

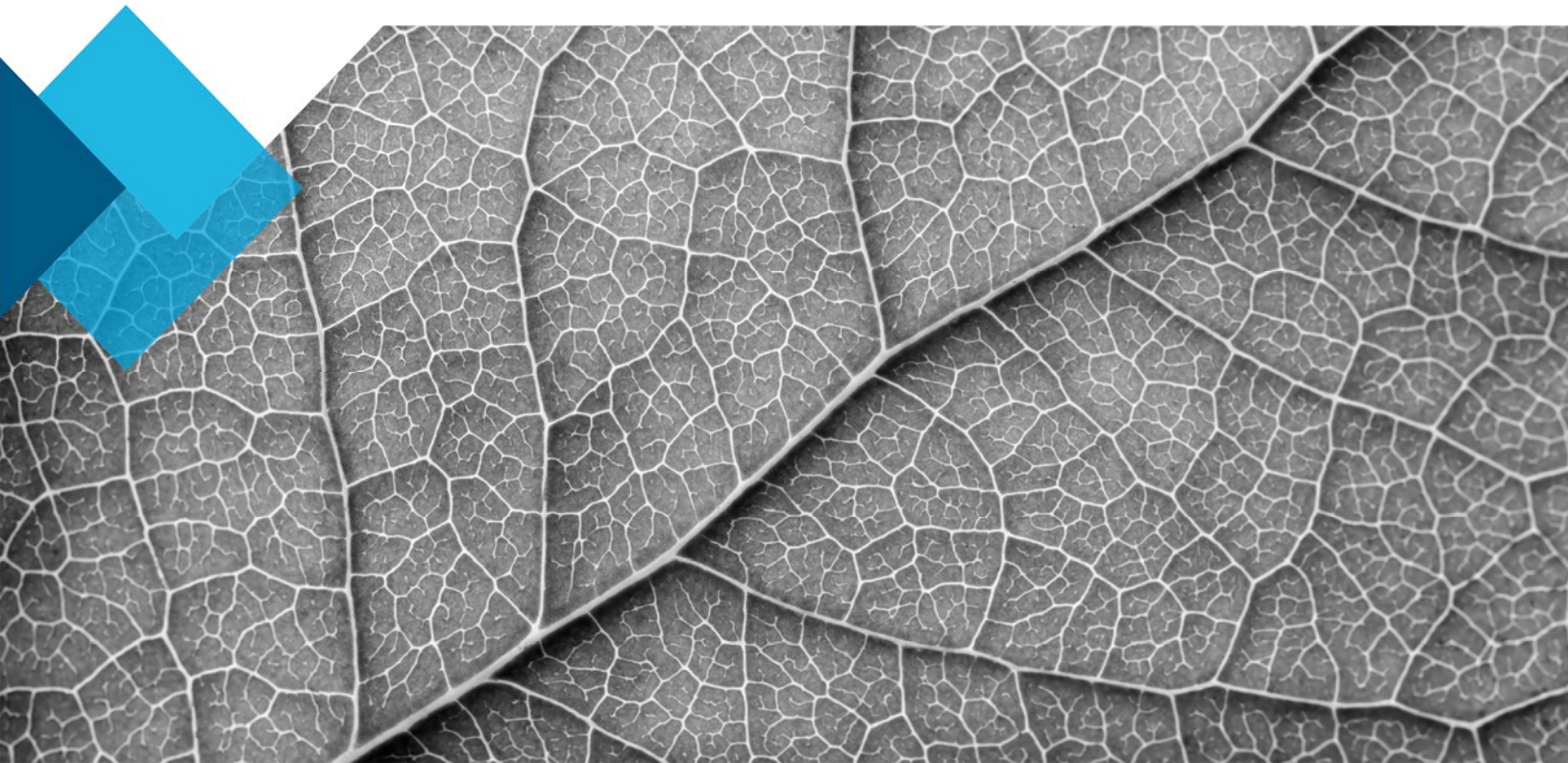


SNC • LAVALIN

Supplemental Environmental Site Assessment

16 Tauvette Street, Ottawa, ON. NCC Property Asset 6976

National Capital Commission



Environment & Geoscience

February 28, 2017

Internal Ref: 640275

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Executive Summary

SNC-Lavalin was retained by the National Capital Commission (NCC) to conduct a Supplemental Environmental Site Assessment (ESA) Program to delineate petroleum hydrocarbon (PHC) impacted soil and groundwater at the NCC property located at 16 Tauvette Street in Ottawa, Ontario (NCC Property Asset 6976). The objective of the supplemental delineation program was to further refine estimated impacted soil volumes by delineating concentrations of benzene, toluene, ethylbenzene and xylenes (BTEX) and petroleum hydrocarbon fractions (F1-F4 PHC) both vertically and laterally within the two (2) identified areas of known impacts (i.e. UST Area #1 and the former product line area). New and historical data were assessed relative to site specific remedial objectives established in a Remedial Options Analysis completed by SNC-Lavalin in 2016 (SNC Lavalin, 2016a), and the Conceptual Site Model was updated, including extents and volumes of PHC impacts.

In order to meet the above objectives, a total of twenty-nine (29) boreholes, including two (2) installed with monitoring wells, were drilled in August 2016 (BH16-1 to BH16-28, and BH16-2A). In addition, three (3) exploratory test pits were excavated in the vicinity of two (2) buried sewer lines in November 2016 to further delineate the extent of impacts in UST Area #1 and assess if these utilities were acting as preferential migration pathways for PHC impacts at the periphery of the identified PHC plume. A total of sixty-seven (67) soil samples from twenty-eight (28) boreholes and three (3) test pits were analysed for BTEX and/or F1 F4 PHC in 2016. Groundwater monitoring was conducted using up to eleven (11) onsite monitoring wells in August and November 2016. Groundwater samples collected from eleven (11) monitoring wells in August 2016 were also analysed for BTEX and/or F1 F4 PHC.

Stratigraphic information obtained from the current and previous intrusive investigations indicates that the overburden at the site generally consists of sand and/or gravel fill to depths ranging from 0.5 to 1.7 m bgs overlying clay/silty clay to at least 9.1 m bgs. Deeper fill depths (2.4 to greater than 3.7 m bgs) were encountered in boreholes completed in former tank nests. Apparently localized deposits of sand and sandy clay were encountered at depth in a borehole completed in 2016 north of the former Header House/Greenhouse 8. Based on current and historical data for the site, the depth to shallow groundwater in the area of investigation ranges from approximately 0.6 to 2.3 m bgs and the water table is generally positioned within clay soils, near the fill/clay interface. The interpreted groundwater flow direction in overburden is generally to the north.

Figure 5 presents the interpreted lateral extent of PHC impacts in soil based on the assumptions stated in Section 4.4. Cross-sections illustrating the interpreted vertical extent of PHC impacts are included as Figure 7 (Cross Section Locations), Figure 8 (former UST Area #1 cross-sections) and Figure 9 (former product line cross-sections). Based on the results of the current and previous intrusive investigations at the site, the following table summarizes the estimated areas and volumes of impacted soil in the area of investigation:

Summary of Estimated Impacted Soil Volumes

Material Description	Area (m ²)	Depth (m)	Volume (m ³)	Estimated Tonnage (metric tonnes) ¹
UST Area #1				
Non-impacted Soil (Shallow)	1255	0 – 1.2	500 - 900	900 – 1,620
Impacted Soil	1255	0 – 6.1	5,900 – 6,900	10,620 – 12,420
Former Product Line Area				
Non-impacted Soil (Shallow)	80	0 – 0.9	20 - 40	40 - 80
Impacted Soil	80	0 – 4.9	300 - 400	540 – 720

¹ Estimated soil tonnage is based on a conversion factor of 1.8 metric tonne/m³ and rounded up to the nearest 10 metric tonnes.

The interpreted lateral extent of PHC impacts in groundwater, based on a comparison of data current to 2016 relative to the site specific remedial objectives, are estimated as shown in Figure 6 and generally coincide with the extent of soil impacts.

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1 Introduction

The Environment & Geoscience business unit of SNC-Lavalin Inc. (SNC-Lavalin) was retained by the National Capital Commission (NCC) to conduct a Supplemental Environmental Site Assessment (ESA) to delineate petroleum hydrocarbon (PHC) impacted soil and groundwater at the NCC property located at 16 Tauvette Street in Ottawa, Ontario (NCC Property Asset 6976). The work was completed in accordance with SNC-Lavalin's proposal dated July 26, 2016 (SNC-Lavalin Reference Proposal 616814.12.112) and subsequent discussions with the NCC. All work was conducted for the NCC in accordance with Standing Offer Agreement No. 594567.

This report documents the methodology and results of the work.

1.1 Site Description and Background

The property consists of a 78.6 ha parcel of land that is currently leased by the NCC to a third party tenant who uses the site for agricultural purposes (active or fallow cultivated fields). Figures 1 and 2 present the site location and the current and historical site layout within the area of investigation. Photos of the area of investigation are provided in Appendix A

SNC-Lavalin recently completed a Remedial Options Analysis (ROA; SNC-Lavalin, 2016a) targeted to an area within the site currently used for sporadic parking (e.g. for deliveries, events, etc.). This area was formerly the location of eight (8) greenhouses and an office building, including two (2) underground storage tanks (UST) and up to five (5) aboveground storage tanks (AST), all of which contained petroleum hydrocarbons (i.e. gasoline, diesel and heating oil). The former locations of the two (2) exterior ASTs (AST 1 and AST 2, in the northwest portion of the area of investigation and north of the former Main Building, respectively) and one (1) of the interior ASTs (AST 3, in the former Main Building) are known; the other former ASTs were located in the greenhouse complex and their exact locations are not known (E3, 1998).

The results of a Phase II Environmental Site Assessment (ESA) and subsequent intrusive investigations completed from 2005 to 2015 (Intera, 2005, 2006, 2008, 2009, and 2010; Geofirma, 2011; Stantec, 2012; DCS, 2013 and 2014; and Arcadis, 2015) identified soil and groundwater impacts associated with a former gasoline UST (referred to as UST Area #1). The 2016 ROA identified site specific remedial objectives based on the most stringent of generic federal guidelines and provincial standards for agricultural land use. Based on a comparison of soil concentrations to these remedial objectives, the total volume of impacted soil in UST Area #1 was initially estimated to be in the range between 3,000 m³ and 7,500 m³. The large range of this volume was due to a high degree of uncertainty caused by limitations in historical soil quality data (e.g. inadequate laboratory detection limits for some analyses, limited number of soil samples analysed for vertical delineation, limited reliability of field screening results given stringent ROA remedial objectives, and the age of the data). As the PHC plume was not fully delineated vertically or laterally to the current remedial objectives, the ROA recommended that a supplemental delineation program be completed to further refine estimated soil volumes prior to detailed remediation planning.

Although the ROA was limited to PHC impacts in UST Area #1, the review of previous investigations at the site also identified potential residual PHC impacts to soil and/or groundwater in the area east of UST Area #1, near a former product line that historically connected a 2,200 L exterior AST (shown in Figure 2 as AST 2) to an interior generator. PHC impacted soil was excavated from this area and disposed offsite in 2014 (DCS, 2014); however, the 2014 excavation was much smaller than the estimated lateral extent

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of PHC impacts (based on soil samples collected in 2013), and no post-remedial groundwater investigations were conducted in the area. Based on these details, this second eastern area of potential PHC impacts was also included in the current supplemental ESA program.

1.2 Objective and Scope of Work

The objective of the supplemental ESA program is to further refine estimated soil volumes by delineating concentrations of benzene, toluene, ethylbenzene and xylenes (BTEX) and petroleum hydrocarbon fractions (F1-F4 PHC) both vertically and laterally within the two (2) identified areas of known impacts (UST Area #1 and the former product line area), relative to the site specific remedial objectives established in the ROA (SNC-Lavalin, 2016a).

In order to meet the objective above, the scope of work consisted of the following tasks:

- › Supplemental Drilling Field Program;
- › Supplemental Test Pitting Field Program;
- › Groundwater Monitoring and Sampling Field Program; and
- › Revised Conceptual Site Model.

Proposed field activities to be completed as part of the supplemental ESA work program included the following:

- › Obtain the necessary permits and approvals to conduct the work;
- › Locate all underground utilities in the vicinity of each proposed intrusive investigation location;
- › Drill twenty-nine (29) boreholes¹;
- › Excavate exploratory test pits in the vicinity of two (2) buried sewer lines;
- › Submit selected soil samples for analyses of BTEX and F1-F4 PHC and one (1) soil sample for each of waste characterization and grain size analyses;
- › Install monitoring wells in two (2) boreholes;
- › Conduct groundwater monitoring and sampling using up to eleven (11) existing and two (2) newly installed monitoring wells;
- › Submit groundwater samples for laboratory analyses of BTEX and F1-F4 PHC;
- › Compare soil and groundwater analytical results to the site specific remedial objectives established in the ROA (SNC-Lavalin, 2016a); and
- › Prepare a revised Conceptual Site Model (CSM) for the area of investigation including a revised estimate of the anticipated volume and distribution of impacted soil and groundwater.

1.3 Report Structure

Section 2 of this report documents the investigation methodology for the work program. Investigation results are provided in Section 3. Section 4 presents a conceptual site model for the area of investigation, including the estimated volume of PHC impacted soil based on soil and groundwater impacts identified during the current and previous investigations. Conclusions are presented in Section 5. References are provided in Section 6.

¹ In consultation with the NCC, the number and placement of boreholes and monitoring wells as presented in the July 2016 proposal were adjusted/optimized based on field observations and the results of initial laboratory analyses.

2 Methodology

The field program for the supplemental ESA program was completed from August to November 2016 and consisted of the following elements:

- › Preliminary Activities;
- › Borehole Drilling and Soil Sampling;
- › Monitoring Well Installation;
- › Test Pit Excavation and Soil Sampling;
- › Groundwater Monitoring and Sampling;
- › Surveying;
- › Waste Management; and
- › Quality Assurance and Quality Control (QA/QC).

The field work was conducted following guidance provided in federal protocols (CCME, 2016), Ontario Regulation (O. Reg. 153/04), as amended, and generally accepted industry practices. Each of the field program elements is described in detail in the following sections.

2.1 Preliminary Activities

Prior to the start of the field program, field activities were coordinated with the NCC who liaised with the current tenant at the site. Underground Service Locators Inc. (USL-1) of Ottawa, Ontario was retained to locate utilities (e.g. water, gas, hydro, sewers, telephone, etc.) and confirmed the locations of public and private services within the area of investigation prior to any ground disturbance. As required, proposed sampling locations were adjusted to avoid any possible damage or disruption of buried utilities.

All tasks completed as part of the site investigation were subject to a health and safety plan and specific site investigation protocols that were developed prior to commencing field work. Procedures outlined in SNC-Lavalin's Corporate Health and Safety Manual were followed during the investigation. Onsite health and safety procedures included a kick-off meeting and daily tailgate health and safety meetings with all field personnel and subcontractors onsite.

2.2 Borehole Drilling and Soil Sampling

In August 2016, twenty-nine (29) boreholes were completed in overburden using Geoprobe direct push drill rigs operated by Strata Soil Sampling under the supervision of SNC-Lavalin personnel. Twenty-five (25) boreholes (BH16-1 to BH16-24 and BH16-2A) were completed using a Geoprobe 420M direct push machine from August 16 to 18, 2016. An additional four (4) boreholes (BH16-25 to BH16-28) were completed using a Geoprobe 7822DT direct push machine on August 23, 2016. Boreholes were drilled to depths ranging from 4.3 to 9.1 metres below ground surface (m bgs) with the exception of BH16-2A which was terminated at a depth of 2.1 m bgs when potential utility trench bedding/backfill material (i.e. sand) was encountered². Boreholes drilled in 2016 were placed to provide supplemental information to assist in

² BH16-2A was located in proximity to a known concrete sewer line. Drilling was terminated as a precautionary measure to ensure no damage to the sewer.

the lateral and vertical delineation of impacts in UST Area #1 and the former product line area. Borehole locations are shown in Figure 3.

Soil samples were collected continuously in the overburden using Geoprobe drill rods equipped with disposable clear plastic sample sleeves (approximately 1.2 m in length). The sample sleeves were subsequently separated into two (2) soil samples for logging and potential analysis (each representing approximately 0.6 m of drilling depth). Samples were identified using the following nomenclature:

BH16-x-y: where: BH16 - Borehole drilled in 2016;

 x - Sequential borehole number (where x=1, 2, 3, etc.); and

 y - Sequential soil sample (where y=1, 2, 3, etc.).

All soil samples were logged in the field for soil type (colour, moisture content, cohesiveness, texture, etc.), visual evidence of impacts (i.e., staining, presence of wastes, etc.) and screened using an RKL Eagle organic vapour meter (OVM) and a ppbRAE 3000 photoionization detector (PID). The OVM and PID were calibrated daily in the field using standard calibration gases. Additional details on the drilling program are provided in the borehole logs included in Appendix B.

The following soil samples from the boreholes were submitted for laboratory analysis:

- › Fifty-four (54) soil samples were analysed for BTEX and F1-F4 PHC;
- › One (1) soil sample was analysed for only BTEX and F1 PHC (due to limited sample recovery);
- › Two (2) field duplicate soil samples, collected for QA/QC purposes, were analysed for BTEX and F1-F4 PHC;
- › One (1) soil sample was analysed for waste characterization parameters; and
- › One (1) soil sample was analysed for grain size distribution by hydrometer.

Soil samples submitted for laboratory analysis of potential contaminants were collected in the field following protocols designed to minimize the loss of volatile constituents and using laboratory supplied sampling containers. Soil samples for analysis of BTEX and F1 PHC were collected directly in 40 mL vials equipped with Teflon lined septum caps containing pre-measured methanol. Soil samples for F2-F4 PHC and waste characterization parameters were collected directly into clear glass jars with Teflon lined lids. The soil sample for grain size analysis was collected in a plastic bag.

Soil samples for analysis of petroleum and waste characterization parameters were placed in coolers with ice and submitted to Maxxam Analytics in Ottawa, Ontario. Grain size analysis was completed by SNC-Lavalin's geotechnical laboratory in Gatineau, Québec.

2.3 Monitoring Well Installation

On August 23, 2016, monitoring wells were installed at the locations of two (2) boreholes (BH16-20 and BH16-27) and were re-designated as MW16-20 and MW16-27. MW16-20 was installed to provide groundwater data in the vicinity of the former product line as there were no existing monitoring wells in the area. MW16-27 was installed at the southern portion of the UST Area #1 plume to replace MW31 which is believed to have been destroyed (last located in 2012). Monitoring well locations are shown in Figure 3.

Monitoring wells were constructed using PVC well screens and risers, and finished at grade with protective flush mounted steel casings, as detailed in the borehole logs included in Appendix B. Each monitoring well was instrumented with an inertial hand pump constructed of a plastic foot valve and low density polyethylene tubing. Monitoring wells were developed on August 24, 2016 by purging each well dry three (3) times. Slow groundwater recovery limited the amount of development that could be done.

2.4 Test Pit Excavation and Soil Sampling

Three (3) exploratory test pits were excavated in the vicinity of two (2) buried storm sewer lines on November 16, 2016. Excavation was conducted to further delineate the lateral and vertical extent of impacts in UST Area #1. At each test pit location, the sewer lines were exposed and the associated sand backfill material was inspected for field evidence of petroleum hydrocarbon impacts. Test pit excavation was directed in the field based on field observations and final test pit locations and approximate dimensions are shown in Figure 3.

Test pits TP16-1 to TP16-3 were excavated to depths ranging from 2.3 to 2.9 m bgs using a rubber-tired backhoe operated by George W. Drummond Ltd of Ottawa, Ontario. All terminated in overburden. Soil samples were collected as grab samples off the backhoe bucket using a hand trowel. The hand trowel was decontaminated between samples to minimize the potential for cross-contamination. Samples were collected for logging and potential analysis from targeted locations within each test pit to characterize PHC impacts in the area of the exposed sewer lines.

Samples were identified consistent with the nomenclature applied during drilling:

TP16-x-y: where: TP16 – Test pit excavated in 2016;

x - Sequential test pit number (where x=1, 2, 3, etc.); and

y - Sequential soil sample (where y=1, 2, 3, etc.).

All soil samples were logged in the field for soil type (colour, moisture content, cohesiveness, texture, etc.), visual evidence of impacts (i.e., staining, presence of wastes, etc.) and screened using an RKL Eagle OVM calibrated daily in the field using standard calibration gases. Additional details on the test pitting program are provided in the test pit logs included in Appendix B.

The following soil samples from the test pits were submitted for laboratory analysis:

- › Nine (9) soil samples were analysed for BTEX and F1-F4 PHC; and
- › One (1) field duplicate soil sample, collected for QA/QC purposes, was analysed for BTEX and F1-F4 PHC.

Soil samples submitted for laboratory analysis were collected in the field and delivered to the laboratory following the protocols described in Section 2.2 for the borehole drilling program.

2.5 Groundwater Monitoring and Sampling

Groundwater monitoring was conducted on August 8, August 29 and November 16, 2016. All accessible monitoring wells were monitored during each event. Nine (9) existing monitoring wells were monitored for

headspace vapour readings, water level depths, and the potential present of product on August 8, 2016. Ten (10) monitoring wells, including two (2) newly installed monitoring wells, were monitored for water level depths on August 29, 2016. Monitoring well MW34 could not be monitored on August 29, 2016 due to an obstruction in the well. All eleven (11) monitoring wells were monitored on November 16, 2016. MW7 and MW31 could not be located during monitoring in 2016 and are believed to have been destroyed.

Headspace organic vapour concentrations were measured using the OVM described in Section 2.2. Water levels were measured from the top of the PVC well casings using an electronic water level meter. The potential presence of free product in each monitoring well was assessed by visual inspection of groundwater during purging and sampling. Prior to use in each well, the water level tape was washed using soapy water and rinsed with distilled water to minimize the potential for cross-contamination.

Groundwater samples were collected from nine (9) monitoring wells (MW1, MW6, MW18, MW19, MW20, MW21, MW24, MW28, and MW34) on August 9, 2016 and from three (3) monitoring wells (MW1, MW16-20 and MW16-27) on August 30, 2016. Prior to the collection of groundwater samples, the wells were purged dry and allowed to recover. Slow groundwater recovery limited the amount of purging that could be done.

The following groundwater samples were submitted for laboratory analysis:

- › Eleven (11) groundwater samples were analysed for BTEX and F1-F4 PHC;
- › Two (2) additional groundwater samples labelled as MW1A and MW6A were collected by alternate sampling protocols and analysed for BTEX and F1-F4 PHC to assess any potential bias introduced by different sampling protocols (see below for details);
- › Two (2) additional groundwater samples were collected as field duplicate groundwater samples for QA/QC purposes and analysed for BTEX and F1-F4 PHC; and
- › Two (2) field blank samples, consisting of laboratory-supplied water bottled under field conditions during each sampling event, were analysed for BTEX and F1-F4 PHC.

Groundwater samples for BTEX and F1 PHC analyses were collected using inertial hand pumps constructed of plastic foot valves and low density polyethylene tubing. Groundwater samples for F2-F4 PHC were collected using a low flow peristaltic pump to reduce sample turbidity. The additional set of groundwater samples for BTEX and F1-F4 PHC analyses were collected from monitoring wells MW1 and MW6 (MW1A and MW6A) using dedicated disposable bailers. All groundwater samples were collected directly into laboratory supplied bottles, placed in coolers with ice, and submitted to Maxxam Analytics of Ottawa, Ontario for analysis.

2.6 Catch Basin Monitoring

Organic vapour concentrations were monitored in three (3) catch basins (CB-6, CB-7 and CB-12) on August 9, 2016 (refer to Figure 2 for catch basin locations). Organic vapour concentrations were monitored using the OVM described in Section 2.2.

2.7 Surveying and Monitoring Well Repairs

Elevations of the ground surface and the top of the PVC riser pipe at each of the monitoring wells were surveyed by SNC-Lavalin personnel on November 2, 2016. Elevations were measured relative to a local

benchmark established on the site (the top of the fire hydrant spindle near the site's Tauvette Street entrance) that was assigned an arbitrary elevation of 100.00 m. Surveyed elevations relative to this local benchmark are presented in Table 1.

2.8 Waste Management

Excess soil cuttings from the drilling program were temporarily stored onsite in a labelled drum. A composite sample of the soil cuttings (identified as "TCLP") was submitted to Maxxam for waste characterization, including bulk F1-F4 PHC analysis, flashpoint determination, and leachate analysis using toxicity characteristic leachate procedure (TCLP) for metals, volatile organic compounds (VOC), semi-VOC and polychlorinated biphenyls (PCB). Based on waste characterization results (refer to Section 3.7), the soil cuttings were disposed off-site as solid, non-hazardous waste on August 30, 2016 by Tomlinson Environmental Services of Ottawa, Ontario. A copy of the proof of shipment is included in Appendix C.

Waste groundwater generated during well development, purging and sampling activities was also temporarily stored onsite in a labelled drum. The groundwater was manifested and shipped in accordance with Ontario Regulation 347 (as amended) on August 30, 2016 by Tomlinson Environmental Services of Ottawa, Ontario. A copy of the manifest is included in Appendix C.

2.9 Quality Assurance and Quality Control

A quality assurance and quality control (QA/QC) program was implemented to minimize and quantify data variability introduced during sample collection, handling, shipping and analysis. The QA/QC program was based on protocols of the Canadian Council of Ministers of the Environment (CCME, 2016) and Ontario Regulation 153/04, and included the use of field duplicates, field blanks, and laboratory blank, duplicate and spike samples as quality controls.

3 Findings and Results

3.1 Site Geology

Stratigraphic information obtained from the current and historical intrusive investigations indicates that the overburden at the site generally consists of fill overlying clay or silty clay. Bedrock was not encountered during drilling in the area of investigation.

Fill in the area of investigation predominantly consists of sand and/or gravel with localized areas of more fine grained materials (e.g. silty sand or clayey sand fill). Fill deposits generally extended to depths ranging from 0.5 to 1.7 m bgs. Deeper fill deposits were encountered in historical boreholes BH3 (2.4 m bgs in former UST 1 nest), BH7 and BH9 (3.4 m bgs to greater than 3.7 m bgs in former UST 2 nest) and BH33 (2.4 m bgs beneath the eastern portion of the former Header House/Greenhouse 8). The underlying native clay extended to the maximum depth investigated (9.1 m bgs at BH16-6). A soil sample representative of this clay unit was analysed for grain size distribution by hydrometer. The results are included as Appendix D and indicate the soil consists of approximately 42% silt and 58% clay with no appreciable sand or gravel.

Sand and sandy clay was encountered at depth at BH16-4, located immediately north of the former Header House/Greenhouse 8. The extent of these coarser deposits are not known; however, they appear to be localized because similar coarse materials were not encountered at other sampling locations in the area of investigation.

Additional information on soil stratigraphy encountered in boreholes and test pits is provided in the logs in Appendix B.

3.2 Site Hydrogeology

Relative groundwater elevations in the monitoring wells ranged from 96.62 m at MW21 to 97.47 m at MW1 on November 16, 2016, as summarized in Table 1.

Based on these water levels, the interpreted shallow horizontal groundwater flow direction in the area is generally to the north with apparent localized flow to the south in the southern portion of the investigation area, as shown in Figure 4.

3.3 Groundwater Monitoring

Groundwater monitoring results are summarized in Table 1. Headspace organic vapour concentrations above the equipment detection limit ranged from 55 parts per million by volume (ppmv) to 680 ppmv in MW6, MW19 and MW34. Organic vapour concentrations in the remaining monitoring wells were <5 ppmv.

A sheen was noted on groundwater purged from MW1 on August 29, 2016. No liquid petroleum product, visible petroleum film or sheen was detected in any other monitoring wells during monitoring and sampling in August 2016.

3.4 Catch Basin Monitoring

Organic vapour concentrations measured in catch basins CB-6, CB-7 and CB-12 on August 9, 2016 were <5 ppmv. Odours were noted in CB-7 while accessing the drilling location for BH16-15 on August 16, 2016. This observation was made during the initial hours of a significant rainfall event. The source of these odours is unknown.

3.5 Soil Analytical Results - Petroleum Parameters

The results of BTEX and F1-F4 PHC analyses in soil are summarized alongside site specific remedial objectives in Tables 2 and 3 and Figure 5. Laboratory certificates of analyses are included in Appendix E. A total of sixty-seven (67) soil samples from twenty-eight (28) boreholes and three (3) test pits were analysed for BTEX and/or F1-F4 PHC in 2016. Two (2) of the soil samples (BH16-1-7 and BH16-19-6) were also analysed for F4G (gravimetric heavy hydrocarbons) because the chromatogram baseline did not resolve by nC50 (indicating the presence of hydrocarbons heavier than nC50).

Based on the results of 2016 soil analyses, BTEX, F1 PHC and/or F2 PHC concentrations exceeded site specific remedial objectives at seven (7) sampling locations in UST Area #1 (BH16-2, BH16-2A, BH16-4, BH16-6, BH16-9, BH16-13 and BH16-14) and two (2) sampling locations in the former product line area (BH16-20 and BH16-21).

Analysed concentrations of BTEX and F1-F4 PHC in the test pit soil samples were less than laboratory reportable detection limits (RDL).

3.6 Soil Analytical Results – Waste Characterization Parameters

Results for the composite soil sample submitted for analysis of waste characterization parameters are summarized alongside Ontario Regulation 347 (as amended) leachate quality criteria in Table 4. Laboratory certificates of analyses for waste characterization analyses are included in Appendix F. The results indicate that the soil cuttings generated from the drilling program would be classified as non-hazardous waste for the purpose of offsite disposal in the Province of Ontario.

3.7 Groundwater Analytical Results – Petroleum Parameters

The results of BTEX and F1-F4 PHC analyses in groundwater are summarized alongside site specific remedial objectives in Table 5 and Figure 6. Laboratory certificates of analyses are included in Appendix G. A total of fifteen (15) groundwater samples from eleven (11) monitoring wells were analysed for BTEX and F1-F4 PHC in 2016.

Concentrations of BTEX, F1 PHC and/or F2 PHC in groundwater samples collected from two (2) monitoring wells (MW1 and MW6) exceeded site specific remedial objectives. Petroleum parameter concentrations in the remaining nine (9) monitoring wells satisfied site specific remedial objectives for BTEX and F1-F4 PHC and provide lateral delineation of impacts in groundwater.

Analytical results for the additional set of groundwater samples collected using dedicated disposable bailers from monitoring wells MW1 and MW6 (labelled MW1A and MW6A) were higher when compared to the results for samples collected using inertial hand pumps and a low flow peristaltic pump (labelled MW1

and MW6). These results suggest that groundwater sample collection using bailers has the potential to result in higher analysed concentrations of BTEX and/or F1-F4 PHCs.

3.8 QA/QC Program Results

3.8.1 Field QA/QC Program

The field QA/QC program for the supplemental ESA program included analysis of blind field duplicate samples for both soil and groundwater, and analysis of field blank groundwater samples, as summarized in Sections 2.2 (Boreholes), 2.3 (Test Pits) and 2.5 (Groundwater). Analytical results for the QA/QC duplicate samples have been summarized in Appendix H.

Field precision data quality was assessed relative to regulatory guidance provided by Canadian Council of Ministers of the Environment (CCME, 2016). Following CCME guidance, calculated RPD values for field duplicates can be compared to acceptance criteria derived as twice the laboratory acceptance criteria for laboratory duplicates. For example, as the laboratory acceptance criterion is <50% for RPDs calculated for laboratory duplicates for F2-F4 PHC in soil or groundwater, RPDs for field duplicates should be <100%. As the uncertainty in concentrations increases near detection limits, RPD values were calculated only where detected concentrations in both duplicate pair samples were greater than five (5) times the laboratory detection limit. Results of the RPD analysis for the duplicate samples are summarized in Tables H.1 and H.2. All calculated RPD values for field duplicate pairs were less than CCME (2016) acceptance criteria and are therefore considered acceptable.

Field blank samples can identify potential contamination of samples introduced during collection or analysis due to cross-contamination or mishandling of samples. Concentrations of BTEX and F1-F4 PHC in the field blank water samples were less than laboratory RDLs as summarized in Table H.3.

3.8.2 Laboratory QA/QC Program

Laboratory QA/QC samples included the use of matrix spikes, spiked blanks, method blanks, and duplicates. Results of laboratory QA/QC measures associated with soil and groundwater analyses are provided in the laboratory certificates of analysis in Appendices E, F and G. Laboratory certificates of analysis were reviewed for any potential QA/QC issues identified by the laboratory. No issues were identified by the laboratory and are therefore considered acceptable.

4 Conceptual Site Model

As described in Section 1.1, the property consists of a 78.6 ha parcel of land (NCC Property Asset 6976) that is currently used for agricultural purposes. The current supplemental ESA program is limited to the portion of the site identified as the “area of investigation” in Figure 2. This portion of the site was formerly used for greenhouse operations and is currently used for sporadic parking (e.g. for deliveries, events, etc.). The conceptual site model (CSM) described in the following sections pertain to this area of investigation.

4.1 Physical Setting

4.1.1 Topography

The topography within the area of investigation is generally flat, although local topography generally slopes to the west toward Green’s Creek. Paved areas include an asphalt driveway along the north portion and parking areas in the northwest portion of the area of investigation. The asphalt is in poor condition with many breaks in the pavement from previous investigations (i.e. boreholes and test pits). The remainder of the area of investigation is grassed with several mature trees present.

4.1.2 Surface Water

No surface water bodies are located within the area of investigation. As shown in Figure 1, Green’s Creek is located immediately adjacent to the western portion of NCC Property Asset 6976, approximately 800 m west of the greenhouse complex. Tributaries of Green’s Creek are located within NCC Property Asset 6976, approximately 200 m from the greenhouse complex. Water from Green’s Creek discharges to the Ottawa River approximately 4 km north of the site.

4.1.3 Areas of Natural Significance and Environmentally Significant Areas

No areas of natural and scientific interest (ANSI) or environmentally significant areas were identified within the area of investigation.

Portions of the Green’s Creek river valley are identified as a provincially significant earth science ANSI and environmentally significant (Natural Heritage System Feature) in the City of Ottawa’s Official Plan (SNC-Lavalin, 2016b).

A review of the City of Ottawa’s Official Plan did not identify any wellhead protection zones within 250 m of the site (SNC-Lavalin, 2016b).

4.1.4 Site Geology

Bedrock at the site consists of Upper Ordovician Billings Formation comprised of dark brown to black shale with laminations of calcareous siltstone (MNR, 1984). Overburden at the site is described primarily as Champlain Sea sediments consisting of clay and silt underlying erosional terraces. Upper marine deposits may be removed to variable depths by fluvial erosion leading to uniform blue-grey clay in some areas. Sediments include lenses, bars and channel fills of sand and pockets of non-marine silt formed during terrace or channel cutting. Deposits in the area of investigation are expected to consist of Post-Champlain Sea medium grained stratified sand with some silt in the form of fluvial terraces and channels cut in marine clay and bars and spits within abandoned channels (GSC, 1976).

Current and historical investigations within the area of investigation generally described overburden at the site as sand and/or gravel fill to depths ranging from 0.5 to 1.7 m bgs overlying clay/silty clay to at least 9.1 m bgs. Deeper fill deposits were encountered in historical boreholes BH3 (2.4 m bgs in former UST 1 nest), BH7 and BH9 (3.4 m bgs to greater than 3.7 m bgs in former UST 2 nest) and BH33 (2.4 m bgs beneath the eastern portion of the former Header House/Greenhouse 8). Sand and sandy clay were encountered at depth at the location of BH16-4 located immediately north of the former Header House/Greenhouse 8. The extent of these coarser deposits are not known; however, they appear to be localized because similar coarse materials were not encountered at other sampling locations in the area of investigation. Bedrock has not been encountered during investigations at the site.

4.1.5 Site Geology and Hydrogeology

Based on current and historical data for the site, the depth to shallow groundwater in the area of investigation ranges from approximately 0.6 to 2.3 m bgs and the water table is generally positioned within clay soils, near the fill/clay interface. The interpreted groundwater flow direction in overburden is generally to the north although there may be a southern component at the southern extent of the area of investigation.

Hydraulic conductivity values were previously calculated for the overburden based on seven (7) tests. Hydraulic conductivity values for the grey clay ranged from 9.4×10^{-10} to 4.4×10^{-9} m/s, with a geometric mean of 1.6×10^{-9} m/s, based on five (5) tests. Hydraulic conductivity values for the granular fill and weathered upper clay were 1.7×10^{-8} and 4.3×10^{-8} m/s, with a geometric mean of 2.7×10^{-8} m/s, based on two (2) tests (Intera, 2008). Based on these measured hydraulic conductivity values and a hydraulic gradient of 0.02, the groundwater flow velocity was estimated to be less than 5 cm/year.

4.1.6 Onsite Potable Groundwater Use

There is currently no onsite use of groundwater as a potable water supply. Steel protective casings were observed for two (2) drilled wells identified within the eastern portion of area of investigation, at the locations shown in Figure 2. These drilled wells were described by site tenants as possible test wells or abandoned irrigation wells; however, no documentation was available. Although these wells are not currently used, the site tenant is considering installation of a water supply well for agricultural and/or potable uses. A possible future location for water supply well(s) has not been determined.

The private hydrant in the northeast portion of the area of investigation supplies municipal water to the site for irrigation uses and the site tenant indicated that it is not used for potable uses.

4.1.7 Buried Utilities

Prior to the demolition of the greenhouse complex in 2013, the site was serviced by the City of Ottawa for water and sewers (storm and sanitary). As shown in Figure 2, water and storm sewer lines still extend through the area of investigation including within the UST Area #1 PHC plume.

Storm sewer piping within UST Area #1 reportedly consists of corrugated steel pipe (CSP) and is believed to discharge to a tributary of Green's Creek approximately 200 m northwest of the area of investigation. In 2008, this storm sewer was determined not to be a preferential migration pathway for impacted groundwater based on test pit inspections of the granular bedding (Intera, 2008); however, a sheen was noted on water that accumulated in one of two (2) test pits excavated to allow for sewer inspection in UST Area #1 and strong PHC odours were noted in both test pits (TP-5 and TP-6 completed in the locations shown in Figure 3). Odours were also reported by the public and/or Intera and/or SNC-Lavalin field staff

in catch basins CB-7 and CB-12 (Figure 3) located immediately north and south of the east portion of the UST Area #1 PHC plume. In November 2016, test pits were completed to expose this storm sewer in the areas east of CB-7 and surrounding CB-12. Field observations and analytical results for soil samples collected from these test pits, including samples of the sewer bedding material, did not suggest the presence of PHC impacts or preferential flow in the utility bedding material in these areas.

Water piping in the impacted area consists of a 100 mm diameter ductile iron water main (Intera, 2008). The water main identified in the area of investigation reportedly has not been used since the current tenant has occupied the site (circa 2012) and it is not known if the water line is currently operational.

4.2 Property Use

4.2.1 Current Property Use

The larger NCC owned property (NCC Property Asset 6976) is leased for agricultural use including active and fallow cultivated fields. No structures are present within the NCC property. The area of investigation is currently used for sporadic parking (e.g. for deliveries, events, etc.) related to activities at the larger agricultural site.

4.2.2 Historical Property Use

The NCC operated a commercial nursery at NCC Property Asset 6976 from the early 1970s to mid-1990s before leasing the property to third parties. During this time, a greenhouse facility operated within the area of investigation and associated former infrastructure included eight (8) greenhouses, an office building, two (2) USTs, and up to five (5) ASTs. Greenhouse operations generally ceased in the late-1990s or early-2000s; however, some renovations in anticipation of resuming commercial greenhouse operations were made circa 2007. The greenhouses and main building were demolished in March 2013 (Intera, 2008).

