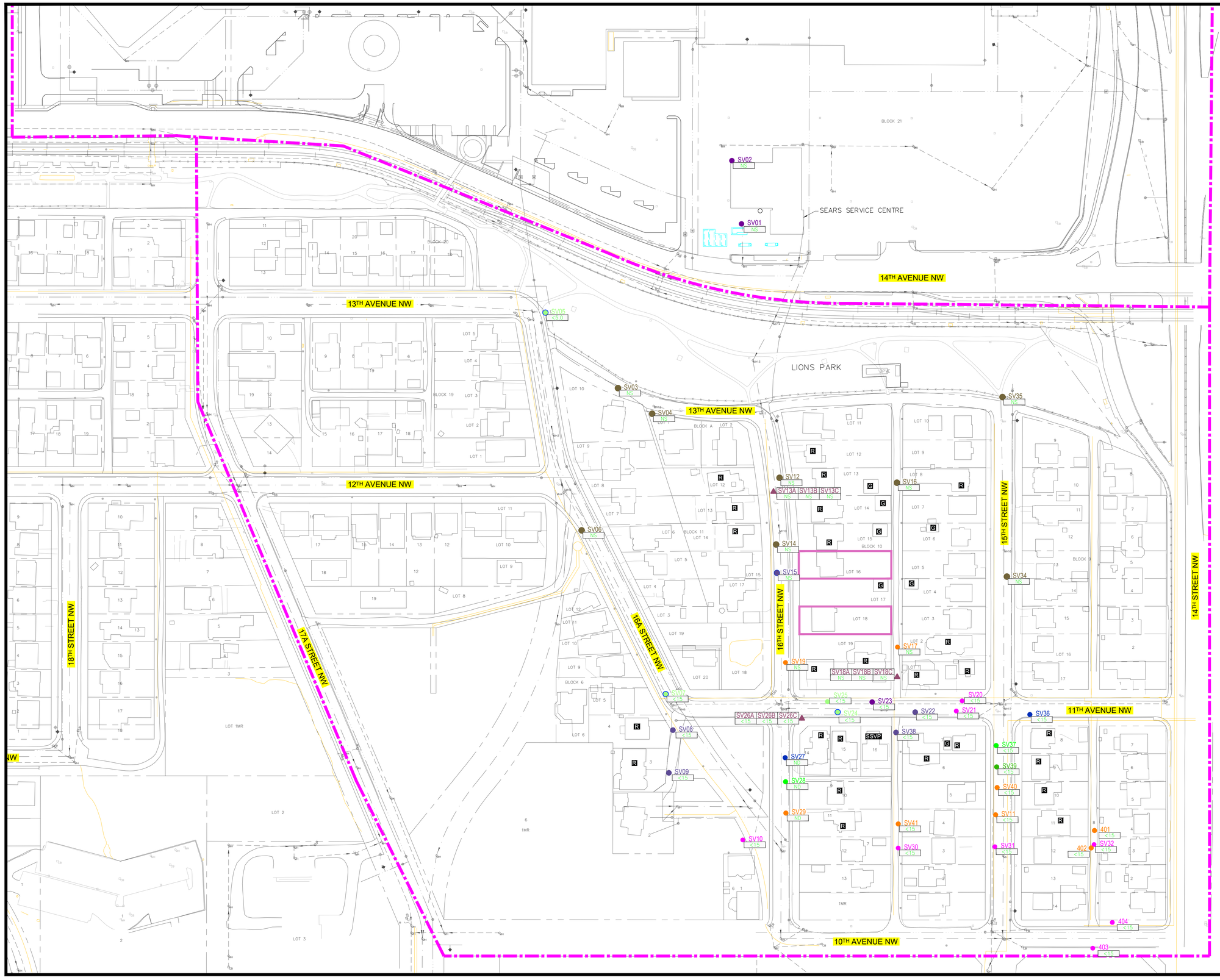

LEGEND

- 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#
- NESTED SOIL VAPOUR SAMPLING POINT — SV#
- ADDITIONAL SOIL VAPOUR SAMPLING POINTS INSTALLED IN MAY 2019 — SV#
- RESIDENTIAL STRUCTURES WITH REPORTED UNUSUAL FEATURES (EARTHEN FLOORS)
- SOIL VAPOUR SAMPLING POINT ID AND RECORDED CONCENTRATION IN SUMMER 2019 — SV# / 6.06
- NOT SAMPLED
- NO DATA

- 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

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

SOIL VAPOUR SAMPLING REPORT
SUMMER 2021
HOUNSFIELD HEIGHTS
CALGARY 9445, ALBERTA

TITLE

DISTRIBUTION OF PETROLEUM HYDROCARBONS SUBFRACTION IN SOIL VAPOUR AROMATIC C10-C12

DESIGNED	SCALE	DATE
	1:1000	2021-09-28
DRAWN: DMP	PROJECT NO. CG3418E16	DWG NO. 15
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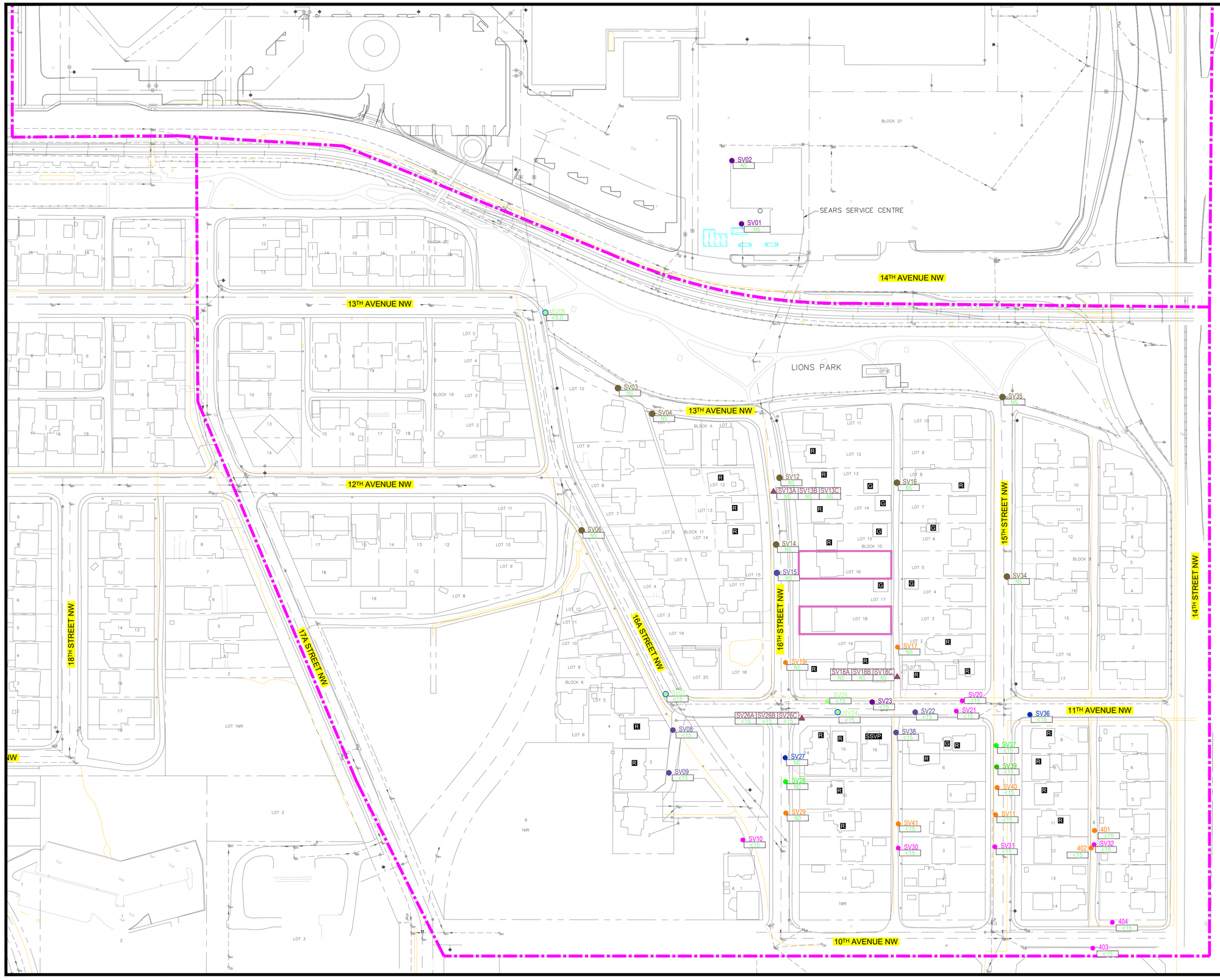

LEGEND

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#
NESTED SOIL VAPOUR SAMPLING POINT	SV#
ADDITIONAL SOIL VAPOUR SAMPLING POINTS INSTALLED IN MAY 2019	SV#
RESIDENTIAL STRUCTURES WITH REPORTED UNUSUAL FEATURES (EARTHEN FLOORS)	
SOIL VAPOUR SAMPLING POINT ID AND RECORDED CONCENTRATION IN SUMMER 2019	SV# 6.06
NOT SAMPLED	
NO DATA	
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

NOTES:

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0 10 20 30 40 50 m

PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT

SOIL VAPOUR SAMPLING REPORT
SUMMER 2021
HOUNSFIELD HEIGHTS
CALGARY 9445, ALBERTA

TITLE

DISTRIBUTION OF PETROLEUM HYDROCARBONS SUBFRACTION IN SOIL VAPOUR AROMATIC C12-C16

DESIGNED	SCALE	DATE
	1:1000	2021-09-28
DRAWN: DMP	PROJECT NO. CG3418E16	DWG NO. 16
CHECKED: DB	FILE NO. CG3418E16-4-16	

Appendix B

Analytical Results Tables

Clifton

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2222 – 30th Avenue NE
Calgary, Alberta T2E 7K9

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calgary@clifton.ca
www.clifton.ca

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	07/08/21	07/08/21		
Parameter				
Benzene	<0.64	<0.64	3.0E+02	0.64
Toluene	1.06	1.55	1.9E+05	0.75
Ethylbenzene	<0.87	<0.87	5.0E+04	0.87
Xylenes	<2.2	<2.2	8.9E+03	2.2
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 $\mu g/m^3$ unless otherwise noted.

Testing was conducted by AGAT Laboratories

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

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	07/08/21		
Parameter			
Benzene	<0.64	3.0E+02	0.64
Toluene	<0.75	1.9E+05	0.75
Ethylbenzene	<0.87	5.0E+04	0.87
Xylenes	<2.2	8.9E+03	2.2
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

ND No data available

All results are expressed as $\mu g/m^3$ unless otherwise noted.

Testing was conducted by AGAT Laboratories

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 3 - Summary of Soil Vapour Laboratory Analysis

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Samples-Residential Buildings-Installation Depth 1.0 - 1.2 m bgs

Sample ID	10	30	31	32	402	403	404	Guideline[1]	Guideline[2]	RDL
Installation Depth (m bgs)	1.0	1.0	1.0	1.0	1.2	1.0	1.0			
Sampling Date	07/12/2021	07/16/2021	07/15/2021	07/07/2021	07/07/2021	07/07/2021	07/07/2021			
Parameter										
Benzene	<0.64	<0.64	0.77	<0.64	<0.64	<0.64	<0.64	3.0E+02	2.7E+02	0.64
Toluene	0.83	5.2	3.66	<0.75	<0.75	2.07	<0.75	1.9E+05	1.7E+05	0.75
Ethylbenzene	<0.87	3.47	6.34	<0.87	<0.87	<0.87	<0.87	5.0E+04	4.5E+04	0.87
Xylenes	<2.2	9.3	2.2	<2.2	<2.2	<2.2	<2.2	8.9E+03	8.0E+03	2.2
Aliphatic C6-C8	<15	69	18	<15	<15	<15	<15	9.2E+05	8.2E+05	15
Aliphatic C8-C10	<15	103	<15	<15	<15	<15	<15	4.8E+04	4.3E+04	15
Aromatic C8-C10	<15	<15	<15	<15	<15	<15	<15	8.1E+03	7.3E+03	15
Aliphatic >C10-C12	19	64	27	<15	<15	<15	<15	5.0E+04	4.5E+04	15
Aliphatic >C12-C16	<15	156	22	<15	<15	<15	<15	5.0E+04	4.5E+04	15
Aromatic >C10-C12	<15	<15	<15	<15	<15	<15	<15	1.0E+04	9.0E+03	15
Aromatic >C12-C16	<15	<15	<15	<15	<15	<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	<0.41	<0.41	4.0E+01	3.6E+01	0.41
Naphthalene	<5.2	<5.2	<5.2	<5.2	<5.2	<5.2	<5.2	1.0E+02	9.3E+01	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

2 Inreased monitoring frequency trigger values

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 Laboratories

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 4 - Summary of Soil Vapour Laboratory Analysis

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Samples-Residential Buildings-Installation Depth 1.5 m bgs

Sample ID	11	401	40	41	Guideline[1]	Guideline[2]	RDL
Installation Depth (m bgs)	1.5	1.5	1.5	1.5			
Sampling Date	07/15/2021	07/08/2021	07/15/2021	07/16/2021			
Parameter							
Benzene	<0.64	<0.64	2.01	<0.64	3.0E+02	2.7E+02	0.64
Toluene	2.6	<0.75	15.6	<0.75	1.9E+05	1.7E+05	0.75
Ethylbenzene	<0.87	<0.87	2.48	6.12	5.0E+04	4.5E+04	0.87
Xylenes	<2.2	<2.2	7.7	6.4	8.9E+03	8.0E+03	2.2
Aliphatic C6-C8	<15	<15	83	<15	9.2E+05	8.2E+05	15
Aliphatic C8-C10	<15	<15	130	<15	4.8E+04	4.3E+04	15
Aromatic C8-C10	<15	<15	<15	<15	8.1E+03	7.3E+03	15
Aliphatic >C10-C12	21	<15	95	23	5.0E+04	4.5E+04	15
Aliphatic >C12-C16	<15	<15	55	<15	5.0E+04	4.5E+04	15
Aromatic >C10-C12	<15	<15	<15	<15	1.0E+04	9.0E+03	15
Aromatic >C12-C16	<15	<15	<15	<15	1.0E+04	9.0E+03	15
1,2-Dichloroethane (1,2-DCA)	<0.41	<0.41	<0.41	<0.41	4.0E+01	3.6E+01	0.41
Naphthalene	<5.2	<5.2	<5.2	<5.2	1.0E+02	9.3E+01	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

2 Inreased monitoring frequency trigger values

RDL Reportable Detection Limit

ND No data available

NG No applicable guideline

All results are expressed as $\mu g/m^3$ unless otherwise noted.

Testing was conducted by AGAT Laboratories

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 5 - Summary of Soil Vapour Laboratory Analysis

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Samples-Residential Buildings-Installation Depth 2.0 m bgs

Sample ID	26C	39	Guideline[1]	Guideline[2]	RDL
Installation Depth (m bgs)	2.0	2.0			
Sampling Date	07/12/2021	07/15/2021			
Parameter					
Benzene	<0.64	<0.64	1.6E+05	1.4E+05	0.64
Toluene	0.94	7.2	9.8E+07	8.8E+07	0.75
Ethylbenzene	<0.87	1.17	2.7E+07	2.4E+07	0.87
Xylenes	<2.2	3.0	4.7E+06	4.3E+06	2.2
Aliphatic C6-C8	<15	55.0	5.3E+08	4.8E+08	15
Aliphatic C8-C10	<15	<15	2.8E+07	2.5E+07	15
Aromatic C8-C10	<15	<15	4.7E+06	4.2E+06	15
Aliphatic >C10-C12	18	23	2.9E+07	2.6E+07	15
Aliphatic >C12-C16	<15	<15	2.9E+07	2.6E+07	15
Aromatic >C10-C12	<15	<15	5.8E+06	5.2E+06	15
Aromatic >C12-C16	<15	<15	5.8E+06	5.2E+06	15
1,2-Dichloroethane (1,2-DCA)	<0.41	<0.41	1.9E+03	1.7E+03	0.41
Naphthalene	<5.2	<5.2	5.7E+03	5.2E+03	5.2
Oxygen (% v/v)	19.85	ND	NG	NG	0.001
Nitrogen (% v/v)	79.32	ND	NG	NG	0.001
Methane (% v/v)	<0.001	ND	NG	NG	0.001
Carbon Dioxide (% v/v)	0.801	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 200 cm, Intrinsik 31/8/2016.

Indicates that concentration exceeds guideline

2 Increased monitoring frequency trigger

RDL Reportable Detection Limit

ND No data available

NG No applicable guideline

All results are expressed as $\mu g/m^3$ unless otherwise noted

Testing was conducted by AGAT Laboratories

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 6 - Summary of Soil Vapour Laboratory Analysis

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Samples-Residential Buildings-Installation Depth 2.5 m bgs

Sample ID	28	37	Guideline[1]	Guideline[2]	RDL
Installation Depth (m bgs)	2.5	2.5			
Sampling Date	N/A	07/15/2021			
Parameter					
Benzene	ND	<0.64	1.6E+05	1.5E+05	0.64
Toluene	ND	5.54	1.0E+08	9.2E+07	0.75
Ethylbenzene	ND	1.95	2.8E+07	2.5E+07	0.87
Xylenes	ND	<2.2	4.9E+06	4.4E+06	2.2
Aliphatic C6-C8	ND	74	5.6E+08	5.1E+08	15
Aliphatic C8-C10	ND	<15	2.9E+07	2.7E+07	15
Aromatic C8-C10	ND	<15	5.0E+06	4.5E+06	15
Aliphatic >C10-C12	ND	<15	3.1E+07	2.8E+07	15
Aliphatic >C12-C16	ND	<15	3.1E+07	2.8E+07	15
Aromatic >C10-C12	ND	<15	6.1E+06	5.5E+06	15
Aromatic >C12-C16	ND	<15	6.1E+06	5.5E+06	15
1,2-Dichloroethane (1,2-DCA)	ND	<0.41	2.0E+03	1.8E+03	0.41
Naphthalene	ND	<5.2	6.0E+03	5.4E+03	5.2

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 250 cm, Intrinsik 31/8/2016

Indicates that the concentration exceeds guideline

2 Inreased monitoring frequency trigger values

RDL Reportable Detection Limit

ND No Data Available

NG No applicable guideline

All results are expressed as $\mu g/m^3$ unless otherwise noted.