Limited information is available for the two (2) USTs formerly located within the area of investigation. The UST in UST Area #1 formerly contained gasoline. The second UST formerly contained diesel and was located north of the former product line area. Both were reportedly removed in the 1980s with surrounding impacted soil; however, a report documenting the UST removal and any associated verification sampling could not be found (E3, 1998).

The former locations of the two (2) exterior ASTs and one (1) of the interior ASTs are known; the other former ASTs were located in the greenhouse complex and their exact locations are not known (E3, 1998). All are believed to have contained diesel or furnace oil.

4.2.3 Surrounding Property Use

As shown in Figure 1, residential property use is present immediately east and southwest of the area of investigation. All other lands adjacent to the area of investigation consist of the remaining NCC Property Asset 6976 leased for agricultural use. Surrounding property use adjacent to the NCC property consists of a mixture of vacant/undeveloped greenspace to the west, north and northeast, residential (single family dwellings) to the east, southeast and southwest, residential (detention facility) to the south, parkland (recreational fields) to the south, community (church) to the south and agricultural to the south and southwest. A detailed description of these property uses is provided in the Phase I ESA (SNC-Lavalin, 2016b).

4.3 Site Characterization

4.3.1 Historical Investigations

PHC impacts to soil and groundwater in UST Area #1 were identified and delineated based on investigations completed from 2005 to 2015 (Intera, 2005, 2006, 2008, 2009, and 2010; Geofirma, 2011; Stantec, 2012; DCS, 2013 and 2014; and Arcadis, 2015). Each of these reports of previous investigations interpreted the results relative to different objectives (e.g. risk assessment, long term groundwater monitoring, etc.) and regulatory comparison criteria (e.g. commercial versus agricultural guidelines and standards). A Screening Level Risk Assessment (SLRA) was conducted in 2008 (Intera, 2008) and concluded that no unacceptable risk to human or ecological health was anticipated based on continued commercial land use (Intera, 2008). Remediation by monitored natural attenuation (RMNA) was recommended as the preferred remedial option in 2008. A RMNA program was conducted from 2009 to 2015. As PHC concentrations in groundwater exceeded applicable regulatory criteria in 2015, the NCC began pursuing more active remedial options.

In 2016, SNC-Lavalin completed a Remedial Options Analysis (ROA) to identify and evaluate known and readily available remedial technologies to remediate PHC impacted soil and groundwater identified in the area referred to as “UST Area #1” (SNC-Lavalin, 2016a). The ROA identified site specific remedial objectives based on the most stringent of federal guidelines and provincial standards for agricultural land use. Based on a comparison of site concentrations to these remedial objectives, the total volume of impacted soil in UST Area #1 was initially estimated to be in the range between 3,000 m³ and 7,500 m³. The large range of this volume was due to a high degree of uncertainty caused by limitations in historical soil quality data (e.g. inadequate laboratory detection limits for some analyses, limited number of soil samples analysed for vertical delineation, limited reliability of field screening results given stringent ROA remedial objectives, and the age of the data). The 2016 supplemental ESA program was completed in response to the ROA recommendation that impacts be delineated vertically and laterally and estimated soil volumes be further refined prior to any detailed remediation planning.

An intrusive investigation in 2013 (DCS, 2013) also identified PHC impacts in the area of a former product line connecting a 2,200 L exterior AST (shown in Figure 2 as AST 2) to a generator room within the main building. PHC impacted soil was excavated from this area and disposed offsite in 2014 (DCS, 2014); however, the 2014 excavation was much smaller than the estimated lateral extent of PHC impacts based on soil samples collected in 2013 and no post-remedial groundwater investigations were conducted in the area. Based on these details, this second area of potential PHC impacts was included in the 2016 supplemental ESA program.

4.3.2 Site Specific Remedial Objectives

To avoid possible restrictions to future land use at the site, site specific remedial objectives for soil and groundwater within the area of investigation were selected by SNC-Lavalin (2016a) as the most stringent of federal guidelines and provincial standards based on agricultural land use. The following table summarizes these site specific remedial objectives for soil and groundwater.

Summary of Site Specific Remedial Objectives

Contaminant of Concern	Site Specific Remedial Objectives	
	Soil (µg/g)	Groundwater (µg/L)
Benzene	0.0068	5
Toluene	0.08	24
Ethylbenzene	0.018	2.4
Xylenes	2.4	300
F1 PHC	65	750
F2 PHC	150	150
F3 PHC	1,300	500
F4 PHC	5,600	500

The ROA provides a detailed description of the rationale applied in selecting these site specific remedial objectives (SNC-Lavalin, 2016a).

4.4 Extent of Impacts in Soil

The estimated lateral extent of PHC impacts in soil is shown in Figure 5. For the purpose of this report, the lateral extent of PHC impacted soil is estimated to extend 100% of the distance from an impacted soil sampling location to the next closest soil sampling location with analysed concentrations satisfying site specific remedial objectives (i.e. presumed to be non-impacted). Interpretation of the extent of PHC impacts considered available data from the current supplemental ESA program as well as from previous investigations conducted from 2005 to 2015 (Intera, 2005, 2006, 2008, 2009, and 2010; Geofirma, 2011; Stantec, 2012; DCS, 2013 and 2014; and Arcadis, 2015). It should be noted that laboratory detection limits (DLs) for benzene and ethylbenzene analyses were higher than site specific remedial objectives (i.e. DLs for benzene and ethylbenzene analyses were 0.03 µg/g and 0.05 µg/g compared to remedial objectives of 0.0068 µg/g and 0.018 µg/g, respectively) for soil samples collected in 2007 (Intera, 2008). This presents some uncertainty where delineation is based on 2007 sampling results. Notwithstanding this limitation, PHC impacts in soil are generally now delineated.

Cross-sections illustrating the interpreted vertical extent of PHC impacts are included as Figure 7 (Cross Section Locations), Figure 8 (former UST Area #1 cross-sections) and Figure 9 (former product line cross-sections). Where available, vertical delineation of soil impacts is interpreted based on analytical results for samples collected at varying depths. In areas where no vertical delineation samples were available, our interpretation was supplemented with field screening results reported in borehole logs (e.g. OVM readings, reports of odours, etc.). It is cautioned that these screening results may have limited reliability for use herein because it may not have been possible to sense/detect PHC concentration levels comparable to the stringent ROA site specific remedial objectives (e.g. remedial objective of 0.0068 µg/g for benzene).

The following table summarizes the estimated areas and volumes of impacted soil based on the findings of the current and previous site investigations.

Summary of Estimated Impacted Soil Volumes

Material Description	Area (m ²)	Depth (m)	Volume (m ³)	Estimated Tonnage (metric tonnes) ¹
UST Area #1				
Non-impacted Soil (Shallow)	1255	0 – 1.2	500 - 900	900 – 1,620
Impacted Soil	1255	0 – 6.1	5,900 – 6,900	10,620 – 12,420
Former Product Line Area				
Non-impacted Soil (Shallow)	80	0 – 0.9	20 - 40	40 - 80
Impacted Soil	80	0 – 4.9	300 - 400	540 – 720

¹ Estimated soil tonnage is based on a conversion factor of 1.8 metric tonne/m³ and rounded up to the nearest 10 metric tonnes.

4.5 Extent of Impacts in Groundwater

The lateral extent of PHC impacts in groundwater, based on a comparison of data current to 2016 relative to the site specific remedial objectives, are estimated as shown in Figure 6. Similar to estimates for soil impacts, the lateral extent of the groundwater plume is inferred to extend 100% of the distance from an impacted monitoring well to the next closest, non-impacted monitoring well. Further, in the absence of groundwater data, groundwater impacts are assumed to coincide with identified PHC impacts in soil. Impacts in groundwater are generally delineated in UST Area #1. Although the results of limited groundwater analyses in the former product line area satisfied site specific remedial objectives, groundwater impacts are inferred to be coincident with soil impacts in this area.

4.6 Potential Presence of Product

The possible presence of free product was noted in soil descriptions for BH16-4 (~4.3 m bgs) completed in 2016 and BH2 (~1 m bgs) completed in 2005 (Intera, 2005). A sheen was also noted on water that accumulated in TP6 excavated near a storm sewer in 2007 (Intera, 2008).

A sheen was noted on groundwater purged from MW1 on August 29, 2016 and in 2011 (Geofirma, 2011). No evidence of free phase petroleum product or sheen was reported during other groundwater monitoring and sampling events in 2012 (Stantec, 2012), 2015 (Arcadis, 2015) or during the current investigation.

5 Summary and Conclusions

SNC-Lavalin was retained by the NCC to conduct a Supplemental ESA Program to delineate PHC impacted soil and groundwater at the NCC property located at 16 Tauvette Street in Ottawa, Ontario (NCC Property Asset 6976). The objective of the supplemental delineation program was to further refine estimated impacted soil volumes by delineating concentrations of BTEX and F1-F4 PHC both vertically and laterally within the two (2) identified areas of known impacts (i.e. UST Area #1 and the former product line area). New and historical data were assessed relative to site specific remedial objectives established in a Remedial Options Analysis completed by SNC-Lavalin in 2016 (SNC Lavalin, 2016a), and the Conceptual Site Model was updated, including extents and volumes of PHC impacts.

In order to meet the above objectives, a total of twenty-nine (29) boreholes, including two (2) installed with monitoring wells, were drilled in August 2016 (BH16-1 to BH16-28, and BH16-2A). In addition, three (3) exploratory test pits were excavated in the vicinity of two (2) buried sewer lines in November 2016 to further delineate the extent of impacts in UST Area #1 and assess if these utilities were acting as preferential migration pathways for PHC impacts at the periphery of the identified PHC plume. A total of sixty-seven (67) soil samples from twenty-eight (28) boreholes and three (3) test pits were analysed for BTEX and/or F1 F4 PHC in 2016. Groundwater monitoring was conducted using up to eleven (11) onsite monitoring wells in August and November 2016. Groundwater samples collected from eleven (11) monitoring wells in August 2016 were also analysed for BTEX and/or F1 F4 PHC.

Stratigraphic information obtained from the current and previous intrusive investigations indicates that the overburden at the site generally consists of sand and/or gravel fill to depths ranging from 0.5 to 1.7 m bgs overlying clay/silty clay to at least 9.1 m bgs. Deeper fill depths (2.4 to greater than 3.7 m bgs) were encountered in boreholes completed in former tank nests. Apparently localized deposits of sand and sandy clay were encountered at depth in a borehole completed in 2016 north of the former Header House/Greenhouse 8. Based on current and historical data for the site, the depth to shallow groundwater in the area of investigation ranges from approximately 0.6 to 2.3 m bgs and the water table is generally positioned within clay soils, near the fill/clay interface. The interpreted groundwater flow direction in overburden is generally to the north.

Figure 5 presents the interpreted lateral extent of PHC impacts in soil based on the assumptions stated in Section 4.4. Cross-sections illustrating the interpreted vertical extent of PHC impacts are included as Figure 7 (Cross Section Locations), Figure 8 (former UST Area #1 cross-sections) and Figure 9 (former product line cross-sections). Based on the results of the current and previous intrusive investigations at the site, the following table summarizes the estimated areas and volumes of impacted soil in the area of investigation:

Summary of Estimated Impacted Soil Volumes



Material Description	Area (m ²)	Depth (m)	Volume (m ³)	Estimated Tonnage (metric tonnes) ¹
UST Area #1				
Non-impacted Soil (Shallow)	1255	0 – 1.2	500 - 900	900 – 1,620
Impacted Soil	1255	0 – 6.1	5,900 – 6,900	10,620 – 12,420
Former Product Line Area				
Non-impacted Soil (Shallow)	80	0 – 0.9	20 - 40	40 - 80
Impacted Soil	80	0 – 4.9	300 - 400	540 – 720

¹ Estimated soil tonnage is based on a conversion factor of 1.8 metric tonne/m³ and rounded up to the nearest 10 metric tonnes.

The interpreted lateral extent of PHC impacts in groundwater, based on a comparison of data current to 2016 relative to the site specific remedial objectives, are estimated as shown in Figure 6 and generally coincide with the extent of soil impacts.

6 Closure

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Reviewed by:



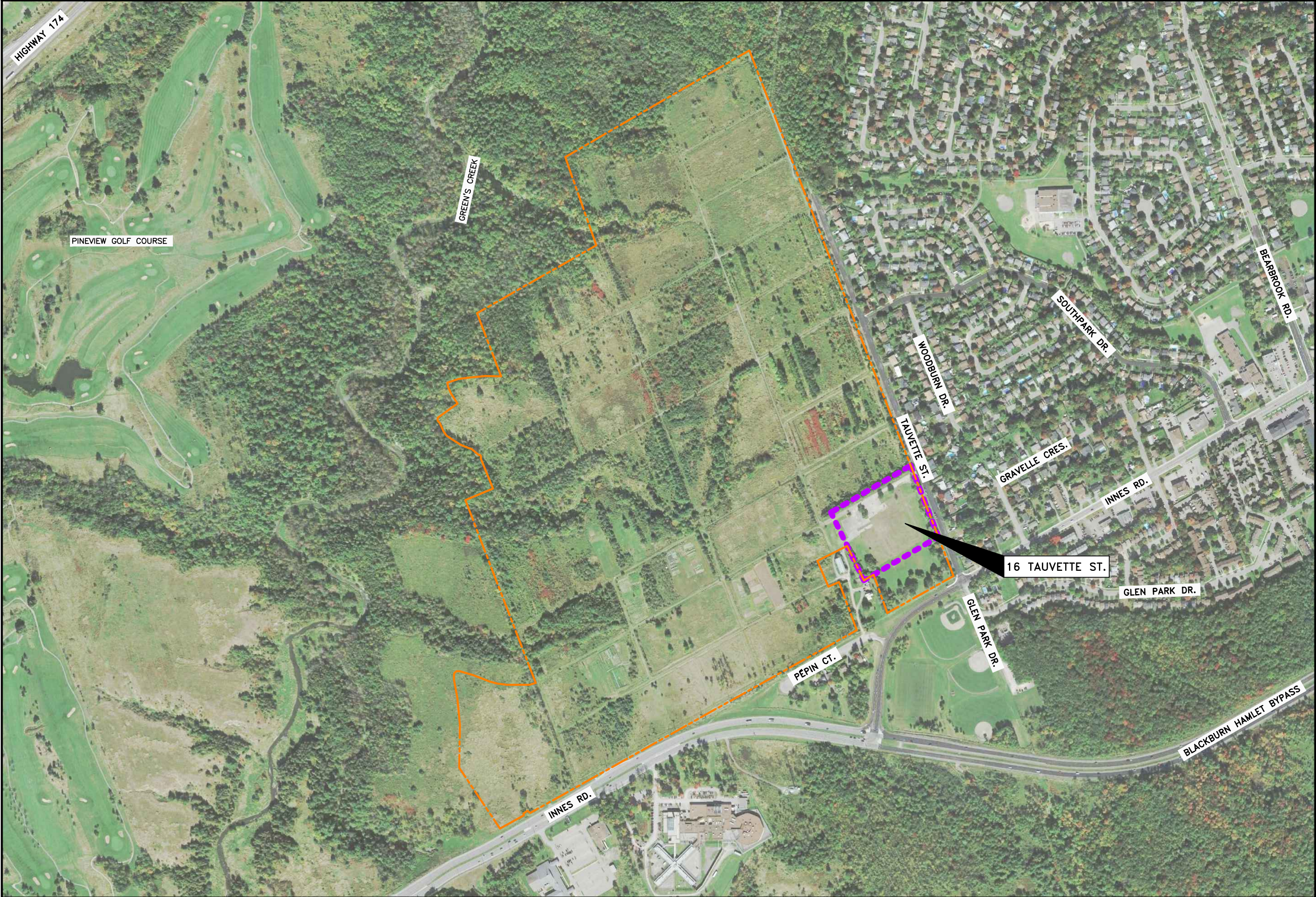
Robert Timlin, P.Geo.
Regional Manager, Eastern Ontario
Environment & Geoscience
Infrastructure

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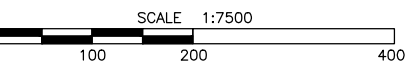
Figures



LEGEND

--- NCC PROPERTY ASSET LIMITS

--- AREA OF INVESTIGATION



NOTE(S):

1. SCALE AND SITE INFRASTRUCTURE LOCATIONS ARE APPROXIMATE

2. INFORMATION ON THIS FIGURE MAY BE LOST IF IT IS PHOTOCOPIED, FAXED OR PRINTED IN OTHER THAN ITS ORIGINAL SIZE AND COLOURS

3. 'm' : METRES

SOURCE(S):

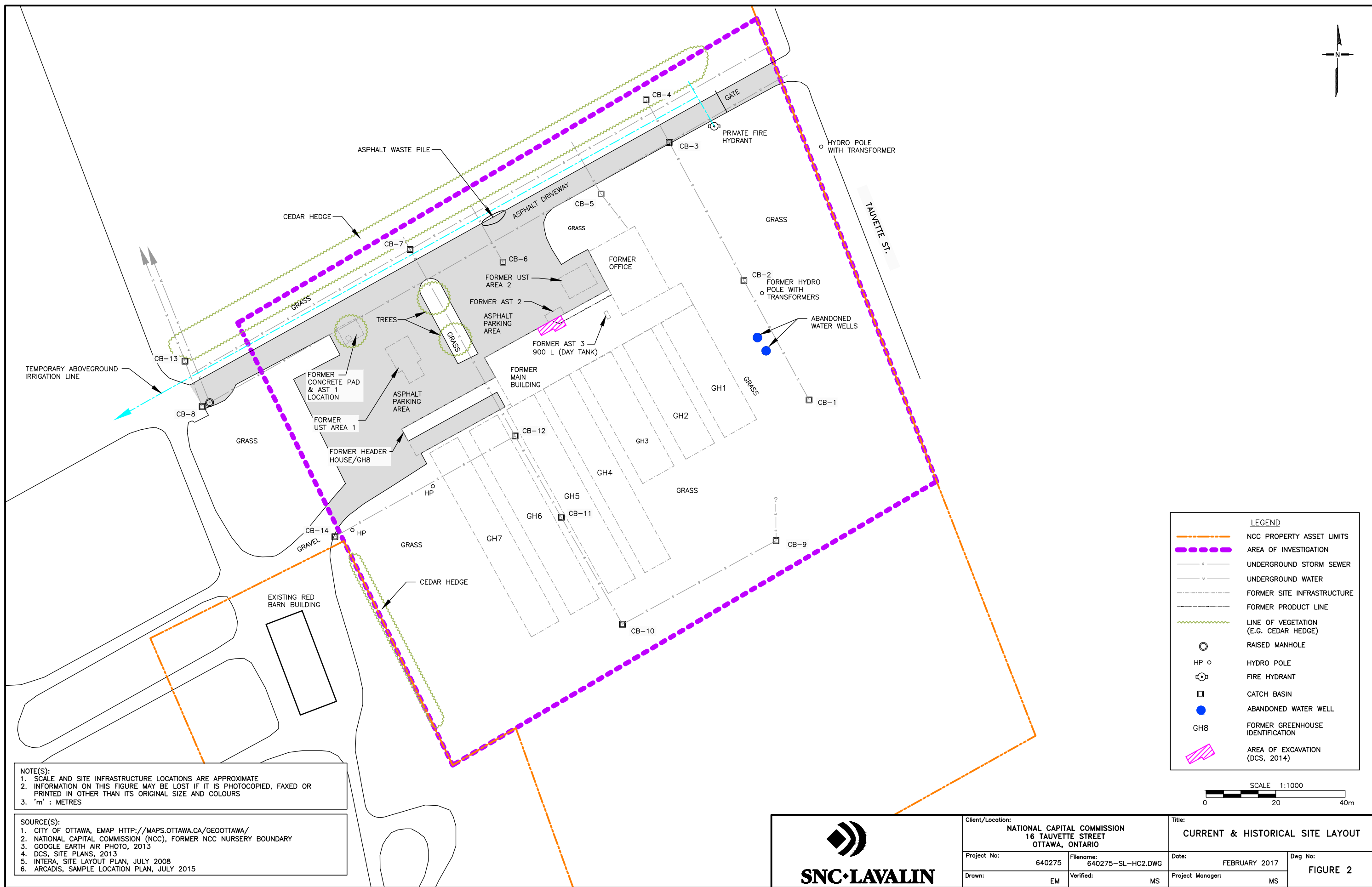
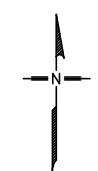
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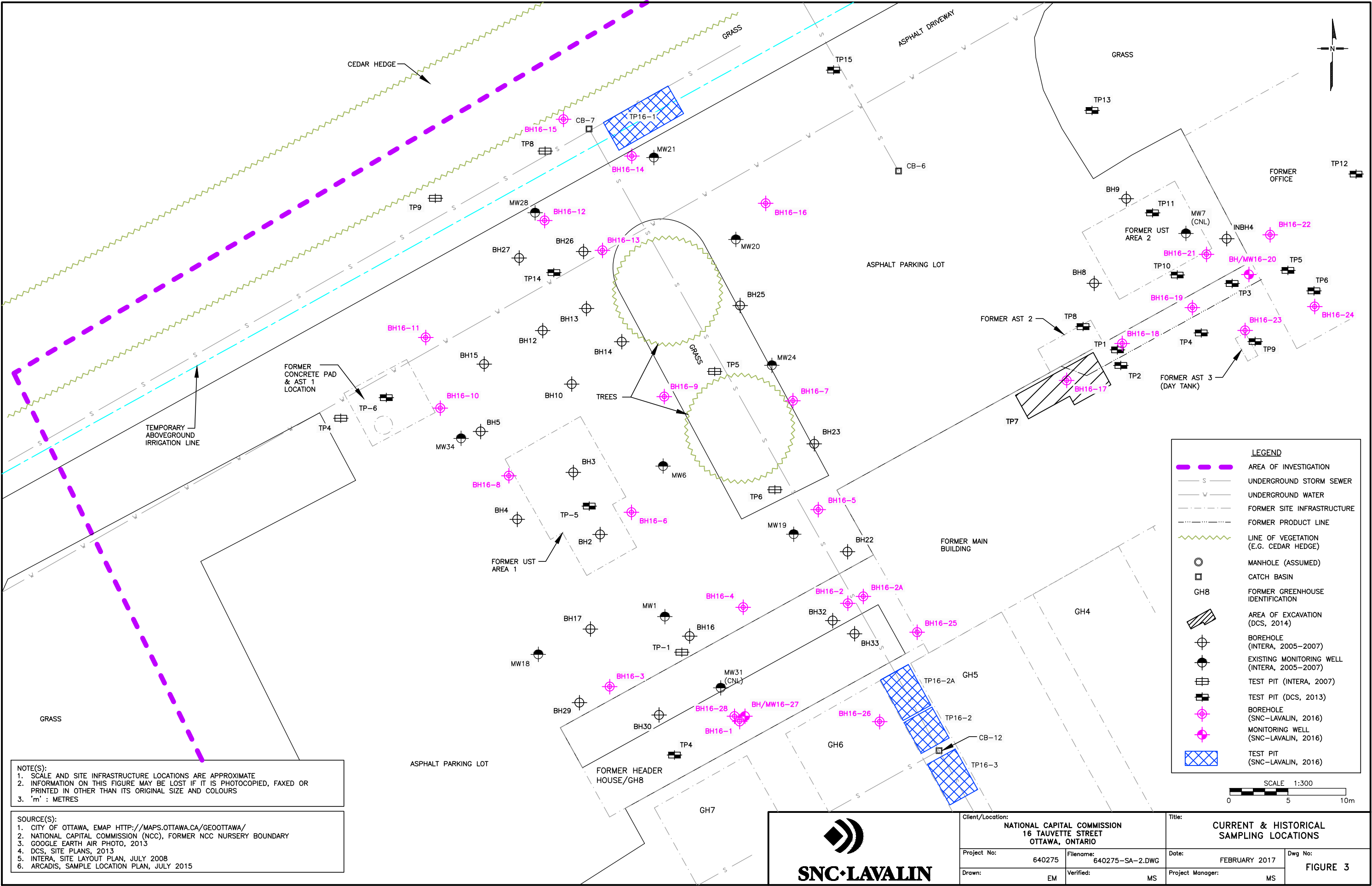
2. NATIONAL CAPITAL COMMISSION (NCC), FORMER NCC NURSERY BOUNDARY

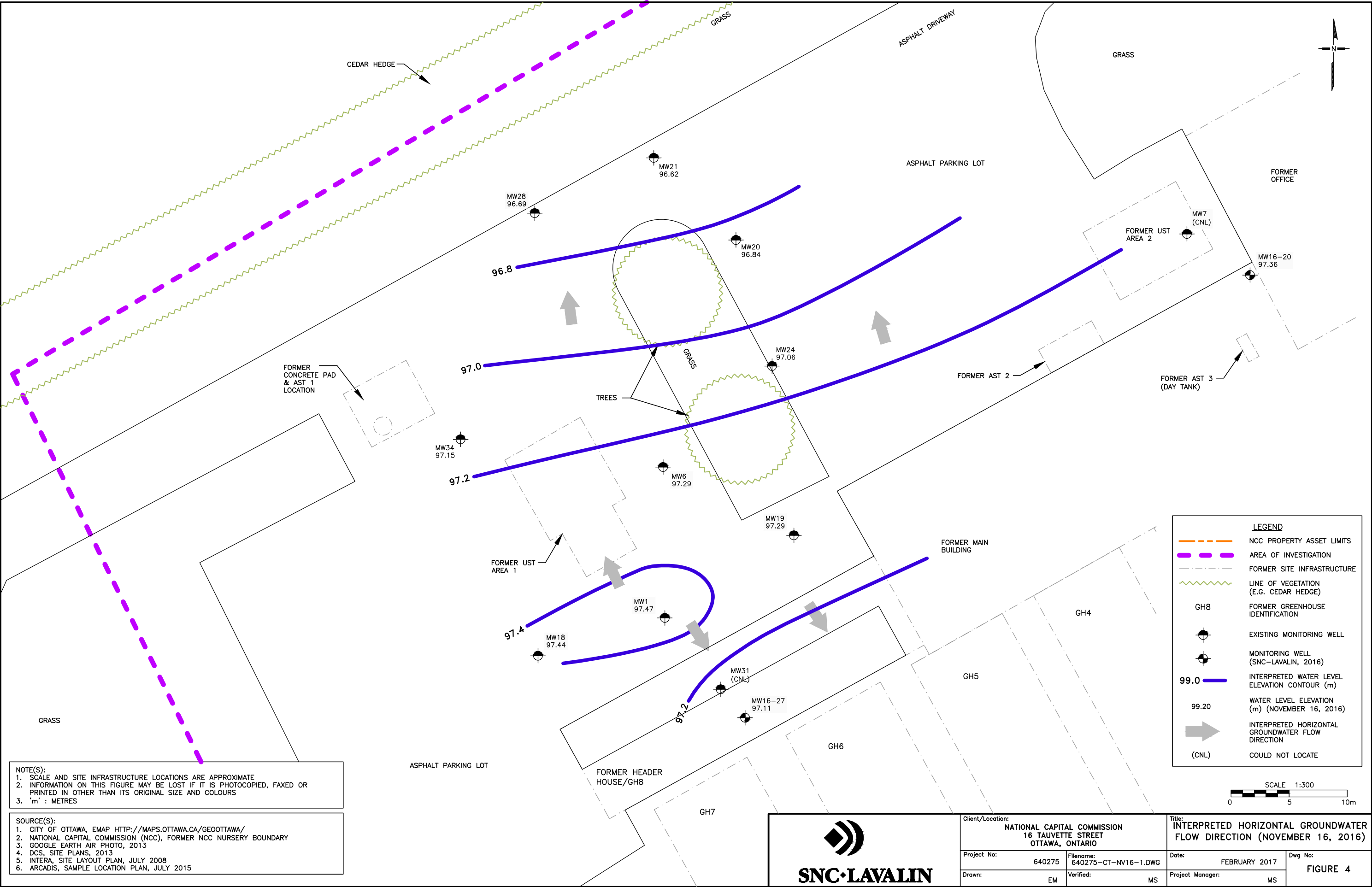
3. GOOGLE EARTH AIR PHOTO, 2013



Client/Location: NATIONAL CAPITAL COMMISSION 16 TAUVETTE STREET OTTAWA, ONTARIO		Title: AREA OF INVESTIGATION	
Project No:	640275	Filename:	640275-AINV-1.DWG
Drawn:	EM	Verified:	MS
		Date:	FEBRUARY 2017
		Project Manager:	MS
		Dwg No:	FIGURE 1







TP16-1	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
TP16-1-1	3.0	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
TP16-1-3	2.4	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
TP16-1-4	2.1	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-15	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-15-4	1.8 - 2.4	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
BH16-15-7	3.7 - 4.3	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-13	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-13-4	1.8 - 2.4	0.35	0.18	7.3	22	710	210	<50	<50
BH16-13-7	3.7 - 4.3	0.47	<0.020	0.10	<0.040	<10	<10	<50	<50

BH16-12	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-12-2	0.6 - 1.2	<0.0050	<0.020	<0.010	<0.040	<10	-	-	-
BH16-12-4	1.8 - 2.4	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
BH16-12-11	6.1 - 6.7	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-11	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-11-7	3.7 - 4.3	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-10	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-10-5	2.4 - 3.1	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
BH16-10-8	4.3 - 4.9	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-8	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-8-3	1.2 - 1.8	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
BH16-8-6	3.1 - 3.7	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-9	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-9-4	1.8 - 2.4	2.3	0.69	13	52	570	190	83	<50
BH16-9-99*	1.8 - 2.4	3.3	0.59	13	53	530	230	86	<50
BH16-9-9	4.9 - 5.5	0.15	<0.020	0.067	0.24	<10	<10	<50	<50
BH16-9-13	7.3 - 7.9	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-6	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-6-6	3.1 - 3.7	1.5	0.11	5.1	15	270	<10	<50	<50
BH16-6-66*	3.1 - 3.7	1.4	0.13	6.5	19	320	49	<50	<50
BH16-6-11	6.1 - 6.7	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
BH16-6-15	8.5 - 9.1	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-3	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-3-4	1.8 - 2.4	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
BH16-3-6	3.1 - 3.7	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-28	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-28-3	1.5 - 2.3	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-1	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4	F4G
BH16-1-4	1.8 - 2.4	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50	-
BH16-1-7	3.7 - 4.3	<0.0050	<0.020	<0.010	<0.040	<10	11	55	73	220

PARAMETERS	ABBREVIATION	ROUTINE RDL	CRITERIA
BENZENE	B	0.0050	0.0068
TOLUENE	T	0.020	0.08
ETHYLBENZENE	E	0.010	0.018
TOTAL XYLENES	X	0.040	2.4
PHC F1	F1	10	65
PHC F2	F2	10	150
PHC F3	F3	50	1300
PHC F4	F4	50	5600
PHC F4 (GRAVIMETRIC)	F4G	100	5600

NOTE(S):
1. SCALE AND SITE INFRASTRUCTURE LOCATIONS ARE APPROXIMATE
2. INFORMATION ON THIS FIGURE MAY BE LOST IF IT IS PHOTOCOPIED, FAXED OR PRINTED IN OTHER THAN ITS ORIGINAL SIZE AND COLOURS
3. 'm': METRES

SOURCE(S):
1. CITY OF OTTAWA, EMAP HTTP://MAPS.OTTAWA.CA/GEOTTAWA/
2. NATIONAL CAPITAL COMMISSION (NCC), FORMER NCC NURSERY BOUNDARY
3. GOOGLE EARTH AIR PHOTO, 2013
4. DCS, SITE PLANS, 2013
5. INTERNAL SITE LAYOUT PLAN, JULY 2008
6. ARCADIS, SAMPLE LOCATION PLAN, JULY 2015

BH16-4	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-4-5	2.4 - 3.1	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
BH16-4-9	4.9 - 5.5	<0.0050	<0.020	0.20	0.17	36	160	120	<50
BH16-4-11	6.1 - 6.7	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-14	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-14-5	2.4 - 3.1	0.069	<0.020	0.041	<0.040	<10	<10	<50	<50
BH16-14-7	3.7 - 4.3	0.059	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-16	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-16-3	1.2 - 1.8	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
BH16-16-6	3.1 - 3.7	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-21	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-21-4	1.8 - 2.4	<0.0050	<0.020	<0.010	<0.040	120	440	470	<50
BH16-21-7	3.7 - 4.3	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-22	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-22-4	1.8 - 2.4	<0.0050	<0.020	<0.010	<0.040	<10	<10	50	<50
BH16-22-7	3.7 - 4.3	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-20	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-20-3	1.2 - 1.8	<0.0050	<0.020	<0.010	<0.040	100	610	560	65
BH16-20-9	4.9 - 5.5	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-19	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4	F4G
BH16-19-6	3.1 - 3.7	<0.0050	<0.020	<0.010	<0.040	<10	<10	200	250	950
BH16-19-8	4.3 - 4.9	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50	-

BH16-24	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-24-4	1.8 - 2.4	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
BH16-24-7	3.7 - 4.0	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-23	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-23-3	1.2 - 1.8	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
BH16-23-6	3.1 - 3.7	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-18	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-18-4	1.8 - 2.4	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-17	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-17-6	3.1 - 3.7	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-7	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-7-5	2.4 - 3.1	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
BH16-7-7	3.7 - 4.3	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-5	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-5-4	1.8 - 2.4	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
BH16-5-7	3.7 - 4.3	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-25	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-25-3	2.3 - 3.1	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
BH16-25-5	3.8 - 4.6	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-2A	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-2A-4	1.8 - 2.0	<0.0050	<0.020	<0.010	<0.040	55	930	630	<50

BH16-2	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-2-4	1.8 - 2.4	<0.0050	<0.020	0.041	<0.040	76	<10	<50	<50
BH16-2-9	4.9 - 5.5	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

TP16-3	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
TP16-3-2	2.4	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

TP16-2	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
TP16-2-1	2.3	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
TP16-2-2	2.6	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
TP16-2-3	2.4	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
TP16-2-4	2.7	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
TP16-2-5	2.3	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
TP16-2-55	2.3	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

BH16-26	DEPTH (mbgs)	B	T	E	X	F1	F2	F3	F4
BH16-26-2	1.5 - 2.3	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50
BH16-26-4	3.1 - 3.8	<0.0050	<0.020	<0.010	<0.040	<10	<10	<50	<50

AREA OF INVESTIGATION
 FORMER SITE INFRASTRUCTURE
 LINE OF VEGETATION (E.G. CEDAR HEDGE)
 UNDERGROUND STORM SEWER
 UNDERGROUND WATER
 FORMER PRODUCT LINE
 FORMER GREENHOUSE IDENTIFICATION
 CATCH BASIN
 AREA OF EXCAVATION (DCS, 2014)
 BOREHOLE (INTERA, 2005-2007)
 EXISTING MONITORING WELL (INTERA, 2005-2007)
 TEST PIT (INTERA, 2007)
 TEST PIT (DCS, 2013)
 BOREHOLE (SNC-LAVALIN, 2016)
 MONITORING WELL (SNC-LAVALIN, 2016)

LEGEND

 SOIL SAMPLE (SNC-LAVALIN, 2016)
 TEST PIT (SNC-LAVALIN, 2016)
 LOCATION WHERE ALL SOIL SAMPLES ANALYSED MET THE SELECTED CRITERIA FOR ALL PARAMETERS ANALYSED, SHOWN IN GREEN
 LOCATION WHERE AT LEAST ONE SOIL SAMPLE ANALYSED EXCEEDED THE CRITERION APPLICABLE AT THE TIME OF SAMPLING
 GREEN
 RED
 ESTIMATED EXTENT OF IMPACTED SOIL (BASED ON 100% TO NEXT CLEAN SAMPLE)

SCALE 1:300
0 5 10m

Client/Location: NATIONAL CAPITAL

MW21	Sample Date	B	T	E	X	F1	F2	F3	F4
MW21	2016 08 09	<0.20	<0.20	<0.20	<0.40	<25	<100	<200	<200

MW28	Sample Date	B	T	E	X	F1	F2	F3	F4
MW28	2016 08 09	<0.20	<0.20	<0.20	<0.40	<25	<100	<200	<200

MW20	Sample Date	B	T	E	X	F1	F2	F3	F4
MW20	2016 08 09	<0.20	<0.20	<0.20	<0.40	<25	<100	<200	<200
MW-99*	2016 08 09	<0.20	<0.20	<0.20	<0.40	<25	<100	<200	<200

MW24	Sample Date	B	T	E	X	F1	F2	F3	F4
MW24	2016 08 09	<0.20	<0.20	<0.20	<0.40	<25	<100	<200	<200

MW34	Sample Date	B	T	E	X	F1	F2	F3	F4
MW34	2016 08 09	<0.20	<0.20	<0.20	<0.40	<25	<100	<200	<200

MW6	Sample Date	B	T	E	X	F1	F2	F3	F4
MW6	2016 08 09	2,500	31	33	960	700	200	<200	<200
MW6A	2016 08 09	3,600	66	51	1,200	890	310	<200	<200

PARAMETERS	ABBREVIATION	ROUTINE RDL	CRITERIA
BENZENE	B	0.20	5
TOLUENE	T	0.20	24
ETHYLBENZENE	E	0.20	2.4
TOTAL XYLENES	X	0.40	300
PHC F1	F1	25	750
PHC F2	F2	100	150
PHC F3	F3	200	500
PHC F4	F4	200	500
PHC F4 (GRAVIMETRIC)	F4G	200	500

- CRITERIA:
- SITE SPECIFIC REMEDIAL OBJECTIVES AS REPORTED IN SNC-LAVALIN 2016 REMEDIAL OPTIONS ANALYSIS DATED AUGUST 15, 2016
- GENERAL NOTES:
- ALL CONCENTRATIONS IN MICROGRAMS/LITRES (µg/L)
 - 'RDL' : REPORTABLE DETECTION LIMIT
 - '<' : LESS THAN REPORTABLE DETECTION LIMIT APPLICABLE AT THE TIME OF REPORTING
 - '-': NOT ANALYSED
 - '*': FIELD DUPLICATE OF PREVIOUSLY LISTED SAMPLE
 - 'PHC' : PETROLEUM HYDROCARBON
 - SAMPLE DEPTHS ARE METRES BELOW GRADE (UNLESS NOTED)
 - '2011 04 15' : DATE FORMAT YYYY MM DD

- NOTE(S):
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 - INFORMATION ON THIS FIGURE MAY BE LOST IF IT IS PHOTOCOPIED, FAXED OR PRINTED IN OTHER THAN ITS ORIGINAL SIZE AND COLOURS
 - 'm' : METRES

- SOURCE(S):
- CITY OF OTTAWA, EMAP [HTTP://MAPS.OTTAWA.CA/GEOOTTAWA/](http://maps.ottawa.ca/geoottawa/)
 - NATIONAL CAPITAL COMMISSION (NCC), FORMER NCC NURSERY BOUNDARY
 - GOOGLE EARTH AIR PHOTO, 2013
 - DCS, SITE PLANS, 2013
 - INTERA, SITE LAYOUT PLAN, JULY 2008
 - ARCADIS, SAMPLE LOCATION PLAN, JULY 2015

MW19	Sample Date	B	T	E	X	F1	F2	F3	F4
MW19	2016 08 09	<0.20	<0.20	<0.20	<0.40	<25	<100	<200	<200

MW18	Sample Date	B	T	E	X	F1	F2	F3	F4
MW18	2016 08 09	<0.20	<0.20	<0.20	<0.40	<25	<100	<200	<200

MW1	Sample Date	B	T	E	X	F1	F2	F3	F4
MW1	2016 08 09	<0.20	<0.20	0.98	<0.40	<25	110	<200	<200
MW1A	2016 08 30	0.50	<0.20	2.1	0.51	<25	420	240	<200

MW16-27	Sample Date	B	T	E	X	F1	F2	F3	F4
MW16-27	2016 08 30	<0.20	<0.20	<0.20	<0.40	<25	<100	<200	<200

MW16-20	Sample Date	B	T	E	X	F1	F2	F3	F4
MW16-20	2016 08 30	<0.20	<0.20	<0.20	<0.40	<25	<100	<200	<200
MW16-2020*	2016 08 30	<0.20	<0.20	<0.20	<0.40	<25	<100	<200	<200

LEGEND

NCC PROPERTY ASSET LIMITS

AREA OF INVESTIGATION

FORMER SITE INFRASTRUCTURE

LINE OF VEGETATION (E.G. CEDAR HEDGE)

FORMER PRODUCT LINE

GH8

FORMER GREENHOUSE IDENTIFICATION

EXISTING MONITORING WELL (INTERA 2005-2007)

MONITORING WELL (SNC-LAVALIN, 2016)

LOCATION WHERE MOST RECENT GROUNDWATER SAMPLE MET CRITERION FOR ALL PARAMETERS THAT WERE ANALYSED, SHOWN IN GREEN

LOCATION WHERE MOST RECENT GROUNDWATER SAMPLE EXCEEDED CRITERION FOR AT LEAST ONE PARAMETER THAT WAS ANALYSED, SHOWN IN RED

GREEN

GREEN COLOURED CONCENTRATION SATISFIED THE CRITERION APPLICABLE AT THE TIME OF SAMPLING

RED

RED COLOURED CONCENTRATION EXCEEDED THE CRITERION APPLICABLE AT THE TIME OF SAMPLING

INFERRED EXTENT OF IMPACTED GROUNDWATER

SCALE 1:300

0 5 10m

SNC-LAVALIN

Client/Location:

NATIONAL CAPITAL COMMISSION
16 TAUVELLE STREET
OTTAWA, ONTARIO

Project No:

640275

Drawn:

EM

Filename:

640275-POPG-1.DWG

Verified:

MS

Title:

GROUNDWATER ANALYTICAL RESULTS
& ESTIMATED EXTENT OF
GROUNDWATER IMPACTS

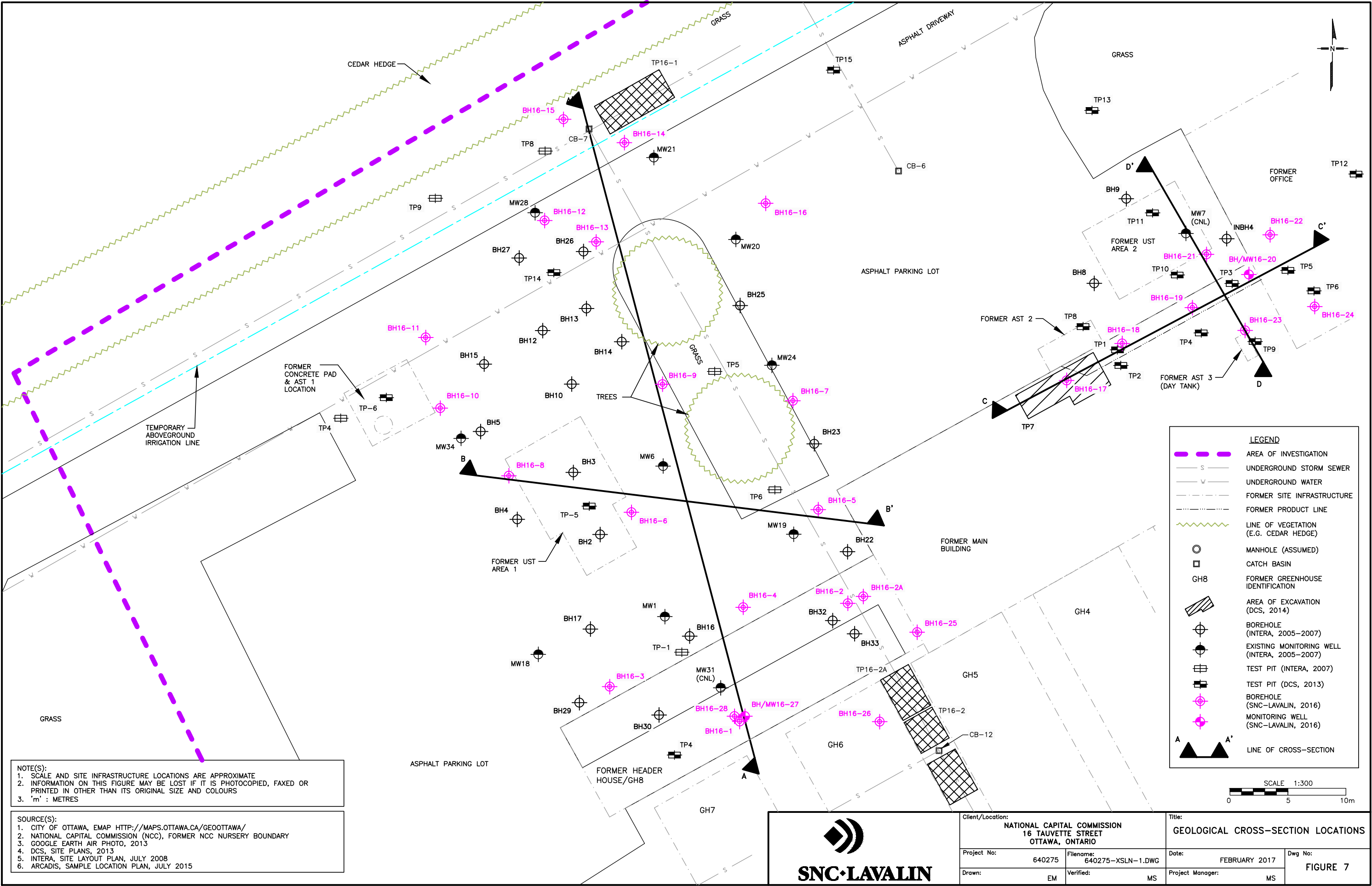
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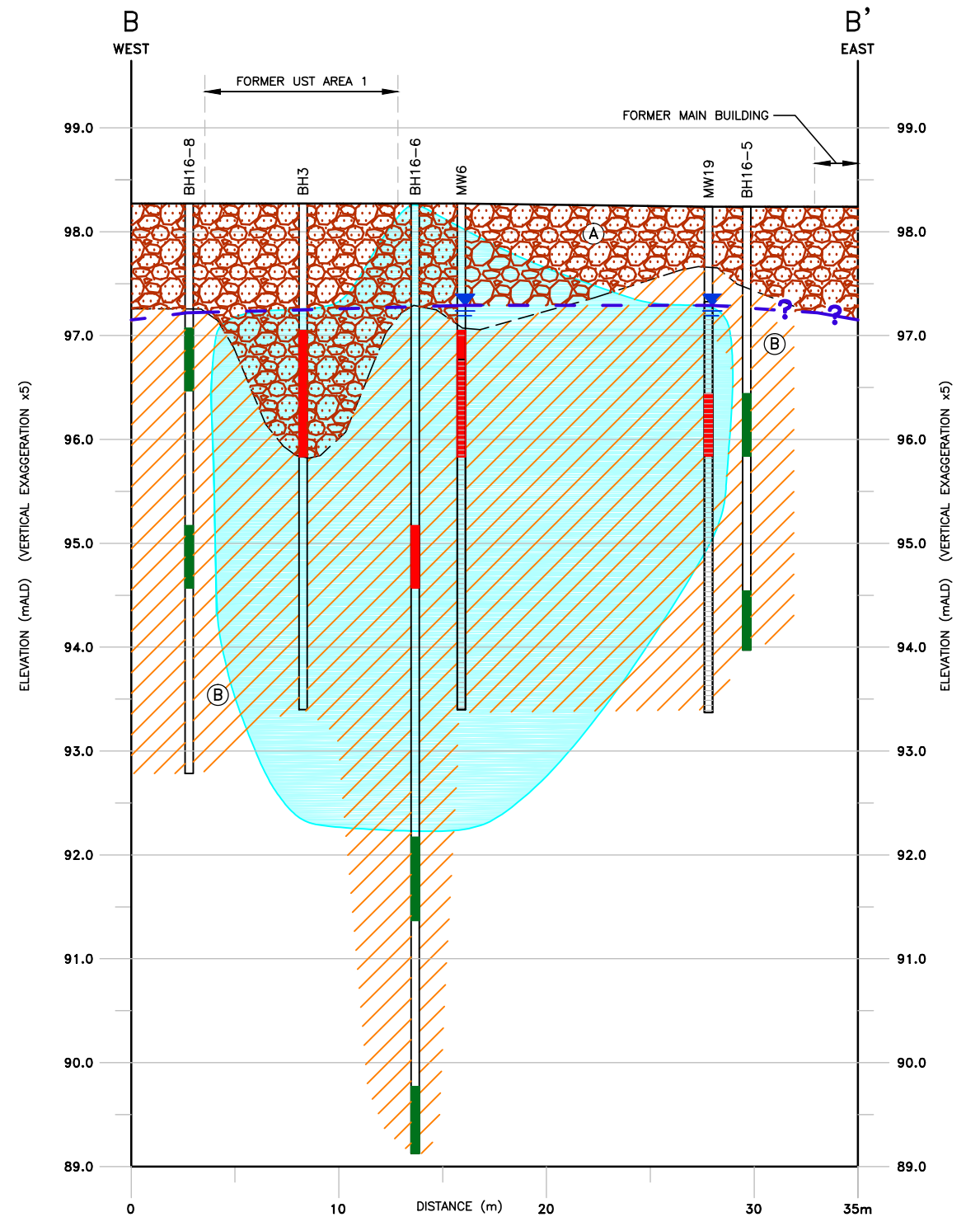
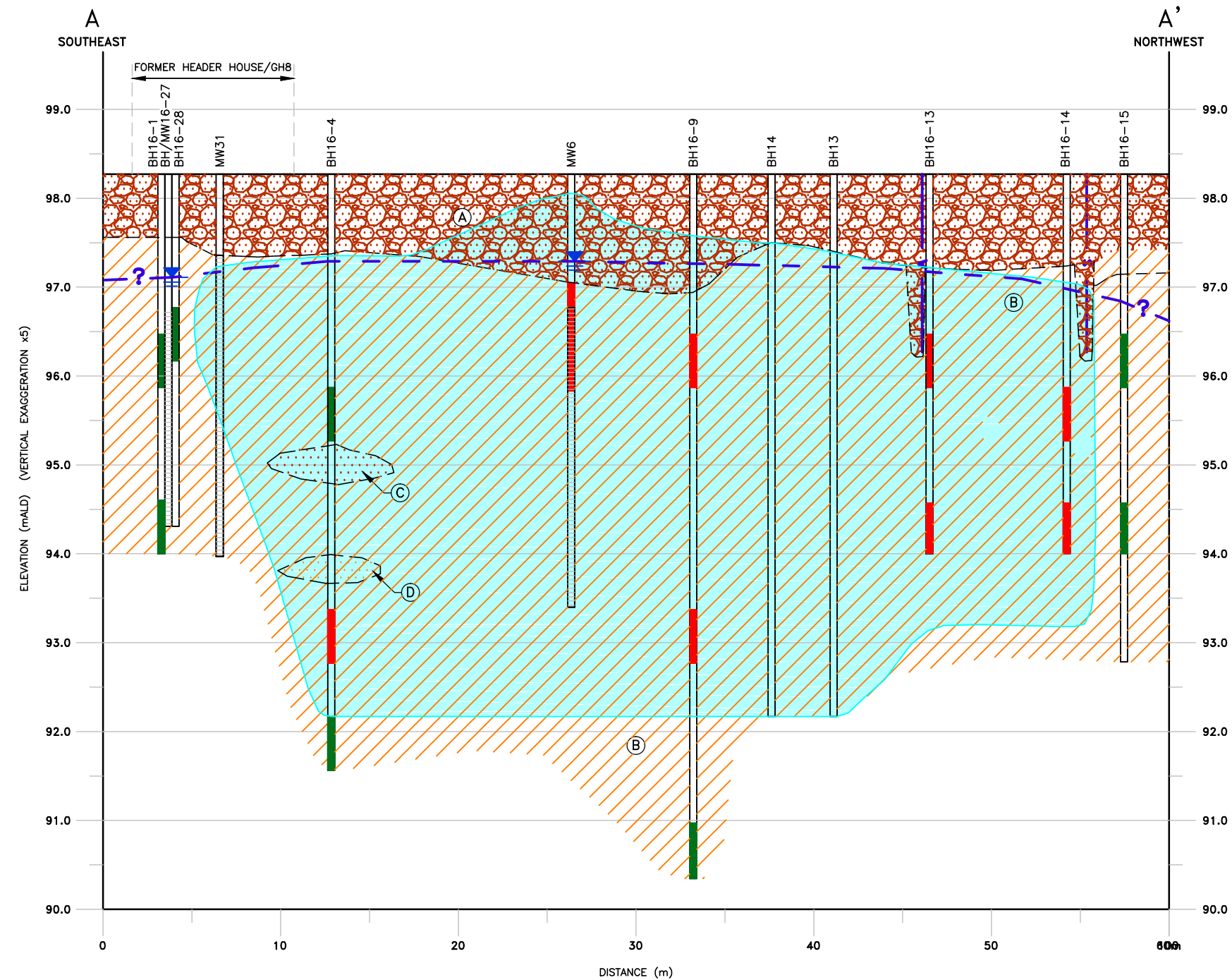
FEBRUARY 2017

Dwg No:

FIGURE 6

PAGE FORMAT: 11x17














































NOTE(S):

1. SCALE AND SITE INFRASTRUCTURE LOCATIONS ARE APPROXIMATE
2. INFORMATION ON THIS FIGURE MAY BE LOST IF IT IS PHOTOCOPIED, FAXED OR PRINTED IN OTHER THAN ITS ORIGINAL SIZE AND COLOURS
3. BOREHOLE/MONITORING WELL DIAMETERS ARE EXAGGERATED FOR REPRESENTATION
4. 'mALD' : METRES ABOVE LOCAL DATUM

LEGEND

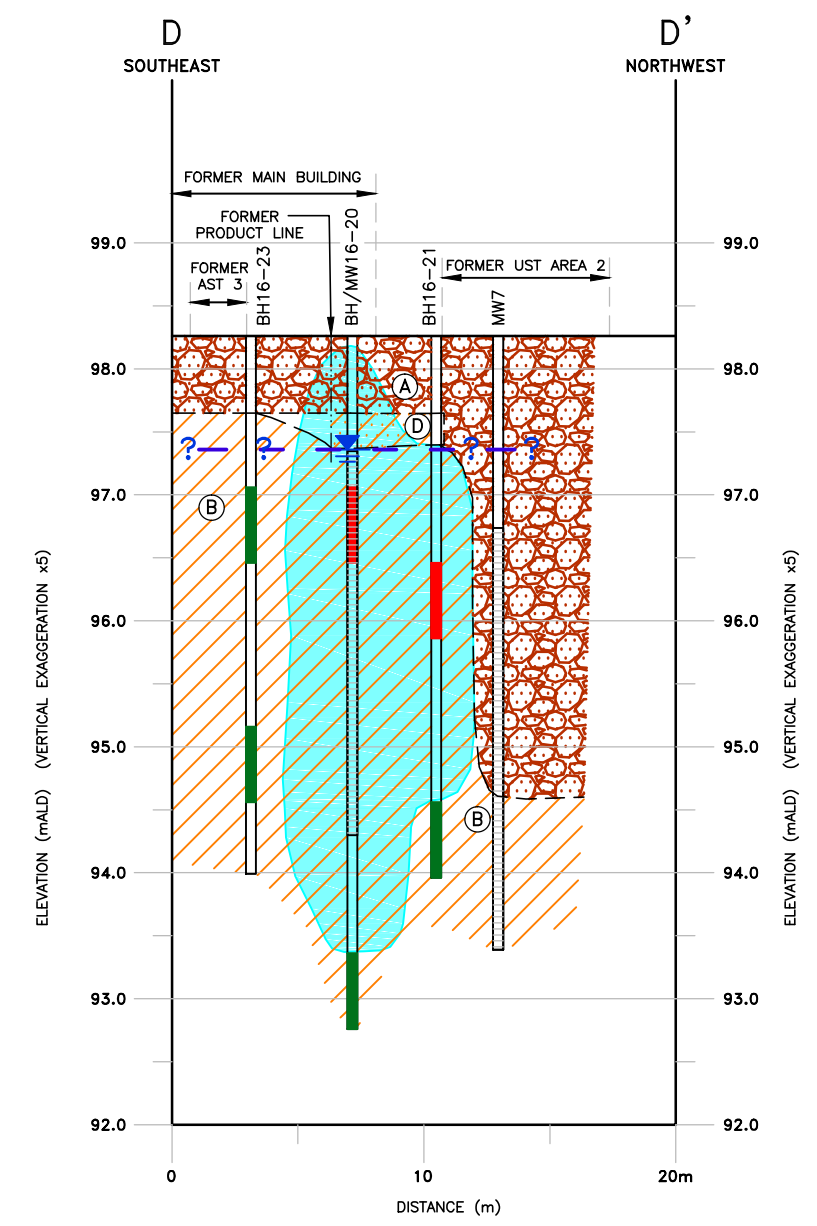
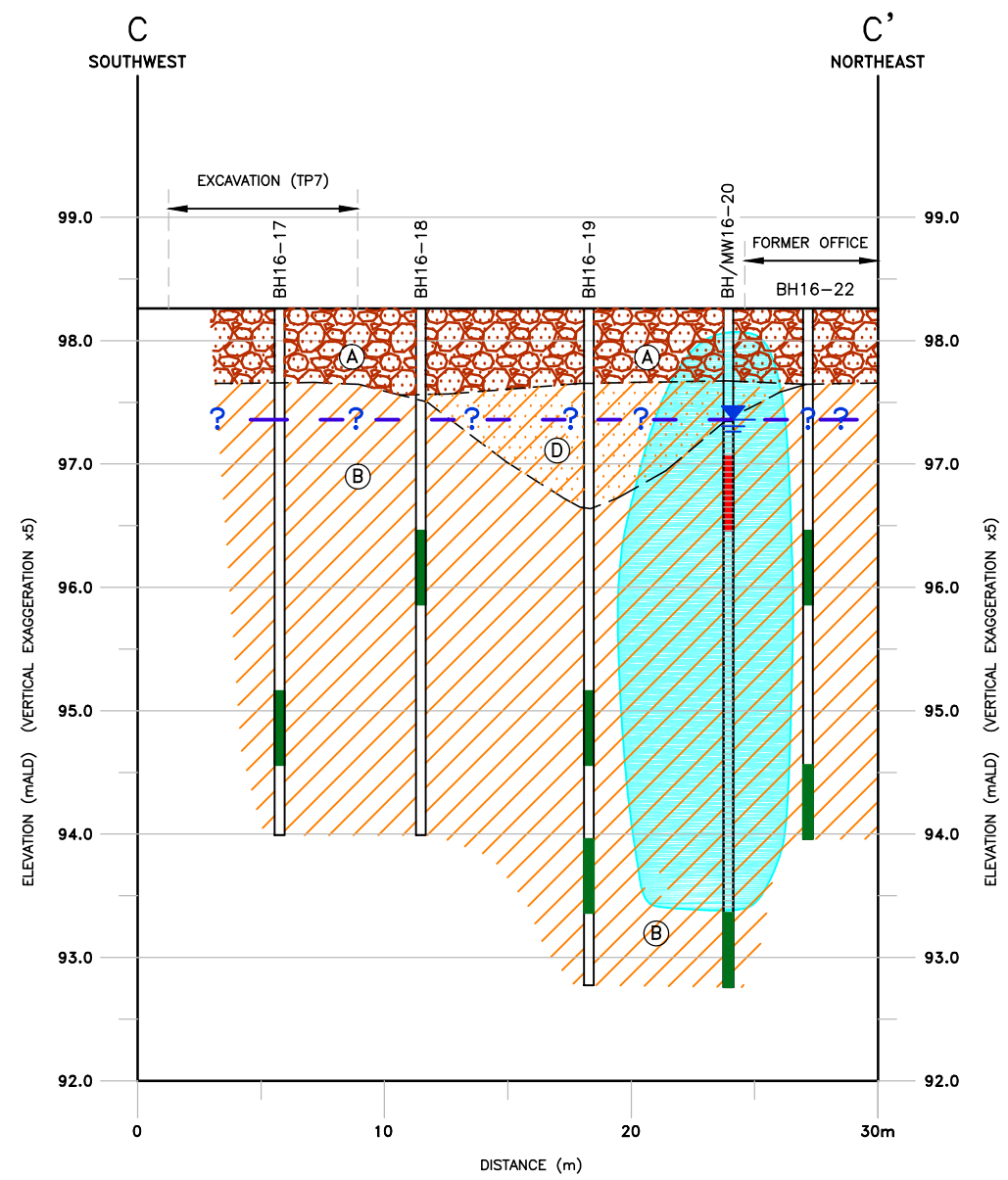
																																																										
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SCALE 1:300 (HORIZONTAL)

5 10m



Client/Location: NATIONAL CAPITAL COMMISSION 16 LAUETTE STREET OTTAWA, ONTARIO		Title: GEOLOGICAL CROSS SECTIONS A-A' & B-B'	
Project No: 640275	Filename: 640275-XS-AB3.DWG	Date: FEBRUARY 2017	Dwg No: FIGURE 8
Drawn: EM	Verified: MS	Project Manager: MS	




GROUNDWATER LINE
 WATER LEVEL MEASURED IN NOVEMBER 16, 2016
 FILL
 CLAY

SAND
 SANDY CLAY/CLAYEY SAND
 ESTIMATED EXTENT OF IMPACTED SOIL
 BOREHOLE

MONITORING WELL WITH SCREEN INTERVAL
 LOCATION WHERE ALL SOIL SAMPLES ANALYSED MET THE SELECTED CRITERIA FOR ALL PARAMETERS, SHOWN IN GREEN
 LOCATION WHERE AT LEAST ONE SOIL SAMPLE ANALYSED EXCEEDED THE SELECTED CRITERIA FOR AT LEAST ONE PARAMETER, SHOWN IN RED



NOTE(S):
 1. SCALE AND SITE INFRASTRUCTURE LOCATIONS ARE APPROXIMATE.
 2. INFORMATION ON THIS FIGURE MAY BE LOST IF IT IS PHOTOCOPIED, FAXED OR PRINTED IN OTHER THAN ITS ORIGINAL SIZE AND COLOURS.
 3. BOREHOLE/MONITORING WELL DIAMETERS ARE EXAGGERATED FOR REPRESENTATION
 4. 'mALD' : METRES ABOVE LOCAL DATUM

 SNC•LAVALIN	Client/Location: NATIONAL CAPITAL COMMISSION 16 TAUVELLE STREET OTTAWA, ONTARIO		Title: GEOLOGICAL CROSS SECTIONS C-C' & D-D'	
	Project No: 640275	Filename: 640275-XS-CD3.DWG	Date: FEBRUARY 2017	Dwg No: FIGURE 9
	Drawn: EM	Verified: MS	Project Manager: MS	

Tables

TABLE 1: Groundwater Monitoring Results
16 Tauvette Street, Ottawa, ON

Monitoring Location	Top of Pipe Elevation ¹ (masl)	Ground Surface Elevation (masl)	Screen Interval (mbgs)	Depth to Bottom (mbgs)	Date (yyyy/mm/dd)	Well Riser Headspace Vapour Reading ²	Apparent FP Thickness ³ (mm)	Groundwater Depth (mbtr)	Groundwater Depth (mbgs)	Groundwater Elevation (masl)
MW1	98.19	98.22	1.5 - 4.6	4.60	2016/08/08	<5 ppm	ND	1.45	1.49	96.74
					2016/08/29	NM	sheen	0.79	0.83	97.39
					2016/11/16	<5 ppm	ND	0.72	0.76	97.47
MW6	98.10	98.27	1.5 - 4.6	4.60	2016/08/08	680 ppm	ND	1.54	1.70	96.56
					2016/08/29	NM	ND	0.79	0.96	97.31
					2016/11/16	NM	ND	0.80	0.97	97.29
MW7	NS	NS	1.5 - 4.6	4.60	2016/08/08	CNL	CNL	CNL	CNL	CNL
					2016/08/29	CNL	CNL	CNL	CNL	CNL
					2016/11/16	CNL	CNL	CNL	CNL	CNL
MW18	98.22	98.22	1.0 - 4.0	4.00	2016/08/08	<5 ppm	ND	1.51	1.51	96.71
					2016/08/29	NM	ND	0.93 ⁵	0.93 ⁵	97.30 ⁵
					2016/11/16	<5 ppm	ND	0.78	0.78	97.44
MW19	98.17	98.24	1.0 - 4.0	4.00	2016/08/08	170 ppm	ND	1.58	1.65	96.59
					2016/08/29	NM	ND	0.94 ⁵	1.00 ⁵	97.24 ⁵
					2016/11/16	<5 ppm	ND	0.88	0.95	97.29
MW20	98.14	98.14	1.0 - 4.0	4.00	2016/08/08	<5 ppm	ND	1.80	1.80	96.34
					2016/08/29	NM	ND	1.25 ⁵	1.25 ⁵	96.88 ⁵
					2016/11/16	<5 ppm	ND	1.30	1.29	96.84
MW21	98.22	98.25	1.0 - 4.0	4.00	2016/08/08	<5 ppm	ND	1.97	2.00	96.25
					2016/08/29	NM	ND	1.60 ⁵	1.63 ⁵	96.62 ⁵
					2016/11/16	<5 ppm	ND	1.60	1.63	96.62
MW24	98.05	98.15	1.0 - 4.0	4.00	2016/08/08	<5 ppm	ND	1.81	1.91	96.25
					2016/08/29	NM	ND	1.08 ⁵	1.18 ⁵	96.97 ⁵
					2016/11/16	<5 ppm	ND	0.99	1.09	97.06
MW28	98.27	98.26	1.0 - 4.0	4.00	2016/08/08	<5 ppm	ND	2.01	1.99	96.26
					2016/08/29	NM	ND	1.68 ⁵	1.66 ⁵	96.59 ⁵
					2016/11/16	<5 ppm	ND	1.59	1.57	96.69
MW31	NS	NS	1.0 - 4.0	4.00	2016/08/08	NM	CNL	CNL	CNL	CNL
					2016/08/29	NM	CNL	CNL	CNL	CNL
					2016/11/16	NM	CNL	CNL	CNL	CNL
MW34	98.16	98.21	1.0 - 3.9	3.90	2016/08/08	55 ppm	ND	1.62	1.66	96.55
					2016/08/29	NM	ND	NM	NM	NM
					2016/11/16	<5 ppm	ND	1.01	1.05	97.15
MW16-20	98.15	98.26	1.0 - 4.0	4.00	2016/08/29	NM	ND	1.89	2.00	96.27
					2016/11/16	<5 ppm	ND	0.79	0.90	97.36
MW16-27	98.17	98.28	1.5 - 4.6	4.60	2016/08/29	NM	ND	1.87	1.98	96.31
					2016/11/16	<5 ppm	ND	1.06	1.17	97.11

NOTES:

mm - millimetres

masl - metres above sea level

mbgs - metres below ground surface

mbtr - metres below top of riser

ppmv - parts per million by volume (relative to hexane)

% LEL - percent of lower explosive limit (relative to hexane)

NS - Not Surveyed

NA - Not Available

NM - Not Measured/Monitored

ND - Not Detected

CNL - Could Not Locate

¹ Elevations measured relative to a site datum with assigned elevation (100.00 m ald)

² Organic Vapour Meter (OVM) readings

³ FP (Free Product) specific gravity assumed to be 0.8 g/mL.

⁴ Vented at time of measurement

⁵ Water level disturbed at time of measurement

TABLE 2: Soil Analytical Results - Boreholes
Petroleum Parameters
16 Tauvette Street, Ottawa, ON

Sample Location Laboratory Sample ID SNC-Lavalin Sample ID Sampling Date (yyyy/mm/dd) Depth Interval (mbgs) PID Field Screen (ppmv) OVM Field Screen (ppmv)			Site Specific ¹ Remedial Objective	BH16-1 CXN217 BH16-1-4 2016/08/18 1.8 - 2.4 0.1 320	BH16-1 CXN218 BH16-1-7 2016/08/18 3.7 - 4.3 1,311 80	BH16-2 CXN652 BH16-2-4 2016/08/18 1.8 - 2.4 20.2 10	BH16-2 CXN653 BH16-2-9 2016/08/18 4.9 - 5.5 0.3 <5	BH16-2A CXN651 BH16-2A-4 2016/08/18 1.8 - 2.0 120 1,980	BH16-3 CXN984 BH16-3-4 2016/08/18 1.8 - 2.4 0.9 410	BH16-3 CXN729 BH16-3-6 2016/08/18 3.1 - 3.7 0.5 <5	BH16-4 CXN735 BH16-4-5 2016/08/18 2.4 - 3.1 44 240
Parameter	RDL	Units									
Physical Parameters											
Moisture	0.2	%	na	33	21	33	44	18	29	39	37
Volatiles											
Benzene	0.0050	µg/g	0.0068	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Toluene	0.020	µg/g	0.08	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Ethylbenzene	0.010	µg/g	0.018	< 0.010	< 0.010	0.041	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Xylenes	0.040	µg/g	2.4	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040
m+p-Xylenes	0.040	µg/g	na	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040
o-Xylenes	0.020	µg/g	na	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Petroleum Hydrocarbon (PHC) Fractions											
PHC F1	10	µg/g	65	< 10	< 10	76	< 10	55	< 10	< 10	< 10
PHC F2	10	µg/g	150	< 10	11	< 10	< 10	930	< 10	< 10	< 10
PHC F3	50	µg/g	1,300	< 50	55	< 50	< 50	630	< 50	< 50	< 50
PHC F4	50	µg/g	5,600	< 50	73	< 50	< 50	< 50	< 50	< 50	< 50
PHC F4 (gravimetric)	100	µg/g	5,600	-	220	-	-	-	-	-	-

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PID Field Screen - photoionization detector reading
OVM Field Screen - organic vapour meter reading
mbgs - meter below ground surface
Conversion factor of 1% LEL = 110 ppmv applied
ppmv - parts per million by volume (relative to hexane)

% - percent
µg/g - micrograms per gram, dry weight basis

BOLD Concentration greater than Site Specific Remedial Objective

¹ Site specific remedial objectives as reported in SNC-Lavalin 2016 Remedial Options
Analysis dated August 15, 2016

TABLE 2: Soil Analytical Results - Boreholes
Petroleum Parameters
16 Tauvette Street, Ottawa, ON

Sample Location Laboratory Sample ID SNC-Lavalin Sample ID Sampling Date (yyyy/mm/dd) Depth Interval (mbgs) PID Field Screen (ppmv) OVM Field Screen (ppmv)			Site Specific ¹ Remedial Objective	BH16-4 CXN736 BH16-4-9 2016/08/18 4.9 - 5.5 40 220	BH16-4 CXN737 BH16-4-11 2016/08/18 6.1 - 6.7 24,000 <5	BH16-5 CXN654 BH16-5-4 2016/08/18 1.8 - 2.4 <0.001 <5	BH16-5 CXN655 BH16-5-7 2016/08/18 3.7 - 4.3 <0.001 <5	BH16-6 CXN732 BH16-6-6 2016/08/18 3.1 - 3.7 126 260	BH16-6 CXN656 BH16-6-66 2016/08/18 3.1 - 3.7 126 260 Duplicate of BH16-6-6	BH16-6 CXN733 BH16-6-11 2016/08/18 6.1 - 6.7 22.8 15	BH16-6 CXN734 BH16-6-15 2016/08/18 8.5 - 9.1 3.6 <5
Parameter	RDL	Units									
Physical Parameters											
Moisture	0.2	%	na	39	45	32	43	37	33	39	42
Volatiles											
Benzene	0.0050	µg/g	0.0068	< 0.0050	< 0.0050	< 0.0050	< 0.0050	1.5	1.4	< 0.0050	< 0.0050
Toluene	0.020	µg/g	0.08	< 0.020	< 0.020	< 0.020	< 0.020	0.11	0.13	< 0.020	< 0.020
Ethylbenzene	0.010	µg/g	0.018	0.20	< 0.010	< 0.010	< 0.010	5.1	6.5	< 0.010	< 0.010
Xylenes	0.040	µg/g	2.4	0.17	< 0.040	< 0.040	< 0.040	15	19	< 0.040	< 0.040
m+p-Xylenes	0.040	µg/g	na	0.17	< 0.040	< 0.040	< 0.040	15	18	< 0.040	< 0.040
o-Xylenes	0.020	µg/g	na	< 0.020	< 0.020	< 0.020	< 0.020	0.17	0.21	< 0.020	< 0.020
Petroleum Hydrocarbon (PHC) Fractions											
PHC F1	10	µg/g	65	36	< 10	< 10	< 10	270	320	< 10	< 10
PHC F2	10	µg/g	150	160	< 10	< 10	< 10	< 10	49	< 10	< 10
PHC F3	50	µg/g	1,300	120	< 50	< 50	< 50	< 50	< 50	< 50	< 50
PHC F4	50	µg/g	5,600	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
PHC F4 (gravimetric)	100	µg/g	5,600	-	-	-	-	-	-	-	-

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Analysis dated August 15, 2016

TABLE 2: Soil Analytical Results - Boreholes
Petroleum Parameters
16 Tauvette Street, Ottawa, ON

Sample Location Laboratory Sample ID SNC-Lavalin Sample ID Sampling Date (yyyy/mm/dd) Depth Interval (mbgs) PID Field Screen (ppmv) OVM Field Screen (ppmv)			Site Specific ¹ Remedial Objective	BH16-7 CXN627 BH16-7-5 2016/08/17 2.4 - 3.1 <0.001 <5	BH16-7 CXN628 BH16-7-7 2016/08/17 3.7 - 4.3 <0.001 <5	BH16-8 CXN730 BH16-8-3 2016/08/18 1.2 - 1.8 1.4 <5	BH16-8 CXN731 BH16-8-6 2016/08/18 3.1 - 3.7 <0.001 <5	BH16-9 CXN647 BH16-9-4 2016/08/17 1.8 - 2.4 264 1,760	BH16-9 CXN648 BH16-9-99 2016/08/17 1.8 - 2.4 264 1,760 Duplicate of BH16-9-4	BH16-9 CXN649 BH16-9-9 2016/08/17 4.9 - 5.5 28 125	BH16-9 CXN650 BH16-9-13 2016/08/17 7.3 - 7.9 1.6 5
Parameter	RDL	Units									
Physical Parameters											
Moisture	0.2	%	na	33	40	28	36	31	30	43	44
Volatiles											
Benzene	0.0050	µg/g	0.0068	< 0.0050	< 0.0050	< 0.0050	< 0.0050	2.3	3.3	0.15	< 0.0050
Toluene	0.020	µg/g	0.08	< 0.020	< 0.020	< 0.020	< 0.020	0.69	0.59	< 0.020	< 0.020
Ethylbenzene	0.010	µg/g	0.018	< 0.010	< 0.010	< 0.010	< 0.010	13	13	0.067	< 0.010
Xylenes	0.040	µg/g	2.4	< 0.040	< 0.040	< 0.040	< 0.040	52	53	0.24	< 0.040
m+p-Xylenes	0.040	µg/g	na	< 0.040	< 0.040	< 0.040	< 0.040	47	47	0.22	< 0.040
o-Xylenes	0.020	µg/g	na	< 0.020	< 0.020	< 0.020	< 0.020	5.0	5.6	0.023	< 0.020
Petroleum Hydrocarbon (PHC) Fractions											
PHC F1	10	µg/g	65	< 10	< 10	< 10	< 10	570	530	< 10	< 10
PHC F2	10	µg/g	150	< 10	< 10	< 10	< 10	190	230	< 10	< 10
PHC F3	50	µg/g	1,300	< 50	< 50	< 50	< 50	83	86	< 50	< 50
PHC F4	50	µg/g	5,600	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
PHC F4 (gravimetric)	100	µg/g	5,600	-	-	-	-	-	-	-	-

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Analysis dated August 15, 2016

TABLE 2: Soil Analytical Results - Boreholes
Petroleum Parameters
16 Tauvette Street, Ottawa, ON

Sample Location Laboratory Sample ID SNC-Lavalin Sample ID Sampling Date (yyyy/mm/dd) Depth Interval (mbgs) PID Field Screen (ppmv) OVM Field Screen (ppmv)			Site Specific ¹ Remedial Objective	BH16-10 CXN539 BH16-10-5 2016/08/16 2.4 - 3.1 0.7 <5	BH16-10 CXN540 BH16-10-8 2016/08/16 4.3 - 4.9 0.4 <5	BH16-11 CXN538 BH16-11-7 2016/08/16 3.7 - 4.3 <0.001 <5	BH16-12 CXN541 BH16-12-2 2016/08/16 0.6 - 1.2 0.7 <5	BH16-12 CXN542 BH16-12-4 2016/08/16 1.8 - 2.4 27.6 60	BH16-12 CXN543 BH16-12-11 2016/08/16 6.1 - 6.7 0.2 <5	BH16-13 CXN597 BH16-13-4 2016/08/16 1.8 - 2.4 800 >11,000	BH16-13 CXN598 BH16-13-7 2016/08/16 3.7 - 4.3 13.5 15
Parameter	RDL	Units									
Physical Parameters											
Moisture	0.2	%	na	34	41	27	-	32	42	34	41
Volatiles											
Benzene	0.0050	µg/g	0.0068	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.35	0.47
Toluene	0.020	µg/g	0.08	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.18	< 0.020
Ethylbenzene	0.010	µg/g	0.018	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	7.3	0.10
Xylenes	0.040	µg/g	2.4	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	22	< 0.040
m+p-Xylenes	0.040	µg/g	na	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	22	< 0.040
o-Xylenes	0.020	µg/g	na	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.15	< 0.020
Petroleum Hydrocarbon (PHC) Fractions											
PHC F1	10	µg/g	65	< 10	< 10	< 10	< 10	< 10	< 10	710	< 10
PHC F2	10	µg/g	150	< 10	< 10	< 10	-	< 10	< 10	210	< 10
PHC F3	50	µg/g	1,300	< 50	< 50	< 50	-	< 50	< 50	< 50	< 50
PHC F4	50	µg/g	5,600	< 50	< 50	< 50	-	< 50	< 50	< 50	< 50
PHC F4 (gravimetric)	100	µg/g	5,600	-	-	-	-	-	-	-	-

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TABLE 2: **Soil Analytical Results - Boreholes**
Petroleum Parameters
16 Tauvette Street, Ottawa, ON

Sample Location Laboratory Sample ID SNC-Lavalin Sample ID Sampling Date (yyyy/mm/dd) Depth Interval (mbgs) PID Field Screen (ppmv) OVM Field Screen (ppmv)			Site Specific ¹ Remedial Objective	BH16-14 CXN546 BH16-14-5 2016/08/16 2.4 - 3.1 11.7 90	BH16-14 CXN547 BH16-14-7 2016/08/16 3.7 - 4.3 2.7 25	BH16-15 CXN544 BH16-15-4 2016/08/16 1.8 - 2.4 1.1 150	BH16-15 CXN545 BH16-15-7 2016/08/16 3.7 - 4.3 0.9 95	BH16-16 CXN599 BH16-16-3 2016/08/16 1.2 - 1.8 23.2 145	BH16-16 CXN600 BH16-16-6 2016/08/16 3.1 - 3.7 0.2 60	BH16-17 CXN626 BH16-17-6 2016/08/17 3.1 - 3.7 <0.001 210	BH16-18 CXN625 BH16-18-4 2016/08/17 1.8 - 2.4 <0.001 <5
Parameter	RDL	Units									
Physical Parameters											
Moisture	0.2	%	na	33	39	35	44	32	41	38	34
Volatiles											
Benzene	0.0050	µg/g	0.0068	0.069	0.059	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Toluene	0.020	µg/g	0.08	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Ethylbenzene	0.010	µg/g	0.018	0.041	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Xylenes	0.040	µg/g	2.4	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040
m+p-Xylenes	0.040	µg/g	na	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040
o-Xylenes	0.020	µg/g	na	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Petroleum Hydrocarbon (PHC) Fractions											
PHC F1	10	µg/g	65	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
PHC F2	10	µg/g	150	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
PHC F3	50	µg/g	1,300	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
PHC F4	50	µg/g	5,600	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
PHC F4 (gravimetric)	100	µg/g	5,600	-	-	-	-	-	-	-	-