Testing was conducted by AGAT Laboratories

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 7 - Summary of Soil Vapour Laboratory Analysis

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Samples-Residential Buildings-Installation Depth 3.0 m bgs

Sample ID	27	36	Guideline[1]	Guideline[2]	RDL
Installation Depth (m bgs)	3.0	3.0			
Sampling Date	N/A	07/08/2021			
Parameter					
Benzene	ND	<0.64	1.6E+05	1.4E+05	0.64
Toluene	ND	<0.75	9.8E+07	8.8E+07	0.75
Ethylbenzene	ND	<0.87	2.7E+07	2.4E+07	0.87
Xylenes	ND	<2.2	4.7E+06	4.3E+06	2.2
Aliphatic C6-C8[2]	ND	<15	5.3E+08	4.8E+08	15
Aliphatic C8-C10	ND	<15	2.8E+07	2.5E+07	15
Aromatic C8-C10	ND	<15	4.7E+06	4.2E+06	15
Aliphatic >C10-C12	ND	<15	2.9E+07	2.6E+07	15
Aliphatic >C12-C16	ND	<15	2.9E+07	2.6E+07	15
Aromatic >C10-C12	ND	<15	5.8E+06	5.2E+06	15
Aromatic >C12-C16	ND	<15	5.8E+06	5.2E+06	15
1,2-Dichloroethane (1,2-DCA)	ND	<0.41	1.9E+03	1.7E+03	0.41
Naphthalene	ND	<5.2	5.7E+03	5.2E+03	5.2

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 300 cm, Intrinsik 31/8/2016

Indicates that the concentration exceeds guideline

2 Inreased monitoring frequency trigger values

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 Laboratories

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 8 - Summary of Soil Vapour Laboratory Analysis

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Samples-Residential Buildings-Installation Depth 3.5 m bgs

Sample ID	20	21	26B	Guideline[1]	Guideline[2]	RDL
Installation Depth (m bgs)	3.5	3.5	3.5			
Sampling Date	07/14/2021	07/14/2021	07/12/2021			
Parameter						
Benzene	0.67	1.21	1.09	1.8E+05	1.6E+05	0.64
Toluene	3.69	1.02	<0.75	1.1E+08	9.8E+07	0.75
Ethylbenzene	<0.87	<0.87	<0.87	3.0E+07	2.7E+07	0.87
Xylenes	<2.2	<2.2	<2.2	5.3E+06	4.8E+06	2.2
Aliphatic C6-C8[2]	<15	67	25	6.2E+08	5.6E+08	15
Aliphatic C8-C10	<15	19	122	3.3E+07	2.9E+07	15
Aromatic C8-C10	<15	<15	<15	5.5E+06	5.0E+06	15
Aliphatic >C10-C12	<15	15	4340	3.4E+07	3.1E+07	15
Aliphatic >C12-C16	<15	<15	1800	3.4E+07	3.1E+07	15
Aromatic >C10-C12	<15	<15	<15	6.8E+06	6.1E+06	15
Aromatic >C12-C16	<15	<15	<15	6.8E+06	6.1E+06	15
1,2-Dichloroethane (1,2-DCA)	<0.41	<0.41	<0.41	2.1E+03	1.9E+03	0.41
Naphthalene	<5.2	<5.2	<5.2	6.6E+03	5.9E+03	5.2
Oxygen (% v/v)	ND	ND	20.29	NG	NG	0.001
Nitrogen (% v/v)	ND	ND	78.92	NG	NG	0.001
Methane (% v/v)	ND	ND	<0.001	NG	NG	0.001
Carbon Dioxide (% v/v)	ND	ND	0.78	NG	NG	0.001

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 350 cm, Intrinsik 31/8/2016

Indicates that the concentration exceeds guideline

2 Inreased monitoring frequency trigger values

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 Laboratories

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 9 - Summary of Soil Vapour Laboratory Analysis

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Samples-Residential Buildings-Installation Depth 4.0 m bgs

Sample ID	8	9	22	38	Guideline[1]	Guideline[2]	RDL
Installation Depth (m bgs)	4.0	4.0	4.0	4.0			
Sampling Date	07/12/2021	07/12/2021	07/14/2021	07/16/2021			
Parameter							
Benzene	<0.64	<0.64	0.86	<0.64	1.8E+05	1.6E+05	0.64
Toluene	3.09	3.32	1.85	2.37	1.1E+08	1.0E+08	0.75
Ethylbenzene	<0.87	<0.87	<0.87	<0.87	3.1E+07	2.8E+07	0.87
Xylenes	<2.2	<2.2	<2.2	<2.2	5.5E+06	4.9E+06	2.2
Aliphatic C6-C8[2]	<15	<15	<15	259	6.5E+08	5.9E+08	15
Aliphatic C8-C10	20	<15	<15	19	3.4E+07	3.1E+07	15
Aromatic C8-C10	<15	<15	<15	<15	5.8E+06	5.2E+06	15
Aliphatic >C10-C12	18	16	<15	23	3.6E+07	3.2E+07	15
Aliphatic >C12-C16	<15	<15	<15	<15	3.6E+07	3.2E+07	15
Aromatic >C10-C12	<15	<15	<15	<15	7.1E+06	6.4E+06	15
Aromatic >C12-C16	<15	<15	<15	<15	7.1E+06	6.4E+06	15
1,2-Dichloroethane (1,2-DCA)	<0.41	<0.41	<0.41	<0.41	2.2E+03	1.9E+03	0.41
Naphthalene	<5.2	<5.2	<5.2	<5.2	6.9E+03	6.2E+03	5.2

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 400 cm, Intrinsik 31/8/2016

Indicates that the concentration exceeds guideline

2 Inreased monitoring frequency trigger values

RDL Reportable Detection Limit

ND No Data Available

NG No applicable guideline

All results are expressed as $\mu g/m^3$ unless otherwise noted.

Testing was conducted by AGAT Laboratories

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 10 - Summary of Soil Vapour Laboratory Analysis

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Samples-Residential Buildings-Installation Depth 4.5 m bgs

Sample ID	23	Guideline[1]	Guideline[2]	RDL
Installation Depth (m bgs)	4.5			
Sampling Date	07/14/2021			
Parameter				
Benzene	<0.64	1.9E+05	1.7E+05	0.64
Toluene	2.41	1.2E+08	1.0E+08	0.75
Ethylbenzene	1.87	3.2E+07	2.9E+07	0.87
Xylenes	4.2	5.7E+06	5.1E+06	2.2
Aliphatic C6-C8	118	6.8E+08	6.1E+08	15
Aliphatic C8-C10	144	3.6E+07	3.2E+07	15
Aromatic C8-C10	<15	6.1E+06	5.4E+06	15
Aliphatic >C10-C12	53	3.7E+07	3.4E+07	15
Aliphatic >C12-C16	32	3.7E+07	3.4E+07	15
Aromatic >C10-C12	<15	7.4E+06	6.7E+06	15
Aromatic >C12-C16	<15	7.4E+06	6.7E+06	15
1,2-Dichloroethane (1,2-DCA)	<0.41	2.2E+03	2.0E+03	0.41
Naphthalene	<5.2	7.2E+03	6.5E+03	5.2

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 450 cm, Intrinsik 31/8/2016

Indicates that the concentration exceeds guideline

2 Inreased monitoring frequency trigger values

RDL Reportable Detection Limit

NG No applicable guideline

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

Testing was conducted by AGAT Laboratories

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 11 - Summary of Soil Vapour Laboratory Analysis

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Samples-Residential Buildings-Installation Depth 5.0 m bgs

Sample ID	7	24	25	26A	Guideline[1]	Guideline[3]	RDL
Installation Depth (m bgs)	5.0	5.0	5.0	5.0			
Sampling Date	07/12/2021	07/14/2021	07/14/2021	07/12/2021			
Parameter							
Benzene	<0.64	<0.64	2.43	<0.64	1.9E+05	1.7E+05	6.40E-01
Toluene	2.37	0.83	1.96	1.92	1.2E+08	1.1E+08	0.75
Ethylbenzene	2.26	<0.87	<0.87	<0.87	3.3E+07	3.0E+07	0.87
Xylenes	6.8	<2.2	<2.2	<2.2	5.9E+06	5.3E+06	2.2
Aliphatic C6-C8[2]	<15	<15	85	61	7.1E+08	6.4E+08	15
Aliphatic C8-C10	<15	<15	55	48	3.7E+07	3.4E+07	15
Aromatic C8-C10	<15	<15	<15	<15	6.3E+06	5.7E+06	15
Aliphatic >C10-C12	<15	15	16	65	3.9E+07	3.5E+07	15
Aliphatic >C12-C16	<15	<15	<15	31	3.9E+07	3.5E+07	15
Aromatic >C10-C12	<15	<15	<15	<15	7.8E+06	7.0E+06	15
Aromatic >C12-C16	<15	<15	<15	<15	7.8E+06	7.0E+06	15
1,2-Dichloroethane (1,2-DCA)	<0.41	<0.41	<0.41	<0.41	2.3E+03	2.1E+03	0.41
Naphthalene	<5.2	<5.2	<5.2	<5.2	7.5E+03	6.7E+03	5.2
Oxygen (% v/v)	ND	ND	ND	19.85	NG	NG	0.001
Nitrogen (% v/v)	ND	ND	ND	78.94	NG	NG	0.001
Methane (% v/v)	ND	ND	ND	<0.001	NG	NG	0.001
Carbon Dioxide (% v/v)	ND	ND	ND	1.19	NG	NG	0.001

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 500 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 Inreased monitoring frequency trigger values

RDL Reportable Detection Limit

NG No applicable guideline

ND No Data Available

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

Testing was conducted by AGAT Laboratories

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Appendix C

Historical Analytical Results Tables

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Table 1 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 7

Sample ID	7/3012	SV07/363	7/1034	SV07/1437	7/1205	7	7	Guideline[1]	Guideline[3]
Installation Depth (m bgs)									
5.0									
Sampling Date	4-Jun-16	13-Jul-17	4-Apr-18	21-Jan-19	21-Jan-20	25-Nov-20	12-Jul-21		
Parameter									
Benzene	<0.32	1.90	0.55	0.80	<0.32	0.64	<0.64	1.9E+05	1.7E+05
Toluene	1.35	3.31	0.84	1.72	1.91	1.09	2.37	1.2E+08	1.1E+08
Ethylbenzene	0.68	0.55	0.95	<0.43	0.50	<0.87	2.26	3.3E+07	3.0E+07
Xylenes	2.7	2.9	3.9	2.0	2.1	<1.8	6.8	5.9E+06	5.3E+06
Aliphatic C6-C8[2]	46.4	27.0	<10.0	<10.0	<10.0	41	<15	7.1E+08	6.4E+08
Aliphatic C8-C10	29.0	11.2	<5.0	<5.0	<5.0	<15	<15	3.7E+07	3.4E+07
Aromatic C8-C10	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	6.3E+06	5.7E+06
Aliphatic >C10-C12	35.9	38.5	13.6	<5.0	7.7	<15	<15	3.9E+07	3.5E+07
Aliphatic >C12-C16	11.9	<5.0	<5.0	<5.0	7.8	<15	<15	3.9E+07	3.5E+07
Aromatic >C10-C12	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	7.8E+06	7.0E+06
Aromatic >C12-C16	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	7.8E+06	7.0E+06
1,2-Dichloroethane (1,2-DCA)	<0.40	<0.40	<0.40	<0.40	<0.40	<0.41	<0.41	2.3E+03	2.1E+03
Naphthalene	<2.6	<2.6	<2.6	<2.6	<1.0	<5.2	<5.2	7.5E+03	6.7E+03

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 500 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 Inreased monitoring 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.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 2 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 8

Sample ID	8/381	SV08 / 2525	SV08 / 1241	8/1333	8 / 2551	8/9769	8	8	Guideline[1]	Guideline[3]
Installation Depth (m bgs)										
4.0										
Sampling Date	4-Jun-16	13-Feb-17	25-Jul-17	4-Apr-18	8-Aug-19	21-Jan-20	25-Nov-20	12-Jul-21		
Parameter										
Benzene	3.28	<0.32	1.05	0.60	0.32	1.01	<0.50	<0.64	1.8E+05	1.6E+05
Toluene	95.2	0.43	3.24	1.17	0.89	7.50	<0.75	3.09	1.1E+08	1.0E+08
Ethylbenzene	39.9	<0.43	0.54	5.73	<0.43	1.24	<0.87	<0.87	3.1E+07	2.8E+07
Xylenes	181	<1.3	2.6	24.2	<1.3	5.3	<1.8	<2.2	5.5E+06	4.9E+06
Aliphatic C6-C8[2]	4080	<10.0	25.9	<10.0	<10.0	<10.0	109	<15	6.5E+08	5.9E+08
Aliphatic C8-C10	2630	<5.0	45.8	<5.0	<5.0	<5.0	<15	20	3.4E+07	3.1E+07
Aromatic C8-C10	188	<5.0	<5.0	8.5	<5.0	<5.0	<15	<15	5.8E+06	5.2E+06
Aliphatic >C10-C12	2360	6.4	12.9	15.5	11.1	10.8	<15	18	3.6E+07	3.2E+07
Aliphatic >C12-C16	433	<5.0	<5.0	<5.0	8.2	<5.0	<15	<15	3.6E+07	3.2E+07
Aromatic >C10-C12	108	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	7.1E+06	6.4E+06
Aromatic >C12-C16	26.5	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	7.1E+06	6.4E+06
1,2-Dichloroethane (1,2-DCA)	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.41	<0.41	2.2E+03	1.9E+03
Naphthalene	<2.6	<2.6	<2.6	<2.6	<1.0	<1.0	<5.2	<5.2	6.9E+03	6.2E+03

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 400 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 Inreased monitoring 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.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 3 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 9

Sample ID	9/1384	SV9/2501	SV09/1512	9/263	SV09/1341	9 / 1334	9/9771	9	9	Guideline[1]	Guideline[3]
Installation Depth (m bgs)											
4.0											
Sampling Date	4-Jun-16	26-Jan-17	13-Jul-17	14-Apr-18	21-Jan-19	8-Aug-19	21-Jan-20	25-Nov-20	12-Jul-21		
Parameter											
Benzene	1.40	0.44	27.2	<0.32	0.50	0.71	1.13	<0.50	<0.64	1.8E+05	1.6E+05
Toluene	113	0.80	63.7	<0.38	<0.38	1.14	7.52	1.62	3.32	1.1E+08	1.0E+08
Ethylbenzene	3.94	<0.43	18	<0.43	<0.43	0.68	1.53	<0.87	<0.87	3.1E+07	2.8E+07
Xylenes	19.1	<1.3	98.3	<1.3	<1.3	<1.3	5.6	5.6	<2.2	5.5E+06	4.9E+06
Aliphatic C6-C8[2]	64.5	<10.0	124.1	<10.0	<10.0	<10.0	<11.7	<15	<15	6.5E+08	5.9E+08
Aliphatic C8-C10	349	<5.0	26.5	<5.0	<5.0	16.0	<5.0	<15	<15	3.4E+07	3.1E+07
Aromatic C8-C10	36.2	<5.0	60.7	<5.0	<5.0	<5.0	<5.0	<15	<15	5.8E+06	5.2E+06
Aliphatic >C10-C12	633	<5.0	25.3	9.0	<5.0	24.4	<5.0	<15	16	3.6E+07	3.2E+07
Aliphatic >C12-C16	145	<5.0	<5.0	<5.0	<5.0	12.3	<5.0	<15	<15	3.6E+07	3.2E+07
Aromatic >C10-C12	34.7	<5.0	33.5	<5.0	<5.0	<5.0	<5.0	<15	<15	7.1E+06	6.4E+06
Aromatic >C12-C16	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	7.1E+06	6.4E+06
1,2-Dichloroethane (1,2-DCA)	<0.40	<0.40	<0.40	<0.40	<0.40	3.60	<0.40	<0.41	<0.41	2.2E+03	1.9E+03
Naphthalene	<2.6	<2.6	<2.6	<2.6	<2.6	<1.0	<1.0	<5.2	<5.2	6.9E+03	6.2E+03

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 400 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 Inreased monitoring 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.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 4 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 10

Sample ID	10/239	SV10/299	SV10/2477	10/1516	SV10/351	10/1016	10/9852	10	10	Guideline[1]	Guideline[3]
Installation Depth (m bgs)											
1.0											
Sampling Date	8-Jun-16	30-Jan-17	17-Jul-17	4-Apr-18	24-Jan-19	9-Aug-19	23-Jan-20	19-Nov-20	12-Jul-21		
Parameter											
Benzene	<0.32	1.02	<0.32	<0.32	<0.32	<0.32	<0.32	<0.50	<0.64	3.0E+02	2.7E+02
Toluene	1.62	0.85	<0.38	0.43	1.34	<0.38	1.20	<0.75	0.83	1.9E+05	1.7E+05
Ethylbenzene	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.87	<0.87	5.0E+04	4.5E+04
Xylenes	1.4	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.8	<2.2	8.9E+03	8.0E+03
Aliphatic C6-C8[2]	<11.5	<10.6	<13.1	<10.0	<10.0	<10.0	<10.0	<15	<15	9.2E+05	8.2E+05
Aliphatic C8-C10	<5.0	15.2	5.4	<5.0	<5.0	<5.0	<5.0	<15	<15	4.8E+04	4.3E+04
Aromatic C8-C10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	8.1E+03	7.3E+03
Aliphatic >C10-C12	15.3	7.1	18.6	30.5	<5.0	<5.0	<5.0	<15	19	5.0E+04	4.5E+04
Aliphatic >C12-C16	<5.0	<5.0	10.2	<5.0	<5.0	<5.0	<5.0	<15	<15	5.0E+04	4.5E+04
Aromatic >C10-C12	<5.0	<5.0	<5.0	<5.0	<5.0	30.2	<5.0	<15	<15	1.0E+04	9.0E+03
Aromatic >C12-C16	<5.0	<5.0	<5.0	<5.0	<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	<0.40	<0.40	0.61	<0.40	<0.41	<0.41	4.0E+01	3.6E+01
Naphthalene	<2.6	<2.6	<2.6	<2.6	<2.6	<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 Inreased monitoring frequency trigger values

ND No Data Available

NG No applicable guideline

All results are expressed as $\mu g/m^3$ unless otherwise noted.

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

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 5 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 11

Sample ID	11 / 1391	SV11/3020	SV11/2582	11 / 2569	SV11 (2389)	11 / 1389	11/9854	11	11	Guideline[1]	Guideline[3]
Installation Depth (m bgs)											
1.5											
Sampling Date	9-Jun-16	25-Jan-17	19-Jul-17	9-Apr-18	4-Feb-19	21-Aug-19	4-Feb-20	1-Dec-20	15-Jul-21		
Parameter											
Benzene	1.77	0.69	0.52	<0.32	<0.32	<0.32	0.60	<0.54	<0.64	3.0E+02	2.7E+02
Toluene	16.3	<0.38	1.01	0.49	<0.38	<0.38	0.56	<0.80	2.6	1.9E+05	1.7E+05
Ethylbenzene	16.5	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.87	<0.87	5.0E+04	4.5E+04
Xylenes	58.2	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.8	<2.2	8.9E+03	8.0E+03
Aliphatic C6-C8[2]	111.3	<10.0	<26.1	<10.0	<10.0	<10.0	<10.0	<15	<15	9.2E+05	8.2E+05
Aliphatic C8-C10	224	<5.0	9.3	<5.0	<5.0	<5.0	<5.0	<15	<15	4.8E+04	4.3E+04
Aromatic C8-C10	104	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	8.1E+03	7.3E+03
Aliphatic >C10-C12	213	13.6	19.3	6.4	<5.0	12.9	<5.0	<15	21	5.0E+04	4.5E+04
Aliphatic >C12-C16	59.5	<5.0	12.7	<5.0	<5.0	<5.0	<5.0	<15	<15	5.0E+04	4.5E+04
Aromatic >C10-C12	112	<5.0	7.0	<5.0	<5.0	<5.0	<5.0	<15	<15	1.0E+04	9.0E+03
Aromatic >C12-C16	21.4	<5.0	<5.0	<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	<0.40	<0.40	<0.40	<0.82	<0.41	4.0E+01	3.6E+01
Naphthalene	<2.62	<2.6	<2.6	<2.6	<2.6	<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 Inreased monitoring frequency trigger values

ND No Data Available

NG No applicable guideline

All results are expressed as $\mu g/m^3$ unless otherwise noted.

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

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 6 - Summary of Soil Vapour Historical Analytical Results
Chemicals of Potential Concern in Soil Vapour
Soil Vapour Monitoring Point SV 20

Sample ID	20/1904	SV20/1765	SV20/2505	20 / 1357	SV20/2539	20 / 1428	20	20	Guideline[1]	Guideline[3]
Installation Depth (m bgs)										
3.5										
Sampling Date	7-Jun-16	3-Feb-17	21-Jul-17	9-Apr-18	29-Jan-19	19-Aug-19	2-Dec-20	14-Jul-21		
Parameter										
Benzene	1.81	0.37	<0.32	<0.32	<0.32	<0.32	<0.54	0.67	1.8E+05	1.6E+05
Toluene	6.93	5.37	1.58	0.41	<0.38	0.44	3.69	3.69	1.1E+08	9.8E+07
Ethylbenzene	2.26	<0.43	<0.43	<0.43	<0.43	<0.43	<0.87	<0.87	3.0E+07	2.7E+07
Xylenes	14.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.8	<2.2	5.3E+06	4.8E+06
Aliphatic C6-C8[2]	16.8	<11.5	<11.5	<10.0	<10.0	<10.0	<15	<15	6.2E+08	5.6E+08
Aliphatic C8-C10	14.9	<5.0	16.9	5.1	<5.0	<5.0	<15	<15	3.3E+07	2.9E+07
Aromatic C8-C10	18.4	18.4	12.0	<5.0	<5.0	<5.0	<15	<15	5.5E+06	5.0E+06
Aliphatic >C10-C12	31.2	23.3	78.1	13.7	24.1	<5.0	<15	<15	3.4E+07	3.1E+07
Aliphatic >C12-C16	103	<5.0	23.0	<5.0	<5.0	<5.0	<15	<15	3.4E+07	3.1E+07
Aromatic >C10-C12	17.5	<5.0	45.3	<5.0	<5.0	<5.0	<15	<15	6.8E+06	6.1E+06
Aromatic >C12-C16	<5.0	<5.0	6.0	<5.0	<5.0	<5.0	<15	<15	6.8E+06	6.1E+06
1,2-Dichloroethane (1,2-DCA)	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.82	<0.41	2.1E+03	1.9E+03
Naphthalene	<2.6	<2.6	<2.6	<2.6	<2.6	<1.0	<5.2	<5.2	6.6E+03	5.9E+03

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 350 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 Inreased monitoring 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.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 7 - Summary of Soil Vapour Historical Analytical Results
Chemicals of Potential Concern in Soil Vapour
Soil Vapour Monitoring Point SV 21

Sample ID	21 / 1780	SV21/3016	SV21/1897	21 / 1263	SV21/1775	21 / 1391	21	21	Guideline[1]	Guideline[3]
Installation Depth (m bgs)										
3.5										
Sampling Date	9-Jun-16	2-Feb-17	21-Jul-17	9-Apr-18	29-Jan-19	19-Aug-19	26-Nov-20	14-Jul-21		
Parameter										
Benzene	2.21	0.37	0.39	<0.32	<0.32	<0.32	<0.50	1.21	1.8E+05	1.6E+05
Toluene	19.4	0.69	1.16	<0.38	<0.38	0.44	<0.75	1.02	1.1E+08	9.8E+07
Ethylbenzene	11.8	<0.43	<0.43	<0.43	<0.43	<0.43	<0.87	<0.87	3.0E+07	2.7E+07
Xylenes	80.0	<1.3	1.6	<1.3	<1.3	<1.3	<1.8	<2.2	5.3E+06	4.8E+06
Aliphatic C6-C8[2]	19.5	<10.0	<10.7	<10.0	<10.0	<10.0	<15	67	6.2E+08	5.6E+08
Aliphatic C8-C10	63.3	9.6	<5.0	<5.0	<5.0	<5.0	<15	19	3.3E+07	2.9E+07
Aromatic C8-C10	84.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	5.5E+06	5.0E+06
Aliphatic >C10-C12	147	<5.0	6.9	11.3	<5.0	<5.0	<15	15	3.4E+07	3.1E+07
Aliphatic >C12-C16	47.6	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	3.4E+07	3.1E+07
Aromatic >C10-C12	63.2	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	6.8E+06	6.1E+06
Aromatic >C12-C16	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	6.8E+06	6.1E+06
1,2-Dichloroethane (1,2-DCA)	<0.405	<0.40	<0.40	<0.40	<0.40	<0.40	<0.41	<0.41	2.1E+03	1.9E+03
Naphthalene	<2.62	<2.6	<2.6	<2.6	<1.0	<1.0	<5.2	<5.2	6.6E+03	5.9E+03

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 350 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 Inreased monitoring frequency trigger values

ND No Data Available

NG No applicable guideline

All results are expressed as $\mu g/m^3$ unless otherwise noted.

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

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 8 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 22

Sample ID	22/1415	SV22/2521	22/1369	SV22/2549	22 / 1268	22	22	Guideline[1]	Guideline[3]
Installation Depth (m bgs)									
4.0									
Sampling Date	7-Jun-16	18-Jul-17	11-Apr-18	29-Jan-19	19-Aug-19	26-Nov-20	14-Jul-21		
Parameter									
Benzene	1.08	<0.32	<0.32	<0.32	<0.32	<0.50	0.86	1.8E+05	1.6E+05
Toluene	5.86	0.42	<0.38	<0.38	<0.38	<0.75	1.85	1.1E+08	1.0E+08
Ethylbenzene	4.40	<0.43	<0.43	<0.43	<0.43	<0.87	<0.87	3.1E+07	2.8E+07
Xylenes	29.3	<1.3	<1.3	<1.3	<1.3	<1.8	<2.2	5.5E+06	4.9E+06
Aliphatic C6-C8[2]	14	<10.0	<10.0	<10.0	<10.0	<15	<15	6.5E+08	5.9E+08
Aliphatic C8-C10	6.3	<5.0	7.5	<5.0	<5.0	<15	<15	3.4E+07	3.1E+07
Aromatic C8-C10	33.5	<5.0	<5.0	<5.0	<5.0	<15	<15	5.8E+06	5.2E+06
Aliphatic >C10-C12	21.3	17.5	24.2	10.5	<5.0	<15	<15	3.6E+07	3.2E+07
Aliphatic >C12-C16	20.3	8.8	<5.0	<5.0	<5.0	<15	<15	3.6E+07	3.2E+07
Aromatic >C10-C12	29.0	<5.0	<5.0	<5.0	<5.0	<15	<15	7.1E+06	6.4E+06
Aromatic >C12-C16	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	7.1E+06	6.4E+06
1,2-Dichloroethane (1,2-DCA)	<0.40	<0.40	<0.40	<0.40	<0.40	<0.41	<0.41	2.2E+03	1.9E+03
Naphthalene	<2.6	<2.6	<2.6	<2.6	<1.0	<5.2	<5.2	6.9E+03	6.2E+03

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 400 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 Inreased monitoring 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.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 9 - Summary of Soil Vapour Historical Analytical Results
Chemicals of Potential Concern in Soil Vapour
Soil Vapour Monitoring Point SV 23

Sample ID	23/1402	SV23/1202	SV23/2526	23/1452	SV23/1758	23 / 1301	23	23	Guideline[1]	Guideline[3]
Installation Depth (m bgs)										
4.5										
Sampling Date	7-Jun-16	2-Feb-17	18-Jul-17	11-Apr-18	29-Jan-19	19-Aug-19	2-Dec-20	14-Jul-21		
Parameter										
Benzene	0.44	0.33	<0.32	0.32	<0.32	<0.32	<0.54	<0.64	1.9E+05	1.7E+05
Toluene	2.38	<0.38	0.49	<0.38	<0.38	0.39	<0.80	2.41	1.2E+08	1.0E+08
Ethylbenzene	1.49	<0.43	0.49	<0.43	<0.43	<0.43	<0.87	1.87	3.2E+07	2.9E+07
Xylenes	9.5	<1.3	<1.3	<1.3	<1.3	<1.3	<1.8	4.2	5.7E+06	5.1E+06
Aliphatic C6-C8[2]	10	<10.0	<16.6	<10.0	<10.0	<10.0	<15	118	6.8E+08	6.1E+08
Aliphatic C8-C10	14.9	<5.0	<5.0	<5.0	<5.0	<5.0	<15	144	3.6E+07	3.2E+07
Aromatic C8-C10	15.2	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	6.1E+06	5.4E+06
Aliphatic >C10-C12	16.2	<5.0	19.8	5.4	6.0	<5.0	<15	53	3.7E+07	3.4E+07
Aliphatic >C12-C16	5.6	<5.0	6.6	<5.0	<5.0	<5.0	<15	32	3.7E+07	3.4E+07
Aromatic >C10-C12	21.5	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	7.4E+06	6.7E+06
Aromatic >C12-C16	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	7.4E+06	6.7E+06
1,2-Dichloroethane (1,2-DCA)	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.82	<0.41	2.2E+03	2.0E+03
Naphthalene	2.9	<2.6	<2.6	<2.6	<2.6	<1.0	<5.2	<5.2	7.2E+03	6.5E+03

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 450 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 Inreased monitoring 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.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 10 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 24

Sample ID	24/383	SV24/406	SV24/237	24/1216	SV24/1776	24/2499	24/9761	24	24	Guideline[1]	Guideline[3]
Installation Depth (m bgs)											
5.0											
Sampling Date	7-Jun-16	2-Feb-17	18-Jul-17	11-Apr-18	30-Jan-19	19-Aug-19	24-Jan-20	26-Nov-20	14-Jul-21		
Parameter											
Benzene	1.35	1.37	<0.32	0.38	<0.32	2.40	<0.32	<0.50	<0.64	1.9E+05	1.7E+05
Toluene	7.25	2.31	<0.38	0.55	0.50	<0.38	1.91	<0.75	0.83	1.2E+08	1.1E+08
Ethylbenzene	3.57	<0.43	<0.43	<0.43	<0.43	<0.43	0.50	<0.87	<0.87	3.3E+07	3.0E+07
Xylenes	24.8	1.9	<1.3	2.0	<1.3	<1.3	2.1	<1.8	<2.2	5.9E+06	5.3E+06
Aliphatic C6-C8[2]	26.6	29.8	29.8	<10.0	<10.0	8.4	<10.0	<15	<15	7.1E+08	6.4E+08
Aliphatic C8-C10	100	69.1	<5.0	<5.0	<5.0	7.4	<5.0	<15	<15	3.7E+07	3.4E+07
Aromatic C8-C10	30.8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	6.3E+06	5.7E+06
Aliphatic >C10-C12	110	5.7	<5.0	14.3	5.8	<5.0	7.7	<15	15	3.9E+07	3.5E+07
Aliphatic >C12-C16	33.0	<5.0	<5.0	<5.0	14.3	<5.0	7.8	<15	<15	3.9E+07	3.5E+07
Aromatic >C10-C12	36.3	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	7.8E+06	7.0E+06
Aromatic >C12-C16	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	7.8E+06	7.0E+06
1,2-Dichloroethane (1,2-DCA)	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.41	<0.41	2.3E+03	2.1E+03
Naphthalene	<2.6	<2.6	<2.6	<2.6	<2.6	<1.0	<1.0	<5.2	<5.2	7.5E+03	6.7E+03

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 500 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 Inreased monitoring frequency trigger values

ND No Data Available

NG No applicable guideline

All results are expressed as $\mu g/m^3$ unless otherwise noted.

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

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 11 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 25

Sample ID	25/228	SV25/2549	25/1768	SV25/1275	25 / 227	25	25	25	Guideline[1]	Guideline[3]
Installation Depth (m bgs)										
5.0										
Sampling Date	3-Jun-16	18-Jul-17	11-Apr-18	30-Jan-19	19-Aug-19	30-Jan-20	2-Dec-20	14-Jul-21		
Parameter										
Benzene	0.68	0.65	0.53	2.21	2.40	0.87	<0.54	2.43	1.9E+05	1.7E+05
Toluene	4.26	<0.38	<0.38	<0.38	<0.38	0.67	<0.80	1.96	1.2E+08	1.1E+08
Ethylbenzene	1.24	<0.43	<0.43	<0.43	<0.43	<0.43	<0.87	<0.87	3.3E+07	3.0E+07
Xylenes	6.7	<1.3	3.9	<1.3	<1.3	<1.3	<1.8	<2.2	5.9E+06	5.3E+06
Aliphatic C6-C8[2]	12.1	<10.0	<10.0	<10.0	8.4	<10.0	<15	85	7.1E+08	6.4E+08
Aliphatic C8-C10	<5.0	<5.0	<5.0	<5.0	7.4	<5.0	<15	55	3.7E+07	3.4E+07
Aromatic C8-C10	7.7	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	6.3E+06	5.7E+06
Aliphatic >C10-C12	12.6	6.7	6.3	6.1	<5.0	<5.0	<15	16	3.9E+07	3.5E+07
Aliphatic >C12-C16	6.9	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	3.9E+07	3.5E+07
Aromatic >C10-C12	6.9	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	7.8E+06	7.0E+06
Aromatic >C12-C16	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	7.8E+06	7.0E+06
1,2-Dichloroethane (1,2-DCA)	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.82	<0.41	2.3E+03	2.1E+03
Naphthalene	<2.6	<2.6	<2.6	<2.6	<1.0	<1.0	<5.2	<5.2	7.5E+03	6.7E+03

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 500 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 Inreased monitoring 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.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 12 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV26A

Sample ID	26A/1257	SV26A/1762	SV26A/338	26A/0224	SV26A/330	26A/279	26A/9762	26A	26A	Guideline[1]	Guideline[3]
Installation Depth (m bgs)											
5.0											
Sampling Date	3-Jun-16	30-Jan-17	17-Jul-17	11-Apr-18	23-Jan-19	20-Aug-19	24-Jan-20	23-Nov-20	12-Jul-21		
Parameter											
Benzene	0.84	0.53	1.24	<0.32	<0.32	<0.32	<0.32	<0.50	<0.64	1.9E+05	1.7E+05
Toluene	8.15	0.78	2.14	<0.38	<0.38	<0.38	1.80	<0.75	1.92	1.2E+08	1.1E+08
Ethylbenzene	6.47	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.87	<0.87	3.3E+07	3.0E+07
Xylenes	55.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.8	<2.2	5.9E+06	5.3E+06
Aliphatic C6-C8[2]	10.4	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<15	61	7.1E+08	6.4E+08
Aliphatic C8-C10	115	8.7	<5.0	<5.0	<5.0	<5.0	<5.0	<15	48	3.7E+07	3.4E+07
Aromatic C8-C10	108	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	6.3E+06	5.7E+06
Aliphatic >C10-C12	131	10.0	14.5	7.0	<5.0	<5.0	8.2	<15	65	3.9E+07	3.5E+07
Aliphatic >C12-C16	36.8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	31	3.9E+07	3.5E+07
Aromatic >C10-C12	163	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	7.8E+06	7.0E+06
Aromatic >C12-C16	5.1	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	7.8E+06	7.0E+06
1,2-Dichloroethane (1,2-DCA)	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.41	<0.41	2.3E+03	2.1E+03
Naphthalene	<2.6	<2.6	<2.6	<2.6	<2.6	<1.0	<1.0	<5.2	<5.2	7.5E+03	6.7E+03

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 500 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 Inreased monitoring frequency trigger values

ND No Data Available

NG No applicable guideline

All results are expressed as $\mu g/m^3$ unless otherwise noted.

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

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 13 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 26B

Sample ID	26B/1455	SV26B/2472	SV26B/2523	26B/1400	SV26B/1540	26B/324	26B/9766	26B	26B	Guideline[1]	Guideline[3]
Installation Depth (m bgs)											
3.5											
Sampling Date	3-Jun-16	30-Jan-17	17-Jul-17	11-Apr-18	23-Jan-19	20-Aug-19	24-Jan-20	23-Nov-20	12-Jul-21		
Parameter											
Benzene	0.87	0.54	1.48	<0.32	<0.32	<0.32	0.34	<0.50	1.09	1.8E+05	1.6E+05
Toluene	6.28	0.41	0.47	<0.38	<0.38	<0.38	2.04	<0.75	<0.75	1.1E+08	9.8E+07
Ethylbenzene	5.24	<0.43	<0.43	<0.43	<0.43	<0.43	0.46	<0.87	<0.87	3.0E+07	2.7E+07
Xylenes	42.7	<1.3	<1.3	<1.3	<1.3	<1.3	2.0	<1.8	<2.2	5.3E+06	4.8E+06
Aliphatic C6-C8[2]	12.7	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<15	25	6.2E+08	5.6E+08
Aliphatic C8-C10	126	5.9	<5.0	<5.0	<5.0	<5.0	<5.0	<15	122	3.3E+07	2.9E+07
Aromatic C8-C10	83.1	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	5.5E+06	5.0E+06
Aliphatic >C10-C12	121	6.3	11.4	<5.0	<5.0	<5.0	9.0	<15	4340	3.4E+07	3.1E+07
Aliphatic >C12-C16	26.8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	1800	3.4E+07	3.1E+07
Aromatic >C10-C12	134	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	6.8E+06	6.1E+06
Aromatic >C12-C16	8.6	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	6.8E+06	6.1E+06
1,2-Dichloroethane (1,2-DCA)	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.41	<0.41	2.1E+03	1.9E+03
Naphthalene	2.7	<2.6	<2.6	<2.6	<2.6	<1.0	<1.0	<5.2	<5.2	6.6E+03	5.9E+03

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 350 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 Inreased monitoring frequency trigger values

ND No Data Available

NG No applicable guideline

All results are expressed as $\mu g/m^3$ unless otherwise noted.

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

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 14 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 26C

Sample ID	26C/2473	SV26C/1308	SV26C/415	26C/2405	SV26C/275	26C / 209	26C/9770	26C	26C	Guideline[1]	Guideline[3]
Installation Depth (m bgs)											
2.0											
Sampling Date	3-Jun-16	30-Jan-17	17-Jul-17	11-Apr-18	23-Jan-19	20-Aug-19	24-Jan-20	23-Nov-20	12-Jul-21		
Parameter											
Benzene	1.33	1.51	0.92	<0.32	<0.32	<0.32	0.48	<0.50	<0.64	1.6E+05	1.4E+05
Toluene	4.23	1.14	0.45	<0.38	<0.38	<0.38	1.55	<0.75	0.94	9.8E+07	8.8E+07
Ethylbenzene	3.05	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.87	<0.87	2.7E+07	2.4E+07
Xylenes	22.0	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.8	<2.2	4.7E+06	4.3E+06
Aliphatic C6-C8[2]	22.2	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<15	<15	5.3E+08	4.8E+08
Aliphatic C8-C10	153	6.5	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	2.8E+07	2.5E+07
Aromatic C8-C10	42.2	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	4.7E+06	4.2E+06
Aliphatic >C10-C12	128	5.4	15.5	<5.0	<5.0	<5.0	5.5	<15	18	2.9E+07	2.6E+07
Aliphatic >C12-C16	17.8	<5.0	8.7	<5.0	<5.0	<5.0	<5.0	<15	<15	2.9E+07	2.6E+07
Aromatic >C10-C12	61.9	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	5.8E+06	5.2E+06
Aromatic >C12-C16	7.9	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	5.8E+06	5.2E+06
1,2-Dichloroethane (1,2-DCA)	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.41	<0.41	1.9E+03	1.7E+03
Naphthalene	<2.6	<2.6	<2.6	<2.6	<2.6	<1.0	<1.0	<5.2	<5.2	5.7E+03	5.2E+03

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 200 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 Inreased monitoring frequency trigger values

ND No Data Available

NG No applicable guideline

All results are expressed as $\mu g/m^3$ unless otherwise noted.

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

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 15 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 30

Sample ID	30/1314	SV30/1244	SV30/1754	30/1438	SV30/1544	30/6649	30/9862	30	30	Guideline[1]	Guideline[3]
Installation Depth (m bgs)											
1.0											
Sampling Date	4-Jun-16	31-Jan-17	21-Jul-17	14-Apr-18	31-Jan-19	26-Aug-19	6-Feb-20	30-Nov-20	16-Jul-21		
Parameter											
Benzene	0.84	0.42	<0.32	<0.32	<0.32	<0.32	0.70	2.52	<0.64	3.0E+02	2.7E+02
Toluene	40.1	0.42	<0.38	2.01	<0.38	1.16	1.41	1.7	5.2	1.9E+05	1.7E+05
Ethylbenzene	8.80	<0.43	<0.43	0.75	<0.43	<0.43	<0.43	<0.87	3.47	5.0E+04	4.5E+04
Xylenes	56.0	<1.3	<1.3	2.4	<1.3	<1.3	<1.3	<1.8	9.3	8.9E+03	8.0E+03
Aliphatic C6-C8[2]	25	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<15	69	9.2E+05	8.2E+05
Aliphatic C8-C10	28.6	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	103	4.8E+04	4.3E+04
Aromatic C8-C10	88.9	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	8.1E+03	7.3E+03
Aliphatic >C10-C12	199	21.7	<5.0	19.8	8.6	9.1	<5.0	<15	64	5.0E+04	4.5E+04
Aliphatic >C12-C16	198	10.5	73.6	<5.0	<5.0	148	<5.0	<15	156	5.0E+04	4.5E+04
Aromatic >C10-C12	128	<5.0	<5.0	5.3	<5.0	<5.0	<5.0	<15	<15	1.0E+04	9.0E+03
Aromatic >C12-C16	51.3	<5.0	27.6	<5.0	<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	<0.40	<0.40	<0.40	<0.40	<0.82	<0.41	4.0E+01	3.6E+01
Naphthalene	4.1	<2.6	<2.6	3.5	<2.6	<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 Inreased monitoring frequency trigger values

ND No Data Available

NG No applicable guideline

All results are expressed as $\mu g/m^3$ unless otherwise noted.

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

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 16 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV31

Sample ID	31 / 2074	SV31/3002	SV31/395	31/1231	SV31/1521	31/2557	31/6857	31	31	Guideline[1]	Guideline[3]
Installation Depth (m bgs)											
1.0											
Sampling Date	9-Jun-16	25-Jan-17	19-Jul-17	9-Apr-18	30-Jan-19	21-Aug-19	4-Feb-20	1-Dec-20	15-Jul-21		
Parameter											
Benzene	6.45	0.48	0.42	0.44	<0.32	<0.32	0.64	<0.32	0.77	3.0E+02	2.7E+02
Toluene	53.7	0.57	3.97	0.77	<0.38	0.40	1.03	0.40	3.66	1.9E+05	1.7E+05
Ethylbenzene	15.3	<0.43	0.88	<0.43	<0.43	<0.43	<0.43	<0.43	6.34	5.0E+04	4.5E+04
Xylenes	63.8	<1.3	4.7	<1.3	<1.3	<1.3	<1.3	<1.3	2.2	8.9E+03	8.0E+03
Aliphatic C6-C8[2]	20.9	<10.0	<15.8	<10.0	<10.0	<10.0	<10.0	<10.0	18	9.2E+05	8.2E+05
Aliphatic C8-C10	67.1	8.8	6.1	<5.0	<5.0	<5.0	<5.0	<5.0	<15	4.8E+04	4.3E+04
Aromatic C8-C10	91.9	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	8.1E+03	7.3E+03
Aliphatic >C10-C12	160	17.6	17.8	<5.0	5.7	11.3	<5.0	11.3	27	5.0E+04	4.5E+04
Aliphatic >C12-C16	79.7	<5.0	30.7	<5.0	<5.0	<5.0	<5.0	<5.0	22	5.0E+04	4.5E+04
Aromatic >C10-C12	108	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	1.0E+04	9.0E+03
Aromatic >C12-C16	14.4	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	1.0E+04	9.0E+03
1,2-Dichloroethane (1,2-DCA)	<0.405	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.41	4.0E+01	3.6E+01
Naphthalene	2.75	<2.6	<2.6	<2.6	<2.6	<1.0	<1.0	<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

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

3 Inreased monitoring frequency trigger values

ND No Data Available

NG No applicable guideline

All results are expressed as $\mu g/m^3$ unless otherwise noted.