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TABLE 2: Soil Analytical Results - Boreholes
Petroleum Parameters
16 Tauvette Street, Ottawa, ON

Sample Location Laboratory Sample ID SNC-Lavalin Sample ID Sampling Date (yyyy/mm/dd) Depth Interval (mbgs) PID Field Screen (ppmv) OVM Field Screen (ppmv)			Site Specific ¹ Remedial Objective	BH16-19 CXN623 BH16-19-6 2016/08/17 3.1 - 3.7 0.1 420	BH16-19 CXN624 BH16-19-8 2016/08/17 4.3 - 4.9 <0.001 <5	BH16-20 CXN619 BH16-20-3 2016/08/17 1.2 - 1.8 146.2 470	BH16-20 CXN620 BH16-20-9 2016/08/17 4.9 - 5.5 0.2 230	BH16-21 CXN605 BH16-21-4 2016/08/17 1.8 - 2.4 19.2 55	BH16-21 CXN606 BH16-21-7 2016/08/17 3.7 - 4.3 0.1 <5	BH16-22 CXN603 BH16-22-4 2016/08/17 1.8 - 2.4 <0.001 135	BH16-22 CXN604 BH16-22-7 2016/08/17 3.7 - 4.3 <0.001 20
Parameter	RDL	Units									
Physical Parameters											
Moisture	0.2	%	na	28	42	28	42	32	44	32	43
Volatiles											
Benzene	0.0050	µg/g	0.0068	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Toluene	0.020	µg/g	0.08	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Ethylbenzene	0.010	µg/g	0.018	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Xylenes	0.040	µg/g	2.4	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040
m+p-Xylenes	0.040	µg/g	na	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040
o-Xylenes	0.020	µg/g	na	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Petroleum Hydrocarbon (PHC) Fractions											
PHC F1	10	µg/g	65	< 10	< 10	100	< 10	120	< 10	< 10	< 10
PHC F2	10	µg/g	150	< 10	< 10	610	< 10	440	< 10	< 10	< 10
PHC F3	50	µg/g	1,300	200	< 50	560	< 50	470	< 50	50	< 50
PHC F4	50	µg/g	5,600	250	< 50	65	< 50	< 50	< 50	< 50	< 50
PHC F4 (gravimetric)	100	µg/g	5,600	950	-	-	-	-	-	-	-

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Petroleum Parameters
16 Tauvette Street, Ottawa, ON

Sample Location Laboratory Sample ID SNC-Lavalin Sample ID Sampling Date (yyyy/mm/dd) Depth Interval (mbgs) PID Field Screen (ppmv) OVM Field Screen (ppmv)			Site Specific ¹ Remedial Objective	BH16-23 CXN621 BH16-23-3 2016/08/17 1.2 - 1.8 0.004 75	BH16-23 CXN622 BH16-23-6 2016/08/17 3.1 - 3.7 <0.001 <5	BH16-24 CXN601 BH16-24-4 2016/08/17 1.8 - 2.4 0.6 210	BH16-24 CXN602 BH16-24-7 2016/08/17 3.7 - 4.0 <0.001 65	BH16-25 CYB897 BH16-25-3 2016/08/23 2.3 - 3.1 0.008 20	BH16-25 CYB898 BH16-25-5 2016/08/23 3.8 - 4.6 <0.001 <5	BH16-26 CYB899 BH16-26-2 2016/08/23 1.5 - 2.3 0.03 15	BH16-26 CYB900 BH16-26-4 2016/08/23 3.1 - 3.8 <0.001 <5
Parameter	RDL	Units									
Physical Parameters											
Moisture	0.2	%	na	30	42	33	39	35	44	30	35
Volatiles											
Benzene	0.0050	µg/g	0.0068	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Toluene	0.020	µg/g	0.08	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Ethylbenzene	0.010	µg/g	0.018	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Xylenes	0.040	µg/g	2.4	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040
m+p-Xylenes	0.040	µg/g	na	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040
o-Xylenes	0.020	µg/g	na	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Petroleum Hydrocarbon (PHC) Fractions											
PHC F1	10	µg/g	65	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
PHC F2	10	µg/g	150	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
PHC F3	50	µg/g	1,300	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
PHC F4	50	µg/g	5,600	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
PHC F4 (gravimetric)	100	µg/g	5,600	-	-	-	-	-	-	-	-

All terms defined within the body of SNC-Lavalin's report.
Laboratory analysis by Maxxam Analytics Inc., ON
RDL - Reportable Detection Limit, unless otherwise noted
< - Denotes concentration less than indicated detection limit
"- " - Not analyzed
na - Not applicable
PID Field Screen - photoionization detector reading
OVM Field Screen - organic vapour meter reading
mbgs - meter below ground surface
Conversion factor of 1% LEL = 110 ppmv applied
ppmv - parts per million by volume (relative to hexane)

% - percent
µg/g - micrograms per gram, dry weight basis

BOLD Concentration greater than Site Specific Remedial Objective

¹ Site specific remedial objectives as reported in SNC-Lavalin 2016 Remedial Options
Analysis dated August 15, 2016

TABLE 2: **Soil Analytical Results - Boreholes**
Petroleum Parameters
16 Tavette Street, Ottawa, ON

Sample Location Laboratory Sample ID SNC-Lavalin Sample ID Sampling Date (yyyy/mm/dd) Depth Interval (mbgs) PID Field Screen (ppmv) OVM Field Screen (ppmv)			Site Specific ¹ Remedial Objective	BH16-28 CYB901 BH16-28-3 2016/08/23 1.5 - 2.3 <0.001 35
Parameter	RDL	Units		
<u>Physical Parameters</u>				
Moisture	0.2	%	na	32
<u>Volatiles</u>				
Benzene	0.0050	µg/g	0.0068	< 0.0050
Toluene	0.020	µg/g	0.08	< 0.020
Ethylbenzene	0.010	µg/g	0.018	< 0.010
Xylenes	0.040	µg/g	2.4	< 0.040
m+p-Xylenes	0.040	µg/g	na	< 0.040
o-Xylenes	0.020	µg/g	na	< 0.020
<u>Petroleum Hydrocarbon (PHC) Fractions</u>				
PHC F1	10	µg/g	65	< 10
PHC F2	10	µg/g	150	< 10
PHC F3	50	µg/g	1,300	< 50
PHC F4	50	µg/g	5,600	< 50
PHC F4 (gravimetric)	100	µg/g	5,600	-

All terms defined within the body of SNC-Lavalin's report.
Laboratory analysis by Maxxam Analytics Inc., ON
RDL - Reportable Detection Limit, unless otherwise noted
< - Denotes concentration less than indicated detection limit
"- " - Not analyzed
na - Not applicable
PID Field Screen - photoionization detector reading
OVM Field Screen - organic vapour meter reading
mbgs - meter below ground surface
Conversion factor of 1% LEL = 110 ppmv applied
ppmv - parts per million by volume (relative to hexane)

% - percent
µg/g - micrograms per gram, dry weight basis

BOLD Concentration greater than Site Specific Remedial Objective

¹ Site specific remedial objectives as reported in SNC-Lavalin 2016 Remedial Options
Analysis dated August 15, 2016

TABLE 3: Soil Analytical Results - Test Pits
Petroleum Parameters
16 Tauvette Street, Ottawa, ON

Sample Location Laboratory Sample ID SNC-Lavalin Sample ID Sampling Date (yyyy/mm/dd) Depth Interval (mbgs) Field Screen (ppmv)			Site Specific ¹ Remedial Objective	TP16-1 DLU072 TP16-1-1 2016/11/16 3.0 <5	TP16-1 DLU073 TP16-1-3 2016/11/16 2.4 <5	TP16-1 DLU074 TP16-1-4 2016/11/16 2.1 <5	TP16-2 DLU075 TP16-2-1 2016/11/16 2.3 <5	TP16-2 DLU076 TP16-2-2 2016/11/16 2.6 <5	TP16-2 DLU077 TP16-2-3 2016/11/16 2.4 <5	TP16-2 DLU078 TP16-2-4 2016/11/16 2.7 <5
Parameter	RDL	Units								
Physical Parameters										
Moisture	0.2	%	na	36	31	26	15	18	33	36
Volatiles										
Benzene	0.0050	µg/g	0.0068	<	<	<	<	<	<	<
Toluene	0.020	µg/g	0.08	<	<	<	<	<	<	<
Ethylbenzene	0.010	µg/g	0.018	<	<	<	<	<	<	<
Xylenes	0.040	µg/g	2.4	<	<	<	<	<	<	<
m+p-Xylenes	0.040	µg/g	na	<	<	<	<	<	<	<
o-Xylenes	0.020	µg/g	na	<	<	<	<	<	<	<
Petroleum Hydrocarbon (PHC) Fractions										
PHC F1	10	µg/g	65	<	<	<	<	<	<	<
PHC F2	10	µg/g	150	<	<	<	<	<	<	<
PHC F3	50	µg/g	1,300	<	<	<	<	<	<	<
PHC F4	50	µg/g	5,600	<	<	<	<	<	<	<

All terms defined within the body of SNC-Lavalin's report.

Laboratory analysis by Maxxam Analytics Inc., ON

RDL - Reportable Detection Limit, unless otherwise noted

< - Denotes concentration less than indicated detection limit

"-" - Not analyzed

na - Not applicable

Field Screen - organic vapour meter reading

mbgs - meter below ground surface

Conversion factor of 1% LEL = 110 ppmv applied

ppmv - parts per million by volume (relative to hexane)

% - percent

µg/g - micrograms per gram, dry weight basis

BOLD Concentration greater than Site Specific Remedial Objective

¹ Site specific remedial objectives as reported in SNC-Lavalin 2016 Remedial Options Analysis dated August 15, 2016

TABLE 3: Soil Analytical Results - Test Pits
Petroleum Parameters
16 Tauvette Street, Ottawa, ON

Sample Location Laboratory Sample ID SNC-Lavalin Sample ID Sampling Date (yyyy/mm/dd) Depth Interval (mbgs) Field Screen (ppmv)			Site Specific ¹ Remedial Objective	TP16-2 DLU079 TP16-2-5 2016/11/16 2.3 <5	TP16-2 DLU081 TP16-2-55 2016/11/16 2.3 <5 Duplicate of TP16-2	TP16-3 DLU080 TP16-3-2 2016/11/16 2.4 <5
Parameter	RDL	Units				
<u>Physical Parameters</u>						
Moisture	0.2	%	na	17	16	17
<u>Volatiles</u>						
Benzene	0.0050	µg/g	0.0068	<	<	<
Toluene	0.020	µg/g	0.08	<	<	<
Ethylbenzene	0.010	µg/g	0.018	<	<	<
Xylenes	0.040	µg/g	2.4	<	<	<
m+p-Xylenes	0.040	µg/g	na	<	<	<
o-Xylenes	0.020	µg/g	na	<	<	<
<u>Petroleum Hydrocarbon (PHC) Fractions</u>						
PHC F1	10	µg/g	65	<	<	<
PHC F2	10	µg/g	150	<	<	<
PHC F3	50	µg/g	1,300	<	<	<
PHC F4	50	µg/g	5,600	<	<	<

All terms defined within the body of SNC-Lavalin's report.

Laboratory analysis by Maxxam Analytics Inc., ON

RDL - Reportable Detection Limit, unless otherwise noted

< - Denotes concentration less than indicated detection limit

"-" - Not analyzed

na - Not applicable

Field Screen - organic vapour meter reading

mbgs - meter below ground surface

Conversion factor of 1% LEL = 110 ppmv applied

ppmv - parts per million by volume (relative to hexane)

% - percent

µg/g - micrograms per gram, dry weight basis

BOLD Concentration greater than Site Specific Remedial Objective

¹ Site specific remedial objectives as reported in SNC-Lavalin 2016 Remedial Options Analysis dated August 15, 2016

TABLE 4: Soil Analytical Results for Waste Characterization
16 Tauvette Street, Ottawa, ON

Sample Location Laboratory Sample ID SNC-Lavalin Sample ID Sampling Date (yyyy/mm/dd)			Leachate Quality Criteria ²		TCLP CXO146 TCLP 2016/08/18
Parameter	RDL	Units			
TCLP Parameters:					
Inorganics					
Arsenic	0.2	mg/L	2.5		< 0.2
Barium	0.2	mg/l	100		< 0.2
Boron	0.1	mg/L	500		0.4
Cadmium	0.05	mg/L	0.5		< 0.05
Chromium	0.1	mg/L	5		< 0.1
Lead	0.1	mg/L	5		< 0.1
Selenium	0.1	mg/L	1		< 0.1
Silver	0.01	mg/L	5		< 0.01
Uranium	0.01	mg/L	10		< 0.01
Volatiles					
Benzene	0.020	mg/L	0.5		< 0.020
Carbon Tetrachloride	0.020	mg/L	0.5		< 0.020
Chlorobenzene	0.020	mg/L	8		< 0.020
Chloroform	0.020	mg/L	10		< 0.020
1,2-Dichlorobenzene	0.050	mg/L	20		< 0.050
1,4-Dichlorobenzene	0.050	mg/L	0.5		< 0.050
1,2-Dichloroethane	0.050	mg/L	0.5		< 0.050
1,1-Dichloroethylene	0.020	mg/L	1.4		< 0.020
Methylene Chloride	0.20	mg/L	5		< 0.20
Methyl Ethyl Ketone	1.0	mg/L	200		< 1.0
Tetrachloroethylene	0.020	mg/L	3		< 0.020
Trichloroethylene	0.020	mg/L	5		< 0.020
Vinyl Chloride	0.020	mg/L	0.2		< 0.020
Semi-Volatiles					
Benzo(a)pyrene	0.01	mg/L	0.001		< 0.01 ¹
m/p-Cresol	0.25	mg/L	200		< 0.25
o-Cresol	0.25	mg/L	200		< 0.25
Cresol (total)	25	mg/L	200		< 25
2,4-Dichlorophenol	0.25	mg/L	90		< 0.25
2,4-Dinitrotoluene	0.13	mg/L	0.13		< 0.13
Hexachlorobenzene	0.13	mg/L	0.13		< 0.13
Hexachlorobutadiene	0.5	mg/L	0.5		< 0.5
Hexachloroethane	1	mg/L	3		< 1
Nitrobenzene	1	mg/L	2		< 1
Pentachlorophenol	0.25	mg/L	6		< 0.25
Pyridine	1	mg/L	5		< 1
2,3,4,6-Tetrachlorophenol	0.25	mg/L	10		< 0.25
2,4,5-Trichlorophenol	0.05	mg/L	400		< 0.05
2,4,6-Trichlorophenol	0.25	mg/L	0.5		< 0.25
PCBs					
PCBs	0.0030	mg/L	0.3		< 0.0030
Bulk Soil Parameters:					
Flashpoint	na	°C	>61		>61
Benzene	0.020	µg/g	na		0.047
Toluene	0.020	µg/g	na		< 0.020
Ethylbenzene	0.020	µg/g	na		0.29
Xylenes	0.040	µg/g	na		0.48
m+p-Xylenes	0.040	µg/g	na		0.48
o-Xylenes	0.020	µg/g	na		< 0.020
PHC F1	10	µg/g	na		50
PHC F2	10	µg/g	na		400
PHC F3	50	µg/g	na		220
PHC F4	50	µg/g	na		< 50
PHC F4 (gravimetric)	100	µg/g	na		< 100

All terms defined within the body of SNC-Lavalin's report.
Laboratory analysis by Maxxam Analytics Inc., ON
RDL - Reportable Detection Limit, unless otherwise noted
< - Denotes concentration less than indicated detection limit
"- " - Not analyzed
na - Not applicable
°C - degrees Celcius
µg/g - micrograms per gram, dry weight basis
mg/L - milligrams per litre

BOLD Concentration greater than Leachate Quality Criteria

¹ Laboratory detection limit exceeds regulatory standard/guideline.

² Ontario Regulation 347 as amended. "Waste Management". Schedule 4 Leachate Quality Criteria.

**TABLE 5: Groundwater Analytical Results
Petroleum Parameters
16 Tauvette Street, Ottawa, ON**

Sample Location Laboratory Sample ID SNC-Lavalin Sample ID Sampling Date (yyyy/mm/dd)			Site Specific ¹ Remedial Objective	MW1 CVZ101 MW1 2016/08/09	MW1 CZE685 MW1A 2016/08/30	MW6 CVZ099 MW6 2016/08/09	MW6 CVZ100 MW6A 2016/08/09	MW18 CVZ092 MW18 2016/08/09	MW19 CVZ098 MW19 2016/08/09	MW20 CVZ096 MW20 2016/08/09	MW20 CVZ114 MW-99 2016/08/09 Duplicate of MW20
Parameter	RDL	Units									
<u>Volatiles</u>											
Benzene	0.20	µg/L	5	< 0.20	0.50	<u>2,500</u>	<u>3,600</u>	< 0.20	< 0.20	< 0.20	< 0.20
Toluene	0.20	µg/L	24	< 0.20	< 0.20	<u>31</u>	<u>66</u>	< 0.20	< 0.20	< 0.20	< 0.20
Ethylbenzene	0.20	µg/L	2.4	0.98	2.1	<u>33</u>	<u>51</u>	< 0.20	< 0.20	< 0.20	< 0.20
Xylenes	0.40	µg/L	300	< 0.40	0.51	<u>960</u>	<u>1,200</u>	< 0.40	< 0.40	< 0.40	< 0.40
m+p-Xylenes	0.40	µg/L	na	< 0.40	0.51	940	1,200	< 0.40	< 0.40	< 0.40	< 0.40
o-Xylenes	0.20	µg/L	na	< 0.20	< 0.20	19	22	< 0.20	< 0.20	< 0.20	< 0.20
<u>Petroleum Hydrocarbon (PHC) Fractions</u>											
PHC F1	25	µg/L	750	< 25	< 25	700	<u>890</u>	< 25	< 25	< 25	< 25
PHC F2	100	µg/L	150	110	<u>420</u>	<u>200</u>	<u>310</u>	< 100	< 100	< 100	< 100
PHC F3	200	µg/L	500	< 200	240	< 200	< 200	< 200	< 200	< 200	< 200
PHC F4	200	µg/L	500	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 200

All terms defined within the body of SNC-Lavalin's report.
Laboratory analysis by Maxxam Analytics Inc., ON
RDL - Reportable Detection Limit, unless otherwise noted
< - Denotes concentration less than indicated detection limit
"- " - Not analyzed
na - Not applicable

µg/L – micrograms per litre

BOLD Concentration greater than Site Specific Remedial Objective

¹ Site specific remedial objectives as reported in SNC-Lavalin 2016 Remedial Options
Analysis dated August 15, 2016

**TABLE 5: Groundwater Analytical Results
Petroleum Parameters
16 Tauvette Street, Ottawa, ON**

Sample Location Laboratory Sample ID SNC-Lavalin Sample ID Sampling Date (yyyy/mm/dd)			Site Specific ¹ Remedial Objective	MW21 CVZ095 MW21 2016/08/09	MW24 CVZ097 MW24 2016/08/09	MW28 CVZ094 MW28 2016/08/09	MW34 CVZ093 MW34 2016/08/09	MW16-20 CZE687 MW16-20 2016/08/30	MW16-20 CZE688 MW16-2020 2016/08/30 Duplicate of MW16-20	MW16-27 CZE686 MW16-27 2016/08/30
Parameter	RDL	Units								
<u>Volatiles</u>										
Benzene	0.20	µg/L	5	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Toluene	0.20	µg/L	24	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Ethylbenzene	0.20	µg/L	2.4	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Xylenes	0.40	µg/L	300	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40
m+p-Xylenes	0.40	µg/L	na	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40
o-Xylenes	0.20	µg/L	na	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
<u>Petroleum Hydrocarbon (PHC) Fractions</u>										
PHC F1	25	µg/L	750	< 25	< 25	< 25	< 25	< 25	< 25	< 25
PHC F2	100	µg/L	150	< 100	< 100	< 100	< 100	< 100	< 100	< 100
PHC F3	200	µg/L	500	< 200	< 200	< 200	< 200	< 200	< 200	< 200
PHC F4	200	µg/L	500	< 200	< 200	< 200	< 200	< 200	< 200	< 200

All terms defined within the body of SNC-Lavalin's report.
Laboratory analysis by Maxxam Analytics Inc., ON
RDL - Reportable Detection Limit, unless otherwise noted
< - Denotes concentration less than indicated detection limit
"- " - Not analyzed
na - Not applicable

µg/L – micrograms per litre

BOLD Concentration greater than Site Specific Remedial Objective

¹ Site specific remedial objectives as reported in SNC-Lavalin 2016 Remedial Options
Analysis dated August 15, 2016

Appendix A

Site Photographs



Photo 1: UST Area 1 looking northeast.



Photo 2: UST Area 1 looking north.



Photo 3: AST Area looking southeast.



Photo 4: AST Area looking northwest.

Appendix B

Borehole and Test Pit Logs

Project No.: 640275

Client: NCC

Location: 16 Tauvette St.

Date Completed: 2016/08/18

Site Datum: n/a

SLI Supervisor: S.Clemow

Drilling Method: Geoprobe

Borehole Diameter: 58

Monitoring Well Diameter: n/a

Drilling Company: Strata

Drilling Equipment: 420 M

Well Casing: n/a

Well Screen: n/a

OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0								Ground Surface	0.00
1		BH16-1-1		<5	<1 ppb	100%	ASPHALT		
2							SAND FILL		
3		BH16-1-2		<5	14 ppb	100%	brown, medium with trace gravel		
4							CLAY		-1.00
5		BH16-1-3		<5	254 ppb	100%	grey/brown, very firm, dry		
6							medium stiff		
7		BH16-1-4	◆	320	82 ppb	100%	saturated		-2.00
8							grey, soft, wet		
9		BH16-1-5		<5	120 ppb	100%			
10							SILTY CLAY		-3.00
11		BH16-1-6		660	810	50%	light brown, saturated		
12									
13		BH16-1-7	◆	80	1311	50%			-4.00
14									
15								End of borehole at 4.3m bgs	
16									-5.00
17									
18									
19									
20									-6.00
21									
22									
23									-7.00
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
 (2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
 (3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.



Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275
Client: NCC
Location: 16 Tauvette St.
Date Completed: 2016/08/18
Site Datum: n/a

SLI Supervisor: S.Clemow
Drilling Method: Geoprobe
Borehole Diameter: 58
Monitoring Well Diameter: n/a

Drilling Company: Strata
Drilling Equipment: 420M
Well Casing: n/a
Well Screen: n/a
OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0	0							Ground Surface	0.00
1		BH16-2-1		<5	<1 ppb	67%		TOPSOIL silty black	
2								GRAVEL	
3	1	BH16-2-2		<5	288 ppb	83%		CLAY grey, very stiff	-1.00
4		BH16-2-3		<5	20.79	83%			
5								staining, PHC odours	
6		BH16-2-4	◆	10	20.2	100%		medium stiff	-2.00
7	2								
8		BH16-2-5		5	10.36	100%			
9								grey, very soft, wet	-3.00
10	3	BH16-2-6		30	1620 ppb	100%			
11									
12		BH16-2-7		220	860 ppb	100%			-4.00
13	4								
14		BH16-2-8		<5	306 ppb	100%			
15									
16	5	BH16-2-9	◆	<5	250 ppb	100%			-5.00
17									
18								End of borehole at 5.5m bgs	
19									-6.00
20	6								
21									
22									
23	7								-7.00
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
(2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
(3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275

Client: NCC

Location: 16 Tauvette St.

Date Completed: 2016/08/18

Site Datum: n/a

SLI Supervisor: S.Clemow

Drilling Method: Geoprobe

Borehole Diameter: 58

Monitoring Well Diameter: n/a







Drilling Company: Strata

Drilling Equipment: 420M

Well Casing: n/a

Well Screen: n/a

OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0	0							Ground Surface	0.00
1		BH16-2A-1		<5	<1 ppb	67%		TOPSOIL silty, black with roots	
2								SILTY SAND brown	
3	1	BH16-2A-2		<5	55 ppb	71%		GRAVEL	-1.00
4								CLAYEY SAND brown/grey, very firm, dry with some gravel	
5		BH16-2A-3		<5	1992 ppb	71%			
6	2	BH16-2A-4		18% LEL	120	13%		SAND grey, staining, PHC odours	-2.00
7								Refusal at 2.0m bgs	
8									
9									
10	3								-3.00
11									
12									
13	4								-4.00
14									
15									
16	5								-5.00
17									
18									
19									
20	6								-6.00
21									
22									
23	7								-7.00
24									

- (1) Blow count per 0.15 m using conventional hammer and split spoons
 (2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
 (3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275
Client: NCC
Location: 16 Tauvette St.
Date Completed: 2016/08/18
Site Datum: n/a

SLI Supervisor: S.Clemow
Drilling Method: Geoprobe
Borehole Diameter: 58
Monitoring Well Diameter: n/a

Drilling Company: Strata
Drilling Equipment: 420M
Well Casing: n/a
Well Screen: n/a
OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0	0							Ground Surface	0.00
1		BH16-3-1		<5	71 ppb	88%	ASPHALT		
2							SAND FILL brown, fine		
3	1	BH16-3-2		<5	116 ppb	100%	SAND		-1.00
4							brown, medium, wet		
5		BH16-3-3		<5	571 ppb	100%	CLAY		
6							grey/brown, very firm, dry		
7	2	BH16-3-4	◆	410	917 ppb	100%	grey		-2.00
8									
9		BH16-3-5		<5	212 ppb	100%	medium stiff, moist		
10	3								-3.00
11		BH16-3-6	◆	<5	469 ppb	100%	soft		
12									
13	4	BH16-3-7		<5	371 ppb	100%	very soft, wet		-4.00
14									
15							End of borehole at 4.3m bgs		
16	5								-5.00
17									
18									
19									
20	6								-6.00
21									
22									
23	7								-7.00
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
(2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
(3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.


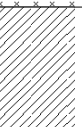
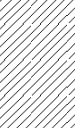
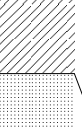
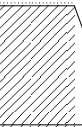
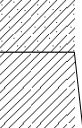
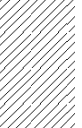
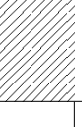
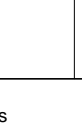



Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275
Client: NCC
Location: 16 Tauvette St.
Date Completed: 2016/08/18
Site Datum: n/a

SLI Supervisor: S.Clemow
Drilling Method: Geoprobe
Borehole Diameter: 58
Monitoring Well Diameter: n/a

Drilling Company: Strata
Drilling Equipment: 420M
Well Casing: n/a
Well Screen: n/a
OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0	0							Ground Surface	0.00
1		BH16-4-1		<5	1536 ppb	100%		ASPHALT	
2								SAND FILL brown, medium, with trace gravel	
3	1	BH16-4-2		20	28	100%		CLAY grey, very stiff, dry	-1.00
4								PHC odours at 0.9m bgs	
5		BH16-4-3		440	284	100%		medium, soft	-2.00
6	2								
7		BH16-4-4		220	137 ppb	100%			
8									
9		BH16-4-5	◆	240	44	100%		soft PHC odours	-3.00
10	3							SAND brown, saturated	
11		BH16-4-6		700	26	100%		CLAY grey, very soft, wet	-4.00
12	4								
13		BH16-4-7		120	36	100%		SANDY CLAY saturated, possilbe free product droplets	-5.00
14									
15		BH16-4-8		120	25.6	60%		grey, soft	
16	5		◆					CLAY grey, very soft, wet	-6.00
17		BH16-4-9		220	40	60%			
18									
19		BH16-4-10		20	10.18	100%			
20	6								
21		BH16-4-11	◆	<5	2400	100%			
22									
23	7							End of borehole at 6.7m bgs	-7.00
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
(2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
(3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275
Client: NCC
Location: 16 Tauvette St.
Date Completed: 2016/08/18
Site Datum: n/a

SLI Supervisor: S.Clemow
Drilling Method: Geoprobe
Borehole Diameter: 58
Monitoring Well Diameter: n/a

Drilling Company: Strata
Drilling Equipment: 420M
Well Casing: n/a
Well Screen: n/a
OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0								Ground Surface	0.00
1		BH16-5-1		<5	<1 ppb	100%	ASPHALT		
2							SAND FILL		
3		BH16-5-2		<5	<1 ppb	100%	brown, medium with trachel gravel		
4							CLAY		
5		BH16-5-3		<5	<1 ppb	100%	grey/brown, very firm, dry		
6							medium firm		
7		BH16-5-4	◆	<5	<1 ppb	100%	soft		
8									
9		BH16-5-5		<5	<1 ppb	100%			
10							grey, very soft, wet		
11		BH16-5-6		<5	<1 ppb	79%			
12									
13		BH16-5-7	◆	<5	<1 ppb	79%			
14									
15							End of borehole at 4.3m bgs		
16									
17									
18									
19									
20									
21									
22									
23									
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
(2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
(3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275

Client: NCC

Location: 16 Tauvette St.

Date Completed: 2016/08/18

Site Datum: n/a

SLI Supervisor: S.Clemow

Drilling Method: Geoprobe

Borehole Diameter: 58

Monitoring Well Diameter: n/a

Drilling Company: Strata

Drilling Equipment: 420M

Well Casing: n/a

Well Screen: n/a

OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0	0							Ground Surface	0.00
1		BH16-6-1		16% LEL	650	100%	ASPHALT		
2							SAND FILL		
3	1	BH16-6-2		13% LEL	160	79%	medium grain, dry		-1.00
4									
5		BH16-6-3		350	100	79%	black, stained, PHC odours		
6	2						SAND		
7		BH16-6-4		440	224	100%	grey/blue, medium grain, stained, PHC odours		-2.00
8							CLAY		
9		BH16-6-5		260	120	100%	grey, very stiff, PHC odours		-3.00
10	3								
11		BH16-6-6	◆	260	126	100%			
12							medium stiff		
13	4	BH16-6-7		13% LEL	300	100%			-4.00
14									
15		BH16-6-8		240	71	100%			
16	5						soift, moist		-5.00
17		BH16-6-9		220	105	100%			
18									
19		BH16-6-10		10	14.89	100%			
20	6						very soft, wet		-6.00
21		BH16-6-11	◆	15	22.8	100%			
22									
23	7	BH16-6-12		5	25	100%			-7.00
24									
25		BH16-6-13		<5	9130 ppb	100%			
26	8								-8.00
27		BH16-6-14		<5	5600 ppb	100%			
28									
29	9	BH16-6-15	◆	<5	3559 ppb	100%			-9.00
30									
31								End of borehole at 9.1m bgs	
32									

- (1) Blow count per 0.15 m using conventional hammer and split spoons
 (2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
 (3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275
Client: NCC
Location: 16 Tauvette St.
Date Completed: 2016/08/17
Site Datum: n/a

SLI Supervisor: S.Clemow
Drilling Method: Geoprobe
Borehole Diameter: 58
Monitoring Well Diameter: n/a

Drilling Company: Strata
Drilling Equipment: 420M
Well Casing: n/a
Well Screen: n/a
OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0								Ground Surface	0.00
1		BH16-7-1		<5	<1 ppb	100%		ASPHALT	
2								SAND brown, fine, dry, with gravel	
3		BH16-7-2		<5	<1 ppb	100%		CLAY grey/brown, very firm, dry	-1.00
4									
5		BH16-7-3		<5	<1 ppb	100%			
6								soft	-2.00
7		BH16-7-4		<5	<1 ppb	100%			
8									
9		BH16-7-5	◆	<5	<1 ppb	100%			
10								very soft, wet	-3.00
11		BH16-7-6		<5	<1 ppb	100%			
12									
13		BH16-7-7	◆	<5	<1 ppb	100%			-4.00
14								End of borehole at 4.3m bgs	
15									
16									-5.00
17									
18									
19									
20									-6.00
21									
22									
23									-7.00
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
(2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
(3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275
Client: NCC
Location: 16 Tauvette St.
Date Completed: 2016/08/18
Site Datum: n/a

SLI Supervisor: S.Clemow
Drilling Method: Geoprobe
Borehole Diameter: 58
Monitoring Well Diameter: n/a

Drilling Company: Strata
Drilling Equipment: 420M
Well Casing: n/a
Well Screen: n/a
OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0								Ground Surface	0.00
1		BH16-8-1		<5	147 ppb	100%	ASPHALT		
2							SAND FILL		
3		BH16-8-2		15	24 ppb	88%	brown, medium, saturated black stain		
4							CLAYEY SAND		-1.00
5		BH16-8-3	◆	<5	1389 ppb	88%	wet		
6							SAND		
7		BH16-8-4		<5	1375 ppb	100%	grey, medium		-2.00
8							CLAY		
9		BH16-8-5		<5	207 ppb	100%	medium stiff, dry to moist		-3.00
10							grey, soft, moist		
11		BH16-8-6	◆	<5	<1 ppb	100%			-4.00
12									
13		BH16-8-7		<5	<1 ppb	100%			-5.00
14									
15								End of borehole at 4.3m bgs	-6.00
16									
17									-7.00
18									
19									
20									
21									
22									
23									
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
(2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
(3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275

Client: NCC

Location: 16 Tauvette St.

Date Completed: 2016/08/17

Site Datum: n/a

SLI Supervisor: S.Clemow

Drilling Method: Geoprobe

Borehole Diameter: 58

Monitoring Well Diameter: n/a



























Drilling Company: Strata

Drilling Equipment: 420M

Well Casing: n/a

Well Screen: n/a

OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0	0							Ground Surface	0.00
1		BH16-9-1		<5	4601 ppb	100%		ASPHALT	
2								SAND GRAVEL	
3		BH16-9-2		<5	3187 ppb	79%		brown, dry	
4								SAND	-1.00
5		BH16-9-3		55	28.95	79%		brown/red, medium	
6								grey	
7		BH16-9-4	◆	16% LEL	264	100%		staining, PHC odour	-2.00
8								CLAY	
9		BH16-9-5		240	86.78	100%		grey, very stiff, staining, PHC odour	
10								very firm, dry	-3.00
11		BH16-9-6		10% LEL	178	54%		medium, soft	
12								moist	-4.00
13		BH16-9-7		380	137	54%			
14									-5.00
15		BH16-9-8		240	53	100%			
16									-6.00
17		BH16-9-9	◆	125	28	100%			
18									-7.00
19		BH16-9-10		25	2016 ppb	100%			
20									-8.00
21		BH16-9-11		10	1614 ppb	100%			
22									
23		BH16-9-12		35	6150 ppb	100%		saturated	
24									
25		BH16-9-13	◆	5	1600 ppb	100%			
26									
27								End of borehole at 7.9m bgs	
28									

- (1) Blow count per 0.15 m using conventional hammer and split spoons
 (2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
 (3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

















Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275
Client: NCC
Location: 16 Tauvette St.
Date Completed: 2016/08/16
Site Datum: n/a

SLI Supervisor: S.Clemow
Drilling Method: Geoprobe
Borehole Diameter: 58
Monitoring Well Diameter: n/a

Drilling Company: Strata
Drilling Equipment: 420M
Well Casing: n/a
Well Screen: n/a
OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0								Ground Surface	0.00
1		BH16-10-1		<5	8100 ppb	100%		ASPHALT	
2								SAND AND GRAVEL FILL	
3		BH16-10-2		<5	620 ppb	100%		black	
4								SAND	
5		BH16-10-3		<5	667 ppb	100%		orange, fine, dry	-1.00
6								CLAYEY SAND	
7		BH16-10-4		<5	356 ppb	100%		brown	
8								CLAY	
9		BH16-10-5	◆	<5	685 ppb	100%		grey/brown, moist, stiff	-2.00
10									
11		BH16-10-6		<5	594 ppb	100%		grey, moist to wet, soft	-3.00
12									
13		BH16-10-7		<5	529 ppb	100%			-4.00
14									
15		BH16-10-8	◆	<5	415 ppb	100%			-5.00
16									
17								End of borehole at 5.2m bgs	-5.00
18									
19									
20									-6.00
21									
22									
23									-7.00
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
(2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
(3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275

Client: NCC

Location: 16 Tauvette St.

Date Completed: 2016/08/16

Site Datum: n/a

SLI Supervisor: S.Clemow

Drilling Method: Geoprobe

Borehole Diameter: 58

Monitoring Well Diameter: n/a


















Drilling Company: Strata

Drilling Equipment: 420M

Well Casing: n/a

Well Screen: n/a

OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0								Ground Surface	0.00
1		BH16-11-1		15	1581 ppb	75%		ASPHALT	
2								SAND AND GRAVEL FILL	
3		BH16-11-2		<5	<1 ppb	100%		SILTY SAND	
4								CLAY	
5		BH16-11-3		<5	<1 ppb	100%		fine, moist	
6								grey, hard	
7		BH16-11-4		<5	<1 ppb	100%		soft, moist	
8									
9		BH16-11-5		<5	<1 ppb	100%			
10									
11		BH16-11-6		<5	<1 ppb	100%		wet	
12									
13		BH16-11-7	◆	<5	<1 ppb	100%			
14									
15		BH16-11-8		<5	<1 ppb	100%			
16									
17		BH16-11-9		<5	<1 ppb	100%			
18								End of borehole at 5.2m bgs	
19									
20									
21									
22									
23									
24									

- (1) Blow count per 0.15 m using conventional hammer and split spoons
(2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
(3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275

Client: NCC

Location: 16 Tauvette St.

Date Completed: 2016/08/16

Site Datum: n/a

SLI Supervisor: S.Clemow

Drilling Method: Geoprobe

Borehole Diameter: 58

Monitoring Well Diameter: n/a

Drilling Company: Strata

Drilling Equipment: 420M

Well Casing: n/a

Well Screen: n/a

OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0								Ground Surface	0.00
1		BH16-12-1		<5	100 ppt	100%		ASPHALT	
2								SAND AND GRAVEL FILL	
3		BH16-12-2	◆	<5	54 ppt	75%		SAND brown red/brown, fine, dry	-1.00
4								brown, fine dry to moist	
5		BH16-12-3		<5	<1	75%		CLAY	
6								brown, hard	-2.00
7		BH16-12-4	◆	60	27.57	90%			
8								grey, very stiff, slight PHC odour, dry to moist	
9		BH16-12-5		40	26.71	90%			
10								medium stiff	-3.00
11		BH16-12-6		<5	911 pp	92%			
12								very soft, moist to wet	-4.00
13		BH16-12-7		<5	388 pp	92%			
14									
15		BH16-12-8		65	110 ppt	30%			-5.00
16									
17		BH16-12-9		-	-	0%			
18									
19		BH16-12-10		<5	112 ppt	100%			-6.00
20									
21		BH16-12-11	◆	<5	121 ppt	100%			
22									
23								End of borehole at 6.7m bgs	-7.00
24									

- (1) Blow count per 0.15 m using conventional hammer and split spoons
 (2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
 (3) Photo Ionization Detector (PID) reading (ppmv)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis














* PID reading in ppb

** % LEL

Project No.: 640275
Client: NCC
Location: 16 Tauvette St.
Date Completed: 2016/08/16
Site Datum: n/a

SLI Supervisor: S.Clemow
Drilling Method: Geoprobe
Borehole Diameter: 58
Monitoring Well Diameter: n/a

Drilling Company: Strata
Drilling Equipment: 420M
Well Casing: n/a
Well Screen: n/a
OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0	0							Ground Surface	0.00
1		BH16-13-1		<5	1131 ppb	100%		ASPHALT	
2								SAND AND GRAVEL	
3	1	BH16-13-2		90	26.93	100%		SAND	-1.00
4								red brown, fine	
5		BH16-13-3		55	16.72	100%		brown	
6								CLAYEY SAND	
7	2	BH16-13-4	◆	>100 %LEL	800	100%		brown	-2.00
8								CLAY	
9		BH16-13-5		60% LEL	300	100%		grey/brown, hard	-3.00
10	3							grey, moist to wet	
11		BH16-13-6		45	3027 ppb	100%		firm,	-4.00
12								faint PHC odour	
13	4	BH16-13-7	◆	15	13.47	100%		soft	-4.00
14									
15								End of borehole at 4.3m bgs	
16	5								-5.00
17									
18									
19									
20	6								-6.00
21									
22									
23	7								-7.00
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
(2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
(3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275

Client: NCC

Location: 16 Tauvette St.

Date Completed: 2016/08/16

Site Datum: n/a

SLI Supervisor: S.Clemow

Drilling Method: Geoprobe

Borehole Diameter: 58

Monitoring Well Diameter: n/a

Drilling Company: Strata

Drilling Equipment: 420M

Well Casing: n/a

Well Screen: n/a

OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0								Ground Surface	0.00
1		BH16-14-1		<5	505 ppb	100%	ASPHALT		
2							SAND FILL		
3		BH16-14-2		<5	442 ppb	67%	brown, dry, with gravel		
4							SAND		
5		BH16-14-3		35	128 ppb	67%	brown, fine, dry		
6							CLAYEY SAND		
7		BH16-14-4		80	1196 ppb	100%	grey/brown, dense, hard		
8							CLAY		
9		BH16-14-5	◆	90	11.68	100%	grey/brown, hard		
10							grey, dry to moist		
11		BH16-14-6		25	2633 ppb	100%	firm, faint PHC odour		
12							very soft, moist to wet		
13		BH16-14-7	◆	25	2735 ppb	100%			
14							End of borehole at 4.3m bgs		
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
 (2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
 (3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275
Client: NCC
Location: 16 Tauvette St.
Date Completed: 2016/08/16
Site Datum: n/a

SLI Supervisor: S.Clemow
Drilling Method: Geoprobe
Borehole Diameter: 58
Monitoring Well Diameter: n/a

Drilling Company: Strata
Drilling Equipment: 420M
Well Casing: n/a
Well Screen: n/a
OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0								Ground Surface	0.00
1		BH16-15-1		<5	300 ppb	71%		TOPSOIL organic	
2								SAND dark brown, fine	
3		BH16-15-2		110	278 ppb	67%		red/brown, dry to moist	-1.00
4								CLAY brown, hard	
5		BH16-15-3		150	459 ppb	67%			
6									
7		BH16-15-4	◆	150	1112 ppb	100%		grey, very stiff	-2.00
8									
9		BH16-15-5		110	915 ppb	100%			
10								medium stiff	-3.00
11		BH16-15-6		140	1056 ppb	100%			
12									
13		BH16-15-7	◆	95	850 ppb	100%		very soft, moist to wet	-4.00
14									
15		BH16-15-8		10	300	100%			
16									-5.00
17		BH16-15-9		10	310	100%			
18								End of borehole at 5.5m bgs	
19									-6.00
20									
21									
22									
23									-7.00
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
(2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
(3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.





Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275
Client: NCC
Location: 16 Tauvette St.
Date Completed: 2016/08/16
Site Datum: n/a

SLI Supervisor: S.Clemow
Drilling Method: Geoprobe
Borehole Diameter: 58
Monitoring Well Diameter: n/a

Drilling Company: Strata
Drilling Equipment: 420M
Well Casing: n/a
Well Screen: n/a
OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0	0							Ground Surface	0.00
1		BH16-16-1		110	4223 ppb	100%		ASPHALT	
2								SAND AND GRAVEL FILL brown	
3	1	BH16-16-2		85	4548 ppb	73%		CLAYEY SAND brown	-1.00
4								CLAY brown, hard	
5		BH16-16-3	◆	145	23.21	73%			
6									
7	2	BH16-16-4		60	626 ppb	83%		brown/grey, very firm, dry to moist	-2.00
8									
9		BH16-16-5		75	3764 ppb	83%		soft	
10	3								-3.00
11		BH16-16-6	◆	60	248 ppb	100%			
12								grey, moist to wet	
13	4	BH16-16-7		10	201 ppb	100%			-4.00
14									
15		BH16-16-8		<5	187 ppb	100%			
16									-5.00
17	5	BH16-16-9		<5	134 ppb	100%			
18									
19								End of borehole at 5.5m bgs	
20	6								-6.00
21									
22									
23	7								-7.00
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
(2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
(3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275
Client: NCC
Location: 16 Tauvette St.
Date Completed: 2016/08/17
Site Datum: n/a

SLI Supervisor: S.Clemow
Drilling Method: Geoprobe
Borehole Diameter: 58
Monitoring Well Diameter: n/a

Drilling Company: Strata
Drilling Equipment: 420M
Well Casing: n/a
Well Screen: n/a
OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0								Ground Surface	0.00
1		BH16-17-1		<5	<1 ppb	38%		TOPSOIL black, roots	
2								SAND	
3		BH16-17-2		<5	<1 ppb	100%		brown, medium, with concrete pieces and wood chips	-1.00
4								CLAY	
5		BH16-17-3		<5	<1 ppb	100%		grey, very firm, dry to moist	
6									
7		BH16-17-4		<5	<1 ppb	100%		firm	-2.00
8									
9		BH16-17-5		<5	<1 ppb	100%		soft	
10									
11		BH16-17-6	◆	210	<1 ppb	100%		very soft, moist	-3.00
12									
13		BH16-17-7		<5	<1 ppb	100%			-4.00
14								End of borehole at 4.3m bgs	
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
(2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
(3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275

Client: NCC

Location: 16 Tauvette St.

Date Completed: 2016/08/17

Site Datum: n/a

SLI Supervisor: S.Clemow

Drilling Method: Geoprobe

Borehole Diameter: 58

Monitoring Well Diameter: n/a





Drilling Company: Strata

Drilling Equipment: 420M

Well Casing: n/a

Well Screen: n/a

OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0								Ground Surface	0.00
1		BH16-18-1		<5	<1 ppb	83%		TOPSOIL roots	
2								ASPHALT	
3		BH16-18-2		<5	<1 ppb	100%		SAND AND GRAVEL FILL	
4								CLAY	
5		BH16-18-3		<5	<1 ppb	100%		grey/brown, very firm, dry	
6									
7		BH16-18-4	◆	<5	<1 ppb	90%		grey	
8									
9		BH16-18-5		<5	<1 ppb	90%		medium firm	
10									
11		BH16-18-6		<5	<1 ppb	100%		soft	
12									
13		BH16-18-7		<5	<1 ppb	100%		very soft, moist to wet	
14									
15								End of borehole at 4.3m bgs	
16									
17									
18									
19									
20									
21									
22									
23									
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
 (2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
 (3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.












Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275
Client: NCC
Location: 16 Tauvette St.
Date Completed: 2016/08/17
Site Datum: n/a

SLI Supervisor: S.Clemow
Drilling Method: Geoprobe
Borehole Diameter: 58
Monitoring Well Diameter: n/a

Drilling Company: Strata
Drilling Equipment: 420M
Well Casing: n/a
Well Screen: n/a
OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0								Ground Surface	0.00
1		BH16-19-1		<5	<1 ppb	83%		TOPSOIL black, roots	
2								ASPHALT	
3		BH16-19-2		<5	<1 ppb	100%		SAND FILL	
4								GRAVEL	
5		BH16-19-3		<5	97 ppb	100%		CLAYEY SILT brown/grey, very firm, dry	
6								CLAY grey, firm, dry, odour (non-PHC)	
7		BH16-19-4		<5	<1 ppb	100%			
8								medium fine	
9		BH16-19-5		<5	<1 ppb	100%			
10								soft	
11		BH16-19-6	◆	420	148 ppb	50%			
12								saturated, very soft	
13		BH16-19-7		<5	<1 ppb	50%			
14								saturated, very soft	
15		BH16-19-8	◆	<5	<1 ppb	100%			
16								saturated, very soft	
17		BH16-19-9		<5	<1 ppb	100%			
18								End of borehole at 5.5m bgs	
19									
20									
21									
22									
23									
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
(2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
(3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275

SLI Supervisor: S.Clemow

Drilling Company: Strata

Client: NCC

Drilling Method: Geoprobe

Drilling Equipment: 420 M/7822 DT

Location: 16 Tauvette St.

Borehole Diameter: 58

Well Casing: n/a

Date Completed: 2016/08/17 & 23

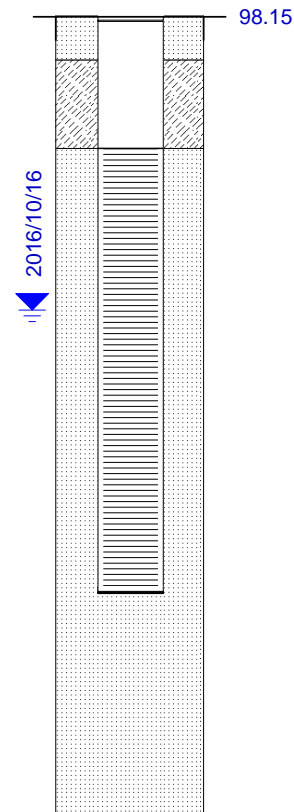
Monitoring Well Diameter: n/a

Well Screen: n/a

Site Datum: Top of fire hydrant spindle at site Tauvette Street entrance

OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0	0							Ground Surface	98.26
1		BH16-20-1		110	833 ppb	100%		TOPSOIL roots	
2								ASPHALT	
3	1	BH16-20-2		130	82.64	73%		SAND AND GRAVEL FILL	
4								CLAYEY SAND grey/brown odour	97.00
5		BH16-20-3	◆	470	146.2	73%		CLAY grey, hard, odours	
6									
7	2	BH16-20-4		65	59.62	100%		very firm, dry	96.00
8									
9		BH16-20-5		250	30.61	100%		medium firm	
10	3								
11		BH16-20-6		<5	2021 ppb	100%		soft, PHC odour	95.00
12									
13	4	BH16-20-7		<5	653 ppb	100%		very soft, moist to wet	94.00
14									
15		BH16-20-8		<5	1017 ppb	100%		odour (non-PHC)	
16	5								
17		BH16-20-9	◆	230	201 ppb	100%			93.00
18									
19								End of borehole at 5.5m bgs	
20	6								92.00
21									
22									
23	7								
24									91.00



(1) Blow count per 0.15 m using conventional hammer and split spoons
 (2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
 (3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275

Client: NCC

Location: 16 Tauvette St.

Date Completed: 2016/08/17

Site Datum: n/a

SLI Supervisor: S.Clemow

Drilling Method: Geoprobe

Borehole Diameter: 58

Monitoring Well Diameter: n/a















Drilling Company: Strata

Drilling Equipment: 420M

Well Casing: n/a

Well Screen: n/a

OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0								Ground Surface	0.00
1		BH16-21-1		<5	<1 ppb	75%		ASPHALT	
2								SAND	
3		BH16-21-2		<5	812 ppb	100%		brown, dry, with some gravel fill	
4								CLAYEY SAND	-1.00
5		BH16-21-3		160	111	100%		dry	
6								SAND AND GRAVEL FILL	
7		BH16-21-4	◆	55	19.24	100%		moist	-2.00
8								CLAYEY SAND	
9		BH16-21-5		45	1481 ppb	100%		brown/grey, dry to moist, with clay fractures	-3.00
10								CLAY	
11		BH16-21-6		<5	1706 ppb	100%		grey, very stiff, dry, with fractures	-4.00
12								medium stiff, PHC odour	
13		BH16-21-7	◆	<5	91 ppb	100%		soft	-5.00
14								very soft, wet/saturated	-6.00
15								End of borehole at 4.3m bgs	-7.00
16									
17									
18									
19									
20									
21									
22									
23									
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
 (2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
 (3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275

Client: NCC

Location: 16 Tauvette St.

Date Completed: 2016/08/17

Site Datum: n/a

SLI Supervisor: S.Clemow

Drilling Method: Geoprobe

Borehole Diameter: 58

Monitoring Well Diameter: n/a

Drilling Company: Strata

Drilling Equipment: 420M

Well Casing: n/a

Well Screen: n/a

OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0								Ground Surface	0.00
1		BH16-22-1		40	<1 ppb	83%		TOPSOIL black organic, roots	
2								CLAYEY SAND grey/black with gravel	
3		BH16-22-2		50	<1 ppb	73%		SAND medium grain, dry to moist, with some gravel	-1.00
4								CLAY grey/brown, very stiff, dry, with clay fractures	-2.00
5		BH16-22-3		50	<1 ppb	73%			
6								grey, medium stiff	
7		BH16-22-4		135	<1 ppb	100%			
8									
9		BH16-22-5		40	<1 ppb	100%			
10								soft, moist to wet	-3.00
11		BH16-22-6		40	<1 ppb	100%			
12								very soft	
13		BH16-22-7		20	<1 ppb	100%			-4.00
14								End of borehole at 4.3m bgs	
15									
16									-5.00
17									
18									
19									
20									-6.00
21									
22									
23									-7.00
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
 (2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
 (3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275

Client: NCC

Location: 16 Tauvette St.

Date Completed: 2016/08/17

Site Datum: n/a

SLI Supervisor: S.Clemow

Drilling Method: Geoprobe

Borehole Diameter: 58

Monitoring Well Diameter: n/a

Drilling Company: Strata

Drilling Equipment: 420M

Well Casing: n/a

Well Screen: n/a

OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0								Ground Surface	0.00
0.5		BH16-23-1		-	-	100%		TOPSOIL black, roots	
1.5								SAND medium	
2.5		BH16-23-2		110	16 ppb	100%		CLAYEY SAND grey/brown	-1.00
3.5								SAND medium	
4.5		BH16-23-3	◆	75	4 ppb	100%		GRAVEL grey	-2.00
5.5								SAND brown, medium, dry to moist	
6.5		BH16-23-4		<5	<1 ppb	100%		CLAY brown/grey, hard, dry medium stiff	-3.00
7.5								soft, dry to moist	
8.5		BH16-23-5		<5	<1 ppb	100%			
9.5		BH16-23-6	◆	<5	<1 ppb	100%		very soft, moist	-4.00
10.5								wet	
11.5		BH16-23-7		<5	<1 ppb	100%		End of borehole at 4.3m bgs	-5.00
12.5									
13.5									
14.5									
15.5									
16.5									
17.5									
18.5									
19.5									
20.5									
21.5									
22.5									
23.5									
24.5									

(1) Blow count per 0.15 m using conventional hammer and split spoons
 (2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
 (3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275

Client: NCC

Location: 16 Tauvette St.

Date Completed: 2016/08/17

Site Datum: n/a

SLI Supervisor: S.Clemow

Drilling Method: Geoprobe

Borehole Diameter: 58

Monitoring Well Diameter: n/a

Drilling Company: Strata

Drilling Equipment: 420M

Well Casing: n/a

Well Screen: n/a

OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0								Ground Surface	0.00
1		BH16-24-1		<5	<1 ppb	100%		TOPSOIL black, roots	
2								SAND FILL brown, medium grain, loose, dry to moist	
3		BH16-24-2		170	32 ppb	100%		fine, loose	-1.00
4								CLAYEY SAND grey/brown	
5		BH16-24-3		95	54 ppb	100%		CLAY grey/brown, hard, dry	-2.00
6								dry to moist grey medium stiff	
7		BH16-24-4		210	04 ppb	79%		very soft, wet	-3.00
8									
9		BH16-24-5		105	<1 ppb	79%			
10									
11		BH16-24-6		195	<1 ppb	100%			
12									
13		BH16-24-7		65	<1 ppb	100%			
14								End of borehole at 4.0m bgs	-4.00
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									

- (1) Blow count per 0.15 m using conventional hammer and split spoons
 (2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
 (3) Photo Ionization Detector (PID) reading (ppmv)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

* PID reading in ppb

** % LEL

Project No.: 640275

Client: NCC

Location: 16 Tauvette St.

Date Completed: 2016/08/23

Site Datum: n/a

SLI Supervisor: S.Clemow

Drilling Method: Geoprobe

Borehole Diameter: 58

Monitoring Well Diameter: n/a

Drilling Company: Strata

Drilling Equipment: 7822DT

Well Casing: n/a

Well Screen: n/a

OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0	0							Ground Surface	0.00
1								SAND AND GRAVEL FILL	
2								CLAYEY SAND FILL	
3		BH16-25-1		25	21 ppb	50%		CLAY grey, dry, very stiff	-1.00
4								medium stiff	
5		BH16-25-2		20	8 ppb	100%		soft	-2.00
6									
7		BH16-25-3	◆	20	8 ppb	100%			-3.00
8									
9		BH16-25-4		<5	<1 ppb	100%			-4.00
10									
11		BH16-25-5	◆	<5	<1 ppb	100%			-5.00
12								End of borehole at 4.6m bgs	-6.00
13									-7.00
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
(2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
(3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275
Client: NCC
Location: 16 Tauvette St.
Date Completed: 2016/08/23
Site Datum: n/a

SLI Supervisor: S.Clemow
Drilling Method: Geoprobe
Borehole Diameter: 58
Monitoring Well Diameter: n/a

Drilling Company: Strata
Drilling Equipment: 7822DT
Well Casing: n/a
Well Screen: n/a
OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0	0							Ground Surface	0.00
1								SAND AND GRAVEL FILL	
2								SAND FILL grey/brown	
3		BH16-26-1		<5	<1 ppb	35%		CLAYEY SAND	
4								CLAY grey, dry, very stiff	-1.00
5									
6		BH16-26-2	◆	15	34 ppb	100%		medium stiff, dry to moist	-2.00
7									
8								soft	
9		BH16-26-3		<5	<1 ppb	100%			
10								very soft, wet	-3.00
11		BH16-26-4	◆	<5	<1 ppb	50%			
12									
13		BH16-26-5		<5	<1 ppb	50%			-4.00
14									
15								End of borehole at 4.6m bgs	
16									-5.00
17									
18									
19									
20									-6.00
21									
22									
23									-7.00
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
(2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
(3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275

Client: NCC

Location: 16 Tauvette St.

Date Completed: 2016/08/23

Site Datum: Top of fire hydrant spindle at site Tauvette Street entrance

SLI Supervisor: S.Clemow

Drilling Method: Geoprobe

Borehole Diameter: 58

Monitoring Well Diameter: n/a

Drilling Company: Strata

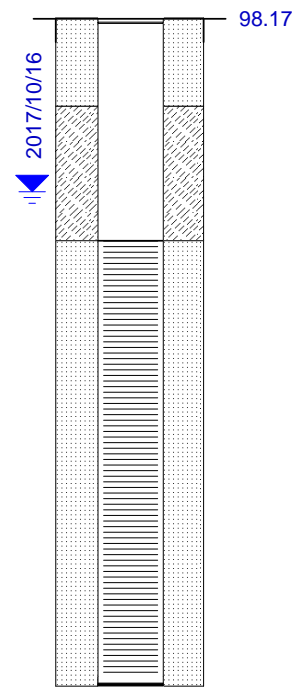
Drilling Equipment: 420 M/7822 DT

Well Casing: n/a

Well Screen: n/a

OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0	0							Ground Surface	98.28
1		BH16-27-1		<5	28 ppb	53%	ASPHALT		98.17
2							SAND with traces of gravel		
3	1	BH16-27-2		<5	<1 ppb	53%	CLAYEY SAND		
4							CLAY		97.00
5							very firm, dry		
6	2	BH16-27-3		<5	<1 ppb	100%		medium soft	96.00
7								moist	
8		BH16-27-4		<5	<1 ppb	100%			
9								very soft	95.00
10	3	BH16-27-5		<5	<1 ppb	100%			
11								grey, wet	
12		BH16-27-6		<5	<1 ppb	100%			94.00
13	4								
14								End of borehole at 4.6m bgs	
15	5								93.00
16									
17									
18									
19									
20	6								92.00
21									
22									
23	7								
24									91.00



(1) Blow count per 0.15 m using conventional hammer and split spoons
 (2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
 (3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

Project No.: 640275

Client: NCC

Location: 16 Tauvette St.

Date Completed: 2016/08/23

Site Datum: n/a

SLI Supervisor: S.Clemow

Drilling Method: Geoprobe

Borehole Diameter: 58

Monitoring Well Diameter: n/a

Drilling Company: Strata

Drilling Equipment: 7822DT

Well Casing: n/a

Well Screen: n/a

OVM/PID: RKI Eagle/ppb RAE 3000

DEPTH	BLOW COUNT (1)	SAMPLE ID	LOCATION	OVM (2)	PID (3)	RECOVERY (%)	GRAPHIC LOG	DESCRIPTION	ELEVATION (m)
0								Ground Surface	0.00
1		BH16-28-1		35	62 ppb	53%		ASPHALT	
2								SAND with traces of gravel	
3								CLAYEY SAND	
4		BH16-28-2		<5	<1 ppb	53%		CLAY very firm, dry	-1.00
5									
6		BH16-28-3	◆	35	<1 ppb	100%		medium soft	-2.00
7									
8								moist	
9		BH16-28-4		<5	<1 ppb	100%			
10								very soft	-3.00
11		BH16-28-5		<5	<1 ppb	100%			
12									
13								grey, wet	-4.00
14		BH16-28-6		<5	<1 ppb	100%			
15								End of borehole at 4.6m bgs	
16									-5.00
17									
18									
19									
20									-6.00
21									
22									
23									-7.00
24									

(1) Blow count per 0.15 m using conventional hammer and split spoons
(2) Organic Vapour Meter (OVM) reading (ppmv unless noted)
(3) Photo Ionization Detector (PID) reading (ppmv unless noted)

All elevations and locations are approximate.

Monitoring well equipped with dedicated inertial foot valve and polyethylene tubing for sampling.

◆ = Sample submitted for laboratory analysis

TEST PIT LOGS

Site Location: 16 Tauvette Street, Ottawa, On

Dates on Site: November 16, 2016

Instrument: OVM RKI Eagle/Eagle II

SNC-Lavalin Supervisor: Scott Clemow

Client: National Capital Commission

Test Pitting Contractor: Geo W. Drummond Ltd.

Excavator Model: Backhoe

Test Pit TP16-1

Sample ID	Sample Depth (mbgs)	OVM	Sample Location	Description
TP16-1-1	2.9	<5	Floor	grey/blue moist clay
TP16-1-3	2.4	<5	East Wall	grey/blue moist clay
TP16-1-4	2.1	<5	Storm sewer sand bedding	medium grain sand, saturated

Test Pit TP16-2/TP16-2A

Sample ID	Sample Depth (mbgs)	OVM	Sample Location	Description
TP16-2-1	2.3	<5	Storm sewer sand bedding	medium grain sand, saturated
TP16-2-2	2.6	<5	Floor	grey/blue moist clay
TP16-2-3	2.4	<5	South Wall near CB-12	medium grain sand, saturated
TP16-2-4	2.7	<5	Floor	grey/blue moist clay
TP16-2-5	2.3	<5	Floor	grey/blue moist clay

* TP16-2-55 is a duplicate sample of TP16-2-5

Test Pit TP16-3

Sample ID	Sample Depth (mbgs)	OVM	Sample Location	Description
TP163-2	2.4	<5	North Wall	mix of moist grey/blue clay and medium grain saturated sand from sewer bedding

Appendix C

Waste Disposal Records

TOMLINSON

FOUNDED ON **STRENGTH** GUIDED BY **VISION**

Tomlinson Environmental Services Ltd.

Industrial Waste Division

5555 Power Road, Ottawa, ON K1G 3N4

Phone: (613) 822-2700 / (800) 263-5048 / Fax: (613) 822-6183

MOE C OF A #A860156 / MOE-QUE FILE # 7610-07-01-0468

EQUIVALENCY CERTIFICATE No: SU 8885 No: SH 11178

EQUIVALENCY CERTIFICATE No: SU 11003

Straight Bill of Lading Original - Not Negotiable

Vehicle Number TO 71	Sequence Number 47782
Work Order Number D72559	Date 30 AUG 2016

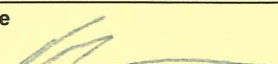
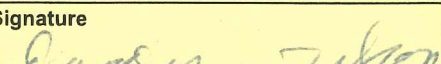
Generator/Consignor: NATIONAL CAPITAL COMMISSION		Receiver/Consignee: TOMLINSON ENVIRONMENTAL SERVICES				
16 TAUVELLE STREET		5555 POWER ROAD				
OTTAWA ON K1B1B5		OTTAWA ON K1G 3N4				
Payment Options		Cash	Cheque	Visa	Charge	
D G	UN/NA NUMBER	DESCRIPTION/ PROPER SHIPPING NAME	UN HAZARD CLASS(ES)	P G	Type and number of containers	TOTAL QUANTITY kilograms/litres
	NR	1) NON REGULATED SOLID WASTE (soil cuttings)	NR	NR	1 DM	200K

24- Hour Emergency Phone Number: 1(613) 996-6666, CANUTEC.

Type and Number of Placards Required: _____

Special Safety or Handling Instructions: _____

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition for transport according to the Transportation of Dangerous Goods Regulations.

Generator / Consignor NATIONAL CAPITAL COMMISSION	Carrier / Transporter TOMLINSON ENVIRONMENTAL SERVICES	Receiver / Consignee TOMLINSON ENVIRONMENTAL SERVICES
Name (Print) CHRIS FARMER	Name (Print) Jason Gilson	Name (Print) _____
Date 30 AUG 2016	Date 30 AUG 2016	Date 30 AUG 2016
Signature 	Signature 	Signature _____

MOVEMENT DOCUMENT / MANIFEST DOCUMENT DE MOUVEMENT / MANIFESTE

This Movement document/manifest conforms to all federal and provincial environmental legislation.
Ce document de mouvement/manifeste est conforme aux législations fédérale et provinciale sur l'environnement.

Equivalency Certificate No. SU6885

Equivalency Certificate No. SU11003
Equivalency Certificate No. SU11178

Doc: D72658

SD: 84320

ZB52923-1

Movement Document / Manifest Reference No.
N° de référence du document de mouvement/manifeste

A Generator / consigneur Producteur / expéditeur Registration No. / Provincial ID No. N° d'immatriculation - d'id. provincial ON6592660		B Carrier Transporteur Registration No. / Provincial ID No. N° d'immatriculation - d'id. provincial A860156		C Receiver / consignee Réceptionnaire / destinataire Registration No. / Provincial ID No. N° d'immatriculation - d'id. provincial	
Company name / Nom de l'entreprise NATIONAL CAPITAL COMMISSION		Company name / Nom de l'entreprise TOMLINSON ENVIRONMENTAL SERVICES		Receiver / consignee information same as in Part A Les renseignements du réceptionnaire / destinataire sont les mêmes qu'à la Partie A <input type="checkbox"/> Yes / Oui <input type="checkbox"/> No, complete the box below / Non, remplir la case ci-dessous	
Mailing address / Adresse postale City / Ville Province Postal code / Code postal 40 ELGIN ST, SUITE 202 OTTAWA ON K1P 1G7		Mailing address / Adresse postale City / Ville Province Postal code / Code postal 5555 POWER ROAD, OTTAWA, ON K1G 3N4		E-mail / Courriel électronique Tel. No. / N° de tél. ()	
Shipping site address / Adresse du lieu de l'expédition 16 TALUETTE STREET		Vehicle / Véhicule Trailer - Rail car No. 1 1 ^{re} remorque - wagon 747 6PS		Registration No. / N° d'immatriculation Prov. 24 613-822-2700	
City / Ville Province Postal code / Code postal OTTAWA ON K1B1B5		Port of entry / Point d'entrée International use only Port of exit / Point de sortie International use only Jason Gilson		Date received / Date de réception 29 Year / Année Month / Mois Day / Jour Time / Heure () A.M. P.M.	
Intended Receiver / consignee Réceptionnaire / destinataire prévu TOMLINSON ENVIRONMENTAL SERVICES A460716		Carrier Certification : I certify that I have received waste or recyclable material from the generator / consigneur for delivery to the receiver / consignee as set out in Part A and that the information contained in Part B is complete and correct. Attestation du transporteur : J'atteste avoir reçu les déchets ou matières recyclables du producteur / expéditeur en vue de leur livraison au réceptionnaire / destinataire, tels qu'ils figurent à la partie A et que les renseignements inscrits à la partie B sont exacts et complets.		Receiving site address / Adresse du lieu de destination 5555 POWER ROAD	
Mailing address / Adresse postale City / Ville Province Postal code / Code postal 5555 POWER ROAD OTTAWA, ON K1G 3N4		Name of authorized person (print): Nom de l'agent autorisé (caractères d'imprimerie): Jason Gilson		Tel. No. / N° de tél. 613-822-2700	
E-mail / Courriel électronique Tel. No. / N° de tél. () 613-822-2700		Signature: 160830 Jason Gilson		If waste or recyclable material to be transferred, specify intended company name/ Si les déchets ou matières recyclables doivent être transférés, préciser le nom du destinataire	
Receiving site address / Adresse du lieu de destination 5555 POWER ROAD		Year / Année Month / Mois Day / Jour 160830		Registration No./Provincial ID No. N° d'immatriculation/d'id provincial	
City / Ville Province Postal code / Code postal OTTAWA, ON K1G 3N4					
Prov. code Code prov. 3 221L		Shipping name Nom de l'expédition 4 NON REGULATED LIQUID WASTE (purge water)		Class / Classe Sub. class(es) Classe(s) sub. 5 NR	
UN No. N° NU 6 NR		Packing / risk gr. Gr. d'emballage/ de risque 7 NR		Quantity shipped Quantité expédiée 8 205 L	
Units L or / ou Kg 9 01 L		Packaging/Contenant Codes Int-ext 10 1		Phys. state État phys. 11 L	
Notice No. N° de notification 12 Notice Line No N° de ligne de la notification 13 Shipment Envoi 14 Of / De 15 D or R code Code D ou R 16 C code Code C 17 Basel Annex VIII or OECD Code Annexe VIII de Bâle ou Code OCDE 18 H code Code H 19 Y code Code Y 20 National code in country of / Code du pays 21 Export Exportation 22 Import Importation 23 Customs code(s) Code(s) de douanes 24		If handling code "Other" (specify) Si code de manutention « autre » (spécifier) 25 Receiver / consignee certification : I certify that the information contained in Part C is correct and complete. / Attestation du réceptionnaire / destinataire : J'atteste que tous les renseignements à la partie C sont exacts et complets.		Name of authorized person (print) Nom de l'agent autorisé (caractère d'imprimerie) 26 Signature 27 Tel. No. / N° de tél. 28 1-800-263-6646 Canotec 613-996-6666 24 Hours	
(i) (ii) (iii) (iv)		International use only		Special handling / Manutention spéciale 29 <input type="checkbox"/> Attached / Ci-joint <input type="checkbox"/> As follows / Ci-dessous	
Generator / consigneur certification : I certify that the information contained in Part A is correct and complete. I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. Attestation du producteur / expéditeur : J'atteste que tous les renseignements à la partie A sont exacts et complets. Je déclare que le contenu de ce chargement est décrit ci-dessus de façon complète et exacte par la désignation officielle de transport et qu'il est convenablement classé, emballé, marqué, étiqueté, muni de plaques-étiquettes et à tous égards bien conditionné pour être transporté conformément aux réglementations internationales et nationales applicables.		Name of authorized person (print) Nom de l'agent autorisé (caractère d'imprimerie) Signature		Date shipped / Date d'expédition 30 Year / Année Month / Mois Day / Jour Time / Heure 160830 849	
Scheduled arrival date / Date d'arrivée prévue 31 Year / Année Month / Mois Day / Jour 160830					

Instructions on reverse
Instructions au verso

Copy / Copie 1 (white / blanche)

MOVEMENT DOCUMENT / MANIFEST DOCUMENT DE MOUVEMENT / MANIFESTE

This Movement document/manifest conforms to all federal and provincial environmental legislation.
Ce document de mouvement/manifeste est conforme aux législations fédérale et provinciale sur l'environnement.

Equivalency Certificate No. SU8885

Equivalency Certificate No. SU11003
Equivalency Certificate No. SU11178

Doc: D72558

SO: 84320

ZB52923-1

Movement Document / Manifest Reference No.
N° de référence du document de mouvement/manifeste

A Generator / consigneur Producteur / expéditeur Registration No. / Provincial ID No. N° d'immatriculation - d'id. provincial ON8592660		B Carrier Transporteur Registration No. / Provincial ID No. N° d'immatriculation - d'id. provincial A860156		Reference Nos. of other movement document(s)/manifest(s) used / N° de référence des autres documents de mouvement/manifestes utilisés 27	
Company name / Nom de l'entreprise NATIONAL CAPITAL COMMISSION		Company name / Nom de l'entreprise TOMLINSON ENVIRONMENTAL SERVICES		C Receiver / consignee Réceptionnaire / destinataire Registration No. / Provincial ID No. N° d'immatriculation - d'id. provincial 28 Receiver / consignee information same as in Part A Les renseignements du réceptionnaire / destinataire sont les mêmes qu'à la Partie A <input type="checkbox"/> Yes / Oui <input type="checkbox"/> No, complete the box below / Non, remplir la case ci-dessous Company name / Nom de l'entreprise Mailing address / Adresse postale City / Ville Province Postal code / Code postal E-mail / Courriel électronique Tel. No. / N° de tél. Shipping site address / Adresse du lieu de l'expédition City / Ville Province Postal code / Code postal Intended Receiver / consignee Réceptionnaire / destinataire prévu Mailing address / Adresse postale City / Ville Province Postal code / Code postal E-mail / Courriel électronique Tel. No. / N° de tél. Receiving site address / Adresse du lieu de destination City / Ville Province Postal code / Code postal	
Mailing address / Adresse postale City / Ville Province Postal code / Code postal 40 ELGIN ST, SUITE 202 OTTAWA ON K1P 1G7		Mailing address / Adresse postale City / Ville Province Postal code / Code postal 5555 POWER ROAD, OTTAWA, ON K1G 3N4			
E-mail / Courriel électronique Tel. No. / N° de tél. ()		E-mail / Courriel électronique Tel. No. / N° de tél. () 613-822-2700			
Shipping site address / Adresse du lieu de l'expédition 16 TALVETTE STREET		Vehicle / Véhicule Trailer - Rail car No. 1 1 ^{re} remorque - wagon 747 6PS			
City / Ville Province Postal code / Code postal OTTAWA ON K1B1B5		Trailer - Rail car No. 2 2 ^e remorque - wagon ON			
Port of entry Point d'entrée International use only		Port of exit Point de sortie International use only		25	
Carrier Certification : I certify that I have received waste or recyclable material from the generator / consigneur for delivery to the receiver / consignee as set out in Part A and that the information contained in Part B is complete and correct. Attestation du transporteur : J'atteste avoir reçu les déchets ou matières recyclables du producteur / expéditeur en vue de leur livraison au réceptionnaire / destinataire, tels qu'ils figurent à la partie A et que les renseignements inscrits à la partie B sont exacts et complets.					
Name of authorized person (print): Nom de l'agent autorisé (caractères d'imprimerie): Jason Gilson Tel. No. / N° de tél. 613-822-2700					
Year / Année Month / Mois Day / Jour Signature: 11/6/08 3:00 Jason Gilson					
Prov. code Code prov.		Shipping name Appellation réglementaire		Class / Classe Sub. class(es) Classe(s) sub.	
(i) 221L		NON REGULATED LIQUID WASTE (purge water)		UN No. N° NU	
(ii)		Packing / risk gr. Gr. d'emballage / de risque		Quantity shipped Quantité expédiée	
(iii)		Units L or / ou Kg Unités		Packaging/Contentant Codes Int-ext	
(iv)		Phys. state État phys.		209 L 01 L	
Notice No. N° de notification		Notice Line No. N° de ligne de la notification		Shipment Envoi	
(i)		Of / De		D or R code Code D ou R	
(ii)		C code Code C		Basel Annex VIII or OECD Code Annexe VIII de Bâle ou Code OCDE	
(iii)		H code Code H		Y code Code Y	
(iv)		National code in country of / Code du pays		Customs code(s) Code(s) de douanes	
International use only					
If handling code "Other" (specify) Si code de manutention « autre » (spécifier)					
Receiver / consignee certification : I certify that the information contained in Part C is correct and complete. Attestation du réceptionnaire / destinataire : J'atteste que tous les renseignements à la partie C sont exacts et complets.					
Name of authorized person (print) Nom de l'agent autorisé (caractères d'imprimerie)					
Signature Tel. No. / N° de tél. ()					
Special handling / Manutention spéciale <input type="checkbox"/> Attached / Ci-joint <input type="checkbox"/> As follows / Ci-contre					
Date shipped / Date d'expédition Year / Année Month / Mois Day / Jour 11/6/08 3:00					
Time / Heure <input checked="" type="checkbox"/> A.M. <input type="checkbox"/> P.M.					
Scheduled arrival date / Date d'arrivée prévue Year / Année Month / Mois Day / Jour 11/6/08 3:00					

Generator / consigneur certification: I certify that the information contained in Part A is correct and complete. I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.
Attestation du producteur / expéditeur: J'atteste que tous les renseignements à la partie A sont exacts et complets. Je déclare que le contenu de ce chargement est décrit ci-dessus de façon complète et exacte par la désignation officielle de transport et qu'il est convenablement classé, emballé, marqué, étiqueté, muni de plaques-étiquettes et à tous égards bien conditionné pour être transporté conformément aux réglementations internationales et nationales applicables.

Name of authorized person (print)
 Nom de l'agent autorisé (caractères d'imprimerie)
 Signature

Tel. No. / N° de tél.

Retained by Consignor
 Gardée par l'expéditeur

Copy / Copie 2 (green / verte)

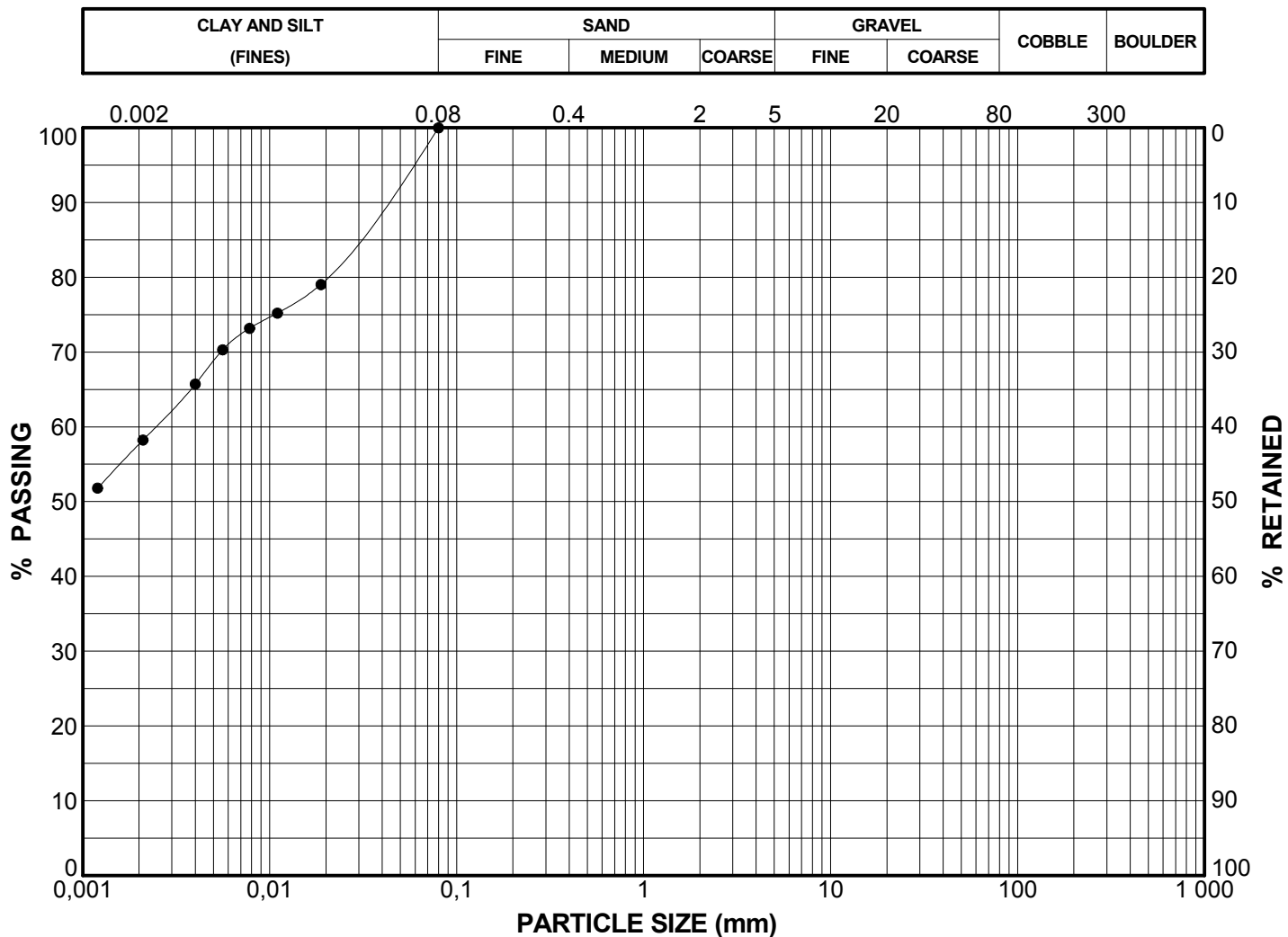
Appendix D

Soil

Particle Size Distribution

PARTICLE SIZE DISTRIBUTION

CLIENT : National Capital Commission
PROJECT : Supplemental ESA
LOCATION : 16 Tauvette Street, Ottawa, ON
FILE : 640275



	Boring and / or Test Pit	Sample	Depth (m)		Gravel (%)	Sand (%)	Silt and Clay (%)		Description
			from	to					
●	BH16-3	Comp	1,80	3,70	0	0	42,3	57,7	Clay and silt.