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

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 17 - Summary of Soil Vapour Historical Analytical Results
Chemicals of Potential Concern in Soil Vapour
Soil Vapour Monitoring Point SV 32

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	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	7-Jul-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	0.51	<0.64	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	0.81	<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	<0.43	<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	<1.3	<2.2	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	<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	<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	<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	<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	<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	<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	<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	<0.40	<0.41	4.0E+01	3.6E+01
Naphthalene	3.1	<2.6	<2.6	<2.6	**<1200**	**<97**	<1.05	<1.0	<1.0	<1.0	**<1700**	<58	<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

Potential guideline exceedance-increased RDL

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

3 Inreased monitoring 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. CG3418E16
Client Suncor EPP
Project ioil Vapour Sampling Report, Summer 2021
Location Hounsfield Heights, Calgary 9445, Alberta

Table 18 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 36

Sample ID	36/322	SV36/1755	SV36/337	SV36/1523	36 / 531	36/9859	36	36	Guideline[1]	Guideline[3]
Installation Depth (m bgs)										
3.0										
Sampling Date	7-Jun-16	25-Jan-17	19-Jul-17	28-Jan-19	14-Aug-19	7-Feb-20	27-Nov-20	8-Jul-21		
Parameter										
Benzene	3.47	0.41	<0.32	0.41	<0.32	0.68	<0.50	<0.64	1.6E+05	1.4E+05
Toluene	41.8	0.41	<0.38	0.77	1.02	1.41	<0.75	<0.75	9.8E+07	8.8E+07
Ethylbenzene	47.6	<0.43	<0.43	<0.43	0.96	<0.43	<0.87	<0.87	2.7E+07	2.4E+07
Xylenes	313	<1.3	<1.3	2.3	2.2	<1.3	<1.8	<2.2	4.7E+06	4.3E+06
Aliphatic C6-C8[2]	40.5	<10.0	<10.0	<10.0	<10.0	<10.0	<15	<15	5.3E+08	4.8E+08
Aliphatic C8-C10	92.9	<5.0	<5.0	23.1	<5.0	<5.0	<15	<15	2.8E+07	2.5E+07
Aromatic C8-C10	429	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	4.7E+06	4.2E+06
Aliphatic >C10-C12	427	<5.0	8.1	53.2	<5.0	<5.0	<15	<15	2.9E+07	2.6E+07
Aliphatic >C12-C16	150	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	2.9E+07	2.6E+07
Aromatic >C10-C12	384	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	5.8E+06	5.2E+06
Aromatic >C12-C16	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	5.8E+06	5.2E+06
1,2-Dichloroethane (1,2-DCA)	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.41	<0.41	1.9E+03	1.7E+03
Naphthalene	<2.6	<2.6	<2.6	<1.0	<1.0	<1.0	<5.2	<5.2	5.7E+03	5.2E+03

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 300 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 Inreased monitoring frequency trigger values

ND No Data Available

NG No applicable guideline

All results are expressed as $\mu g/m^3$ unless otherwise noted.

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

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 19 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 37

Sample ID	37/1160	SV37/288	SV37/347	37 / 2470	SV37/338	37 / 2558	37/9874	37	37	Guideline[1]	Guideline[3]
Installation Depth (m bgs)											
2.5											
Sampling Date	15-Jun-16	25-Jan-17	19-Jul-17	9-Apr-18	30-Jan-19	23-Aug-19	4-Feb-20	27-Nov-20	15-Jul-21		
Parameter											
Benzene	0.69	0.34	<0.32	0.77	<0.32	<0.32	0.72	<0.50	<0.64	1.6E+05	1.5E+05
Toluene	18.0	<0.38	1.02	0.54	0.66	0.38	1.90	<0.75	5.54	1.0E+08	9.2E+07
Ethylbenzene	4.67	<0.43	<0.43	0.77	<0.43	<0.43	<0.43	<0.87	1.95	2.8E+07	2.5E+07
Xylenes	26.2	<1.3	<1.3	2.0	<1.3	<1.3	<1.3	<1.8	<2.2	4.9E+06	4.4E+06
Aliphatic C6-C8[2]	18.3	<10.0	<10.0	<13.1	<13.1	<10.0	<10.0	<15	74	5.6E+08	5.1E+08
Aliphatic C8-C10	29.6	<5.0	<5.0	5.5	5.5	<5.0	10.0	<15	<15	2.9E+07	2.7E+07
Aromatic C8-C10	32.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	5.0E+06	4.5E+06
Aliphatic >C10-C12	44.1	7.0	6.2	<5.0	6.0	9.6	62.7	<15	<15	3.1E+07	2.8E+07
Aliphatic >C12-C16	26.8	<5.0	<5.0	<5.0	<5.0	11.9	<5.0	<15	<15	3.1E+07	2.8E+07
Aromatic >C10-C12	39.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	6.1E+06	5.5E+06
Aromatic >C12-C16	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	6.1E+06	5.5E+06
1,2-Dichloroethane (1,2-DCA)	<0.405	<0.40	<0.40	<0.40	<0.40	2.72	<0.40	<0.41	<0.41	2.0E+03	1.8E+03
Naphthalene	<2.62	<2.6	<2.6	<2.6	<1.0	<1.0	<1.0	<5.2	<5.2	6.0E+03	5.4E+03

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 250 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 Inreased monitoring frequency trigger values

ND No Data Available

NG No applicable guideline

All results are expressed as $\mu g/m^3$ unless otherwise noted.

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

Clifton

Job No. CG3418E16
Client Suncor EPP
Project Soil Vapour Sampling Report, Summer 2021
Location Hounsfield Heights, Calgary 9445, Alberta

Table 20 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV38

Sample ID	38/384	SV38/207	SV38/1370	38/1534	38 / 6316	38/9858	38	38	Guideline[1]	Guideline[3]
Installation Depth (m bgs)										
4.0										
Sampling Date	7-Jun-16	31-Jan-17	21-Jul-17	14-Apr-18	26-Aug-19	5-Feb-20	30-Nov-20	16-Jul-21		
Parameter										
Benzene	0.98	0.42	<0.32	<0.32	0.50	0.88	176	<0.64	1.8E+05	1.6E+05
Toluene	13.9	0.49	<0.38	<0.38	2.79	2.44	300	2.37	1.1E+08	1.0E+08
Ethylbenzene	11.2	<0.43	<0.43	<0.43	1.14	0.44	77.7	<0.87	3.1E+07	2.8E+07
Xylenes	75.3	<1.3	<1.3	<1.3	5.4	1.5	291	<2.2	5.5E+06	4.9E+06
Aliphatic C6-C8[2]	23.5	<10.0	<10.0	<10.0	6.1	<10.0	511	259	6.5E+08	5.9E+08
Aliphatic C8-C10	14.6	<5.0	<5.0	<5.0	51.0	7.0	127	19	3.4E+07	3.1E+07
Aromatic C8-C10	105	<5.0	<5.0	<5.0	<5.0	<5.0	385	<15	5.8E+06	5.2E+06
Aliphatic >C10-C12	73.8	9.9	<5.0	<5.0	157	9.7	<15	23	3.6E+07	3.2E+07
Aliphatic >C12-C16	78.4	<5.0	17.2	<5.0	16.9	<5.0	<15	<15	3.6E+07	3.2E+07
Aromatic >C10-C12	103	<5.0	<5.0	<5.0	<5.0	<5.0	15	<15	7.1E+06	6.4E+06
Aromatic >C12-C16	<5.0	<5.0	9.8	<5.0	<5.0	<5.0	<15	<15	7.1E+06	6.4E+06
1,2-Dichloroethane (1,2-DCA)	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.82	<0.41	2.2E+03	1.9E+03
Naphthalene	<2.6	<2.6	<2.6	<2.6	<1.0	<1.0	28.8	<5.2	6.9E+03	6.2E+03

Notes:

1 Soil vapour quality guidelines protective of indoor air quality for a residential building on fine-textured soil, depth 400 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 Inreased monitoring 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.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 21 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 39

Sample ID	SV39/291	39 / 1019	SV39/397	39 / 2240	39/9872	39	39	Guideline[1]	Guideline[3]
Installation Depth (m bgs)									
2.0									
Sampling Date	25-Jan-17	9-Apr-18	30-Jan-19	23-Aug-19	4-Feb-20	27-Nov-20	15-Jul-21		
Parameter									
Benzene	10.5	<0.32	<0.32	0.34	0.67	<0.50	<0.64	1.6E+05	1.4E+05
Toluene	12.3	0.42	<0.38	0.45	1.00	<0.75	7.2	9.8E+07	8.8E+07
Ethylbenzene	3.37	<0.43	<0.43	<0.43	<0.43	<0.87	1.17	2.7E+07	2.4E+07
Xylenes	12.1	12.1	<1.3	<1.3	<1.3	<1.8	3	4.7E+06	4.3E+06
Aliphatic C6-C8[2]	<34.7	<10	<10.0	<10.0	<10.0	<15	55	5.3E+08	4.8E+08
Aliphatic C8-C10	11.7	<5.0	<5.0	<5.0	<5.0	<15	<15	2.8E+07	2.5E+07
Aromatic C8-C10	8.6	<5.0	<5.0	<5.0	<5.0	<15	<15	4.7E+06	4.2E+06
Aliphatic >C10-C12	16.0	9.1	<5.0	10.2	<5.0	<15	23	2.9E+07	2.6E+07
Aliphatic >C12-C16	<5.0	<5.0	<5.0	8.8	<5.0	<15	<15	2.9E+07	2.6E+07
Aromatic >C10-C12	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	5.8E+06	5.2E+06
Aromatic >C12-C16	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	5.8E+06	5.2E+06
1,2-Dichloroethane (1,2-DCA)	<0.40	<0.40	<0.40	<0.40	<0.40	<0.41	<0.41	1.9E+03	1.7E+03
Naphthalene	<2.6	<2.6	<2.6	<1.0	<1.0	<5.2	<5.2	5.7E+03	5.2E+03

Notes:

1 residential building on fine-textured soil, depth 200 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 Inreased monitoring 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.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 22 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV40

Sample ID	40 / 206	SV40/1452	SV40/386	40 / 1370	SV40/2242	40 / 6858	40/9856	40	40	Guideline[1]	Guideline[3]
Installation Depth (m bgs)											
1.5											
Sampling Date	9-Jun-16	25-Jan-17	19-Jul-17	9-Apr-18	30-Jan-19	23-Aug-19	4-Feb-20	1-Dec-20	15-Jul-21		
Parameter											
Benzene	1.69	1.70	0.99	0.45	<0.32	0.35	0.68	<0.54	2.01	3.0E+02	2.7E+02
Toluene	14.0	0.69	1.62	1.04	<0.38	<0.38	0.98	<0.80	15.6	1.9E+05	1.7E+05
Ethylbenzene	38.2	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.87	2.48	5.0E+04	4.5E+04
Xylenes	166	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.8	7.7	8.9E+03	8.0E+03
Aliphatic C6-C8[2]	545.7	<10.0	<19.3	<10.0	<10.0	<10.0	<10.0	<15	83	9.2E+05	8.2E+05
Aliphatic C8-C10	353	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	130	4.8E+04	4.3E+04
Aromatic C8-C10	161	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	8.1E+03	7.3E+03
Aliphatic >C10-C12	215	11.4	18.7	10.1	<5.0	8.0	<5.0	<15	95	5.0E+04	4.5E+04
Aliphatic >C12-C16	53.8	5.4	9.3	5.4	<5.0	8.6	<5.0	<15	55	5.0E+04	4.5E+04
Aromatic >C10-C12	123	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	1.0E+04	9.0E+03
Aromatic >C12-C16	22.0	<5.0	<5.0	<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	<0.40	<0.40	<0.40	<0.82	<0.41	4.0E+01	3.6E+01
Naphthalene	<2.62	<2.6	<2.6	<2.6	<2.6	<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 Inreased monitoring frequency trigger values

ND No Data Available

NG No applicable guideline

All results are expressed as $\mu g/m^3$ unless otherwise noted.

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

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 23 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 41

Sample ID	41/2529	SV41/1236	SV41/334	41/2466	SV41/2528	41 / 421	41/9873	41	41	Guideline[1]	Guideline[3]
Installation Depth (m bgs)											
1.5											
Sampling Date	4-Jun-16	31-Jan-17	21-Jul-17	14-Apr-18	31-Jan-19	26-Aug-19	6-Feb-20	30-Nov-20	16-Jul-21		
Parameter											
Benzene	2.68	0.39	1.64	<0.32	0.41	<0.32	0.78	60.3	<0.64	3.0E+02	2.7E+02
Toluene	43.1	<0.38	<0.38	0.94	<0.38	<0.38	0.85	59.8	<0.75	1.9E+05	1.7E+05
Ethylbenzene	24.4	<0.43	0.48	<0.43	<0.43	<0.43	<0.43	15.5	6.12	5.0E+04	4.5E+04
Xylenes	161	<1.3	1.7	<1.3	<1.3	<1.3	<1.3	62.4	6.4	8.9E+03	8.0E+03
Aliphatic C6-C8[2]	36.7	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	76	<15	9.2E+05	8.2E+05
Aliphatic C8-C10	362	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	16	<15	4.8E+04	4.3E+04
Aromatic C8-C10	228	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	48	<15	8.1E+03	7.3E+03
Aliphatic >C10-C12	537	<5.0	<5.0	11.6	<5.0	9.3	<5.0	<15	23	5.0E+04	4.5E+04
Aliphatic >C12-C16	105	<5.0	<5.0	8.6	<5.0	17.6	<5.0	<15	<15	5.0E+04	4.5E+04
Aromatic >C10-C12	215	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15	<15	1.0E+04	9.0E+03
Aromatic >C12-C16	20.8	<5.0	<5.0	<5.0	<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	<0.40	<0.40	<0.40	<0.40	<0.82	<0.41	4.0E+01	3.6E+01
Naphthalene	<2.6	<2.6	<2.6	<2.6	<2.6	<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 Inreased monitoring frequency trigger values

ND No Data Available

NG No applicable guideline

All results are expressed as $\mu g/m^3$ unless otherwise noted.

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

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 24 - 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	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	8-Jul-21		
Parameter										
Benzene	<0.638	<0.32	<0.32	1.55	<0.32	<0.50	<0.50	<0.64	3.0E+02	2.7E+02
Toluene	3.59	0.96	<0.38	5.87	0.41	<0.75	1.13	1.06	1.9E+05	1.7E+05
Ethylbenzene	1.85	<0.43	<0.43	0.96	<0.43	<0.87	<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	<2.2	8.9E+03	8.0E+03
Aliphatic C6-C8[2]	<20.0	<10.0	<10.0	<11.9	<10.0	<15	<15	<15	9.2E+05	8.2E+05
Aliphatic C8-C10	46	<5.0	<5.0	<5.0	11.8	<15	<15	<15	4.8E+04	4.3E+04
Aromatic C8-C10	18	<5.0	14.2	<5.0	<5.0	<15	<15	<15	8.1E+03	7.3E+03
Aliphatic >C10-C12	1840	<5.0	7.9	10.7	17.6	<15	<15	<15	5.0E+04	4.5E+04
Aliphatic >C12-C16	265	<5.0	<5.0	<5.0	<5.0	<15	<15	<15	5.0E+04	4.5E+04
Aromatic >C10-C12	37	<5.0	<5.0	<5.0	<5.0	<15	<15	<15	1.0E+04	9.0E+03
Aromatic >C12-C16	<10	<5.0	<5.0	<5.0	<5.0	<15	<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	<0.41	4.0E+01	3.6E+01
Naphthalene	<2.10	<1.0	<1.0	<1.0	<1.0	<5.2	<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 Inreased monitoring 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.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 25 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 322

Sample ID	322	SV322/6875	322/9780	322	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	8-Jul-21		
Parameter									
Benzene	<0.319	<0.32	0.37	0.33	<0.50	<0.50	<0.64	3.0E+02	2.7E+02
Toluene	2.06	<0.38	1.21	0.57	0.98	<0.75	1.55	1.9E+05	1.7E+05
Ethylbenzene	1.25	<0.43	<0.43	<0.43	<0.87	<0.87	<0.87	5.0E+04	4.5E+04
Xylenes	8.02	<1.3	<1.3	<1.3	<1.8	<1.8	<2.2	8.9E+03	8.0E+03
Aliphatic C6-C8[2]	<10.0	<10.0	<10.0	<10.0	<15	<15	<15	9.2E+05	8.2E+05
Aliphatic C8-C10	11.3	<5.0	<5.0	<5.0	<15	<15	<15	4.8E+04	4.3E+04
Aromatic C8-C10	13.6	<5.0	<5.0	<5.0	<15	<15	<15	8.1E+03	7.3E+03
Aliphatic >C10-C12	250	<5.0	9.2	7.2	<15	<15	<15	5.0E+04	4.5E+04
Aliphatic >C12-C16	73.2	<5.0	<5.0	<5.0	<15	<15	<15	5.0E+04	4.5E+04
Aromatic >C10-C12	27.8	<5.0	<5.0	<5.0	<15	<15	<15	1.0E+04	9.0E+03
Aromatic >C12-C16	<5.0	<5.0	<5.0	<5.0	<15	<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	<0.41	4.0E+01	3.6E+01
Naphthalene	<1.05	<1.0	<1.0	<1.0	<5.2	<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 Inreased monitoring 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.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 26 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 323

Sample ID	323	323/9778	323	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	8-Jul-21		
Parameter								
Benzene	0.52	1.02	<0.32	0.51	<0.50	<0.64	3.0E+02	2.7E+02
Toluene	1.57	2.20	0.48	2.37	<0.75	<0.75	1.9E+05	1.7E+05
Ethylbenzene	<0.43	<0.43	<0.43	<0.87	<0.87	<0.87	5.0E+04	4.5E+04
Xylenes	<1.3	1.8	<1.3	<1.8	<1.8	<2.2	8.9E+03	8.0E+03
Aliphatic C6-C8[2]	<10.0	<10.0	<10.0	<15	<15	<15	9.2E+05	8.2E+05
Aliphatic C8-C10	<5.0	<5.0	<5.0	<15	<15	<15	4.8E+04	4.3E+04
Aromatic C8-C10	<5.0	<5.0	<5.0	<15	<15	<15	8.1E+03	7.3E+03
Aliphatic >C10-C12	18.0	9.4	6.1	<15	<15	<15	5.0E+04	4.5E+04
Aliphatic >C12-C16	<5.0	<5.0	<5.0	<15	<15	<15	5.0E+04	4.5E+04
Aromatic >C10-C12	<5.0	<5.0	<5.0	<15	<15	<15	1.0E+04	9.0E+03
Aromatic >C12-C16	<5.0	<5.0	<5.0	<15	<15	<15	1.0E+04	9.0E+03
1,2-Dichloroethane (1,2-DCA)	<0.40	<0.40	<0.40	<0.41	<0.41	<0.41	4.0E+01	3.6E+01
Naphthalene	<1.0	<1.0	<1.0	<5.2	<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 Inreased monitoring 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.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 27 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 401

Sample ID	401	401	Guideline[1]	Guideline[2]
Installation Depth (m bgs)				
1.5				
Sampling Date	12-Mar-21	8-Jul-21		
Parameter				
Benzene	<0.50	<0.64	3.0E+02	2.7E+02
Toluene	<0.75	<0.75	1.9E+05	1.7E+05
Ethylbenzene	<0.87	<0.87	5.0E+04	4.5E+04
Xylenes	<1.8	<2.2	8.9E+03	8.0E+03
Aliphatic C6-C8	<15	<15	9.2E+05	8.2E+05
Aliphatic C8-C10	<15	<15	4.8E+04	4.3E+04
Aromatic C8-C10	<15	<15	8.1E+03	7.3E+03
Aliphatic >C10-C12	<15	<15	5.0E+04	4.5E+04
Aliphatic >C12-C16	<15	<15	5.0E+04	4.5E+04
Aromatic >C10-C12	<15	<15	1.0E+04	9.0E+03
Aromatic >C12-C16	<15	<15	1.0E+04	9.0E+03
1,2-Dichloroethane (1,2-DCA)	<0.41	<0.41	4.0E+01	3.6E+01
Naphthalene	<5.2	<5.2	1.0E+02	9.3E+01

Notes:

1 quality for a residential building on fine-textured soil, depth < 100 cm, Intrinsik 31/8/2016

Indicates that the concentration exceeds guideline

2 Inreased monitoring 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 AGAT Laboratories

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 28 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 402

Sample ID	402	402	Guideline[1]	Guideline[2]
Installation Depth (m bgs)				
1.0				
Sampling Date	12-Mar-21	7-Jul-21		
Parameter				
Benzene	0.73	<0.64	3.0E+02	2.7E+02
Toluene	3.24	<0.75	1.9E+05	1.7E+05
Ethylbenzene	1.35	<0.87	5.0E+04	4.5E+04
Xylenes	4.9	<2.2	8.9E+03	8.0E+03
Aliphatic C6-C8	<150	<15	9.2E+05	8.2E+05
Aliphatic C8-C10	1100	<15	4.8E+04	4.3E+04
Aromatic C8-C10	<150	<15	8.1E+03	7.3E+03
Aliphatic >C10-C12	18200	<15	5.0E+04	4.5E+04
Aliphatic >C12-C16	9140	<15	5.0E+04	4.5E+04
Aromatic >C10-C12	<150	<15	1.0E+04	9.0E+03
Aromatic >C12-C16	<150	<15	1.0E+04	9.0E+03
1,2-Dichloroethane (1,2-DCA)	<0.41	<0.41	4.0E+01	3.6E+01
Naphthalene	22.5	<5.2	1.0E+02	9.3E+01

Notes:

1 quality for a residential building on fine-textured soil, depth < 100 cm, Intrinsik 31/8/2016