REMARKS :

Appendix E

Laboratory Certificates of Analysis

Soil (Petroleum Parameters)

Your P.O. #: 10627
Your Project #: 640275
Your C.O.C. #: 574053-03-01

Attention: Melanie Siewert

SNC-Lavalin Inc
Nepean
20 Colonnade Rd
Suite 110
Ottawa, ON
K2E 7M6

Report Date: 2016/08/23
Report #: R4126727
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B6H6431

Received: 2016/08/19, 12:45

Sample Matrix: Soil
Samples Received: 2

Analyses	Date		Date Analyzed	Laboratory Method	Reference
	Quantity	Extracted			
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	1	N/A	2016/08/20	OTT SOP-00002	CCME CWS
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	1	N/A	2016/08/21	OTT SOP-00002	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil (2)	2	2016/08/19	2016/08/20	OTT SOP-00001	CCME CWS
F4G (CCME Hydrocarbons Gravimetric)	1	2016/08/22	2016/08/23	OTT SOP-00001	CCME CWS
MOISTURE	2	N/A	2016/08/22	CAM SOP-00445	McKeague 2nd ed 1978

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

- (1) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Your P.O. #: 10627
Your Project #: 640275
Your C.O.C. #: 574053-03-01

Attention:Melanie Siewert

SNC-Lavalin Inc
Nepean
20 Colonnade Rd
Suite 110
Ottawa, ON
K2E 7M6

Report Date: 2016/08/23
Report #: R4126727
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B6H6431
Received: 2016/08/19, 12:45

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Madison Bingley, Project Manager
Email: MBingley@maxxam.ca
Phone# (613)274-3549

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B6H6431
Report Date: 2016/08/23

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

RESULTS OF ANALYSES OF SOIL

Maxxam ID		CXN217	CXN218		
Sampling Date		2016/08/18 10:00	2016/08/18 10:10		
COC Number		574053-03-01	574053-03-01		
	UNITS	BH16-1-4	BH16-1-7	RDL	QC Batch
Inorganics					
Moisture	%	33	21	0.2	4626605
RDL = Reportable Detection Limit					
QC Batch = Quality Control Batch					

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CXN217	CXN218		
Sampling Date		2016/08/18 10:00	2016/08/18 10:10		
COC Number		574053-03-01	574053-03-01		
	UNITS	BH16-1-4	BH16-1-7	RDL	QC Batch
BTEX & F1 Hydrocarbons					
Benzene	ug/g	<0.0050	<0.0050	0.0050	4628430
Toluene	ug/g	<0.020	<0.020	0.020	4628430
Ethylbenzene	ug/g	<0.010	<0.010	0.010	4628430
o-Xylene	ug/g	<0.020	<0.020	0.020	4628430
p+m-Xylene	ug/g	<0.040	<0.040	0.040	4628430
Total Xylenes	ug/g	<0.040	<0.040	0.040	4628430
F1 (C6-C10)	ug/g	<10	<10	10	4628430
F1 (C6-C10) - BTEX	ug/g	<10	<10	10	4628430
F2-F4 Hydrocarbons					
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g		220	100	4630126
F2 (C10-C16 Hydrocarbons)	ug/g	<10	11	10	4626610
F3 (C16-C34 Hydrocarbons)	ug/g	<50	55	50	4626610
F4 (C34-C50 Hydrocarbons)	ug/g	<50	73	50	4626610
Reached Baseline at C50	ug/g	Yes	No		4626610
Surrogate Recovery (%)					
1,4-Difluorobenzene	%	98	99		4628430
4-Bromofluorobenzene	%	108	108		4628430
D10-Ethylbenzene	%	88	94		4628430
D4-1,2-Dichloroethane	%	94	95		4628430
o-Terphenyl	%	91	87		4626610
RDL = Reportable Detection Limit					
QC Batch = Quality Control Batch					

Maxxam Job #: B6H6431
Report Date: 2016/08/23

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

TEST SUMMARY

Maxxam ID: CXN217
Sample ID: BH16-1-4
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4628430	N/A	2016/08/20	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4626610	2016/08/19	2016/08/20	Liliana Gaburici
MOISTURE	BAL	4626605	N/A	2016/08/22	Liliana Gaburici

Maxxam ID: CXN217 Dup
Sample ID: BH16-1-4
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4628430	N/A	2016/08/21	Steve Roberts

Maxxam ID: CXN218
Sample ID: BH16-1-7
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4628430	N/A	2016/08/21	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4626610	2016/08/19	2016/08/20	Liliana Gaburici
F4G (CCME Hydrocarbons Gravimetric)	BAL	4630126	2016/08/22	2016/08/23	Liliana Gaburici
MOISTURE	BAL	4626605	N/A	2016/08/22	Liliana Gaburici

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.0°C
Package 2	1.7°C
Package 3	4.0°C

Revised Report (2016/08/23): F4G included.

Results relate only to the items tested.

QUALITY ASSURANCE REPORT

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
4626610	o-Terphenyl	2016/08/19	82	30 - 130	86	30 - 130	86	%		
4628430	1,4-Difluorobenzene	2016/08/20	96	60 - 140	96	60 - 140	98	%		
4628430	4-Bromofluorobenzene	2016/08/20	110	60 - 140	112	60 - 140	107	%		
4628430	D10-Ethylbenzene	2016/08/20	90	30 - 130	105	30 - 130	95	%		
4628430	D4-1,2-Dichloroethane	2016/08/20	90	60 - 140	94	60 - 140	94	%		
4626605	Moisture	2016/08/19							20	50
4626610	F2 (C10-C16 Hydrocarbons)	2016/08/19	90	50 - 130	91	80 - 120	<10	ug/g	NC	50
4626610	F3 (C16-C34 Hydrocarbons)	2016/08/19	90	50 - 130	91	80 - 120	<50	ug/g	NC	50
4626610	F4 (C34-C50 Hydrocarbons)	2016/08/19	90	50 - 130	91	80 - 120	<50	ug/g	NC	50
4628430	Benzene	2016/08/21	81	60 - 140	92	60 - 140	<0.0050	ug/g	NC	50
4628430	Ethylbenzene	2016/08/21	89	60 - 140	101	60 - 140	<0.010	ug/g	NC	50
4628430	F1 (C6-C10) - BTEX	2016/08/21					<10	ug/g	NC	50
4628430	F1 (C6-C10)	2016/08/21	119	60 - 140	105	80 - 120	<10	ug/g	NC	50
4628430	o-Xylene	2016/08/21	83	60 - 140	96	60 - 140	<0.020	ug/g	NC	50
4628430	p+m-Xylene	2016/08/21	82	60 - 140	94	60 - 140	<0.040	ug/g	NC	50
4628430	Toluene	2016/08/21	82	60 - 140	94	60 - 140	<0.020	ug/g	NC	50
4628430	Total Xylenes	2016/08/21					<0.040	ug/g	NC	50
4630126	F4G-sg (Grav. Heavy Hydrocarbons)	2016/08/23			102	65 - 135	<100	ug/g	0	50

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

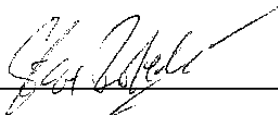
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).


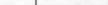


Paul Rubinato, Analyst, Maxxam Analytics



Steve Roberts, Ottawa Lab Manager


Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#2033 SNC-Lavalin Inc	Company Name:	#18603 SNC-Lavalin Inc	Quotation #:	B63173	Maxxam Job #:	Bottle Order #:
Attention:	Accounts Payable	Attention:	Melanie Siewert	P.O. #:	10627		
Address:	455 René-Lévesque Blvd. West	Address:	20 Colonnade Rd Suite 110	Project:	640275		574053
	Montreal QC H2Z 1Z3		Ottawa ON K2E 7M6	Project Name:		COC #:	Project Manager:
Tel:	(514) 393-1000 x	Fax:	(514) 866-0795 x	Site #:			Madison Bingley
Email:	payables@snclavalin.com	Tel:	() - x221	Fax:		CS740553-03-01	
		Email:	melanie.siewert@snclavalin.com	Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY						ANALYSIS REQUESTED (PLEASE BE SPECIFIC)										Turnaround Time (TAT) Required: Please provide advance notice for rush projects				
Regulation 153 (2011)		Other Regulations		Special Instructions		Field Filtered (please circle): Metals / Hg / Cr VI	CCME Petroleum Hydrocarbons <i>9. BTEX</i>	Springhill-Flashpoint, PHCs, TCLP PCBs, TCLP Metals, TCLP VOCs, TCLP SVOCs											Regular (Standard) TAT: (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) Date Required: <i>2010823</i> Time Required: <i>9:00am</i> <input checked="" type="checkbox"/> Rush Confirmation Number: _____ (call lab for #)	
Include Criteria on Certificate of Analysis (Y/N)?																			# of Bottles	Comments
<input type="checkbox"/> Table 1	<input type="checkbox"/> Res/Park	<input checked="" type="checkbox"/> Medium/Fine	<input checked="" type="checkbox"/> CCME	<input type="checkbox"/> Sanitary Sewer Bylaw															3	
<input checked="" type="checkbox"/> Table 2	<input type="checkbox"/> Ind/Comm	<input type="checkbox"/> Coarse	<input type="checkbox"/> Reg 558	<input type="checkbox"/> Storm Sewer Bylaw															3	
<input type="checkbox"/> Table 3	<input checked="" type="checkbox"/> Agri/Other	<input type="checkbox"/> For RSC	<input type="checkbox"/> MISA	Municipality _____																
<input type="checkbox"/> Table _____			<input type="checkbox"/> PWQO																	
			<input type="checkbox"/> Other <i>Low Level BTEX</i>																	
1		BH16-1-4	20160818	10:00	Soil		X													
2		BH16-1-7	20160818	10:10	Soil		X													
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

19-Aug-16 12:45

Madison Bingley



B6H6431

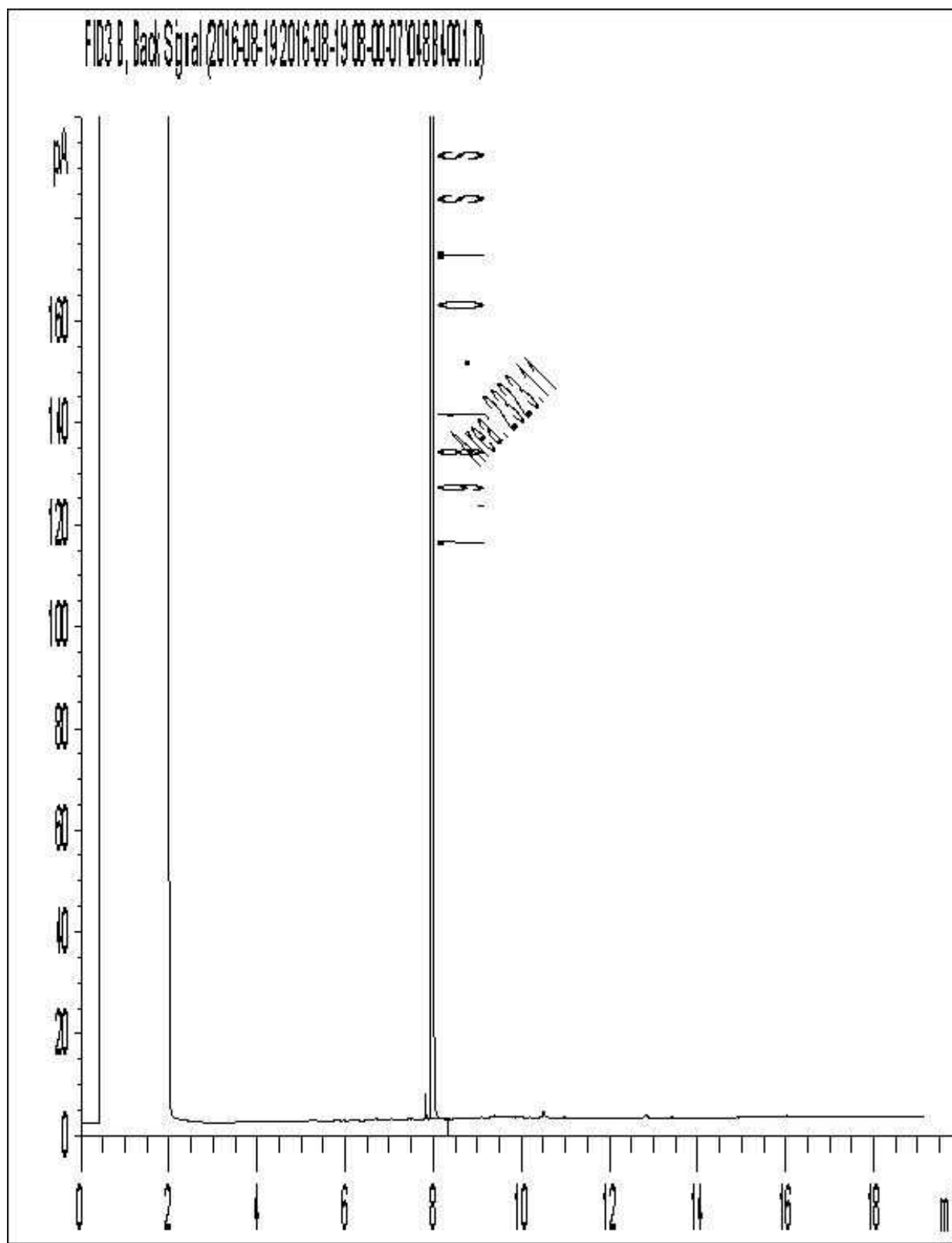
FHB OTT-002

RECEIVED IN OTTAWA

DN ICF

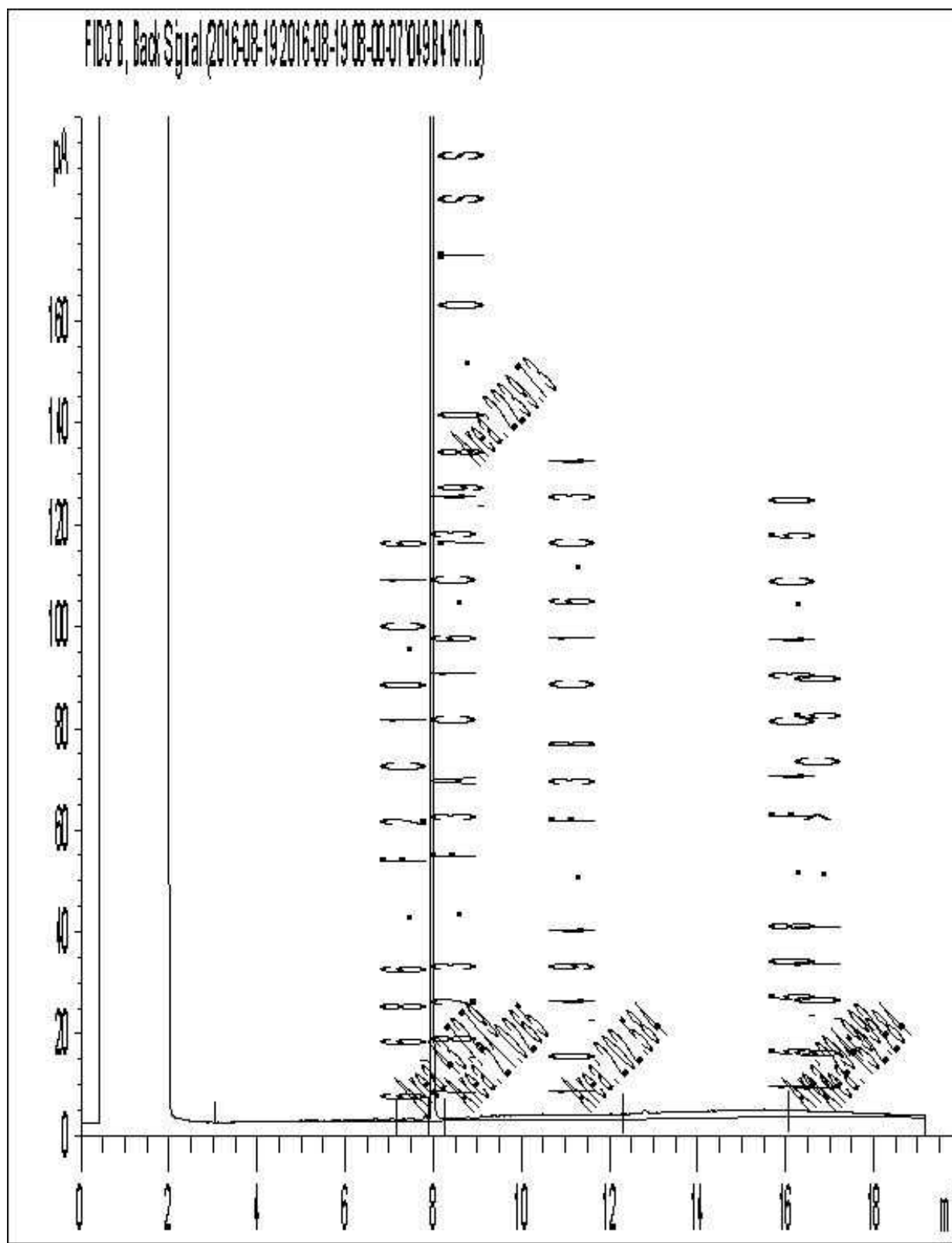
* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only				
<i>Scott Chen</i>	20160819	12:45	<i>Raul Wambo</i>	20160819	12:45		Time Sensitive	Temperature (°C) on Receipt 0, 2, 4 1, 2, 12	Custody Seal	Yes	No
									Present	/	
									Intact	/	
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.						SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM			White: Maxxam	Yellow: Client	

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Your P.O. #: 10627
Your Project #: 640275

Attention: Melanie Siewert

SNC-Lavalin Inc
Nepean
20 Colonnade Rd
Suite 110
Ottawa, ON
K2E 7M6

Your C.O.C. #: 574053-07-01, 574053-06-01, 574053-05-01, 574053-04-01, 574053-02-01

Report Date: 2016/08/26
Report #: R4136611
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6H6519

Received: 2016/08/19, 12:45

Sample Matrix: Soil
Samples Received: 50

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2)	23	N/A	2016/08/24	OTT SOP-00002	CCME CWS
Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2)	27	N/A	2016/08/25	OTT SOP-00002	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	14	2016/08/22	2016/08/22	OTT SOP-00001	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	15	2016/08/22	2016/08/23	OTT SOP-00001	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	14	2016/08/22	2016/08/24	OTT SOP-00001	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	6	2016/08/22	2016/08/25	OTT SOP-00001	CCME CWS
F4G (CCME Hydrocarbons Gravimetric) (1)	1	2016/08/25	2016/08/26	OTT SOP-00001	CCME CWS
MOISTURE (1)	12	N/A	2016/08/22	CAM SOP-00445	McKeague 2nd ed 1978
MOISTURE (1)	37	N/A	2016/08/23	CAM SOP-00445	McKeague 2nd ed 1978

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

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Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Ottawa

(2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.

(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Your P.O. #: 10627
Your Project #: 640275

Attention:Melanie Siewert

SNC-Lavalin Inc
Nepean
20 Colonnade Rd
Suite 110
Ottawa, ON
K2E 7M6

Your C.O.C. #: 574053-07-01, 574053-06-01, 574053-05-01, 574053-04-01, 574053-02-01

Report Date: 2016/08/26
Report #: R4136611
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6H6519
Received: 2016/08/19, 12:45

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Madison Bingley, Project Manager
Email: MBingley@maxxam.ca
Phone# (613)274-3549
=====

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RESULTS OF ANALYSES OF SOIL

Maxxam ID		CXN538	CXN539	CXN540	CXN542	CXN543	CXN544		
Sampling Date		2016/08/16 09:40	2016/08/16 10:10	2016/08/16 10:15	2016/08/16 10:40	2016/08/16 10:50	2016/08/16 11:50		
COC Number		574053-07-01	574053-07-01	574053-07-01	574053-07-01	574053-07-01	574053-07-01		
	UNITS	BH16-11-7	BH16-10-5	BH16-10-8	BH16-12-4	BH16-12-11	BH16-15-4	RDL	QC Batch

Inorganics									
Moisture	%	27	34	41	32	42	35	0.2	4629200
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

Maxxam ID		CXN545	CXN546	CXN547	CXN597	CXN598	CXN599		
Sampling Date		2016/08/16 11:55	2016/08/16 12:40	2016/08/16 12:55	2016/08/16 13:40	2016/08/16 13:50	2016/08/16 14:40		
COC Number		574053-07-01	574053-07-01	574053-07-01	574053-06-01	574053-06-01	574053-06-01		
	UNITS	BH16-15-7	BH16-14-5	BH16-14-7	BH16-13-4	BH16-13-7	BH16-16-3	RDL	QC Batch

Inorganics									
Moisture	%	44	33	39	34	41	32	0.2	4629200
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

Maxxam ID		CXN600	CXN601	CXN602	CXN603	CXN604	CXN605		
Sampling Date		2016/08/16 15:00	2016/08/17 08:20	2016/08/17 08:30	2016/08/17 09:20	2016/08/17 09:30	2016/08/17 10:20		
COC Number		574053-06-01	574053-06-01	574053-06-01	574053-06-01	574053-06-01	574053-06-01		
	UNITS	BH16-16-6	BH16-24-4	BH16-24-7	BH16-22-4	BH16-22-7	BH16-21-4	RDL	QC Batch

Inorganics									
Moisture	%	41	33	39	32	43	32	0.2	4629201
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

Maxxam ID		CXN606	CXN619	CXN620	CXN621	CXN622	CXN623		
Sampling Date		2016/08/17 10:30	2016/08/17 10:50	2016/08/17 11:00	2016/08/17 12:00	2016/08/17 12:10	2016/08/17 12:50		
COC Number		574053-06-01	574053-05-01	574053-05-01	574053-05-01	574053-05-01	574053-05-01		
	UNITS	BH16-21-7	BH16-20-3	BH16-20-9	BH16-23-3	BH16-23-6	BH16-19-6	RDL	QC Batch

Inorganics									
Moisture	%	44	28	42	30	42	28	0.2	4629201
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

RESULTS OF ANALYSES OF SOIL

Maxxam ID		CXN624	CXN625	CXN626	CXN627	CXN628	CXN647		
Sampling Date		2016/08/17 12:55	2016/08/17 13:50	2016/08/17 14:30	2016/08/17 15:20	2016/08/17 15:40	2016/08/17 16:00		
COC Number		574053-05-01	574053-05-01	574053-05-01	574053-05-01	574053-05-01	574053-04-01		
	UNITS	BH16-19-8	BH16-18-4	BH16-17-6	BH16-7-5	BH16-7-7	BH16-9-4	RDL	QC Batch

Inorganics									
Moisture	%	42	34	38	33	40	31	0.2	4629201
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

Maxxam ID		CXN648	CXN649		CXN650	CXN651	CXN652		
Sampling Date		2016/08/17 16:00	2016/08/17 16:20		2016/08/17 16:30	2016/08/18 08:15	2016/08/18 08:30		
COC Number		574053-04-01	574053-04-01		574053-04-01	574053-04-01	574053-04-01		
	UNITS	BH16-9-99	BH16-9-9	QC Batch	BH16-9-13	BH16-2A-4	BH16-2-4	RDL	QC Batch

Inorganics									
Moisture	%	30	43	4629201	44	18	33	0.2	4629203
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

Maxxam ID		CXN653	CXN654	CXN655	CXN656	CXN729	CXN730		
Sampling Date		2016/08/18 08:40	2016/08/18 09:30	2016/08/18 09:40	2016/08/18 13:20	2016/08/18 11:30	2016/08/18 12:20		
COC Number		574053-04-01	574053-04-01	574053-04-01	574053-04-01	574053-02-01	574053-02-01		
	UNITS	BH16-2-9	BH16-5-4	BH16-5-7	BH16-6-66	BH16-3-6	BH16-8-3	RDL	QC Batch

Inorganics									
Moisture	%	44	32	43	33	39	28	0.2	4629203
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

Maxxam ID		CXN731	CXN732	CXN733	CXN734	CXN735	CXN736		
Sampling Date		2016/08/18 12:30	2016/08/18 13:20	2016/08/18 13:50	2016/08/18 13:55	2016/08/18 14:30	2016/08/18 14:50		
COC Number		574053-02-01	574053-02-01	574053-02-01	574053-02-01	574053-02-01	574053-02-01		
	UNITS	BH16-8-6	BH16-6-6	BH16-6-11	BH16-6-15	BH16-4-5	BH16-4-9	RDL	QC Batch

Inorganics									
Moisture	%	36	37	39	42	37	39	0.2	4629203
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

Maxxam Job #: B6H6519
Report Date: 2016/08/26

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

RESULTS OF ANALYSES OF SOIL

Maxxam ID		CXN737	CXN984		
Sampling Date		2016/08/18 14:55			
COC Number		574053-02-01	574053-02-01		
	UNITS	BH16-4-11	BH16-3-4	RDL	QC Batch
Inorganics					
Moisture	%	45	29	0.2	4629203
RDL = Reportable Detection Limit					
QC Batch = Quality Control Batch					

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CXN538	CXN539	CXN540	CXN541	CXN542		
Sampling Date		2016/08/16 09:40	2016/08/16 10:10	2016/08/16 10:15	2016/08/16 10:30	2016/08/16 10:40		
COC Number		574053-07-01	574053-07-01	574053-07-01	574053-07-01	574053-07-01		
	UNITS	BH16-11-7	BH16-10-5	BH16-10-8	BH16-12-2	BH16-12-4	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	4630925
Toluene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4630925
Ethylbenzene	ug/g	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4630925
o-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4630925
p+m-Xylene	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4630925
Total Xylenes	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4630925
F1 (C6-C10)	ug/g	<10	<10	<10	<10	<10	10	4630925
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	<10	<10	10	4630925
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	<10		<10	10	4629211
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	<50		<50	50	4629211
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	<50		<50	50	4629211
Reached Baseline at C50	ug/g	Yes	Yes	Yes		Yes		4629211
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	97	98	95	96	98		4630925
4-Bromofluorobenzene	%	111	109	107	110	115		4630925
D10-Ethylbenzene	%	88	83	86	81	85		4630925
D4-1,2-Dichloroethane	%	91	92	89	90	91		4630925
o-Terphenyl	%	101	96	84		101		4629211
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CXN543	CXN544	CXN545	CXN546	CXN547		
Sampling Date		2016/08/16 10:50	2016/08/16 11:50	2016/08/16 11:55	2016/08/16 12:40	2016/08/16 12:55		
COC Number		574053-07-01	574053-07-01	574053-07-01	574053-07-01	574053-07-01		
	UNITS	BH16-12-11	BH16-15-4	BH16-15-7	BH16-14-5	BH16-14-7	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/g	<0.0050	<0.0050	<0.0050	0.069	0.059	0.0050	4630925
Toluene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4630925
Ethylbenzene	ug/g	<0.010	<0.010	<0.010	0.041	<0.010	0.010	4630925
o-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4630925
p+m-Xylene	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4630925
Total Xylenes	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4630925
F1 (C6-C10)	ug/g	<10	<10	<10	<10	<10	10	4630925
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	<10	<10	10	4630925
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	<10	<10	<10	10	4629211
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	<50	<50	<50	50	4629211
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	<50	<50	<50	50	4629211
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes	Yes		4629211
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	95	95	99	97	94		4630925
4-Bromofluorobenzene	%	109	113	113	113	115		4630925
D10-Ethylbenzene	%	75	82	80	85	73		4630925
D4-1,2-Dichloroethane	%	90	89	97	92	87		4630925
o-Terphenyl	%	85	85	87	102	101		4629211
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CXN597		CXN598		CXN599		
Sampling Date		2016/08/16 13:40		2016/08/16 13:50		2016/08/16 14:40		
COC Number		574053-06-01		574053-06-01		574053-06-01		
	UNITS	BH16-13-4	RDL	BH16-13-7	QC Batch	BH16-16-3	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/g	0.35	0.025	0.47	4630925	<0.0050	0.0050	4630925
Toluene	ug/g	0.18	0.10	<0.020	4630925	<0.020	0.020	4630925
Ethylbenzene	ug/g	7.3	0.050	0.10	4630925	<0.010	0.010	4630925
o-Xylene	ug/g	0.15	0.10	<0.020	4630925	<0.020	0.020	4630925
p+m-Xylene	ug/g	22	0.20	<0.040	4630925	<0.040	0.040	4630925
Total Xylenes	ug/g	22	0.20	<0.040	4630925	<0.040	0.040	4630925
F1 (C6-C10)	ug/g	740	50	<10	4630925	<10	10	4630925
F1 (C6-C10) - BTEX	ug/g	710	50	<10	4630925	<10	10	4630925
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	210	10	<10	4629211	<10	10	4629216
F3 (C16-C34 Hydrocarbons)	ug/g	<50	50	<50	4629211	<50	50	4629216
F4 (C34-C50 Hydrocarbons)	ug/g	<50	50	<50	4629211	<50	50	4629216
Reached Baseline at C50	ug/g	Yes		Yes	4629211	Yes		4629216
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	93		96	4630925	96		4630925
4-Bromofluorobenzene	%	121		111	4630925	108		4630925
D10-Ethylbenzene	%	89		75	4630925	79		4630925
D4-1,2-Dichloroethane	%	85		90	4630925	91		4630925
o-Terphenyl	%	99		86	4629211	84		4629216
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CXN600	CXN601	CXN602	CXN603	CXN604		
Sampling Date		2016/08/16 15:00	2016/08/17 08:20	2016/08/17 08:30	2016/08/17 09:20	2016/08/17 09:30		
COC Number		574053-06-01	574053-06-01	574053-06-01	574053-06-01	574053-06-01		
	UNITS	BH16-16-6	BH16-24-4	BH16-24-7	BH16-22--4	BH16-22-7	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	4630927
Toluene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4630927
Ethylbenzene	ug/g	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4630927
o-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4630927
p+m-Xylene	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4630927
Total Xylenes	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4630927
F1 (C6-C10)	ug/g	<10	<10	<10	<10	<10	10	4630927
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	<10	<10	10	4630927
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	<10	<10	<10	10	4629216
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	<50	50	<50	50	4629216
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	<50	<50	<50	50	4629216
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes	Yes		4629216
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	95	96	95	96	96		4630927
4-Bromofluorobenzene	%	110	104	112	110	114		4630927
D10-Ethylbenzene	%	78	87	82	86	79		4630927
D4-1,2-Dichloroethane	%	93	98	91	94	92		4630927
o-Terphenyl	%	80	87	89	110	105		4629216
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CXN605	CXN606	CXN619	CXN620	CXN621		
Sampling Date		2016/08/17 10:20	2016/08/17 10:30	2016/08/17 10:50	2016/08/17 11:00	2016/08/17 12:00		
COC Number		574053-06-01	574053-06-01	574053-05-01	574053-05-01	574053-05-01		
	UNITS	BH16-21-4	BH16-21-7	BH16-20-3	BH16-20-9	BH16-23-3	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	4630927
Toluene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4630927
Ethylbenzene	ug/g	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4630927
o-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4630927
p+m-Xylene	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4630927
Total Xylenes	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4630927
F1 (C6-C10)	ug/g	120	<10	100	<10	<10	10	4630927
F1 (C6-C10) - BTEX	ug/g	120	<10	100	<10	<10	10	4630927
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	440	<10	610	<10	<10	10	4629216
F3 (C16-C34 Hydrocarbons)	ug/g	470	<50	560	<50	<50	50	4629216
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	65	<50	<50	50	4629216
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes	Yes		4629216
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	94	95	94	96	95		4630927
4-Bromofluorobenzene	%	118	109	119	110	110		4630927
D10-Ethylbenzene	%	92	81	84	81	82		4630927
D4-1,2-Dichloroethane	%	91	90	91	93	92		4630927
o-Terphenyl	%	114	88	122	88	88		4629216
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CXN622	CXN623	CXN624	CXN625	CXN626		
Sampling Date		2016/08/17 12:10	2016/08/17 12:50	2016/08/17 12:55	2016/08/17 13:50	2016/08/17 14:30		
COC Number		574053-05-01	574053-05-01	574053-05-01	574053-05-01	574053-05-01		
	UNITS	BH16-23-6	BH16-19-6	BH16-19-8	BH16-18-4	BH16-17-6	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	4630927
Toluene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4630927
Ethylbenzene	ug/g	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4630927
o-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4630927
p+m-Xylene	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4630927
Total Xylenes	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4630927
F1 (C6-C10)	ug/g	<10	<10	<10	<10	<10	10	4630927
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	<10	<10	10	4630927
F2-F4 Hydrocarbons								
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g		950				100	4635129
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	<10	<10	<10	10	4629216
F3 (C16-C34 Hydrocarbons)	ug/g	<50	200	<50	<50	<50	50	4629216
F4 (C34-C50 Hydrocarbons)	ug/g	<50	250	<50	<50	<50	50	4629216
Reached Baseline at C50	ug/g	Yes	No	Yes	Yes	Yes		4629216
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	96	96	96	95	95		4630927
4-Bromofluorobenzene	%	110	112	111	112	108		4630927
D10-Ethylbenzene	%	86	87	83	82	87		4630927
D4-1,2-Dichloroethane	%	93	92	92	92	91		4630927
o-Terphenyl	%	90	94	103	99	105		4629216
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CXN627	CXN628		CXN647	CXN648		
Sampling Date		2016/08/17 15:20	2016/08/17 15:40		2016/08/17 16:00	2016/08/17 16:00		
COC Number		574053-05-01	574053-05-01		574053-04-01	574053-04-01		
	UNITS	BH16-7-5	BH16-7-7	RDL	BH16-9-4	BH16-9-99	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/g	<0.0050	<0.0050	0.0050	2.3	3.3	0.050	4630927
Toluene	ug/g	<0.020	<0.020	0.020	0.69	0.59	0.20	4630927
Ethylbenzene	ug/g	<0.010	<0.010	0.010	13	13	0.10	4630927
o-Xylene	ug/g	<0.020	<0.020	0.020	5.0	5.6	0.20	4630927
p+m-Xylene	ug/g	<0.040	<0.040	0.040	47	47	0.40	4630927
Total Xylenes	ug/g	<0.040	<0.040	0.040	52	53	0.40	4630927
F1 (C6-C10)	ug/g	<10	<10	10	640	600	100	4630927
F1 (C6-C10) - BTEX	ug/g	<10	<10	10	570	530	100	4630927
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	10	190	230	10	4629216
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	50	83	86	50	4629216
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	50	<50	<50	50	4629216
Reached Baseline at C50	ug/g	Yes	Yes		Yes	Yes		4629216
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	98	95		94	95		4630927
4-Bromofluorobenzene	%	109	112		119	115		4630927
D10-Ethylbenzene	%	90	86		76	80		4630927
D4-1,2-Dichloroethane	%	94	93		86	86		4630927
o-Terphenyl	%	87	90		106	115		4629216
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CXN649		CXN650	CXN651	CXN652	CXN653		
Sampling Date		2016/08/17 16:20		2016/08/17 16:30	2016/08/18 08:15	2016/08/18 08:30	2016/08/18 08:40		
COC Number		574053-04-01		574053-04-01	574053-04-01	574053-04-01	574053-04-01		
	UNITS	BH16-9-9	QC Batch	BH16-9-13	BH16-2A-4	BH16-2-4	BH16-2-9	RDL	QC Batch

BTEX & F1 Hydrocarbons									
Benzene	ug/g	0.15	4630927	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	4630933
Toluene	ug/g	<0.020	4630927	<0.020	<0.020	<0.020	<0.020	0.020	4630933
Ethylbenzene	ug/g	0.067	4630927	<0.010	<0.010	0.041	<0.010	0.010	4630933
o-Xylene	ug/g	0.023	4630927	<0.020	<0.020	<0.020	<0.020	0.020	4630933
p+m-Xylene	ug/g	0.22	4630927	<0.040	<0.040	<0.040	<0.040	0.040	4630933
Total Xylenes	ug/g	0.24	4630927	<0.040	<0.040	<0.040	<0.040	0.040	4630933
F1 (C6-C10)	ug/g	<10	4630927	<10	55	76	<10	10	4630933
F1 (C6-C10) - BTEX	ug/g	<10	4630927	<10	55	76	<10	10	4630933
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	<10	4629217	<10	930	<10	<10	10	4629217
F3 (C16-C34 Hydrocarbons)	ug/g	<50	4629217	<50	630	<50	<50	50	4629217
F4 (C34-C50 Hydrocarbons)	ug/g	<50	4629217	<50	<50	<50	<50	50	4629217
Reached Baseline at C50	ug/g	Yes	4629217	Yes	Yes	Yes	Yes		4629217
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	94	4630927	95	92	97	95		4630933
4-Bromofluorobenzene	%	118	4630927	113	118	116	113		4630933
D10-Ethylbenzene	%	69	4630927	77	86	90	81		4630933
D4-1,2-Dichloroethane	%	87	4630927	88	88	89	88		4630933
o-Terphenyl	%	98	4629217	92	102	108	92		4629217
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CXN654	CXN655	CXN656	CXN729	CXN730		
Sampling Date		2016/08/18 09:30	2016/08/18 09:40	2016/08/18 13:20	2016/08/18 11:30	2016/08/18 12:20		
COC Number		574053-04-01	574053-04-01	574053-04-01	574053-02-01	574053-02-01		
	UNITS	BH16-5-4	BH16-5-7	BH16-6-66	BH16-3-6	BH16-8-3	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/g	<0.0050	<0.0050	1.4	<0.0050	<0.0050	0.0050	4630933
Toluene	ug/g	<0.020	<0.020	0.13	<0.020	<0.020	0.020	4630933
Ethylbenzene	ug/g	<0.010	<0.010	6.5	<0.010	<0.010	0.010	4630933
o-Xylene	ug/g	<0.020	<0.020	0.21	<0.020	<0.020	0.020	4630933
p+m-Xylene	ug/g	<0.040	<0.040	18	<0.040	<0.040	0.040	4630933
Total Xylenes	ug/g	<0.040	<0.040	19	<0.040	<0.040	0.040	4630933
F1 (C6-C10)	ug/g	<10	<10	350	<10	<10	10	4630933
F1 (C6-C10) - BTEX	ug/g	<10	<10	320	<10	<10	10	4630933
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	49	<10	<10	10	4629217
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	<50	<50	<50	50	4629217
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	<50	<50	<50	50	4629217
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes	Yes		4629217
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	95	95	94	94	95		4630933
4-Bromofluorobenzene	%	102	112	121	111	110		4630933
D10-Ethylbenzene	%	80	77	95	80	80		4630933
D4-1,2-Dichloroethane	%	89	88	88	90	89		4630933
o-Terphenyl	%	107	95	103	93	98		4629217
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CXN731	CXN732	CXN733	CXN734	CXN735		
Sampling Date		2016/08/18 12:30	2016/08/18 13:20	2016/08/18 13:50	2016/08/18 13:55	2016/08/18 14:30		
COC Number		574053-02-01	574053-02-01	574053-02-01	574053-02-01	574053-02-01		
	UNITS	BH16-8-6	BH16-6-6	BH16-6-11	BH16-6-15	BH16-4-5	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/g	<0.0050	1.5	<0.0050	<0.0050	<0.0050	0.0050	4630933
Toluene	ug/g	<0.020	0.11	<0.020	<0.020	<0.020	0.020	4630933
Ethylbenzene	ug/g	<0.010	5.1	<0.010	<0.010	<0.010	0.010	4630933
o-Xylene	ug/g	<0.020	0.17	<0.020	<0.020	<0.020	0.020	4630933
p+m-Xylene	ug/g	<0.040	15	<0.040	<0.040	<0.040	0.040	4630933
Total Xylenes	ug/g	<0.040	15	<0.040	<0.040	<0.040	0.040	4630933
F1 (C6-C10)	ug/g	<10	290	<10	<10	<10	10	4630933
F1 (C6-C10) - BTEX	ug/g	<10	270	<10	<10	<10	10	4630933
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	<10	<10	<10	10	4629217
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	<50	<50	<50	50	4629217
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	<50	<50	<50	50	4629217
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes	Yes		4629217
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	95	95	95	94	96		4630933
4-Bromofluorobenzene	%	113	120	113	104	112		4630933
D10-Ethylbenzene	%	83	91	82	80	84		4630933
D4-1,2-Dichloroethane	%	90	90	89	88	90		4630933
o-Terphenyl	%	95	94	109	106	106		4629217
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CXN736	CXN737	CXN984		
Sampling Date		2016/08/18 14:50	2016/08/18 14:55			
COC Number		574053-02-01	574053-02-01	574053-02-01		
	UNITS	BH16-4-9	BH16-4-11	BH16-3-4	RDL	QC Batch
BTEX & F1 Hydrocarbons						
Benzene	ug/g	<0.0050	<0.0050	<0.0050	0.0050	4630933
Toluene	ug/g	<0.020	<0.020	<0.020	0.020	4630933
Ethylbenzene	ug/g	0.20	<0.010	<0.010	0.010	4630933
o-Xylene	ug/g	<0.020	<0.020	<0.020	0.020	4630933
p+m-Xylene	ug/g	0.17	<0.040	<0.040	0.040	4630933
Total Xylenes	ug/g	0.17	<0.040	<0.040	0.040	4630933
F1 (C6-C10)	ug/g	36	<10	<10	10	4630933
F1 (C6-C10) - BTEX	ug/g	36	<10	<10	10	4630933
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/g	160	<10	<10	10	4629217
F3 (C16-C34 Hydrocarbons)	ug/g	120	<50	<50	50	4629217
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	<50	50	4629217
Reached Baseline at C50	ug/g	Yes	Yes	Yes		4629217
Surrogate Recovery (%)						
1,4-Difluorobenzene	%	95	95	95		4630933
4-Bromofluorobenzene	%	117	100	101		4630933
D10-Ethylbenzene	%	82	77	85		4630933
D4-1,2-Dichloroethane	%	90	91	92		4630933
o-Terphenyl	%	99	99	103		4629217
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						

TEST SUMMARY

Maxxam ID: CXN538
Sample ID: BH16-11-7
Matrix: Soil

Collected: 2016/08/16
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630925	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629211	2016/08/22	2016/08/23	Liliana Gaburici
MOISTURE	BAL	4629200	N/A	2016/08/22	Liliana Gaburici

Maxxam ID: CXN539
Sample ID: BH16-10-5
Matrix: Soil

Collected: 2016/08/16
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630925	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629211	2016/08/22	2016/08/23	Liliana Gaburici
MOISTURE	BAL	4629200	N/A	2016/08/22	Liliana Gaburici

Maxxam ID: CXN540
Sample ID: BH16-10-8
Matrix: Soil

Collected: 2016/08/16
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630925	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629211	2016/08/22	2016/08/22	Liliana Gaburici
MOISTURE	BAL	4629200	N/A	2016/08/22	Liliana Gaburici

Maxxam ID: CXN541
Sample ID: BH16-12-2
Matrix: Soil

Collected: 2016/08/16
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630925	N/A	2016/08/24	Steve Roberts

Maxxam ID: CXN542
Sample ID: BH16-12-4
Matrix: Soil

Collected: 2016/08/16
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630925	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629211	2016/08/22	2016/08/23	Liliana Gaburici
MOISTURE	BAL	4629200	N/A	2016/08/22	Liliana Gaburici

Maxxam ID: CXN543
Sample ID: BH16-12-11
Matrix: Soil

Collected: 2016/08/16
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630925	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629211	2016/08/22	2016/08/22	Liliana Gaburici

TEST SUMMARY

Maxxam ID: CXN543
Sample ID: BH16-12-11
Matrix: Soil

Collected: 2016/08/16
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
MOISTURE	BAL	4629200	N/A	2016/08/22	Liliana Gaburici

Maxxam ID: CXN544
Sample ID: BH16-15-4
Matrix: Soil

Collected: 2016/08/16
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630925	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629211	2016/08/22	2016/08/22	Liliana Gaburici
MOISTURE	BAL	4629200	N/A	2016/08/22	Liliana Gaburici

Maxxam ID: CXN545
Sample ID: BH16-15-7
Matrix: Soil

Collected: 2016/08/16
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630925	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629211	2016/08/22	2016/08/22	Liliana Gaburici
MOISTURE	BAL	4629200	N/A	2016/08/22	Liliana Gaburici

Maxxam ID: CXN546
Sample ID: BH16-14-5
Matrix: Soil

Collected: 2016/08/16
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630925	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629211	2016/08/22	2016/08/23	Liliana Gaburici
MOISTURE	BAL	4629200	N/A	2016/08/22	Liliana Gaburici

Maxxam ID: CXN547
Sample ID: BH16-14-7
Matrix: Soil

Collected: 2016/08/16
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630925	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629211	2016/08/22	2016/08/23	Liliana Gaburici
MOISTURE	BAL	4629200	N/A	2016/08/22	Liliana Gaburici

Maxxam ID: CXN597
Sample ID: BH16-13-4
Matrix: Soil

Collected: 2016/08/16
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630925	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629211	2016/08/22	2016/08/23	Liliana Gaburici

Maxxam Job #: B6H6519
Report Date: 2016/08/26

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

TEST SUMMARY

Maxxam ID: CXN597
Sample ID: BH16-13-4
Matrix: Soil

Collected: 2016/08/16
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
MOISTURE	BAL	4629200	N/A	2016/08/22	Liliana Gaburici

Maxxam ID: CXN598
Sample ID: BH16-13-7
Matrix: Soil

Collected: 2016/08/16
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630925	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629211	2016/08/22	2016/08/22	Liliana Gaburici
MOISTURE	BAL	4629200	N/A	2016/08/22	Liliana Gaburici

Maxxam ID: CXN599
Sample ID: BH16-16-3
Matrix: Soil

Collected: 2016/08/16
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630925	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/24	Liliana Gaburici
MOISTURE	BAL	4629200	N/A	2016/08/22	Liliana Gaburici

Maxxam ID: CXN600
Sample ID: BH16-16-6
Matrix: Soil

Collected: 2016/08/16
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/22	Liliana Gaburici
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN600 Dup
Sample ID: BH16-16-6
Matrix: Soil

Collected: 2016/08/16
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/22	Liliana Gaburici

Maxxam ID: CXN601
Sample ID: BH16-24-4
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/22	Liliana Gaburici
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam Job #: B6H6519
Report Date: 2016/08/26

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

TEST SUMMARY

Maxxam ID: CXN601 Dup
Sample ID: BH16-24-4
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN602
Sample ID: BH16-24-7
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/22	Liliana Gaburici
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN603
Sample ID: BH16-22--4
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/24	Liliana Gaburici
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN604
Sample ID: BH16-22-7
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/24	Liliana Gaburici
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN605
Sample ID: BH16-21-4
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/24	Liliana Gaburici
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN606
Sample ID: BH16-21-7
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/22	Liliana Gaburici

Maxxam Job #: B6H6519
Report Date: 2016/08/26

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

TEST SUMMARY

Maxxam ID: CXN606
Sample ID: BH16-21-7
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN619
Sample ID: BH16-20-3
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/24	Liliana Gaburici
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN620
Sample ID: BH16-20-9
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/22	Liliana Gaburici
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN621
Sample ID: BH16-23-3
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/22	Liliana Gaburici
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN622
Sample ID: BH16-23-6
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/22	Liliana Gaburici
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN623
Sample ID: BH16-19-6
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/24	Liliana Gaburici

TEST SUMMARY

Maxxam ID: CXN623
Sample ID: BH16-19-6
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
F4G (CCME Hydrocarbons Gravimetric)	BAL	4635129	2016/08/25	2016/08/26	Liliana Gaburici
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN624
Sample ID: BH16-19-8
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/24	Liliana Gaburici
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN625
Sample ID: BH16-18-4
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/24	Liliana Gaburici
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN626
Sample ID: BH16-17-6
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/24	Liliana Gaburici
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN627
Sample ID: BH16-7-5
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/22	Liliana Gaburici
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN628
Sample ID: BH16-7-7
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts

TEST SUMMARY

Maxxam ID: CXN628
Sample ID: BH16-7-7
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/22	Liliana Gaburici
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN647
Sample ID: BH16-9-4
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/24	Liliana Gaburici
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN648
Sample ID: BH16-9-99
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629216	2016/08/22	2016/08/24	Liliana Gaburici
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN649
Sample ID: BH16-9-9
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630927	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629217	2016/08/22	2016/08/23	Liliana Gaburici
MOISTURE	BAL	4629201	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN650
Sample ID: BH16-9-13
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630933	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629217	2016/08/22	2016/08/23	Liliana Gaburici
MOISTURE	BAL	4629203	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN650 Dup
Sample ID: BH16-9-13
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630933	N/A	2016/08/24	Steve Roberts

TEST SUMMARY

Maxxam ID: CXN650 Dup
Sample ID: BH16-9-13
Matrix: Soil

Collected: 2016/08/17
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629217	2016/08/22	2016/08/23	Liliana Gaburici

Maxxam ID: CXN651
Sample ID: BH16-2A-4
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630933	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629217	2016/08/22	2016/08/23	Liliana Gaburici
MOISTURE	BAL	4629203	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN651 Dup
Sample ID: BH16-2A-4
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
MOISTURE	BAL	4629203	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN652
Sample ID: BH16-2-4
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630933	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629217	2016/08/22	2016/08/25	Liliana Gaburici
MOISTURE	BAL	4629203	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN653
Sample ID: BH16-2-9
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630933	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629217	2016/08/22	2016/08/23	Liliana Gaburici
MOISTURE	BAL	4629203	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN654
Sample ID: BH16-5-4
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630933	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629217	2016/08/22	2016/08/25	Liliana Gaburici
MOISTURE	BAL	4629203	N/A	2016/08/23	Liliana Gaburici

TEST SUMMARY

Maxxam ID: CXN655
Sample ID: BH16-5-7
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630933	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629217	2016/08/22	2016/08/23	Liliana Gaburici
MOISTURE	BAL	4629203	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN656
Sample ID: BH16-6-66
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630933	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629217	2016/08/22	2016/08/25	Liliana Gaburici
MOISTURE	BAL	4629203	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN729
Sample ID: BH16-3-6
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630933	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629217	2016/08/22	2016/08/23	Liliana Gaburici
MOISTURE	BAL	4629203	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN730
Sample ID: BH16-8-3
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630933	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629217	2016/08/22	2016/08/23	Liliana Gaburici
MOISTURE	BAL	4629203	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN731
Sample ID: BH16-8-6
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630933	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629217	2016/08/22	2016/08/23	Liliana Gaburici
MOISTURE	BAL	4629203	N/A	2016/08/23	Liliana Gaburici

Maxxam Job #: B6H6519
Report Date: 2016/08/26

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

TEST SUMMARY

Maxxam ID: CXN732
Sample ID: BH16-6-6
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630933	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629217	2016/08/22	2016/08/23	Liliana Gaburici
MOISTURE	BAL	4629203	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN733
Sample ID: BH16-6-11
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630933	N/A	2016/08/24	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629217	2016/08/22	2016/08/25	Liliana Gaburici
MOISTURE	BAL	4629203	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN734
Sample ID: BH16-6-15
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630933	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629217	2016/08/22	2016/08/24	Liliana Gaburici
MOISTURE	BAL	4629203	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN735
Sample ID: BH16-4-5
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630933	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629217	2016/08/22	2016/08/25	Liliana Gaburici
MOISTURE	BAL	4629203	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN736
Sample ID: BH16-4-9
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630933	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629217	2016/08/22	2016/08/25	Liliana Gaburici
MOISTURE	BAL	4629203	N/A	2016/08/23	Liliana Gaburici

Maxxam Job #: B6H6519
Report Date: 2016/08/26

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

TEST SUMMARY

Maxxam ID: CXN737
Sample ID: BH16-4-11
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630933	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629217	2016/08/22	2016/08/24	Liliana Gaburici
MOISTURE	BAL	4629203	N/A	2016/08/23	Liliana Gaburici

Maxxam ID: CXN984
Sample ID: BH16-3-4
Matrix: Soil

Collected:
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4630933	N/A	2016/08/25	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4629217	2016/08/22	2016/08/24	Liliana Gaburici
MOISTURE	BAL	4629203	N/A	2016/08/23	Liliana Gaburici

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.0°C
Package 2	1.7°C
Package 3	4.0°C

Sample CXN597-01 : F1 BTEX Analysis: Sample was diluted due to high concentration of target compounds. Reporting limits were adjusted accordingly.

Sample CXN647-01 : F1 BTEX Analysis: Sample was diluted due to high concentration of target compounds. Reporting limits were adjusted accordingly.

Sample CXN648-01 : F1 BTEX Analysis: Sample was diluted due to high concentration of target compounds. Reporting limits were adjusted accordingly.

PETROLEUM HYDROCARBONS (CCME)

Petroleum Hydrocarbons F2-F4 in Soil: F2-F4 Analysis: Matrix spiked recoveries were not calculated (NC) because of high concentration of target compounds in the parent sample.

Petroleum Hydro. CCME F1 & BTEX in Soil: Matrix spike recovery for F1 was not calculated due to high concentration of target compounds in the parent sample.

Results relate only to the items tested.

QUALITY ASSURANCE REPORT

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
4629211	o-Terphenyl	2016/08/22	71	30 - 130	81	30 - 130	87	%		
4629216	o-Terphenyl	2016/08/22	83	30 - 130	80	30 - 130	85	%		
4629217	o-Terphenyl	2016/08/23	94	30 - 130	90	30 - 130	86	%		
4630925	1,4-Difluorobenzene	2016/08/23			96	60 - 140	97	%		
4630925	4-Bromofluorobenzene	2016/08/23			112	60 - 140	109	%		
4630925	D10-Ethylbenzene	2016/08/23			89	30 - 130	91	%		
4630925	D4-1,2-Dichloroethane	2016/08/23			89	60 - 140	91	%		
4630927	1,4-Difluorobenzene	2016/08/25	94	60 - 140	95	60 - 140	97	%		
4630927	4-Bromofluorobenzene	2016/08/25	112	60 - 140	113	60 - 140	103	%		
4630927	D10-Ethylbenzene	2016/08/25	77	30 - 130	89	30 - 130	93	%		
4630927	D4-1,2-Dichloroethane	2016/08/25	91	60 - 140	90	60 - 140	93	%		
4630933	1,4-Difluorobenzene	2016/08/24	96	60 - 140	95	60 - 140	96	%		
4630933	4-Bromofluorobenzene	2016/08/24	120	60 - 140	112	60 - 140	112	%		
4630933	D10-Ethylbenzene	2016/08/24	88	30 - 130	94	30 - 130	92	%		
4630933	D4-1,2-Dichloroethane	2016/08/24	88	60 - 140	89	60 - 140	92	%		
4629200	Moisture	2016/08/22							10	50
4629201	Moisture	2016/08/23							1.5	50
4629203	Moisture	2016/08/23							6.5	50
4629211	F2 (C10-C16 Hydrocarbons)	2016/08/22	NC	50 - 130	83	80 - 120	<10	ug/g	1.6	50
4629211	F3 (C16-C34 Hydrocarbons)	2016/08/22	NC	50 - 130	83	80 - 120	<50	ug/g	21	50
4629211	F4 (C34-C50 Hydrocarbons)	2016/08/22	NC	50 - 130	83	80 - 120	<50	ug/g	7.9	50
4629216	F2 (C10-C16 Hydrocarbons)	2016/08/22	100	50 - 130	91	80 - 120	<10	ug/g	NC	50
4629216	F3 (C16-C34 Hydrocarbons)	2016/08/22	100	50 - 130	91	80 - 120	<50	ug/g	NC	50
4629216	F4 (C34-C50 Hydrocarbons)	2016/08/22	100	50 - 130	91	80 - 120	<50	ug/g	NC	50
4629217	F2 (C10-C16 Hydrocarbons)	2016/08/23	109	50 - 130	98	80 - 120	<10	ug/g	NC	50
4629217	F3 (C16-C34 Hydrocarbons)	2016/08/23	109	50 - 130	98	80 - 120	<50	ug/g	NC	50
4629217	F4 (C34-C50 Hydrocarbons)	2016/08/23	109	50 - 130	98	80 - 120	<50	ug/g	NC	50
4630925	Benzene	2016/08/24			84	60 - 140	<0.0050	ug/g	NC	50
4630925	Ethylbenzene	2016/08/24			89	60 - 140	<0.010	ug/g	4.2	50
4630925	F1 (C6-C10) - BTEX	2016/08/24					<10	ug/g	8.4	50

QUALITY ASSURANCE REPORT(CONT'D)

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
4630925	F1 (C6-C10)	2016/08/24			110	80 - 120	<10	ug/g	8.3	50
4630925	o-Xylene	2016/08/24			87	60 - 140	<0.020	ug/g	4.3	50
4630925	p+m-Xylene	2016/08/24			82	60 - 140	<0.040	ug/g	5.4	50
4630925	Toluene	2016/08/24			82	60 - 140	<0.020	ug/g	3.3	50
4630925	Total Xylenes	2016/08/24					<0.040	ug/g	5.1	50
4630927	Benzene	2016/08/25	86	60 - 140	86	60 - 140	<0.0050	ug/g	NC	50
4630927	Ethylbenzene	2016/08/25	75	60 - 140	86	60 - 140	<0.010	ug/g	NC	50
4630927	F1 (C6-C10) - BTEX	2016/08/25					<10	ug/g	NC	50
4630927	F1 (C6-C10)	2016/08/25	97	60 - 140	103	80 - 120	<10	ug/g	NC	50
4630927	o-Xylene	2016/08/25	75	60 - 140	83	60 - 140	<0.020	ug/g	NC	50
4630927	p+m-Xylene	2016/08/25	70	60 - 140	79	60 - 140	<0.040	ug/g	NC	50
4630927	Toluene	2016/08/25	70	60 - 140	80	60 - 140	<0.020	ug/g	NC	50
4630927	Total Xylenes	2016/08/25					<0.040	ug/g	NC	50
4630933	Benzene	2016/08/24	70	60 - 140	81	60 - 140	<0.0050	ug/g	NC	50
4630933	Ethylbenzene	2016/08/24	82	60 - 140	90	60 - 140	<0.010	ug/g	NC	50
4630933	F1 (C6-C10) - BTEX	2016/08/24					<10	ug/g	NC	50
4630933	F1 (C6-C10)	2016/08/24	NC	60 - 140	107	80 - 120	<10	ug/g	NC	50
4630933	o-Xylene	2016/08/24	81	60 - 140	87	60 - 140	<0.020	ug/g	NC	50
4630933	p+m-Xylene	2016/08/24	75	60 - 140	83	60 - 140	<0.040	ug/g	NC	50
4630933	Toluene	2016/08/24	72	60 - 140	82	60 - 140	<0.020	ug/g	NC	50
4630933	Total Xylenes	2016/08/24					<0.040	ug/g	NC	50

QUALITY ASSURANCE REPORT(CONT'D)

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
4635129	F4G-sg (Grav. Heavy Hydrocarbons)	2016/08/26			106	65 - 135	<100	ug/g	2.9	50

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

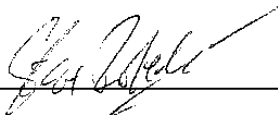
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Paul Rubinato, Analyst, Maxxam Analytics



Steve Roberts, Ottawa Lab Manager

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name: #2033 SNC-Lavalin Inc		Company Name: #18603 SNC-Lavalin Inc		Quotation #: B63173		Maxxam Job #:	
Attention: Accounts Payable		Attention: Melanie Siewert		P.O. #: 10627		Bottle Order #:	
Address: 455 René-Lévesque Blvd. West		Address: 20 Colonnade Rd Suite 110		Project: 640275		COC #:	
Montreal QC H2Z 1Z3		Ottawa ON K2E 7M6		Project Name:		Project Manager:	
Tel: (514) 393-1000 x Fax: (514) 866-0795 x		Tel: () - x221 Fax:		Site #:		C#574053-07-01	
Email: payables@snclavalin.com		Email: melanie.siewert@snclavalin.com		Sampled By:		Madison Bingley	

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)		Other Regulations		Special Instructions		ANALYSIS REQUESTED (PLEASE BE SPECIFIC)										Turnaround Time (TAT) Required:		
<input type="checkbox"/> Table 1	<input type="checkbox"/> Res/Park	<input checked="" type="checkbox"/> Medium/Fine	<input checked="" type="checkbox"/> CCME	<input type="checkbox"/> Sanitary Sewer Bylaw		Field Filtered (please circle): Metals / Hg / Cr VI	CCME Petroleum Hydrocarbons + DTEX	Springhill, Flashpoint, PHCs, TCLP BOD, TC, TP, Metals, TCLP VOCs, TCLP SVOCs	BTEX								Please provide advance notice for rush projects	
<input checked="" type="checkbox"/> Table 2	<input type="checkbox"/> Ind/Comm	<input type="checkbox"/> Coarse	<input type="checkbox"/> Reg 558	<input type="checkbox"/> Storm Sewer Bylaw													Regular (Standard) TAT:	
<input type="checkbox"/> Table 3	<input checked="" type="checkbox"/> Agri/Other	<input type="checkbox"/> For RSC	<input type="checkbox"/> MISA	<input type="checkbox"/> Municipality													(will be applied if Rush TAT is not specified)	
<input type="checkbox"/> Table			<input type="checkbox"/> PWQO														Standard TAT = 5-7 Working days for most tests.	
			<input type="checkbox"/> Other	Low Level DTEX													Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.	
Include Criteria on Certificate of Analysis (Y/N)?						Job Specific Rush TAT (if applies to entire submission)										Date Required: Time Required:		
						Rush Confirmation Number: (call lab for #)												
Sample/Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix													# of Bottles	Comments
✓ 1	BH16-11-7	20160816	9:40	Soil		X											3	
✓ 2	BH16-10-5	20160816	10:10	Soil		X											3	
✓ 3	BH16-10-8	20160816	10:15	Soil		X											3	
✓ 4	BH16-12-2	20160816	10:30	Soil		X											2	Limited recovery, VOCs only
✓ 5	BH16-12-4	20160816	10:40	Soil		X											3	
✓ 6	BH16-12-11	20160816	10:50	Soil		X											3	
✓ 7	BH16-15-4	20160816	11:50	Soil		X											3	
✓ 8	BH16-15-7	20160816	11:55	Soil		X											3	
✓ 9	BH16-14-5	20160816	12:40	Soil		X											3	RECEIVED IN OTTAWA
✓ 10	BH16-14-7	20160816	12:55	Soil		X											3	

19-Aug-16 12:45
Madison Bingley
B6H6519
FHB
OTT-002

* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only				
Scott Clark		20160819	12:45	Paul Nambu		20160819	12:45		Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
										0, 2, 4 1, 2, 2	Present	/	
											Intact	/	

CHAIN OF CUSTODY RECORD

Page 2 of 1

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#2033 SNC-Lavalin Inc	Company Name:	#18603 SNC-Lavalin Inc	Quotation #:	B63173	Maxxam Job #:	Bottle Order #:
Attention:	Accounts Payable	Attention:	Melanie Siewert	P.O. #:	10627		
Address:	455 René-Lévesque Blvd. West Montreal QC H2Z 1Z3	Address:	20 Colonnade Rd Suite 110 Ottawa ON K2E 7M6	Project:	640275		
Tel:	(514) 393-1000 x Fax: (514) 866-0795 x	Tel:	() - x221 Fax:	Project Name:		COC #:	Project Manager:
Email:	payables@snclavalin.com	Email:	melanie.siewert@snclavalin.com	Site #:			
				Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE
SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regular (Standard) TAT:					
(will be applied if Rush TAT is not specified):					
Standard TAT = 5-7 Working days for most tests.					
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans > 5 days - contact your Project Manager for details.					
Job Specific Rush TAT (if applies to entire submission)					
Date Required: _____ Time Required: _____					
Rush Confirmation Number: _____ (call lab for #)					
# of Bottles	Comments				
3					
3					
3					
3					
3					
3					
3					
3	RECEIVED IN OTTAWA				
3					
3					
3	DN ICE				

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only				
<i>Scott C. M.</i>	20160819		<i>Paul Warbo</i>	2016/08/19	12:45		Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	N
								0, 2, 4 1, 2, 2	Present	/	
									Intact	/	

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM. White: Maxxam, Yellow: CHL

Maxxam Analytics International Corporation o/a Maxxam Analytics

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name: #2033 SNC-Lavalin Inc		Company Name: #18603 SNC-Lavalin Inc		Quotation #: B63173		Maxxam Job #:	
Attention: Accounts Payable		Attention: Melanie Siewert		P.O. #: 10627		Bottle Order #:	
Address: 455 René-Lévesque Blvd. West		Address: 20 Colonnade Rd Suite 110		Project: 640275		COC #:	
Montreal QC H2Z 1Z3		Ottawa ON K2E 7M6		Project Name:		Project Manager:	
Tel: (514) 393-1000 x Fax: (514) 866-0795 x		Tel: () - x221 Fax:		Site #:		C#574053-05-01	
Email: payables@snclavalin.com		Email: melanie.siewert@snclavalin.com		Sampled By:		Madison Bingley	

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)		Other Regulations		Special Instructions		Field Filtered (please circle):		ANALYSIS REQUESTED (PLEASE BE SPECIFIC)		Turnaround Time (TAT) Required:	
<input type="checkbox"/> Table 1 <input type="checkbox"/> Res/Park <input checked="" type="checkbox"/> Medium/Fine <input checked="" type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse <input type="checkbox"/> Table 3 <input checked="" type="checkbox"/> Agri/Other <input type="checkbox"/> For RSC <input type="checkbox"/> Table		<input checked="" type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> Reg 558 <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> MISA Municipality <input type="checkbox"/> PWQO <input type="checkbox"/> Other <u>low level BTEX</u>				Metals / Hg / Cr VI CCME Petroleum Hydrocarbons Springtails, Fishworm, BNCs, TCLP PCBs, TCLP Metals, TCLP VOCs TCLP SVOCs				Please provide advance notice for rush projects Regular (Standard) TAT: (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) Date Required: Time Required: Rush Confirmation Number: (call lab for #) # of Bottles: Comments:	
Include Criteria on Certificate of Analysis (Y/N)?											
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix							
✓ 1	BH16-20-3	20160817	10:50	Soil		X					3
✓ 2	BH16-20-9	20160817	11:00	Soil		X					3
✓ 3	BH16-23-3	20160817	12:00	Soil		X					3
✓ 4	BH16-23-6	20160817	12:10	Soil		X					3
✓ 5	BH16-19-6	20160817	12:50	Soil		X					3
✓ 6	BH16-19-8	20160817	12:55	Soil		X					3
✓ 7	BH16-18-4	20160817	13:50	Soil		X					3
✓ 8	BH16-17-6	20160817	14:30	Soil		X					3
✓ 9	BH16-7-5	20160817	15:20	Soil		X					3
✓ 10	BH16-7-7	20160817	15:40	Soil		X					3

RECEIVED IN OTTAWA

ON ICE



* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only		
Scott Clow		20160819	12:45	Paul Wambo		20160819	12:45		Time Sensitive	Temperature (°C) on Receipt	Custody Seal
										0, 2, 4 1, 2, 2	Yes
											No
										Intact	

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#2033 SNC-Lavalin Inc	Company Name:	#18603 SNC-Lavalin Inc	Quotation #:	B63173	Maxxam Job #:	Bottle Order #:
Attention:	Accounts Payable	Attention:	Melanie Siewert	P.O. #:	10627		
Address:	455 René-Lévesque Blvd. West Montreal QC H2Z 1Z3	Address:	20 Colonnade Rd Suite 110 Ottawa ON K2E 7M6	Project:	640275		574053
Tel:	(514) 393-1000 x	Tel:	() - x221	Project Name:		COC #:	Project Manager:
Fax:	(514) 866-0795 x	Fax:		Site #:			Madison Bingley
Email:	payables@snclavalin.com	Email:	melanie.siewert@snclavalin.com	Sampled By:		C6574053-04-01	

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)				Other Regulations		Special Instructions		Field Filtered (please circle): Metals / Hg / Cr VI	CCME Petroleum Hydrocarbons 4-OTER	Springhill- Flashpoint, PHCs, TCLP PCBs, TCLP Metals, TCLP VOCs TCLP SVOCs	Regular (Standard) TAT: (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 7 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____ Rush Confirmation Number: _____ (call lab for #)																
Table 1	Table 2	Table 3	Table	Res/Park	Ind/Comm	Agri/Other	Medium/Fine				Coarse	For RSC	CCME	Reg 558	MISA	Sanitary Sewer Bylaw	Storm Sewer Bylaw	Municipality	PWQO	Other	Include Criteria on Certificate of Analysis (Y/N)?	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	# of Bottles
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		BH16-9-4	20160817	16:00	Soil	X		3	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		BH16-9-99	20160817	16:00	Soil	X		3	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		BH16-9-9	20160817	16:20	Soil	X		3	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		BH16-9-13	20160817	16:30	Soil	X		3	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		BH16-2A-4	20160818	8:15	Soil	X		3	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		BH16-2-4	20160818	8:30	Soil	X		3	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		BH16-2-9	20160818	8:40	Soil	X		3	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		BH16-5-4	20160818	9:30	Soil	X		3	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		BH16-5-7	20160818	9:40	Soil	X		3	RECEIVED IN OTTAWA
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		BH16-6-66	201608	13:20	Soil	X		3	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only				
<i>Scott Clem</i>	20160819	12:45	<i>Paul Wankar</i>	20160819	12:45		Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
								0, 2, 4 1, 2, 2	Present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
									Intact	<input checked="" type="checkbox"/>	<input type="checkbox"/>

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

4, 5, 8 ON ICE

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name: #2033 SNC-Lavalin Inc		Company Name: #18603 SNC-Lavalin Inc		Quotation #: B63173		Maxxam Job #:	
Attention: Accounts Payable		Attention: Melanie Siewert		P.O. #: 10627		Bottle Order #:	
Address: 455 René-Lévesque Blvd. West		Address: 20 Colonnade Rd Suite 110		Project: 640275		COC #:	
Montreal QC H2Z 1Z3		Ottawa ON K2E 7M6		Project Name:		Project Manager:	
Tel: (514) 393-1000 x Fax: (514) 866-0795 x		Tel: () - x221 Fax:		Site #:		C#574053-02-01	
Email: payables@snclavalin.com		Email: melanie.siewert@snclavalin.com		Sampled By:		Madison Bingley	

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)		Other Regulations		Special Instructions		Field Filtered (please circle): Metals / Hg / Cr-VI	CCME Petroleum Hydrocarbons ↓ BTEX	Spring/Well/Leakage/PHCs, TCLP PCBs, TCLP Metals, TCLP VOCs, TCLP SVOCs	ANALYSIS REQUESTED (PLEASE BE SPECIFIC)										Turnaround Time (TAT) Required:	
Table 1	Res/Park	Medium/Fine	CCME	Sanitary Sewer Bylaw																Regular (Standard) TAT:
<input checked="" type="checkbox"/> Table 2	<input checked="" type="checkbox"/> Ind/Comm	<input type="checkbox"/> Coarse	<input checked="" type="checkbox"/> Reg 558	<input type="checkbox"/> Storm Sewer Bylaw														(will be applied if Rush TAT is not specified):		
<input checked="" type="checkbox"/> Table 3	<input checked="" type="checkbox"/> Agri/Other	<input type="checkbox"/> For RSC	<input type="checkbox"/> MISA	Municipality														Standard TAT = 5-7 Working days for most tests.		
<input type="checkbox"/> Table			<input type="checkbox"/> PWQO															Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.		
Include Criteria on Certificate of Analysis (Y/N)?																		Job Specific Rush TAT (if applies to entire submission)		
																		Date Required: Time Required:		
																		Rush Confirmation Number: (call lab for #)		
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix														# of Bottles		
✓ 1	BH16-3-443	20160818	11:20	Soil														3		
✓ 2	BH16-3-6	20160818	11:30	Soil														3		
✓ 3	BH16-8-3	20160818	12:20	Soil														3		
✓ 4	BH16-8-6	20160818	12:30	Soil														3		
✓ 5	BH16-6-6	20160818	13:20	Soil														3		
✓ 6	BH16-6-11	20160818	13:50	Soil														3		
✓ 7	BH16-6-15	20160818	13:55	Soil														3		
✓ 8	BH16-4-5	20160818	14:30	Soil														3		
✓ 9	BH16-4-9	20160818	14:50	Soil														3		
✓ 10	BH16-4-11	20160816	14:55	Soil														3		

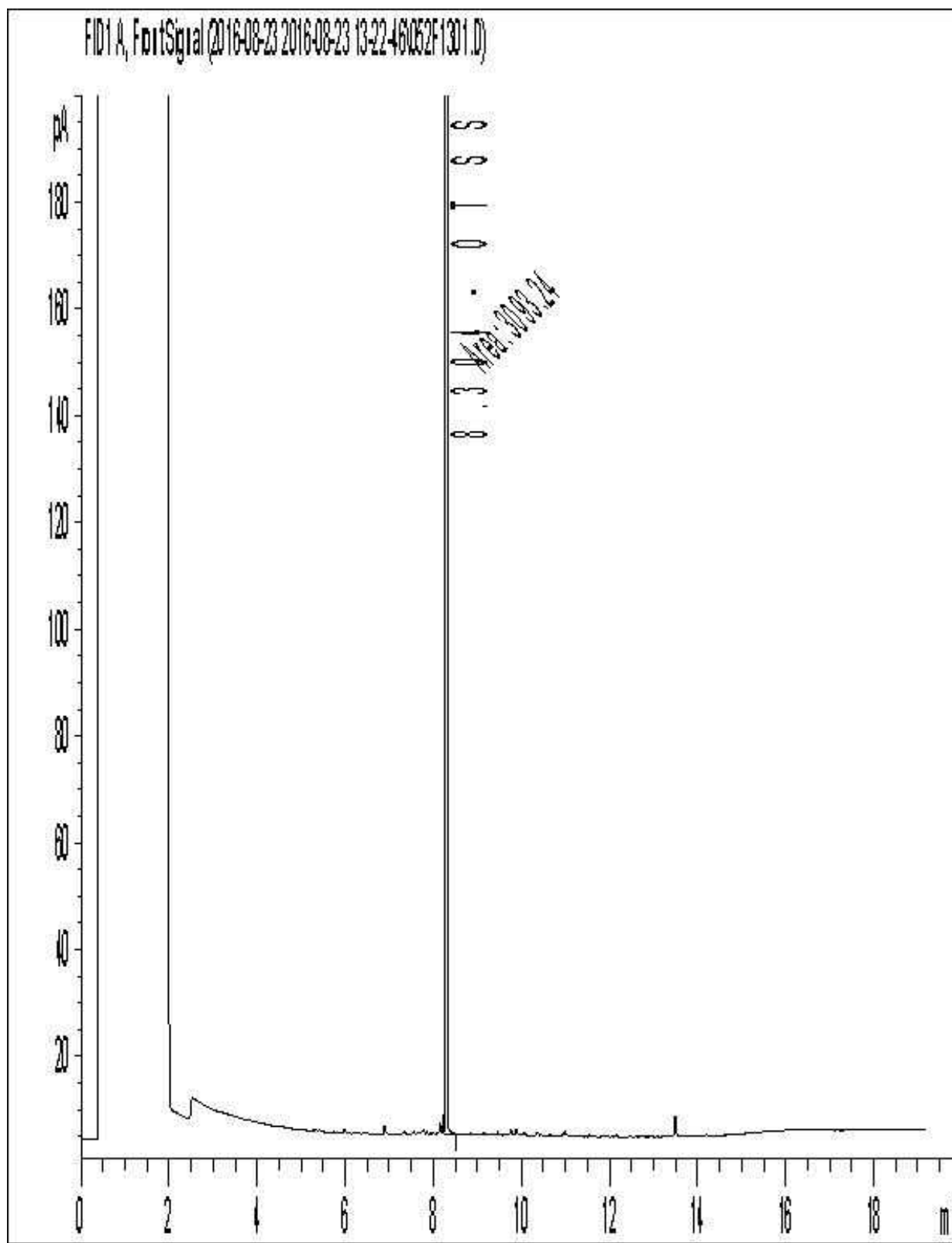
RECEIVED IN OTTAWA

ON ICE

* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only				
Scott Clark		20160819	12:45	Ray Namba		20160819	12:45		Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
										0, 2, 4 1, 2, 2	Present	✓	
											Intact	✓	