Indicates that the concentration exceeds guideline

2 Inreased monitoring 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 AGAT Laboratories

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 29 - Summary of Soil Vapour Historical Analytical Results
Chemicals of Potential Concern in Soil Vapour
Soil Vapour Monitoring Point SV 403

Sample ID	403	403	Guideline[1]	Guideline[2]
Installation Depth (m bgs)				
1.0				
Sampling Date	12-Mar-21	7-Jul-21		
Parameter				
Benzene	<0.50	<0.64	3.0E+02	2.7E+02
Toluene	<0.75	2.07	1.9E+05	1.7E+05
Ethylbenzene	<0.87	<0.87	5.0E+04	4.5E+04
Xylenes	<1.8	<2.2	8.9E+03	8.0E+03
Aliphatic C6-C8	<15	<15	9.2E+05	8.2E+05
Aliphatic C8-C10	<15	<15	4.8E+04	4.3E+04
Aromatic C8-C10	<15	<15	8.1E+03	7.3E+03
Aliphatic >C10-C12	<15	<15	5.0E+04	4.5E+04
Aliphatic >C12-C16	<15	<15	5.0E+04	4.5E+04
Aromatic >C10-C12	<15	<15	1.0E+04	9.0E+03
Aromatic >C12-C16	<15	<15	1.0E+04	9.0E+03
1,2-Dichloroethane (1,2-DCA)	<0.41	<0.41	4.0E+01	3.6E+01
Naphthalene	<5.2	<5.2	1.0E+02	9.3E+01

Notes:

1 quality for a residential building on fine-textured soil, depth < 100 cm, Intrinsik 31/8/2016

Indicates that the concentration exceeds guideline

2 Inreased monitoring 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 AGAT Laboratories

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 30 - Summary of Soil Vapour Historical Analytical Results

Chemicals of Potential Concern in Soil Vapour

Soil Vapour Monitoring Point SV 404

Sample ID	404	404	Guideline[1]	Guideline[2]
Installation Depth (m bgs)				
1.0				
Sampling Date	12-Mar-21	7-Jul-21		
Parameter				
Benzene	0.54	<0.64	3.0E+02	2.7E+02
Toluene	0.98	<0.75	1.9E+05	1.7E+05
Ethylbenzene	<0.87	<0.87	5.0E+04	4.5E+04
Xylenes	<1.8	<2.2	8.9E+03	8.0E+03
Aliphatic C6-C8	<15	<15	9.2E+05	8.2E+05
Aliphatic C8-C10	<15	<15	4.8E+04	4.3E+04
Aromatic C8-C10	<15	<15	8.1E+03	7.3E+03
Aliphatic >C10-C12	<15	<15	5.0E+04	4.5E+04
Aliphatic >C12-C16	<15	<15	5.0E+04	4.5E+04
Aromatic >C10-C12	<15	<15	1.0E+04	9.0E+03
Aromatic >C12-C16	<15	<15	1.0E+04	9.0E+03
1,2-Dichloroethane (1,2-DCA)	<0.41	<0.41	4.0E+01	3.6E+01
Naphthalene	<5.2	<5.2	1.0E+02	9.3E+01

Notes:

1 quality for a residential building on fine-textured soil, depth < 100 cm, Intrinsik 31/8/2016

Indicates that the concentration exceeds guideline

2 Inreased monitoring 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 AGAT Laboratories

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Appendix D

QA/QC Tables

Clifton

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Table 1 A - Summary of Integrity Testing by Helium Tracer

SVMP ID		SV07	SV08	SV09	SV10	SV11	SV20	SV21	SV22	SV23	SV24
Installation Date		24-May-16	24-May-16	24-May-16	24-May-16	02-Jun-16	31-May-16	31-May-16	31-May-16	30-May-16	31-May-16
Testing Date Date		12-Jul-21	12-Jul-21	12-Jul-21	12-Jul-21	15-Jul-21	14-Jul-21	14-Jul-21	14-Jul-21	14-Jul-21	14-Jul-21
Helium Analyzer	**Units**	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002
Initial Recorded He Shroud Concentration	%	29.1	27.9	29.2	27.8	28.8	27.9	28.4	30.4	28.9	28.6
Final Recorded He Shroud Concentration	%	17.6	17.9	18.4	17.2	16.9	19.4	19.3	20.5	17.8	19.7
Final Sampling Train He Concentration	%	0.0	0.04	0.01	0.03	0.05	0.01	0.0	0.02	0.01	0.04
Percentage of He Concentration Decrease (Initial Shroud vs.Final Sampling Train)	%	100.0	99.9	100.0	99.9	99.8	100.0	100.0	99.9	100.0	99.9
Integrity Test Result	PASS/FAIL	**PASS**	**PASS**	**PASS**	**PASS**	**PASS**	**PASS**	**PASS**	**PASS**	**PASS**	**PASS**

Notes:

He 99.99% commercial grade helium tracer

Testing conducted by Clifton Engineering Group Inc.

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 1 B - Summary of Integrity Testing by Helium Tracer

SVMP ID		SV25	SV26 A	SV26 B	SV26 C	SV30	SV31	SV32	SV36	SV37	SV38
Installation Date		30-May-16	26-May-16	26-May-16	26-May-16	01-Jun-16	24-May-16	01-Jun-16	03-Jun-16	01-Jun-16	03-Jun-16
Testing Date Date		14-Jul-21	17-Jul-21	17-Jul-21	17-Jul-21	15-Jul-21	16-Jul-21	07-Jul-21	08-Jul-21	07-Jul-21	07-Jul-21
Helium Analyzer	**Units**	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002
Initial Recorded He Shroud Concentration	%	29.2	29.5	30.1	28.8	29.5	27.4	29.7	27.5	25.9	29.8
Final Recorded He Shroud Concentration	%	17.9	20.1	18.9	17.3	16.9	17.8	16.7	16.6	17.1	18.0
Final Sampling Train He Concentration	%	0.02	0.02	0.04	0.09	0.02	0.0	0.04	0.11	0.03	0.02
Percentage of He Concentration Decrease (Initial Shroud vs.Final Sampling Train)	%	99.9	99.9	99.9	99.7	99.9	99.7	99.7	99.6	99.7	99.5
Integrity Test Result	PASS/FAIL	**PASS**	**PASS**	**PASS**	**PASS**	**PASS**	**PASS**	**PASS**	**PASS**	**PASS**	**PASS**

Notes:

He 99.99% commercial grade helium tracer

Testing conducted by Clifton Engineering Group Inc.

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Table 1 C - Summary of Integrity Testing by Helium Tracer

SVMP ID		SV39	SV40	SV41	SV321B	SV322	SV323	401	402	403	404
Installation Date		02-Jun-16	02-Jun-16	01-Jun-16	13-May-19	13-May-19	12-Nov-19	22-Dec-20	22-Dec-20	22-Dec-20	22-Dec-20
Testing Date Date		15-Jul-21	15-Jul-21	16-Jul-21	08-Jul-21	08-Jul-21	08-Jul-21	07-Jul-21	07-Jul-21	07-Jul-21	07-Jul-21
Helium Analyzer	**Units**	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002	MGD 2002
Initial Recorded He Shroud Concentration	%	27.4	29.4	28.2	29.3	28.0	27.8	27.2	28.2	30.2	28.4
Final Recorded He Shroud Concentration	%	15.1	16.3	15.1	18.4	17.3	16.9	15.6	14.9	17.0	16.8
Final Sampling Train He Concentration	%	0.01	0.05	0.02	0.06	0.05	0.02	0.01	0.01	0.05	0.04
Percentage of He Concentration Decrease (Initial Shroud vs.Final Sampling Train)	%	99.9	99.8	99.8	99.8	99.7	99.8	100.0	100.0	99.8	99.9
Integrity Test Result	PASS/FAIL	**PASS**	**PASS**	**PASS**	**PASS**	**PASS**	**PASS**	**PASS**	**PASS**	**PASS**	**PASS**

Notes:

He 99.99% commercial grade helium tracer

Testing conducted by Clifton Engineering Group Inc.

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

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

Sample ID	RDL	32	932	RPD (%)	9	99	RPD (%)
Sample Date		07-Jul-21			12-Jul-21		
Parameter							
Benzene	0.64	<0.64	<0.64	N/A	<0.64	<0.64	N/A
Toluene	0.75	<0.75	<0.75	N/A	3.3	5.2	**32.3**
Ethylbenzene	0.87	<0.87	<0.87	N/A	<0.87	2.08	N/A
Total Xylenes	2.2	<2.2	<2.2	N/A	<2.2	4.5	N/A
Aliphatic >C6-C8	15	<15	<15	N/A	<15	<15	N/A
Aliphatic >C8-C10	15	<15	<15	N/A	<15	15	N/A
Aromatic >C8-C10	15	<15	<15	N/A	<15	<15	N/A
Aliphatic >C10-C12	15	<15	<15	N/A	16	17	4.1
Aliphatic >C12-C16	15	<15	<15	N/A	<15	<15	N/A
Aromatic >C10-C12	15	<15	<15	N/A	<15	<15	N/A
Aromatic >C12-C16	15	<15	<15	N/A	<15	<15	N/A
1,2-Dichloroethane (1,2-DCA)	0.41	<0.41	<0.41	N/A	<0.41	<0.41	N/A
Naphtalene	5.2	<5.2	<5.2	N/A	<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 Laboratories

Clifton

Job No.	CG3418E16
Client	Suncor EPP
Project	Soil Vapour Sampling Report, Summer 2021
Location	Hounsfield Heights, Calgary 9445, Alberta

Appendix E

Certificates of Analysis

Clifton

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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: CG3418E16 Suncor 9445 Site

AGAT WORK ORDER: 21T768071

AIR QUALITY MONITORING REVIEWED BY: Kelly Hogue, B.Sc, P.Chem, Operations Manager

DATE REPORTED: Jul 27, 2021

PAGES (INCLUDING COVER): 31

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 after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
- *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: 21T768071

PROJECT: CG3418E16 Suncor 9445 Site

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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
Propylene	µg/m3	32	6.06	0.95
Dichlorodifluoromethane	µg/m3	32	146.00	9.20
1,2-Dichlorotetrafluoroethane	µg/m3	32	<1.4	<1.4
Ethanol	µg/m3	32	51.80	8.11
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/m3	32	<1.5	<1.5
Chloromethane	µg/m3	32	1.92	<0.62
C6-C8 Aliphatic	µg/m3	32	259	29
Vinyl Chloride	µg/m3	32	<0.51	<0.51
1,3-Butadiene	µg/m3	32	<1.1	<1.1
>C8-C10 Aliphatic	µg/m3	32	144	21
>C10-C12 Aliphatic	µg/m3	32	4340	152
Bromomethane	µg/m3	32	<1.9	<1.9
>C12-C16 Aliphatic	µg/m3	32	1800	66
Chloroethane	µg/m3	32	<1.1	<1.1
C6-C8 Aromatic	µg/m3	32	85	<15
Vinyl Bromide	µg/m3	32	<0.88	<0.88
>C8-C10 Aromatic	µg/m3	32	<15	<15
Trichlorofluoromethane	µg/m3	32	69.8	7.7
>C10-C12 Aromatic	µg/m3	32	<15	<15
Acetone	µg/m3	32	41.4	13.4
>C12-C16 Aromatic	µg/m3	32	<15	<15
Isopropanol	µg/m3	32	47.4	9.6
1,1-Dichloroethene	µg/m3	32	2.6	<1.2
C6-C10 (F1)	µg/m3	32	347	55
C6-C10 (F1 minus BTEX)	µg/m3	32	339	51
Dichloromethane (Methylene Chloride)	µg/m3	32	21.7	4.1
>C10-C16 (F2)	µg/m3	32	6140	218
Carbon Disulfide	µg/m3	32	287.0	19.9
4-Bromofluorobenzene	%	32	100	85
trans-1,2-Dichloroethene	µg/m3	32	49.60	1.55
Methyl tert-Butyl ether (MTBE)	µg/m3	32	<0.72	<0.72

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SAMPLING SITE:

SAMPLED BY:

Parameter	Unit	Number of Samples	Peak Reading	Network Average
1,1-Dichloroethane	µg/m3	32	<1.2	<1.2
Vinyl Acetate	µg/m3	32	2.4	<1.8
n-Hexane	µg/m3	32	6.0	<1.1
Methyl Ethyl Ketone	µg/m3	32	14.5	<1.5
cis-1,2-Dichloroethene	µg/m3	32	<0.80	<0.80
Chloroform	µg/m3	32	104.0	14.8
Ethyl Acetate	µg/m3	32	38.1	3.0
Tetrahydrofuran	µg/m3	32	4.7	<1.2
1,2-Dichloroethane	µg/m3	32	0.45	<0.41
1,1,1-Trichloroethane	µg/m3	32	<1.6	<1.6
2,2,4-Trimethylpentane (Iso octane)	µg/m3	32	<2.3	<2.3
Cyclohexane	µg/m3	32	3.10	<0.69
Carbon Tetrachloride	µg/m3	32	<1.9	<1.9
Benzene	µg/m3	32	2.43	<0.64
1,2-Dichloropropane	µg/m3	32	<1.8	<1.8
n-Heptane	µg/m3	32	3.8	<1.2
Trichloroethene	µg/m3	32	137.0	4.9
Bromodichloromethane	µg/m3	32	8.7	<1.3
1,4-Dioxane	µg/m3	32	<2.2	<2.2
Methyl Methacrylate	µg/m3	32	<2.0	<2.0
cis-1,3-Dichloropropene	µg/m3	32	<0.91	<0.91
trans-1,3-Dichloropropene	µg/m3	32	<0.91	<0.91
Methyl Isobutyl Ketone (MIBK)	µg/m3	32	4.3	<2.0
1,1,2-Trichloroethane	µg/m3	32	<1.1	<1.1
Toluene	µg/m3	32	15.60	2.39
2-Hexanone	µg/m3	32	2.4	<2.0
Dibromochloromethane	µg/m3	32	<1.7	<1.7
1,2-Dibromoethane	µg/m3	32	<1.5	<1.5
Tetrachloroethene	µg/m3	32	7.2	1.0
Chlorobenzene	µg/m3	32	<0.92	<0.92
Ethylbenzene	µg/m3	32	6.34	0.87

Air Quality Summary

AGAT WORK ORDER: 21T768071

PROJECT: CG3418E16 Suncor 9445 Site

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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
m&p-Xylene	µg/m3	32	6.3	<1.3
Bromoform	µg/m3	32	<2.1	<2.1
Styrene	µg/m3	32	1.66	<0.85
1,1,2,2-Tetrachloroethane	µg/m3	32	<1.4	<1.4
o-Xylene	µg/m3	32	3.17	<0.87
1-Ethyl-4-Methylbenzene	µg/m3	32	3.4	<2.5
1,3,5-Trimethylbenzene	µg/m3	32	<2.5	<2.5
1,2,4-Trimethylbenzene	µg/m3	32	<2.5	<2.5
1,3-Dichlorobenzene	µg/m3	32	3.2	<2.5
Benzyl Chloride	µg/m3	32	4.8	<2.6
1,4-Dichlorobenzene	µg/m3	32	3.4	<2.4
1,2-Dichlorobenzene	µg/m3	32	<2.4	<2.4
1,2,4-Trichlorobenzene	µg/m3	32	<3.7	<3.7
Naphthalene	µg/m3	32	<5.2	<5.2
Hexachlorobutadiene	µg/m3	32	<5.3	<5.3
Total Xylenes	µg/m3	32	9.3	<2.2
4-Bromofluorobenzene	%	32	100	88

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AGAT WORK ORDER: 21T768071

PROJECT: CG3418E16 Suncor 9445 Site

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Paul Gordon

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-07-09 **DATE REPORTED: 2021-07-27**

		SAMPLE DESCRIPTION:		402	32	932	404	403	36	322	323
		SAMPLE TYPE:		Air	Air	Air	Air	Air	Air	Air	Air
		DATE SAMPLED:		2021-07-07	2021-07-07	2021-07-07	2021-07-07	2021-07-07	2021-07-08	2021-07-08	2021-07-08
Parameter	**Unit**	**G / S**	**RDL**	**2719996**	**2719998**	**2719999**	**2720000**	**2720001**	**2720002**	**2720003**	**2720004**
C6-C8 Aliphatic	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
>C8-C10 Aliphatic	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
>C10-C12 Aliphatic	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
>C12-C16 Aliphatic	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
C6-C8 Aromatic	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
>C8-C10 Aromatic	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
>C10-C12 Aromatic	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
>C12-C16 Aromatic	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
C6-C10 (F1)	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
C6-C10 (F1 minus BTEX)	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
>C10-C16 (F2)	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
Surrogate	**Unit**	**Acceptable Limits**									
4-Bromofluorobenzene	%	70-130		72	70	70	70	70	71	70	70

Certified By: Kelly Hogue

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AGAT WORK ORDER: 21T768071

PROJECT: CG3418E16 Suncor 9445 Site

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Paul Gordon

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-07-09 **DATE REPORTED: 2021-07-27**

		SAMPLE DESCRIPTION:		401	321B	8	7	9	99	10	26C
		SAMPLE TYPE:		Air	Air	Air	Air	Air	Air	Air	Air
		DATE SAMPLED:		2021-07-08	2021-07-08	2021-07-12	2021-07-12	2021-07-12	2021-07-12	2021-07-12	2021-07-12
Parameter	**Unit**	**G / S**	**RDL**	**2720005**	**2720006**	**2744493**	**2744494**	**2744495**	**2744496**	**2744497**	**2744498**
C6-C8 Aliphatic	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	18
>C8-C10 Aliphatic	µg/m3		15	<15	<15	20	<15	<15	15	<15	<15
>C10-C12 Aliphatic	µg/m3		15	<15	<15	18	<15	16	17	19	18
>C12-C16 Aliphatic	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
C6-C8 Aromatic	µg/m3		15	<15	<15	<15	34	<15	<15	<15	<15
>C8-C10 Aromatic	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
>C10-C12 Aromatic	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
>C12-C16 Aromatic	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
C6-C10 (F1)	µg/m3		15	<15	<15	20	34	<15	15	<15	18
C6-C10 (F1 minus BTEX)	µg/m3		15	<15	<15	15	23	<15	<15	<15	17
>C10-C16 (F2)	µg/m3		15	<15	<15	18	<15	16	17	19	18
Surrogate	**Unit**	**Acceptable Limits**									
4-Bromofluorobenzene	%	70-130		73	**68**	95	95	91	94	87	96

Certified By: Kelly Hogue

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PROJECT: CG3418E16 Suncor 9445 Site

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Paul Gordon

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-07-09 **DATE REPORTED: 2021-07-27**

		SAMPLE DESCRIPTION:		26B	26A	25	24	23	22	21	20
		SAMPLE TYPE:		Air	Air	Air	Air	Air	Air	Air	Air
		DATE SAMPLED:		2021-07-12	2021-07-12	2021-07-14	2021-07-14	2021-07-14	2021-07-14	2021-07-14	2021-07-14
Parameter	**Unit**	**G / S**	**RDL**	**2744499**	**2744500**	**2744501**	**2744502**	**2744503**	**2744504**	**2744505**	**2744506**
C6-C8 Aliphatic	µg/m3		15	25	61	85	<15	118	<15	67	<15
>C8-C10 Aliphatic	µg/m3		15	122	48	55	<15	144	<15	19	<15
>C10-C12 Aliphatic	µg/m3		15	4340	65	16	15	53	<15	15	<15
>C12-C16 Aliphatic	µg/m3		15	1800	31	<15	<15	32	<15	<15	<15
C6-C8 Aromatic	µg/m3		15	<15	<15	<15	<15	85	<15	<15	<15
>C8-C10 Aromatic	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
>C10-C12 Aromatic	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
>C12-C16 Aromatic	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
C6-C10 (F1)	µg/m3		15	147	109	140	<15	347	<15	86	<15
C6-C10 (F1 minus BTEX)	µg/m3		15	146	107	136	<15	339	<15	84	<15
>C10-C16 (F2)	µg/m3		15	6140	96	16	15	85	<15	15	<15
Surrogate	**Unit**	**Acceptable Limits**									
4-Bromofluorobenzene	%	70-130		100	93	94	88	93	91	94	79

Certified By: Kelly Hogue

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AGAT WORK ORDER: 21T768071

PROJECT: CG3418E16 Suncor 9445 Site

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Paul Gordon

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-07-09 **DATE REPORTED: 2021-07-27**

		SAMPLE DESCRIPTION:		31	11	40	39	37	30	41	38
		SAMPLE TYPE:		Air	Air	Air	Air	Air	Air	Air	Air
		DATE SAMPLED:		2021-07-15	2021-07-15	2021-07-15	2021-07-15	2021-07-15	2021-07-16	2021-07-16	2021-07-16
Parameter	**Unit**	**G / S**	**RDL**	**2750021**	**2750022**	**2750023**	**2750024**	**2750025**	**2750026**	**2750027**	**2750028**
C6-C8 Aliphatic	µg/m3		15	18	<15	83	55	74	69	<15	259
>C8-C10 Aliphatic	µg/m3		15	<15	<15	130	<15	<15	103	<15	19
>C10-C12 Aliphatic	µg/m3		15	27	21	95	23	<15	64	23	23
>C12-C16 Aliphatic	µg/m3		15	22	<15	55	<15	<15	156	<15	<15
C6-C8 Aromatic	µg/m3		15	<15	<15	24	<15	<15	21	<15	<15
>C8-C10 Aromatic	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
>C10-C12 Aromatic	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
>C12-C16 Aromatic	µg/m3		15	<15	<15	<15	<15	<15	<15	<15	<15
C6-C10 (F1)	µg/m3		15	18	<15	237	55	74	193	<15	278
C6-C10 (F1 minus BTEX)	µg/m3		15	<15	<15	209	44	64	175	<15	274
>C10-C16 (F2)	µg/m3		15	49	21	150	23	<15	220	23	23
Surrogate	**Unit**	**Acceptable Limits**									
4-Bromofluorobenzene	%	70-130		93	93	90	92	93	86	86	90

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

2719996-2750028 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: Kelly Hogue

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Certificate of Analysis

AGAT WORK ORDER: 21T768071

PROJECT: CG3418E16 Suncor 9445 Site

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: 2021-07-09 **DATE REPORTED: 2021-07-27**

		SAMPLE DESCRIPTION:		402	32	932	404	403	36	322	323
		SAMPLE TYPE:		Air	Air	Air	Air	Air	Air	Air	Air
		DATE SAMPLED:		2021-07-07	2021-07-07	2021-07-07	2021-07-07	2021-07-07	2021-07-08	2021-07-08	2021-07-08
Parameter	Unit	G / S	RDL	2719996	2719998	2719999	2720000	2720001	2720002	2720003	2720004
pressure upon receipt	inHg			-9.0	-8.0	-8.0	-7.0	-6.0	-6.0	-7.0	-9.0
Propylene	µg/m3		0.52	1.67	<0.52	<0.52	1.98	1.00	0.64	1.96	2.98
Dichlorodifluoromethane	µg/m3		0.99	3.61	2.97	3.46	3.16	3.31	3.51	3.07	3.02
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	5.31	<0.94	<0.94	3.83	4.18	2.17	3.22	1.19
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	1.42	<0.62	<0.62	0.87	1.30	<0.62	0.95	<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	2.9	<2.2	<2.2	<2.2	<2.2	69.8	<2.2	<2.2
Acetone	µg/m3		1.2	15.7	10.1	10.3	16.3	14.8	5.1	13.1	6.6
Isopropanol	µg/m3		1.2	42.6	29.9	29.6	47.4	18.7	4.3	7.3	<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	2.3	1.2	1.6	4.0	13.9	<1.0	10.7	<1.0
Carbon Disulfide	µg/m3		1.5	2.3	<1.5	<1.5	<1.5	<1.5	6.5	1.9	<1.5
trans-1,2-Dichloroethene	µg/m3		0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	49.6
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	1.5	6.0	<1.1	3.7	<1.1
Methyl Ethyl Ketone	µg/m3		1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	2.2	<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	3.7	1.3	1.2	12.8	13.2	66.5	1.4	42.0
Ethyl Acetate	µg/m3		1.8	<1.8	1.9	2.3	3.0	10.9	<1.8	5.7	<1.8
Tetrahydrofuran	µg/m3		1.2	1.4	1.5	<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

Certified By: Kelly Hogue

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Certificate of Analysis

AGAT WORK ORDER: 21T768071

PROJECT: CG3418E16 Suncor 9445 Site

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: 2021-07-09 **DATE REPORTED: 2021-07-27**

		SAMPLE DESCRIPTION:		402	32	932	404	403	36	322	323
		SAMPLE TYPE:		Air	Air	Air	Air	Air	Air	Air	Air
		DATE SAMPLED:		2021-07-07	2021-07-07	2021-07-07	2021-07-07	2021-07-07	2021-07-08	2021-07-08	2021-07-08
Parameter	Unit	G / S	RDL	2719996	2719998	2719999	2720000	2720001	2720002	2720003	2720004
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	<2.3	<2.3	<2.3	<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	<0.64	<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	4.6	2.4	1.8	<1.1	<1.1	<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	<0.75	<0.75	<0.75	2.07	<0.75	1.55	<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	1.8	3.1	<1.0	2.6	<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	<0.87	<0.87	<0.87	<0.87
m&p-Xylene	µg/m3		1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<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	<0.87	<0.87	<0.87	<0.87
1-Ethyl-4-Methylbenzene	µg/m3		2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
1,3,5-Trimethylbenzene	µg/m3		2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
1,2,4-Trimethylbenzene	µg/m3		2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5

Certified By: Kelly Hogue

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Certificate of Analysis

AGAT WORK ORDER: 21T768071

PROJECT: CG3418E16 Suncor 9445 Site

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: 2021-07-09 **DATE REPORTED: 2021-07-27**

			SAMPLE DESCRIPTION:	402	32	932	404	403	36	322	323
			SAMPLE TYPE:	Air	Air	Air	Air	Air	Air	Air	Air
			DATE SAMPLED:	2021-07-07	2021-07-07	2021-07-07	2021-07-07	2021-07-07	2021-07-08	2021-07-08	2021-07-08
Parameter	**Unit**	**G / S**	**RDL**	**2719996**	**2719998**	**2719999**	**2720000**	**2720001**	**2720002**	**2720003**	**2720004**
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	<3.7	<3.7	<3.7	<3.7
Naphthalene	µg/m3		5.2	<5.2	<5.2	<5.2	<5.2	<5.2	<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	<2.2	<2.2	<2.2	<2.2
Surrogate	**Unit**	**Acceptable Limits**									
4-Bromofluorobenzene	%	70-130		84	81	81	79	78	84	79	78

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PROJECT: CG3418E16 Suncor 9445 Site

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SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-07-09 **DATE REPORTED: 2021-07-27**

		SAMPLE DESCRIPTION:		401	321B	8	7	9	99	10	26C
		SAMPLE TYPE:		Air	Air	Air	Air	Air	Air	Air	Air
		DATE SAMPLED:		2021-07-08	2021-07-08	2021-07-12	2021-07-12	2021-07-12	2021-07-12	2021-07-12	2021-07-12
Parameter	Unit	G / S	RDL	2720005	2720006	2744493	2744494	2744495	2744496	2744497	2744498
pressure upon receipt	inHg			-5.0	-6.0	-6.0	-9.0	-5.0	-5.0	-9.0	-5.0
Propylene	µg/m3		0.52	2.60	0.88	1.67	1.03	1.12	0.98	0.74	0.95
Dichlorodifluoromethane	µg/m3		0.99	3.12	3.07	2.82	2.18	6.63	15.8	2.23	2.62
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	7.84	5.58	41.8	14.4	19.2	8.61	14.0	4.07
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	1.92	1.05	1.42	1.53	<0.62	<0.62	1.47	<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	2.6	<2.2	<2.2	<2.2	<2.2	2.7	<2.2	30.0
Acetone	µg/m3		1.2	19.9	13.3	9.4	19.9	16.3	12.8	13.3	11.8
Isopropanol	µg/m3		1.2	4.8	8.8	2.8	3.1	2.8	2.3	1.4	1.6
1,1-Dichloroethene	µg/m3		1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	2.6
Dichloromethane (Methylene Chloride)	µg/m3		1.0	1.0	3.4	1.8	1.3	1.3	<1.0	<1.0	1.0
Carbon Disulfide	µg/m3		1.5	1.8	<1.5	<1.5	23.6	<1.5	6.7	<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	2.4	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
n-Hexane	µg/m3		1.1	<1.1	1.8	1.5	1.6	<1.1	<1.1	<1.1	<1.1
Methyl Ethyl Ketone	µg/m3		1.5	1.7	<1.5	1.6	5.3	1.7	2.6	<1.5	<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	<1.0	<1.0	<1.0	<1.0	3.1
Ethyl Acetate	µg/m3		1.8	<1.8	5.2	4.9	3.5	3.0	2.7	<1.8	2.1
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	0.45	<0.41	<0.41	<0.41

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PROJECT: CG3418E16 Suncor 9445 Site

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: 2021-07-09 **DATE REPORTED: 2021-07-27**

		SAMPLE DESCRIPTION:		401	321B	8	7	9	99	10	26C
		SAMPLE TYPE:		Air	Air	Air	Air	Air	Air	Air	Air
		DATE SAMPLED:		2021-07-08	2021-07-08	2021-07-12	2021-07-12	2021-07-12	2021-07-12	2021-07-12	2021-07-12
Parameter	Unit	G / S	RDL	2720005	2720006	2744493	2744494	2744495	2744496	2744497	2744498
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	<2.3	<2.3	<2.3	<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	1.6	<1.1	3.4	<1.1	<1.1	1.3	<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	1.06	3.09	2.37	3.32	5.24	0.83	0.94
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	2.8	1.5	<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	2.26	<0.87	2.08	<0.87	<0.87
m&p-Xylene	µg/m3		1.3	<1.3	<1.3	1.9	4.3	1.3	4.5	<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	2.47	<0.87	<0.87	<0.87	<0.87
1-Ethyl-4-Methylbenzene	µg/m3		2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
1,3,5-Trimethylbenzene	µg/m3		2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
1,2,4-Trimethylbenzene	µg/m3		2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5

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AGAT WORK ORDER: 21T768071

PROJECT: CG3418E16 Suncor 9445 Site

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: 2021-07-09 **DATE REPORTED: 2021-07-27**

		SAMPLE DESCRIPTION:		401	321B	8	7	9	99	10	26C
		SAMPLE TYPE:		Air	Air	Air	Air	Air	Air	Air	Air
		DATE SAMPLED:		2021-07-08	2021-07-08	2021-07-12	2021-07-12	2021-07-12	2021-07-12	2021-07-12	2021-07-12
Parameter	**Unit**	**G / S**	**RDL**	**2720005**	**2720006**	**2744493**	**2744494**	**2744495**	**2744496**	**2744497**	**2744498**
1,3-Dichlorobenzene	µg/m3		2.5	<2.5	<2.5	<2.5	<2.5	<2.5	3.2	<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	3.4	<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	<3.7	<3.7	<3.7	<3.7
Naphthalene	µg/m3		5.2	<5.2	<5.2	<5.2	<5.2	<5.2	<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	6.8	<2.2	4.5	<2.2	<2.2
Surrogate	**Unit**	**Acceptable Limits**									
4-Bromofluorobenzene	%	70-130		84	80	95	95	91	94	87	96

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AGAT WORK ORDER: 21T768071

PROJECT: CG3418E16 Suncor 9445 Site

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: 2021-07-09 **DATE REPORTED: 2021-07-27**

		SAMPLE DESCRIPTION:		26B	26A	25	24	23	22	21	20
		SAMPLE TYPE:		Air	Air	Air	Air	Air	Air	Air	Air
		DATE SAMPLED:		2021-07-12	2021-07-12	2021-07-14	2021-07-14	2021-07-14	2021-07-14	2021-07-14	2021-07-14
Parameter	Unit	G / S	RDL	2744499	2744500	2744501	2744502	2744503	2744504	2744505	2744506
pressure upon receipt	inHg			-6.0	-6.0	-8.0	-6.0	-5.0	-5.0	-8.0	-9.0
Propylene	µg/m3		0.52	0.79	<0.52	6.06	0.69	1.15	<0.52	<0.52	1.38
Dichlorodifluoromethane	µg/m3		0.99	2.32	2.27	1.78	3.31	<0.99	<0.99	3.21	2.32
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	4.07	34.9	16.2	2.60	51.8	6.01	1.94	6.75
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	1.49	<0.62	<0.62	<0.62	<0.62	1.73
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	19.2	18.4	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Acetone	µg/m3		1.2	15.5	9.9	35.2	8.4	3.5	20.0	8.3	18.2
Isopropanol	µg/m3		1.2	<1.2	3.1	4.2	<1.2	1.3	2.3	1.2	2.1
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	<1.0	1.8	1.7	<1.0	1.3	1.7	1.4	<1.0
Carbon Disulfide	µg/m3		1.5	2.9	<1.5	52.5	<1.5	287	<1.5	13.4	<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	3.7	<1.1	<1.1	<1.1	2.3	1.7
Methyl Ethyl Ketone	µg/m3		1.5	3.6	1.5	14.5	<1.5	4.1	2.1	2.3	<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	3.2	3.2	<1.0	11.7	1.0	<1.0	5.0	<1.0
Ethyl Acetate	µg/m3		1.8	<1.8	6.6	2.8	<1.8	<1.8	<1.8	<1.8	<1.8
Tetrahydrofuran	µg/m3		1.2	<1.2	<1.2	<1.2	<1.2	4.7	<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: 21T768071

PROJECT: CG3418E16 Suncor 9445 Site

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: 2021-07-09 **DATE REPORTED: 2021-07-27**

		SAMPLE DESCRIPTION:		26B	26A	25	24	23	22	21	20
		SAMPLE TYPE:		Air	Air	Air	Air	Air	Air	Air	Air
		DATE SAMPLED:		2021-07-12	2021-07-12	2021-07-14	2021-07-14	2021-07-14	2021-07-14	2021-07-14	2021-07-14
Parameter	Unit	G / S	RDL	2744499	2744500	2744501	2744502	2744503	2744504	2744505	2744506
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	<2.3	<2.3	<2.3	<2.3
Cyclohexane	µg/m3		0.69	<0.69	<0.69	<0.69	<0.69	<0.69	<0.69	1.27	<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	1.09	<0.64	2.43	<0.64	<0.64	0.86	1.21	0.67
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	3.8	<1.2	<1.2	<1.2
Trichloroethene	µg/m3		1.1	<1.1	3.1	1.3	<1.1	<1.1	<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	4.3	<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	1.92	1.96	0.83	2.41	1.85	1.02	3.69
2-Hexanone	µg/m3		2.0	<2.0	2.0	<2.0	<2.0	2.4	<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	1.3	<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	1.87	<0.87	<0.87	<0.87
m&p-Xylene	µg/m3		1.3	<1.3	<1.3	<1.3	<1.3	4.2	<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	<0.87	<0.87	<0.87	<0.87
1-Ethyl-4-Methylbenzene	µg/m3		2.5	<2.5	<2.5	<2.5	<2.5	3.4	<2.5	<2.5	<2.5
1,3,5-Trimethylbenzene	µg/m3		2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
1,2,4-Trimethylbenzene	µg/m3		2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5

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Certificate of Analysis

AGAT WORK ORDER: 21T768071

PROJECT: CG3418E16 Suncor 9445 Site

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: 2021-07-09 **DATE REPORTED: 2021-07-27**

		SAMPLE DESCRIPTION:		26B	26A	25	24	23	22	21	20
		SAMPLE TYPE:		Air	Air	Air	Air	Air	Air	Air	Air
		DATE SAMPLED:		2021-07-12	2021-07-12	2021-07-14	2021-07-14	2021-07-14	2021-07-14	2021-07-14	2021-07-14
Parameter	**Unit**	**G / S**	**RDL**	**2744499**	**2744500**	**2744501**	**2744502**	**2744503**	**2744504**	**2744505**	**2744506**
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	4.8	<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	<3.7	<3.7	<3.7	<3.7
Naphthalene	µg/m3		5.2	<5.2	<5.2	<5.2	<5.2	<5.2	<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	4.2	<2.2	<2.2	<2.2
Surrogate	**Unit**	**Acceptable Limits**									
4-Bromofluorobenzene	%	70-130		100	93	94	88	93	91	94	79

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AGAT WORK ORDER: 21T768071

PROJECT: CG3418E16 Suncor 9445 Site

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: 2021-07-09 **DATE REPORTED: 2021-07-27**

		SAMPLE DESCRIPTION:		31	11	40	39	37	30	41	38
		SAMPLE TYPE:		Air	Air	Air	Air	Air	Air	Air	Air
		DATE SAMPLED:		2021-07-15	2021-07-15	2021-07-15	2021-07-15	2021-07-15	2021-07-16	2021-07-16	2021-07-16
Parameter	Unit	G / S	RDL	2750021	2750022	2750023	2750024	2750025	2750026	2750027	2750028
pressure upon receipt	inHg			-9.0	-8.0	-9.0	-9.0	-9.0	-9.0	-6.0	-9.0
Propylene	µg/m3		0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52
Dichlorodifluoromethane	µg/m3		0.99	146	15.1	5.14	<0.99	2.13	38.5	7.86	<0.99
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	<0.94	<0.94	<0.94	<0.94	<0.94	<0.94	<0.94	<0.94
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	<0.62	<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	10.4	54.6	4.4	<2.2	<2.2	3.5	28.1	<2.2
Acetone	µg/m3		1.2	10.8	7.7	41.4	2.7	3.9	23.5	9.2	2.2
Isopropanol	µg/m3		1.2	<1.2	4.4	43.6	<1.2	<1.2	29.2	8.0	<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	15.4	6.8	<1.0	14.1	1.6	19.0	21.7
Carbon Disulfide	µg/m3		1.5	35.6	8.1	10.7	<1.5	<1.5	151	30.8	1.6
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	<1.1	<1.1	<1.1	<1.1
Methyl Ethyl Ketone	µg/m3		1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<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	2.0	8.9	11.7	104	76.6	1.1	4.6	94.5
Ethyl Acetate	µg/m3		1.8	<1.8	<1.8	38.1	<1.8	<1.8	4.4	<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

Certified By: Kelly Hogue

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Certificate of Analysis

AGAT WORK ORDER: 21T768071

PROJECT: CG3418E16 Suncor 9445 Site

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: 2021-07-09 **DATE REPORTED: 2021-07-27**

		SAMPLE DESCRIPTION:		31	11	40	39	37	30	41	38
		SAMPLE TYPE:		Air	Air	Air	Air	Air	Air	Air	Air
		DATE SAMPLED:		2021-07-15	2021-07-15	2021-07-15	2021-07-15	2021-07-15	2021-07-16	2021-07-16	2021-07-16
Parameter	Unit	G / S	RDL	2750021	2750022	2750023	2750024	2750025	2750026	2750027	2750028
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	<2.3	<2.3	<2.3	<2.3
Cyclohexane	µg/m3		0.69	<0.69	<0.69	3.10	<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	0.77	<0.64	2.01	<0.64	<0.64	<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	137	<1.1	<1.1	<1.1	<1.1	1.6
Bromodichloromethane	µg/m3		1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	8.7
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	2.3	<2.0	<2.0	2.7	<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	3.66	2.60	15.6	7.20	5.54	5.20	<0.75	2.37
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	7.2	3.7	1.6	<1.0	2.4	3.9	1.2
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	6.34	<0.87	2.48	1.17	1.95	3.47	6.12	<0.87
m&p-Xylene	µg/m3		1.3	2.2	<1.3	4.5	3.0	2.1	6.3	4.8	<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	1.66	<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	3.17	<0.87	<0.87	2.95	1.56	2.00
1-Ethyl-4-Methylbenzene	µg/m3		2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
1,3,5-Trimethylbenzene	µg/m3		2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
1,2,4-Trimethylbenzene	µg/m3		2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5

Certified By: Kelly Hogue

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Certificate of Analysis

AGAT WORK ORDER: 21T768071

PROJECT: CG3418E16 Suncor 9445 Site

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: 2021-07-09 **DATE REPORTED: 2021-07-27**

		SAMPLE DESCRIPTION:		31	11	40	39	37	30	41	38
		SAMPLE TYPE:		Air	Air	Air	Air	Air	Air	Air	Air
		DATE SAMPLED:		2021-07-15	2021-07-15	2021-07-15	2021-07-15	2021-07-15	2021-07-16	2021-07-16	2021-07-16
Parameter	**Unit**	**G / S**	**RDL**	**2750021**	**2750022**	**2750023**	**2750024**	**2750025**	**2750026**	**2750027**	**2750028**
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	<3.7	<3.7	<3.7	<3.7
Naphthalene	µg/m3		5.2	<5.2	<5.2	<5.2	<5.2	<5.2	<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	7.7	3.0	<2.2	9.3	6.4	<2.2
Surrogate	**Unit**	**Acceptable Limits**									
4-Bromofluorobenzene	%	70-130		93	93	90	92	93	86	86	90

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

2719996-2750028 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 *)

Certified By: Kelly Hogue

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Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP | **AGAT WORK ORDER: 21T768071**

PROJECT: CG3418E16 Suncor 9445 Site | **ATTENTION TO: Paul Gordon**

SAMPLING SITE: | **SAMPLED BY:**

Air Quality Monitoring

RPT Date: Jul 27, 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
F1/F2 Fractionation in Air (Canister) (µg/m3)															
C6-C8 Aliphatic	2715963		< 15	< 15	0.0%	< 15	132%	60%	140%	104%	50%	140%			
>C8-C10 Aliphatic	2715963		< 15	< 15	0.0%	< 15	110%	60%	140%	115%	50%	140%			
>C10-C12 Aliphatic	2715963		< 15	< 15	0.0%	< 15	90%	60%	140%	115%	50%	140%			
C6-C8 Aromatic	2715963		< 15	< 15	0.0%	< 15	135%	60%	140%	134%	50%	140%			
>C8-C10 Aromatic	2715963		< 15	< 15	0.0%	< 15	123%	60%	140%	118%	50%	140%			
>C12-C16 Aromatic	2715963		< 15	< 15	0.0%	< 15		60%	140%		50%	140%			
C6-C10 (F1)	2715963		< 15	< 15	0.0%	< 15	125%	60%	140%	118%	50%	140%			
>C10-C16 (F2)	2715963		< 15	< 15	0.0%	< 15	95%	60%	140%	115%	50%	140%			
4-Bromofluorobenzene	2744498	2744498	96	75	23.5%		NA			NA			NA		
VOCs in Air (Canister) - TO15 Full List (µg/m3)															
Propylene	2750025	2750025	<0.52	<0.52	NA	< 0.52	98%	60%	140%	93%	50%	140%	NA		
Dichlorodifluoromethane	2750025	2750025	2.13	<0.99	NA	< 0.99	89%	60%	140%	81%	50%	140%	NA		
1,2-Dichlorotetrafluoroethane	2750025	2750025	<1.4	<1.4	NA	< 1.4	96%	60%	140%	86%	50%	140%	NA		
Ethanol	2750025	2750025	<0.94	<0.94	NA	< 0.94	127%	60%	140%	101%	50%	140%	NA		
1,1,2-Trichloro-1,2,2-trifluoroethane	2750025	2750025	<1.5	<1.5	NA	< 1.5	101%	50%	140%	92%	60%	140%	NA		
Chloromethane	2750025	2750025	<0.62	<0.62	NA	< 0.62	210%	60%	140%	94%	50%	140%	NA		
Vinyl Chloride	2750025	2750025	<0.51	<0.51	NA	< 0.51	109%	60%	140%	95%	50%	140%	NA		
1,3-Butadiene	2750025	2750025	<1.1	<1.1	NA	< 1.1	106%	60%	140%	94%	50%	140%	NA		
Bromomethane	2750025	2750025	<1.9	<1.9	NA	< 1.9	105%	60%	140%	94%	50%	140%	NA		
Chloroethane	2750025	2750025	<1.1	<1.1	NA	< 1.1	107%	60%	140%	92%	50%	140%	NA		
Vinyl Bromide	2750025	2750025	<0.88	<0.88	NA	< 0.88	NA			89%	50%	140%	NA		
Trichlorofluoromethane	2750025	2750025	<2.2	<2.2	NA	< 2.2	80%	60%	140%	71%	50%	140%	NA		
Acetone	2750025	2750025	3.9	5.7	NA	< 1.2	72%	60%	140%	64%	50%	140%	NA		
Isopropanol	2750025	2750025	<1.2	<1.2	NA	< 1.2	96%	60%	140%	73%	50%	140%	NA		
1,1-Dichloroethene	2750025	2750025	<1.2	<1.2	NA	< 1.2	96%	60%	140%	88%	50%	140%	NA		
Dichloromethane (Methylene Chloride)	2750025	2750025	<1.0	5.7	NA	< 1.0	114%	60%	140%	103%	50%	140%	NA		
Carbon Disulfide	2750025	2750025	<1.5	<1.5	NA	< 1.5	102%	60%	140%	114%	50%	140%	NA		
trans-1,2-Dichloroethene	2750025	2750025	<0.80	<0.80	NA	< 0.80	105%	60%	140%	105%	50%	140%	NA		
Methyl tert-Butyl ether (MTBE)	2750025	2750025	<0.72	<0.72	NA	< 0.72	101%	60%	140%	100%	50%	140%	NA		
1,1-Dichloroethane	2750025	2750025	<1.2	<1.2	NA	< 1.2	102%	60%	140%	97%	50%	140%	NA		
Vinyl Acetate	2750025	2750025	<1.8	<1.8	NA	< 1.8	101%	60%	140%	98%	50%	140%	NA		
n-Hexane	2750025	2750025	<1.1	<1.1	NA	< 1.1	107%	60%	140%	110%	50%	140%	NA		
Methyl Ethyl Ketone	2750025	2750025	<1.5	<1.5	NA	< 1.5	126%	60%	140%	122%	50%	140%	NA		
cis-1,2-Dichloroethene	2750025	2750025	<0.80	<0.80	NA	< 0.80	115%	60%	140%	104%	50%	140%	NA		
Chloroform	2750025	2750025	76.6	90.0	16.1%	< 1.0	101%	60%	140%	94%	50%	140%	NA		
Ethyl Acetate	2750025	2750025	<1.8	<1.8	NA	< 1.8	106%	60%	140%	108%	50%	140%	NA		
Tetrahydrofuran	2750025	2750025	<1.2	<1.2	NA	< 1.2	103%	60%	140%	107%	50%	140%	NA		
1,2-Dichloroethane	2750025	2750025	<0.41	<0.41	NA	< 0.41	90%	60%	140%	84%	50%	140%	NA		

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Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP | **AGAT WORK ORDER: 21T768071**

PROJECT: CG3418E16 Suncor 9445 Site | **ATTENTION TO: Paul Gordon**

SAMPLING SITE: | **SAMPLED BY:**

Air Quality Monitoring (Continued)

RPT Date: Jul 27, 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
1,1,1-Trichloroethane	2750025	2750025	<1.6	<1.6	NA	< 1.6	94%	60%	140%	87%	50%	140%	NA		
2,2,4-Trimethylpentane (Iso octane)	2750025	2750025	<2.3	<2.3	NA	< 2.3	NA			103%	50%	140%	NA		
Cyclohexane	2750025	2750025	<0.69	<0.69	NA	< 0.69	104%	60%	140%	108%	50%	140%	NA		
Carbon Tetrachloride	2750025	2750025	<1.9	<1.9	NA	< 1.9	93%	60%	140%	83%	50%	140%	NA		
Benzene	2750025	2750025	<0.64	<0.64	NA	< 0.64	110%	60%	140%	108%	50%	140%	NA		
1,2-Dichloropropane	2750025	2750025	<1.8	<1.8	NA	< 1.8	111%	60%	140%	105%	50%	140%	NA		
n-Heptane	2750025	2750025	<1.2	<1.2	NA	< 1.2	109%	60%	140%	109%	50%	140%	NA		
Trichloroethene	2750025	2750025	<1.1	<1.1	NA	< 1.1	108%	60%	140%	104%	50%	140%	NA		
Bromodichloromethane	2750025	2750025	<1.3	<1.3	NA	< 1.3	94%	60%	140%	92%	50%	140%	NA		
1,4-Dioxane	2750025	2750025	<2.2	<2.2	NA	< 2.2	124%	60%	140%	117%	50%	140%	NA		
Methyl Methacrylate	2750025	2750025	<2.0	<2.0	NA	< 2.0	104%	60%	140%	106%	50%	140%	NA		
cis-1,3-Dichloropropene	2750025	2750025	<0.91	<0.91	NA	< 0.91	104%	60%	140%	100%	50%	140%	NA		
trans-1,3-Dichloropropene	2750025	2750025	<0.91	<0.91	NA	< 0.91	103%	60%	140%	84%	50%	140%	NA		
Methyl Isobutyl Ketone (MIBK)	2750025	2750025	<2.0	<2.0	NA	< 2.0	94%	60%	140%	79%	50%	140%	NA		
1,1,2-Trichloroethane	2750025	2750025	<1.1	<1.1	NA	< 1.1	102%	60%	140%	85%	50%	140%	NA		
Toluene	2750025	2750025	5.54	1.92	NA	1.66	109%	60%	140%	97%	50%	140%	NA		
2-Hexanone	2750025	2750025	<2.0	<2.0	NA	< 2.0	96%	60%	140%	79%	50%	140%	NA		
Dibromochloromethane	2750025	2750025	<1.7	<1.7	NA	< 1.7	92%	60%	140%	82%	50%	140%	NA		
1,2-Dibromoethane	2750025	2750025	<1.5	<1.5	NA	< 1.5	105%	60%	140%	92%	50%	140%	NA		
Tetrachloroethene	2750025	2750025	<1.0	<1.0	NA	< 1.0	108%	60%	140%	92%	50%	140%	NA		
Chlorobenzene	2750025	2750025	<0.92	<0.92	NA	< 0.92	99%	60%	140%	85%	50%	140%	NA		
Ethylbenzene	2750025	2750025	1.95	<0.87	NA	< 0.87	106%	60%	140%	89%	50%	140%	NA		
m&p-Xylene	2750025	2750025	2.1	<1.3	NA	< 1.3	90%	60%	140%	86%	50%	140%	NA		
Bromoform	2750025	2750025	<2.1	<2.1	NA	< 2.1	80%	60%	140%	79%	50%	140%	NA		
Styrene	2750025	2750025	<0.85	<0.85	NA	< 0.85	83%	60%	140%	87%	50%	140%	NA		
1,1,2,2-Tetrachloroethane	2750025	2750025	<1.4	<1.4	NA	< 1.4	76%	60%	140%	78%	50%	140%	NA		
o-Xylene	2750025	2750025	<0.87	<0.87	NA	< 0.87	78%	60%	140%	79%	50%	140%	NA		
1-Ethyl-4-Methylbenzene	2750025	2750025	<2.5	<2.5	NA	< 2.5	69%	60%	140%	78%	50%	140%	NA		
1,3,5-Trimethylbenzene	2750025	2750025	<2.5	<2.5	NA	< 2.5	78%	60%	140%	66%	50%	140%	NA		
1,2,4-Trimethylbenzene	2750025	2750025	<2.5	<2.5	NA	< 2.5	102%	60%	140%	82%	50%	140%	NA		
1,3-Dichlorobenzene	2750025	2750025	<2.5	<2.5	NA	< 2.5	99%	60%	140%	75%	50%	140%	NA		
Benzyl Chloride	2750025	2750025	<2.6	<2.6	NA	< 2.6	115%	60%	140%	83%	50%	140%	NA		
1,4-Dichlorobenzene	2750025	2750025	<2.4	<2.4	NA	< 2.4	101%	60%	140%	77%	50%	140%	NA		
1,2-Dichlorobenzene	2750025	2750025	<2.4	<2.4	NA	< 2.4	101%	60%	140%	79%	50%	140%	NA		
1,2,4-Trichlorobenzene	2750025	2750025	<3.7	<3.7	NA	< 3.7	91%	60%	140%	88%	50%	140%	NA		
Naphthalene	2750025	2750025	<5.2	<5.2	NA	< 5.2	77%	60%	140%	89%	50%	140%	NA		
Hexachlorobutadiene	2750025	2750025	<5.3	<5.3	NA	< 5.3	84%	60%	140%	82%	50%	140%	NA		

Comments: Certified Reference Material: More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

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Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP | **AGAT WORK ORDER: 21T768071**

PROJECT: CG3418E16 Suncor 9445 Site | **ATTENTION TO: Paul Gordon**

SAMPLING SITE: | **SAMPLED BY:**

Air Quality Monitoring (Continued)

RPT Date: Jul 27, 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
VOCs in Air (Canister) - TO15 Full List (µg/m3)															
Propylene	2744498	2744498	0.95	0.93	NA	< 0.52	84%	60%	140%	98%	50%	140%	NA		
Dichlorodifluoromethane	2744498	2744498	2.62	2.37	NA	< 0.99	81%	60%	140%	94%	50%	140%	NA		
1,2-Dichlorotetrafluoroethane	2744498	2744498	<1.4	<1.4	NA	< 1.4	92%	60%	140%	111%	50%	140%	NA		
Ethanol	2744498	2744498	4.07	4.67	NA	< 0.94	121%	60%	140%	125%	50%	140%	NA		
1,1,2-Trichloro-1,2,2-trifluoroethane	2744498	2744498	<1.5	<1.5	NA	< 1.5	92%	50%	140%	108%	60%	140%	NA		
Chloromethane	2744498	2744498	<0.62	<0.62	NA	< 0.62	NA	60%	140%	117%	50%	140%	NA		
Vinyl Chloride	2744498	2744498	<0.51	<0.51	NA	< 0.51	103%	60%	140%	122%	50%	140%	NA		
1,3-Butadiene	2744498	2744498	<1.1	<1.1	NA	< 1.1	100%	60%	140%	126%	50%	140%	NA		
Bromomethane	2744498	2744498	<1.9	<1.9	NA	< 1.9	103%	60%	140%	121%	50%	140%	NA		
Chloroethane	2744498	2744498	<1.1	<1.1	NA	< 1.1	100%	60%	140%	118%	50%	140%	NA		
Vinyl Bromide	2744498	2744498	<0.88	<0.88	NA	< 0.88	NA			118%	50%	140%	NA		
Trichlorofluoromethane	2744498	2744498	30.0	23.0	26.3%	< 2.2	88%	60%	140%	101%	50%	140%	NA		
Acetone	2744498	2744498	11.8	8.8	28.9%	< 1.2	84%	60%	140%	99%	50%	140%	NA		
Isopropanol	2744498	2744498	1.6	1.7	NA	< 1.2	116%	60%	140%	114%	50%	140%	NA		
1,1-Dichloroethene	2744498	2744498	2.6	2.7	NA	< 1.2	86%	60%	140%	102%	50%	140%	NA		
Dichloromethane (Methylene Chloride)	2744498	2744498	1.0	1.6	NA	< 1.0	102%	60%	140%	114%	50%	140%	NA		
Carbon Disulfide	2744498	2744498	1.5	2.3	NA	< 1.5	89%	60%	140%	112%	50%	140%	NA		
trans-1,2-Dichloroethene	2744498	2744498	<0.80	<0.80	NA	< 0.80	95%	60%	140%	117%	50%	140%	NA		
Methyl tert-Butyl ether (MTBE)	2744498	2744498	<0.72	<0.72	NA	< 0.72	90%	60%	140%	115%	50%	140%	NA		
1,1-Dichloroethane	2744498	2744498	<1.2	<1.2	NA	< 1.2	94%	60%	140%	112%	50%	140%	NA		
Vinyl Acetate	2744498	2744498	<1.8	<1.8	NA	< 1.8	94%	60%	140%	115%	50%	140%	NA		
n-Hexane	2744498	2744498	<1.1	<1.1	NA	< 1.1	98%	60%	140%	120%	50%	140%	NA		
Methyl Ethyl Ketone	2744498	2744498	<1.5	1.6	NA	< 1.5	109%	60%	140%	102%	50%	140%	NA		
cis-1,2-Dichloroethene	2744498	2744498	<0.80	<0.80	NA	< 0.80	103%	60%	140%	119%	50%	140%	NA		
Chloroform	2744498	2744498	3.1	2.9	NA	< 1.0	93%	60%	140%	105%	50%	140%	NA		
Ethyl Acetate	2744498	2744498	2.1	2.6	NA	< 1.8	97%	60%	140%	123%	50%	140%	NA		
Tetrahydrofuran	2744498	2744498	<1.2	<1.2	NA	< 1.2	102%	60%	140%	120%	50%	140%	NA		
1,2-Dichloroethane	2744498	2744498	<0.41	<0.41	NA	< 0.41	84%	60%	140%	95%	50%	140%	NA		
1,1,1-Trichloroethane	2744498	2744498	<1.6	<1.6	NA	< 1.6	90%	60%	140%	105%	50%	140%	NA		
2,2,4-Trimethylpentane (Iso octane)	2744498	2744498	<2.3	<2.3	NA	< 2.3	NA			120%	50%	140%	NA		
Cyclohexane	2744498	2744498	<0.69	<0.69	NA	< 0.69	99%	60%	140%	123%	50%	140%	NA		
Carbon Tetrachloride	2744498	2744498	<1.9	<1.9	NA	< 1.9	85%	60%	140%	100%	50%	140%	NA		
Benzene	2744498	2744498	<0.64	<0.64	NA	< 0.64	104%	60%	140%	121%	50%	140%	NA		
1,2-Dichloropropane	2744498	2744498	<1.8	<1.8	NA	< 1.8	100%	60%	140%	116%	50%	140%	NA		
n-Heptane	2744498	2744498	<1.2	<1.2	NA	< 1.2	102%	60%	140%	126%	50%	140%	NA		
Trichloroethene	2744498	2744498	<1.1	<1.1	NA	< 1.1	100%	60%	140%	123%	50%	140%	NA		
Bromodichloromethane	2744498	2744498	<1.3	<1.3	NA	< 1.3	82%	60%	140%	107%	50%	140%	NA		
1,4-Dioxane	2744498	2744498	<2.2	<2.2	NA	< 2.2	114%	60%	140%	133%	50%	140%	NA		

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Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP | **AGAT WORK ORDER: 21T768071**

PROJECT: CG3418E16 Suncor 9445 Site | **ATTENTION TO: Paul Gordon**

SAMPLING SITE: | **SAMPLED BY:**

Air Quality Monitoring (Continued)

RPT Date: Jul 27, 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
Methyl Methacrylate	2744498	2744498	<2.0	<2.0	NA	< 2.0	96%	60%	140%	116%	50%	140%	NA		
cis-1,3-Dichloropropene	2744498	2744498	<0.91	<0.91	NA	< 0.91	99%	60%	140%	112%	50%	140%	NA		
trans-1,3-Dichloropropene	2744498	2744498	<0.91	<0.91	NA	< 0.91	96%	60%	140%	108%	50%	140%	NA		
Methyl Isobutyl Ketone (MIBK)	2744498	2744498	<2.0	<2.0	NA	< 2.0	86%	60%	140%	88%	50%	140%	NA		
1,1,2-Trichloroethane	2744498	2744498	<1.1	<1.1	NA	< 1.1	95%	60%	140%	95%	50%	140%	NA		
Toluene	2744498	2744498	0.94	1.02	NA	< 0.75	108%	60%	140%	109%	50%	140%	NA		
2-Hexanone	2744498	2744498	<2.0	<2.0	NA	< 2.0	86%	60%	140%	86%	50%	140%	NA		
Dibromochloromethane	2744498	2744498	<1.7	<1.7	NA	< 1.7	84%	60%	140%	90%	50%	140%	NA		
1,2-Dibromoethane	2744498	2744498	<1.5	<1.5	NA	< 1.5	97%	60%	140%	94%	50%	140%	NA		
Tetrachloroethene	2744498	2744498	<1.0	<1.0	NA	< 1.0	103%	60%	140%	100%	50%	140%	NA		
Chlorobenzene	2744498	2744498	<0.92	<0.92	NA	< 0.92	99%	60%	140%	99%	50%	140%	NA		
Ethylbenzene	2744498	2744498	<0.87	<0.87	NA	< 0.87	106%	60%	140%	109%	50%	140%	NA		
m&p-Xylene	2744498	2744498	<1.3	<1.3	NA	< 1.3	104%	60%	140%	97%	50%	140%	NA		
Bromoform	2744498	2744498	<2.1	<2.1	NA	< 2.1	84%	60%	140%	89%	50%	140%	NA		
Styrene	2744498	2744498	<0.85	<0.85	NA	< 0.85	100%	60%	140%	100%	50%	140%	NA		
1,1,2,2-Tetrachloroethane	2744498	2744498	<1.4	<1.4	NA	< 1.4	89%	60%	140%	87%	50%	140%	NA		
o-Xylene	2744498	2744498	<0.87	<0.87	NA	< 0.87	89%	60%	140%	92%	50%	140%	NA		
1-Ethyl-4-Methylbenzene	2744498	2744498	<2.5	<2.5	NA	< 2.5	90%	60%	140%	87%	50%	140%	NA		
1,3,5-Trimethylbenzene	2744498	2744498	<2.5	<2.5	NA	< 2.5	86%	60%	140%	83%	50%	140%	NA		
1,2,4-Trimethylbenzene	2744498	2744498	<2.5	<2.5	NA	< 2.5	103%	60%	140%	102%	50%	140%	NA		
1,3-Dichlorobenzene	2744498	2744498	<2.5	<2.5	NA	< 2.5	97%	60%	140%	91%	50%	140%	NA		
Benzyl Chloride	2744498	2744498	<2.6	<2.6	NA	< 2.6	118%	60%	140%	110%	50%	140%	NA		
1,4-Dichlorobenzene	2744498	2744498	<2.4	<2.4	NA	< 2.4	101%	60%	140%	96%	50%	140%	NA		
1,2-Dichlorobenzene	2744498	2744498	<2.4	<2.4	NA	< 2.4	102%	60%	140%	96%	50%	140%	NA		
1,2,4-Trichlorobenzene	2744498	2744498	<3.7	<3.7	NA	< 3.7	109%	60%	140%	93%	50%	140%	NA		
Naphthalene	2744498	2744498	<5.2	<5.2	NA	< 5.2	93%	60%	140%	89%	50%	140%	NA		
Hexachlorobutadiene	2744498	2744498	<5.3	<5.3	NA	< 5.3	98%	60%	140%	87%	50%	140%	NA		
4-Bromofluorobenzene	2744498	2744498	96	75	23.5%	< 0	NA			NA			NA		
VOCs in Air (Canister) - TO15 Full List (µg/m3)															
Propylene	2715963		<0.52	<0.52	NA	< 0.52	119%	60%	140%	120%	50%	140%	NA		
Dichlorodifluoromethane	2715963		3.12	3.31	NA	< 0.99	108%	60%	140%	105%	50%	140%	NA		
1,2-Dichlorotetrafluoroethane	2715963		<1.4	<1.4	NA	< 1.4	111%	60%	140%	107%	50%	140%	NA		
Ethanol	2715963		6.43	6.92	7.3%	< 0.94	106%	60%	140%	114%	50%	140%	NA		
1,1,2-Trichloro-1,2,2-trifluoroethane	2715963		<1.5	<1.5	NA	< 1.5	109%	50%	140%	104%	60%	140%	NA		
Chloromethane	2715963		1.78	1.71	NA	< 0.62	NA	60%	140%	125%	50%	140%	NA		
Vinyl Chloride	2715963		<0.51	<0.51	NA	< 0.51	120%	60%	140%	114%	50%	140%	NA		
1,3-Butadiene	2715963		<1.1	<1.1	NA	< 1.1	115%	60%	140%	110%	50%	140%	NA		
Bromomethane	2715963		<1.9	<1.9	NA	< 1.9	120%	60%	140%	110%	50%	140%	NA		

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Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP | **AGAT WORK ORDER: 21T768071**

PROJECT: CG3418E16 Suncor 9445 Site | **ATTENTION TO: Paul Gordon**

SAMPLING SITE: | **SAMPLED BY:**

Air Quality Monitoring (Continued)

RPT Date: Jul 27, 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
Chloroethane	2715963		<1.1	<1.1	NA	< 1.1	116%	60%	140%	109%	50%	140%	NA		
Vinyl Bromide	2715963		<0.88	<0.88	NA	< 0.88	NA			110%	50%	140%	NA		
Trichlorofluoromethane	2715963		<2.2	<2.2	NA	< 2.2	104%	60%	140%	98%	50%	140%	NA		
Acetone	2715963		10.0	10.1	1.2%	< 1.2	110%	60%	140%	103%	50%	140%	NA		
Isopropanol	2715963		<1.2	<1.2	NA	< 1.2	128%	60%	140%	99%	50%	140%	NA		
1,1-Dichloroethene	2715963		<1.2	<1.2	NA	< 1.2	98%	60%	140%	92%	50%	140%	NA		
Dichloromethane (Methylene Chloride)	2715963		1.1	1.0	NA	< 1.0	120%	60%	140%	115%	50%	140%	NA		
Carbon Disulfide	2715963		<1.5	<1.5	NA	< 1.5	96%	60%	140%	111%	50%	140%	NA		
trans-1,2-Dichloroethene	2715963		<0.80	<0.80	NA	< 0.80	116%	60%	140%	102%	50%	140%	NA		
Methyl tert-Butyl ether (MTBE)	2715963		<0.72	<0.72	NA	< 0.72	91%	60%	140%	88%	50%	140%	NA		
1,1-Dichloroethane	2715963		<1.2	<1.2	NA	< 1.2	109%	60%	140%	102%	50%	140%	NA		
Vinyl Acetate	2715963		<1.8	<1.8	NA	< 1.8	93%	60%	140%	77%	50%	140%	NA		
n-Hexane	2715963		<1.1	<1.1	NA	< 1.1	99%	60%	140%	94%	50%	140%	NA		
Methyl Ethyl Ketone	2715963		3.8	3.6	NA	< 1.5	74%	60%	140%	71%	50%	140%	NA		
cis-1,2-Dichloroethene	2715963		<0.80	<0.80	NA	< 0.80	94%	60%	140%	93%	50%	140%	NA		
Chloroform	2715963		<1.0	<1.0	NA	< 1.0	103%	60%	140%	96%	50%	140%	NA		
Ethyl Acetate	2715963		2.3	2.5	NA	< 1.8	99%	60%	140%	96%	50%	140%	NA		
Tetrahydrofuran	2715963		<1.2	<1.2	NA	< 1.2	111%	60%	140%	88%	50%	140%	NA		
1,2-Dichloroethane	2715963		<0.41	<0.41	NA	< 0.41	95%	60%	140%	88%	50%	140%	NA		
1,1,1-Trichloroethane	2715963		<1.6	<1.6	NA	< 1.6	97%	60%	140%	92%	50%	140%	NA		
2,2,4-Trimethylpentane (Iso octane)	2715963		<2.3	<2.3	NA	< 2.3	NA			96%	50%	140%	NA		
Cyclohexane	2715963		<0.69	<0.69	NA	< 0.69	97%	60%	140%	91%	50%	140%	NA		
Carbon Tetrachloride	2715963		<1.9	<1.9	NA	< 1.9	95%	60%	140%	87%	50%	140%	NA		
Benzene	2715963		<0.64	<0.64	NA	< 0.64	110%	60%	140%	101%	50%	140%	NA		
1,2-Dichloropropane	2715963		<1.8	<1.8	NA	< 1.8	109%	60%	140%	103%	50%	140%	NA		
n-Heptane	2715963		<1.2	<1.2	NA	< 1.2	98%	60%	140%	95%	50%	140%	NA		
Trichloroethene	2715963		<1.1	<1.1	NA	< 1.1	105%	60%	140%	101%	50%	140%	NA		
Bromodichloromethane	2715963		<1.3	<1.3	NA	< 1.3	102%	60%	140%	95%	50%	140%	NA		
1,4-Dioxane	2715963		<2.2	<2.2	NA	< 2.2	101%	60%	140%	95%	50%	140%	NA		
Methyl Methacrylate	2715963		<2.0	<2.0	NA	< 2.0	103%	60%	140%	86%	50%	140%	NA		
cis-1,3-Dichloropropene	2715963		<0.91	<0.91	NA	< 0.91	95%	60%	140%	85%	50%	140%	NA		
trans-1,3-Dichloropropene	2715963		<0.91	<0.91	NA	< 0.91	92%	60%	140%	78%	50%	140%	NA		
Methyl Isobutyl Ketone (MIBK)	2715963		<2.0	<2.0	NA	< 2.0	112%	60%	140%	106%	50%	140%	NA		
1,1,2-Trichloroethane	2715963		<1.1	<1.1	NA	< 1.1	132%	60%	140%	123%	50%	140%	NA		
Toluene	2715963		0.83	0.87	NA	< 0.75	122%	60%	140%	112%	50%	140%	NA		
2-Hexanone	2715963		<2.0	<2.0	NA	< 2.0	107%	60%	140%	101%	50%	140%	NA		
Dibromochloromethane	2715963		<1.7	<1.7	NA	< 1.7	121%	60%	140%	108%	50%	140%	NA		
1,2-Dibromoethane	2715963		<1.5	<1.5	NA	< 1.5	128%	60%	140%	115%	50%	140%	NA		
Tetrachloroethene	2715963		<1.0	<1.0	NA	< 1.0	126%	60%	140%	114%	50%	140%	NA		

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Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP | **AGAT WORK ORDER: 21T768071**

PROJECT: CG3418E16 Suncor 9445 Site | **ATTENTION TO: Paul Gordon**

SAMPLING SITE: | **SAMPLED BY:**

Air Quality Monitoring (Continued)

RPT Date: Jul 27, 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
Chlorobenzene	2715963		<0.92	<0.92	NA	< 0.92	136%	60%	140%	124%	50%	140%	NA		
Ethylbenzene	2715963		<0.87	<0.87	NA	< 0.87	123%	60%	140%	114%	50%	140%	NA		
m&p-Xylene	2715963		<1.3	<1.3	NA	< 1.3	128%	60%	140%	118%	50%	140%	NA		
Bromoform	2715963		<2.1	<2.1	NA	< 2.1	120%	60%	140%	110%	50%	140%	NA		
Styrene	2715963		<0.85	<0.85	NA	< 0.85	125%	60%	140%	111%	50%	140%	NA		
1,1,2,2-Tetrachloroethane	2715963		<1.4	<1.4	NA	< 1.4	138%	60%	140%	128%	50%	140%	NA		
o-Xylene	2715963		<0.87	<0.87	NA	< 0.87	133%	60%	140%	124%	50%	140%	NA		
1-Ethyl-4-Methylbenzene	2715963		<2.5	<2.5	NA	< 2.5	100%	60%	140%	122%	50%	140%	NA		
1,3,5-Trimethylbenzene	2715963		<2.5	<2.5	NA	< 2.5	138%	60%	140%	84%	50%	140%	NA		
1,2,4-Trimethylbenzene	2715963		<2.5	<2.5	NA	< 2.5	115%	60%	140%	63%	50%	140%	NA		
1,3-Dichlorobenzene	2715963		<2.5	<2.5	NA	< 2.5	117%	60%	140%	73%	50%	140%	NA		
Benzyl Chloride	2715963		<2.6	<2.6	NA	< 2.6	126%	60%	140%	128%	50%	140%	NA		
1,4-Dichlorobenzene	2715963		<2.4	<2.4	NA	< 2.4	123%	60%	140%	95%	50%	140%	NA		
1,2-Dichlorobenzene	2715963		<2.4	<2.4	NA	< 2.4	114%	60%	140%	82%	50%	140%	NA		
1,2,4-Trichlorobenzene	2715963		<3.7	<3.7	NA	< 3.7	133%	60%	140%	128%	50%	140%	NA		
Naphthalene	2715963		<5.2	<5.2	NA	< 5.2	126%	60%	140%	122%	50%	140%	NA		
Hexachlorobutadiene	2715963		<5.3	<5.3	NA	< 5.3	128%	60%	140%	118%	50%	140%	NA		
4-Bromofluorobenzene	2715963		88	87	0.8%	< 0	NA			NA			NA		
F1/F2 Fractionation in Air (Canister) (µg/m3)															
4-Bromofluorobenzene	2715963		88	87	0.8%	< 0	NA			NA			NA		

Certified By: Kelly Hogue

AGAT Laboratories

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CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

QA Violation

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP **AGAT WORK ORDER: 21T768071**

PROJECT: CG3418E16 Suncor 9445 Site **ATTENTION TO: Paul Gordon**

RPT Date: Jul 27, 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	2750025	402	210%	60%	140%	94%	50%	140%	NA		

Comments: Certified Reference Material: More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

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Method Summary

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP **AGAT WORK ORDER: 21T768071**

PROJECT: CG3418E16 Suncor 9445 Site **ATTENTION TO: Paul Gordon**

SAMPLING SITE: **SAMPLED BY:**

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Air Quality Monitoring			
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
pressure upon receipt			N/A
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
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

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Method Summary

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP **AGAT WORK ORDER: 21T768071**

PROJECT: CG3418E16 Suncor 9445 Site **ATTENTION TO: Paul Gordon**

SAMPLING SITE: **SAMPLED BY:**

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
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
Benzene	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
Toluene	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
Ethylbenzene	AQM-248-16000	modified from EPA TO15	GC/MS
m&p-Xylene	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
o-Xylene	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
Total Xylenes	AQM-248-16000	modified from EPA TO15	CALCULATION

AGAT Laboratoires

3 Bxs

5835 Coopers Ave
Mississauga, Ontario
L4Z 1Y2

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Laboratory Use Only

AGAT WO#: 21T768071

Notes: 14-JUL-'21 PM 3:21

Air Analysis Chain of Custody Record

P: 905.712.5100 ▪ F: 905.712.5122

Report Information

Company: CLIFTON
Contact: DANIEL BUDAI
Address: 7222 30 AVE NE
CALGARY, AB T2E 7K9
Phone: 4036906840 Fax:
Client Project #: CG3448E161
AGAT Quote #: SUNCOR 9445

Invoice To Same Yes ☐ / No ☐

Company: CLIFTON
Contact: STEPHEN D'ABADIE
Address:

Report Information

1. Name: DANIEL BUDAI
Email: Daniel.Budai@clifton.ca
2. Name: STEPHEN D'ABADIE
Email: Stephen-Dabadie@clifton.ca

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	F1-F2 IN AIR	F1-F2 FRACTIONS	VOCs (FULL LIST INCL. BTEX)	MATRIX GASES						REPORT UNITS mg/m³	REPORT UNIT ppmv	REPORT UNITS ug/m³
8	00178		12/7/21	28.0	3.0	21		X				X	X	X									
7	9434		—"—	29.0	6.0	24		X				X	X	X									
9	00146		—"—	28.0	1.5	23		X				X	X	X									
99	00142		—"—	28.0	1.5	23		X				X	X	X									
10	9184		—"—	28.5	6.0	24		X				X	X	X									
26C	3896		—"—	28.0	2.0	27		X				X	X	X	X								
26B	6816		—"—	28.0	2.0	27		X				X	X	X	X								
26A	10087		—"—	28.0	3.0	27		X				X	X	X	X								
25	6439		14/7/21	28.0	4.5	26		X				X	X	X									
24	9178		—"—	28.0	1.5	28		X				X	X	X									
23	10075		—"—	28.0	0.5	28		X				X	X	X									
22	10088		—"—	28.0	1.5	27		X				X	X	X									
21	6448		—"—	28.0	5.0	22		X				X	X	X									
20	6445		—"—	28.0	5.5	21		X				X	X	X									

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
DANIEL BUDAI	14/7/21 15:20	3:21	July/14/21
		Sima	21/7/16 10:00

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

Page ____ of ____

N°:

AGAT Laboratories

SAMPLE INTEGRITY RECEIPT FORM

RECEIVING BASICS - Shipping

Company/Consultant: Clifton

Courier: DO Prepaid Collect

Waybill#_____

Branch: EDM GP FN FM RD VAN LYD FSJ EST SASK Other: C

If multiple sites were submitted at once: Yes (No)

Custody Seal Intact: Yes No (NA)

TAT: <24hr 24-48hr 48-72hr (Reg) Other_____

Cooler Quantity: 3 BOXS

TIME SENSITIVE ISSUES - Shipping

ALREADY EXCEEDED HOLD TIME? Yes No

Inorganic Tests (Please Circle): Mibi , BOD , Nitrate/Nitrite , Turbidity , Color , Microtox , Ortho PO4 , Tedlar Bag , Residual Chlorine , Chlorophyll* , Chloroamines*

Earliest Expiry:_____

Hydrocarbons: Earliest Expiry _____

SAMPLE INTEGRITY - Shipping

Hazardous Samples: YES (NO) Precaution Taken:_____

Legal Samples: Yes (No)

International Samples: Yes (No)

Tape Sealed: Yes (No)

Coolant Used: Icepack Bagged Ice Free Ice Free Water (None)

Temperature (Bottles/Jars only) N/A if only Soil Bags Received

FROZEN (Please Circle if samples received Frozen)

1 (Bottle/Jar)___+___+___=____°C 2(Bottle/Jar)___+___+___=____°C

3 (Bottle/Jar)___+___+___=____°C 4 (Bottle/Jar)___+___+___=____°C

5 (Bottle/Jar)___+___+___=____°C 6 (Bottle/Jar)___+___+___=____°C

7 (Bottle/Jar)___+___+___=____°C 8 (Bottle/Jar)___+___+___=____°C

9 (Bottle/Jar)___+___+___=____°C 10 (Bottle/Jar)___+___+___=____°C

(If more than 10 coolers are received use another sheet of paper and attach)

LOGISTICS USE ONLY

Workorder No: _____

Samples Damaged: Yes No If YES why?

No Bubble Wrap Frozen Courier

Other: _____

Account Project Manager: _____have they been notified of the above issues: Yes No

Whom spoken to: _____ Date/Time: _____

CPM Initial_____

General Comments: Send to miss

* Subcontracted Analysis (See CPM)

Date issued: March 11, 2020
Document ID: SR-9505.004

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

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP
1155 GLENAYRE DRIVE PO BOX 100
PORT MOODY, BC V3H 3E1
ATTENTION TO: Jeanette Thompson
PROJECT:
AGAT WORK ORDER: 21C779560
OCCUPATIONAL HYGIENE REVIEWED BY: Svetlana Nikolic, Analyst
DATE REPORTED: Aug 04, 2021
PAGES (INCLUDING COVER): 5
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 after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
- *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.*

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Certificate of Analysis

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP | **AGAT WORK ORDER: 21C779560**

PROJECT: | **ATTENTION TO: Jeanette Thompson**

SAMPLING SITE: | **SAMPLED BY:**

Gas C10+ (Including O2) (%)

SAMPLE TYPE: Gas | **SAMPLE ID: SUMA1** | **DATE RECEIVED: Jul 26, 2021**

DATE SAMPLED: Jul 12, 2021 | **DATE REPORTED:**

SAMPLE DESCRIPTION: CLIENT ID: 26C; ENVIRO LAB # 2744498A

PARAMETER	UNIT	RESULT	G / S	RDL	DATE ANALYZED	INITIAL	DATE PREPARED
Helium (He)	%	0.027		0.001	Jul 28, 2021	SN	Jul 28, 2021
Hydrogen (H2)	%	0.002		0.001	Jul 28, 2021	SN	Jul 28, 2021
Oxygen (O2)	%	19.849		0.001	Jul 28, 2021	SN	Jul 28, 2021
Nitrogen (N2)	%	79.321		0.001	Jul 28, 2021	SN	Jul 28, 2021
Carbon Dioxide (CO2)	%	0.801		0.001	Jul 28, 2021	SN	Jul 28, 2021
Hydrogen Sulphide (H2S)	%	<0.0001		0.0001	Jul 28, 2021	SN	Jul 28, 2021
Methane (C1)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Ethane (C2)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Propane (C3)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
I-Butane (IC4)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
N-Butane (NC4)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
I-Pentane (IC5)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
N-Pentane (NC5)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Hexanes (C6)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Heptanes (C7)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Octanes (C8)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Nonanes (C9)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Decanes+ (C10+)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021

COMMENTS:

RDL - Reported Detection Limit; G / S - Guideline / Standard
Analysis Conducted Using GPA 2286-14 (Modified)

Certified By:

AGAT Laboratories

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Certificate of Analysis

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP | **AGAT WORK ORDER: 21C779560**

PROJECT: | **ATTENTION TO: Jeanette Thompson**

SAMPLING SITE: | **SAMPLED BY:**

Gas C10+ (Including O2) (%)

SAMPLE TYPE: Gas | **SAMPLE ID: SUMA2** | **DATE RECEIVED: Jul 26, 2021**

DATE SAMPLED: Jul 12, 2021 | **DATE REPORTED:**

SAMPLE DESCRIPTION: CLIENT ID: 26B; ENVIRO LAB # 2744499A

PARAMETER	UNIT	RESULT	G / S	RDL	DATE ANALYZED	INITIAL	DATE PREPARED
Helium (He)	%	0.007		0.001	Jul 28, 2021	SN	Jul 28, 2021
Hydrogen (H2)	%	0.002		0.001	Jul 28, 2021	SN	Jul 28, 2021
Oxygen (O2)	%	20.288		0.001	Jul 28, 2021	SN	Jul 28, 2021
Nitrogen (N2)	%	78.923		0.001	Jul 28, 2021	SN	Jul 28, 2021
Carbon Dioxide (CO2)	%	0.781		0.001	Jul 28, 2021	SN	Jul 28, 2021
Hydrogen Sulphide (H2S)	%	<0.0001		0.0001	Jul 28, 2021	SN	Jul 28, 2021
Methane (C1)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Ethane (C2)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Propane (C3)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
I-Butane (IC4)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
N-Butane (NC4)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
I-Pentane (IC5)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
N-Pentane (NC5)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Hexanes (C6)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Heptanes (C7)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Octanes (C8)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Nonanes (C9)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Decanes+ (C10+)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021

COMMENTS:

RDL - Reported Detection Limit; G / S - Guideline / Standard
Analysis Conducted Using GPA 2286-14 (Modified)

Certified By:

AGAT Laboratories

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Certificate of Analysis

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP | **AGAT WORK ORDER: 21C779560**

PROJECT: | **ATTENTION TO: Jeanette Thompson**

SAMPLING SITE: | **SAMPLED BY:**

Gas C10+ (Including O2) (%)

SAMPLE TYPE: Gas | **SAMPLE ID: SUMA3** | **DATE RECEIVED: Jul 26, 2021**

DATE SAMPLED: Jul 12, 2021 | **DATE REPORTED:**

SAMPLE DESCRIPTION: CLIENT ID: 26A; ENVIRO LAB # 2744500A

PARAMETER	UNIT	RESULT	G / S	RDL	DATE ANALYZED	INITIAL	DATE PREPARED
Helium (He)	%	0.023		0.001	Jul 28, 2021	SN	Jul 28, 2021
Hydrogen (H2)	%	0.004		0.001	Jul 28, 2021	SN	Jul 28, 2021
Oxygen (O2)	%	19.848		0.001	Jul 28, 2021	SN	Jul 28, 2021
Nitrogen (N2)	%	78.936		0.001	Jul 28, 2021	SN	Jul 28, 2021
Carbon Dioxide (CO2)	%	1.189		0.001	Jul 28, 2021	SN	Jul 28, 2021
Hydrogen Sulphide (H2S)	%	<0.0001		0.0001	Jul 28, 2021	SN	Jul 28, 2021
Methane (C1)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Ethane (C2)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Propane (C3)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
I-Butane (IC4)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
N-Butane (NC4)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
I-Pentane (IC5)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
N-Pentane (NC5)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Hexanes (C6)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Heptanes (C7)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Octanes (C8)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Nonanes (C9)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021
Decanes+ (C10+)	%	<0.001		0.001	Jul 28, 2021	SN	Jul 28, 2021

COMMENTS:

RDL - Reported Detection Limit; G / S - Guideline / Standard
Analysis Conducted Using GPA 2286-14 (Modified)

Certified By:

AGAT Laboratories

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Method Summary

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP **AGAT WORK ORDER: 21C779560**

PROJECT: **ATTENTION TO: Jeanette Thompson**

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