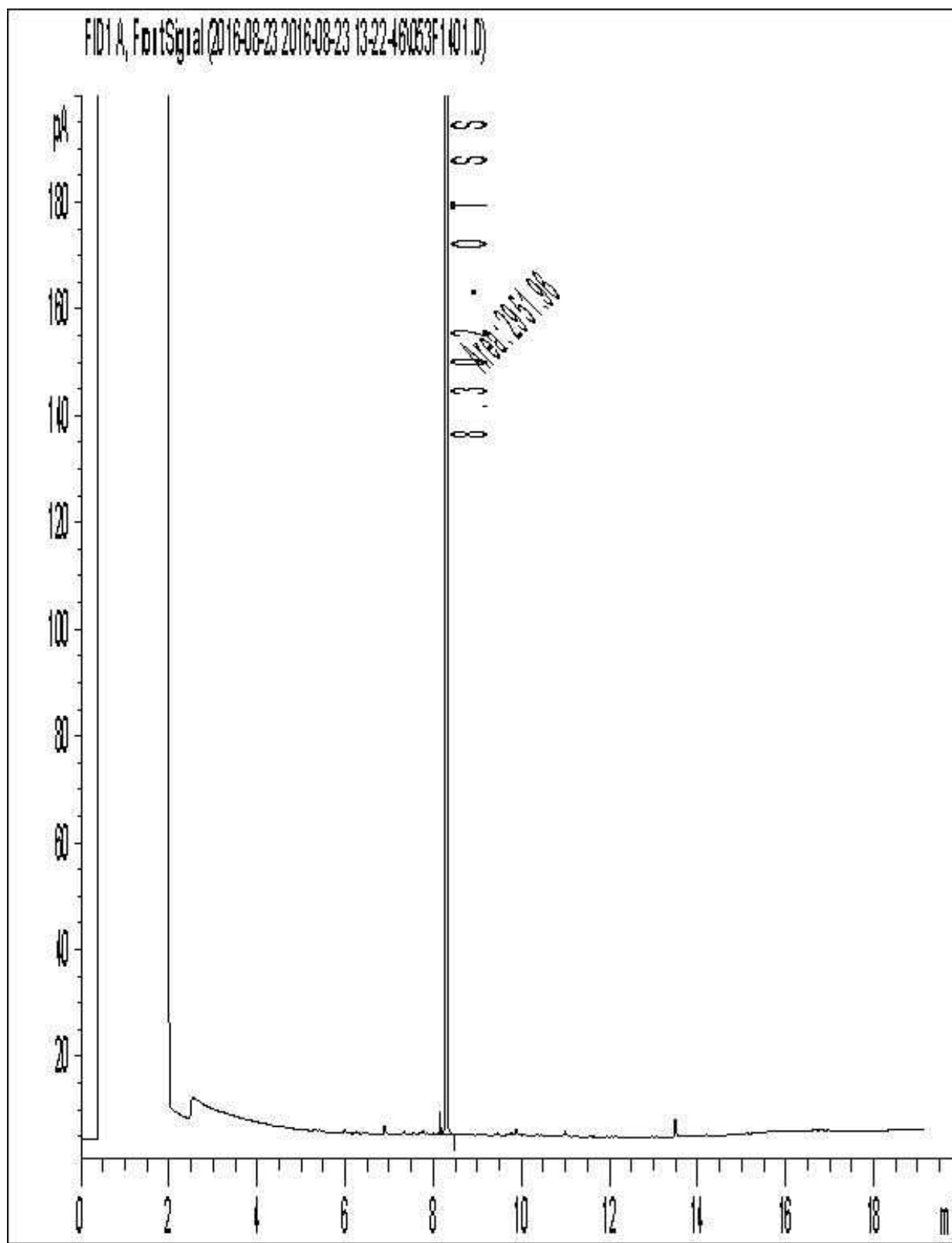
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS. SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM. White: Maxxam Yellow: Client

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



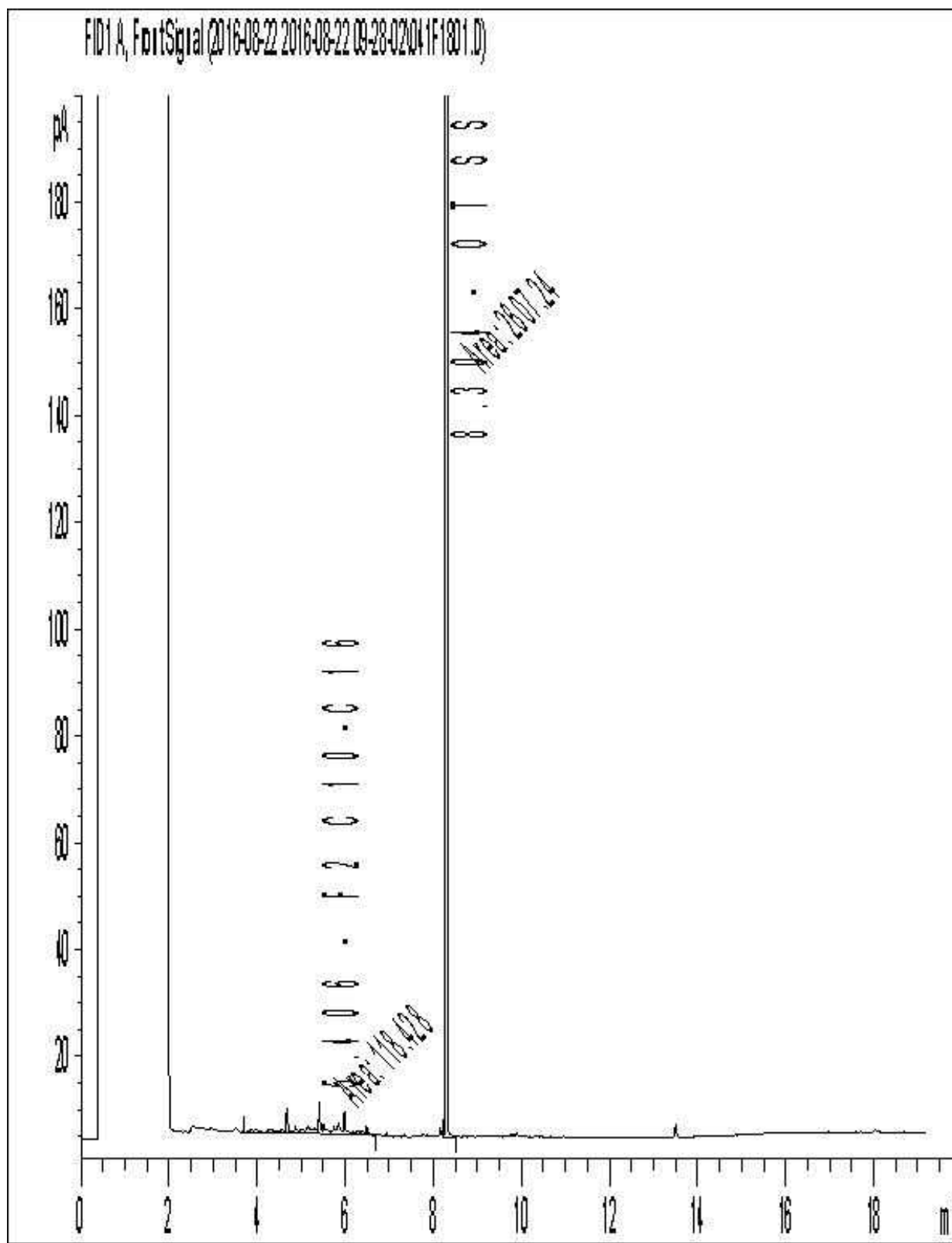
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



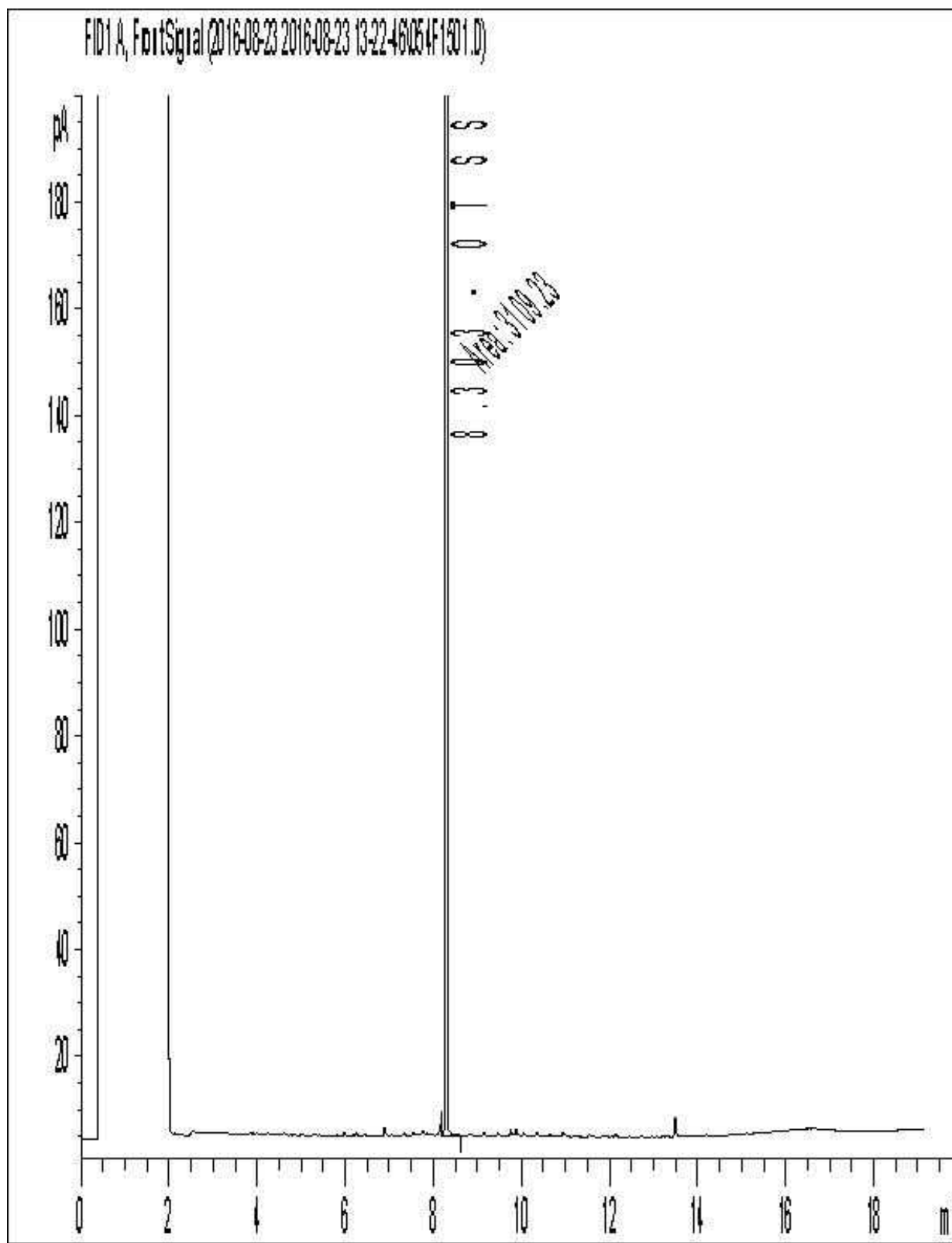
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



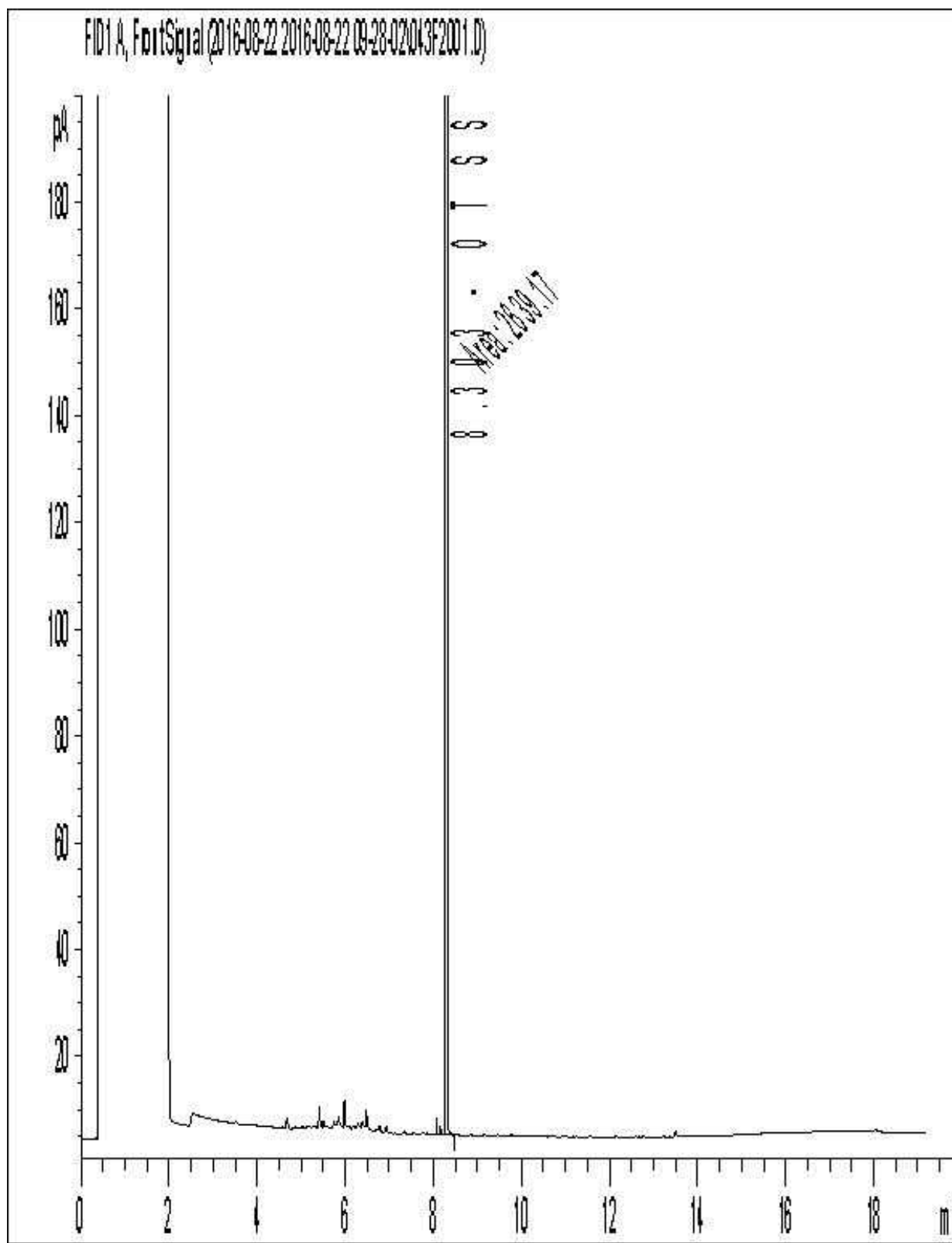
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



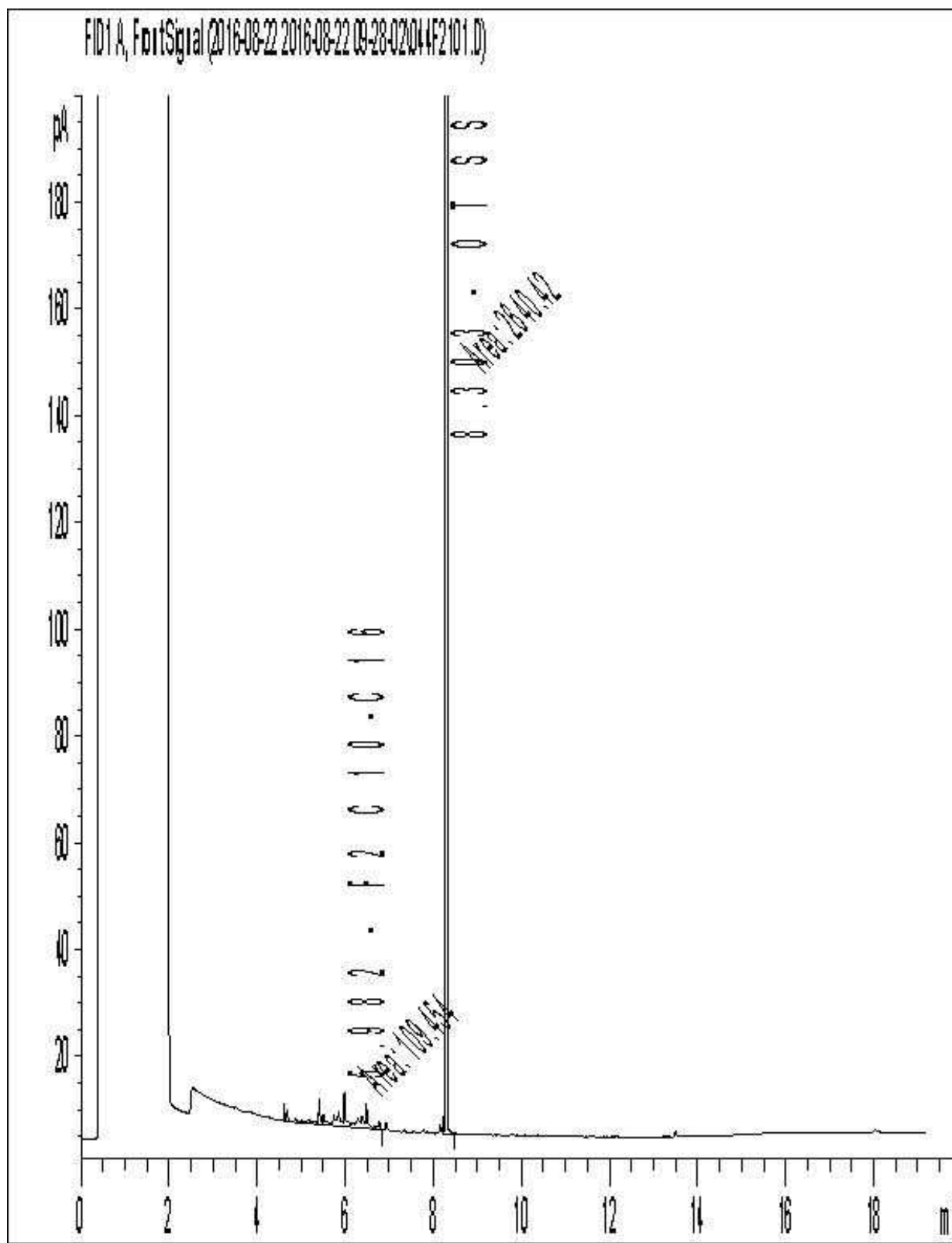
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



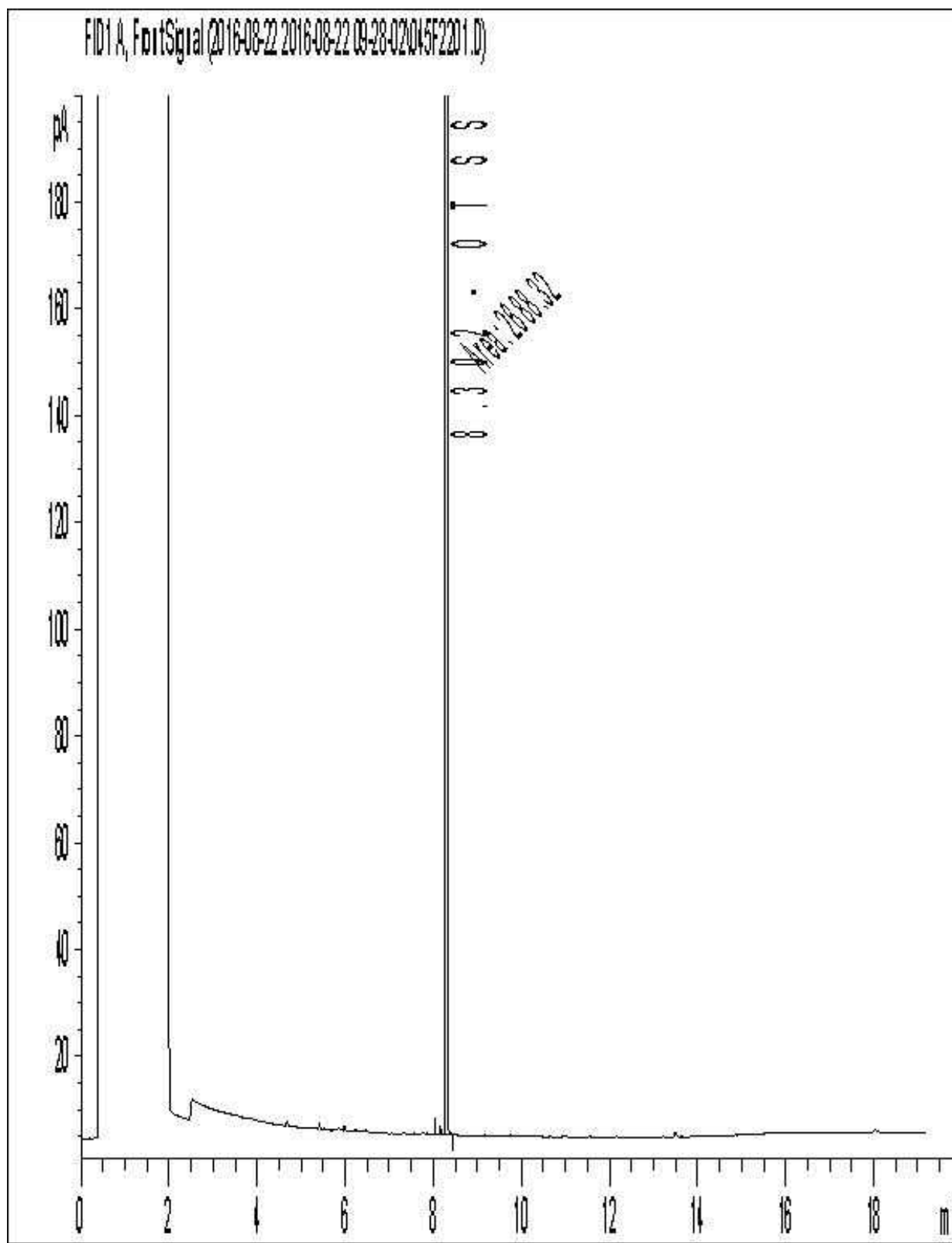
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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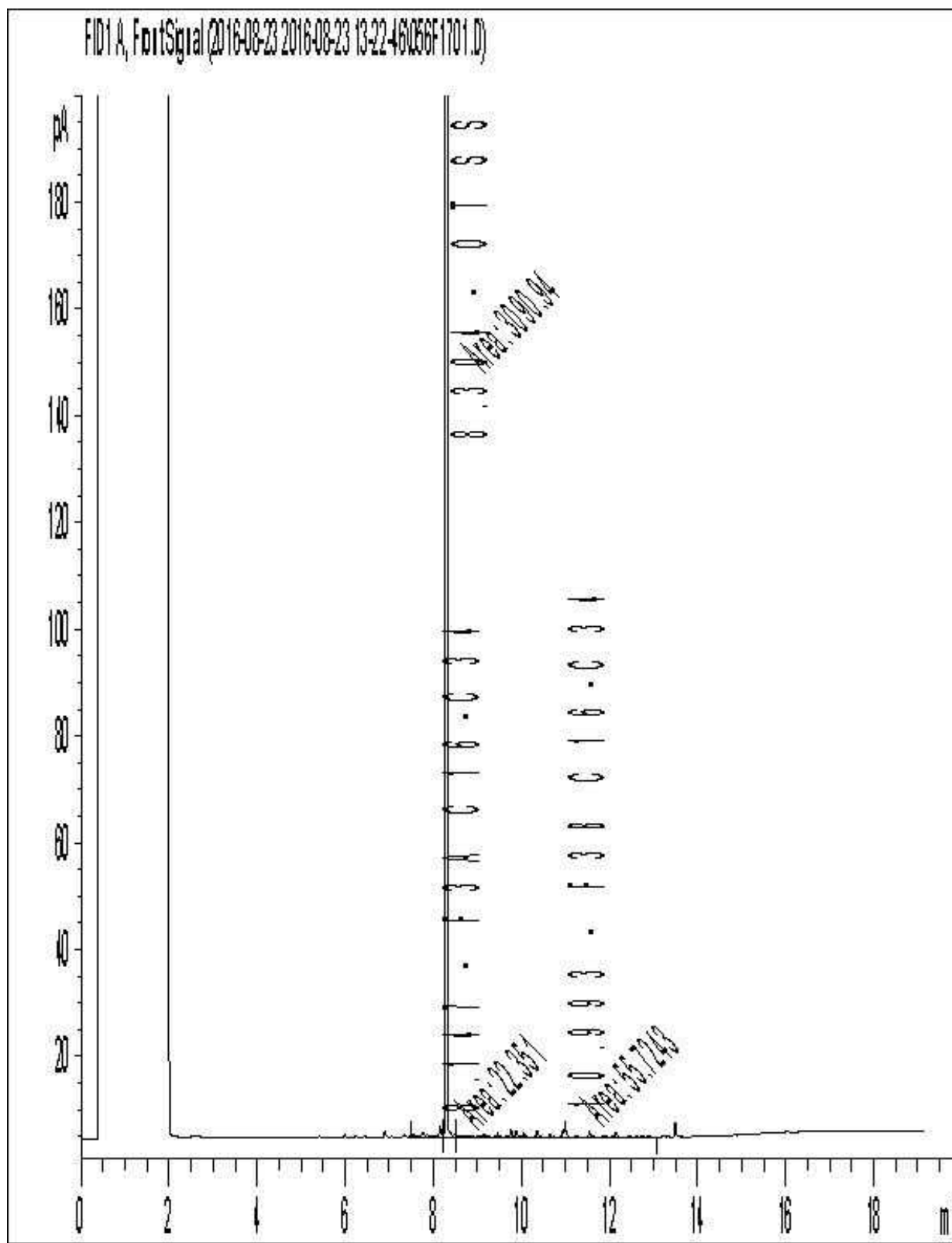
Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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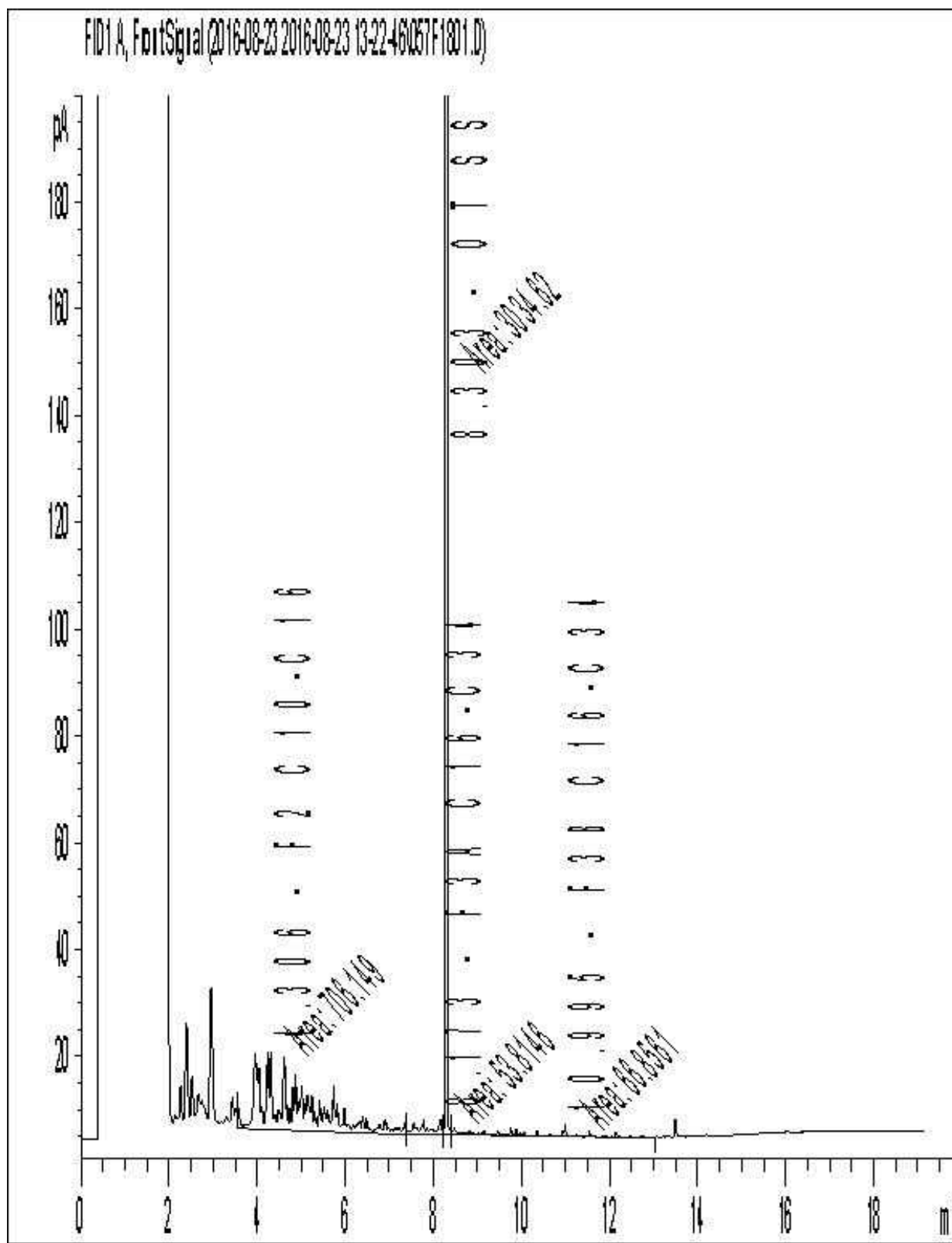
Page 45 of 88

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



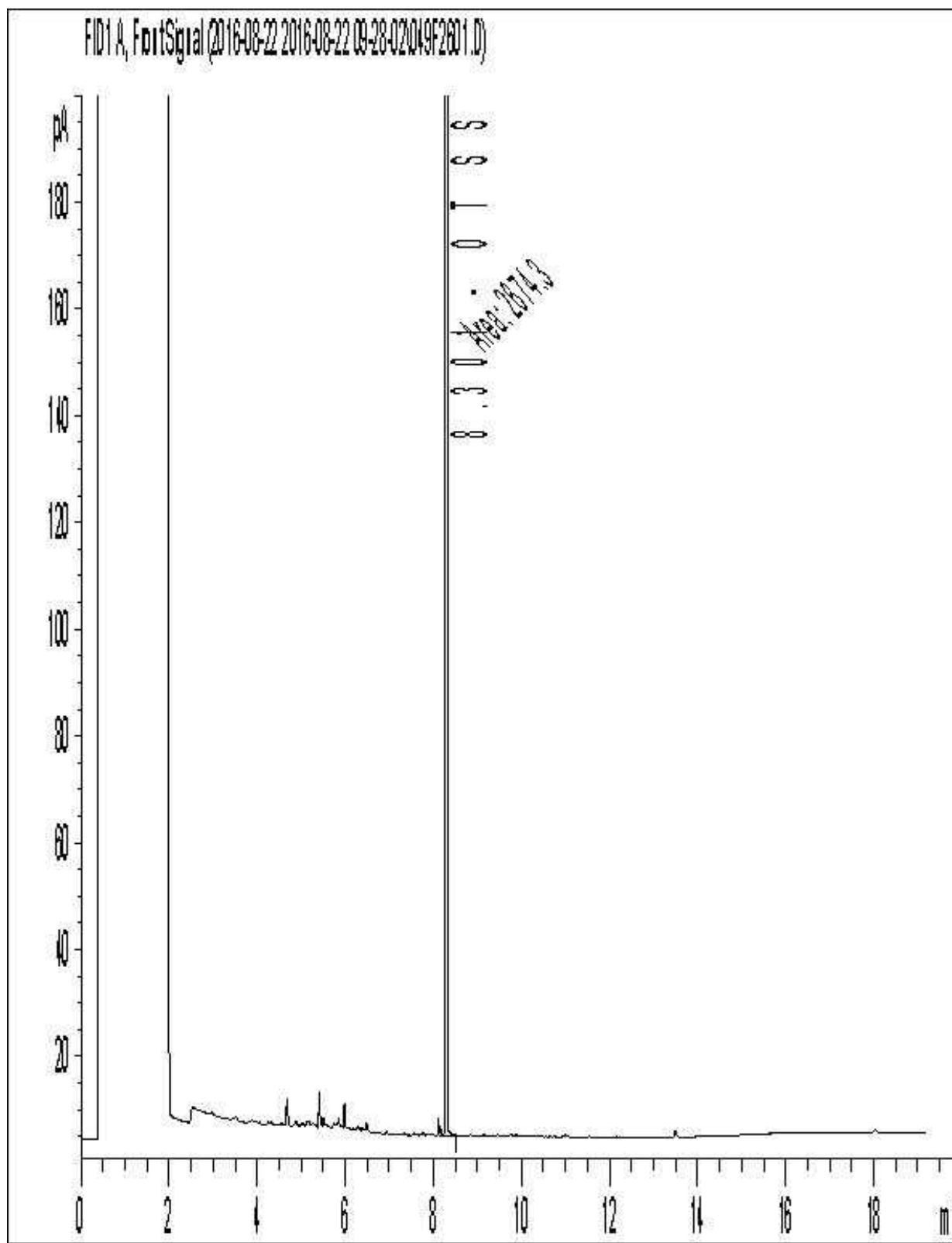
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



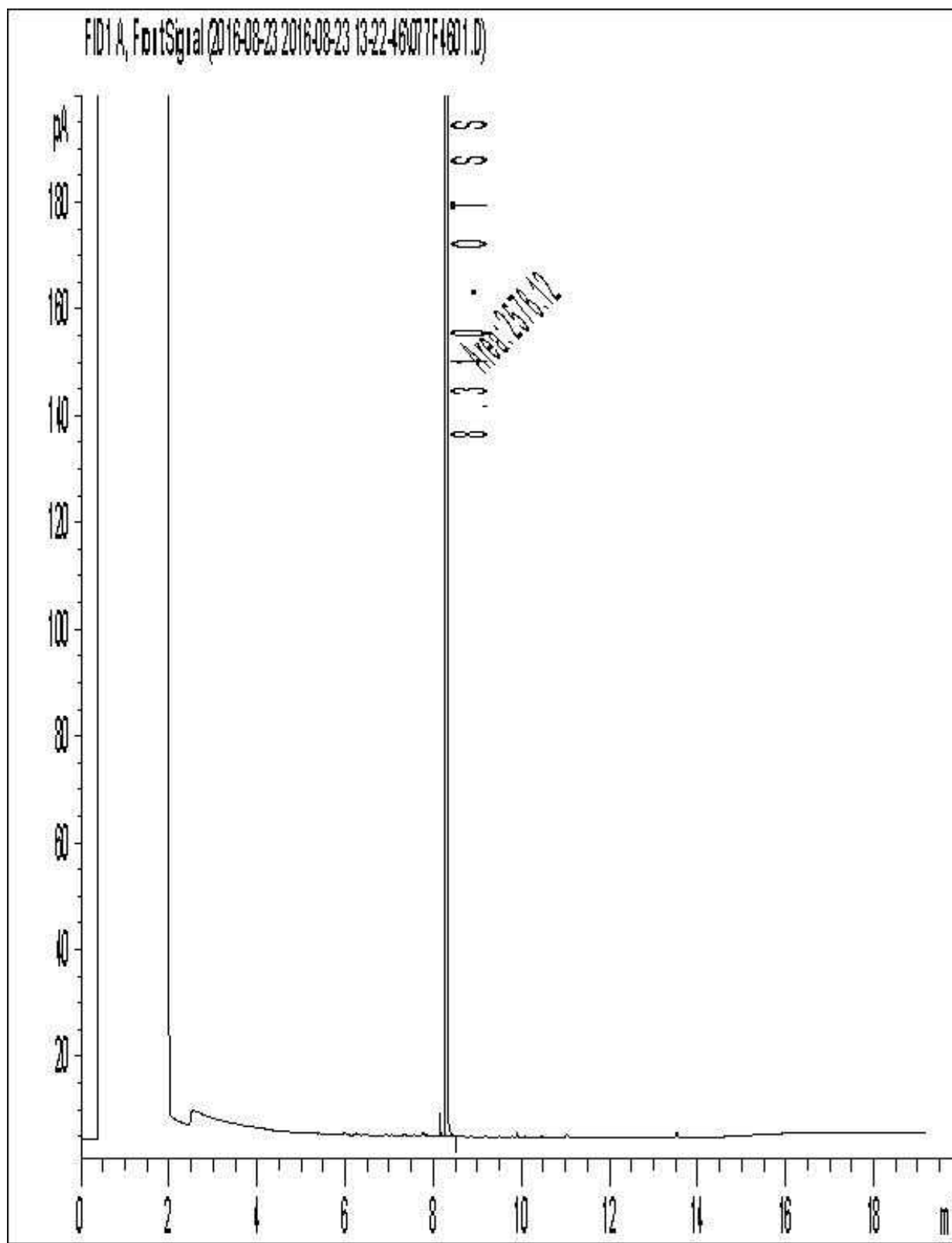
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



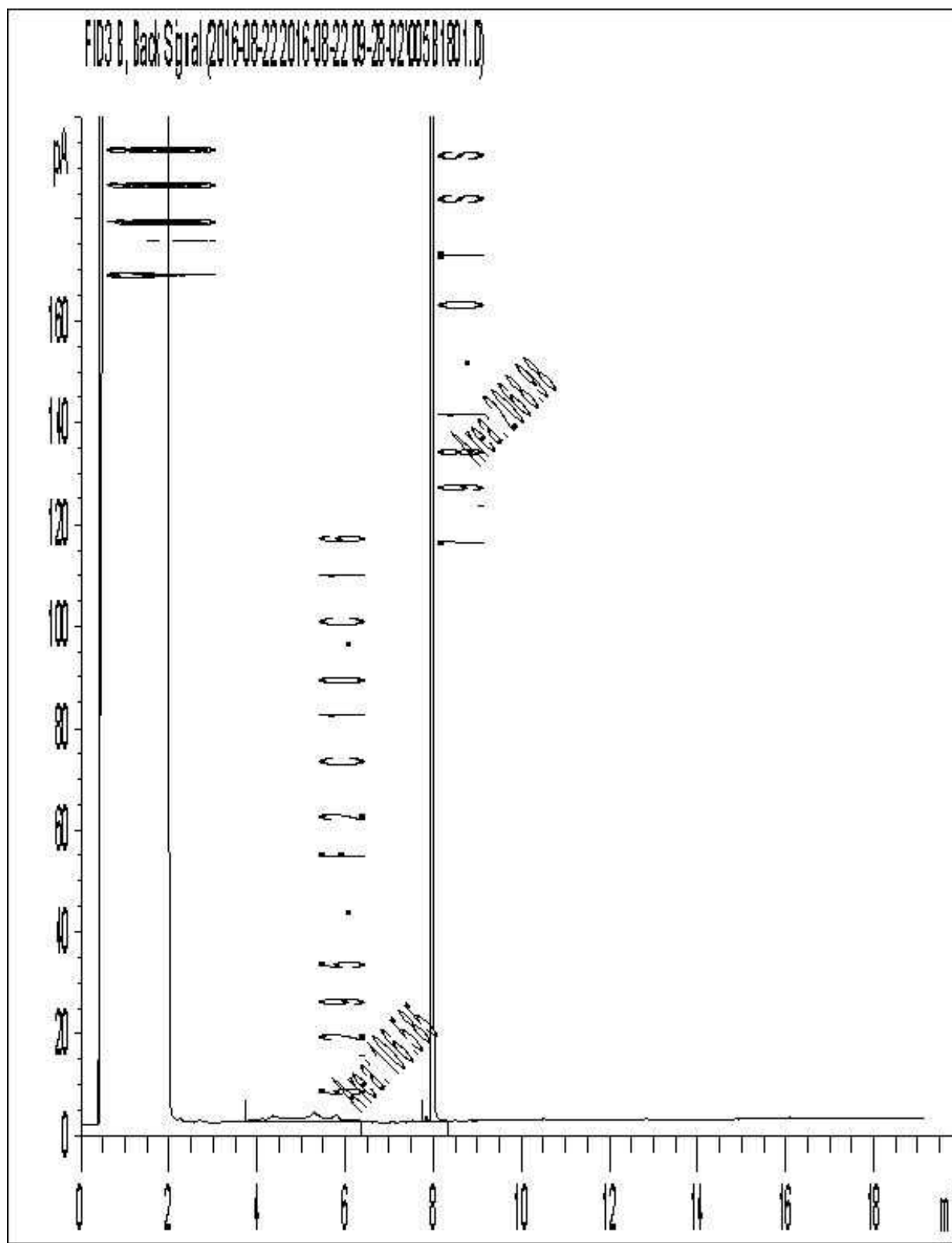
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



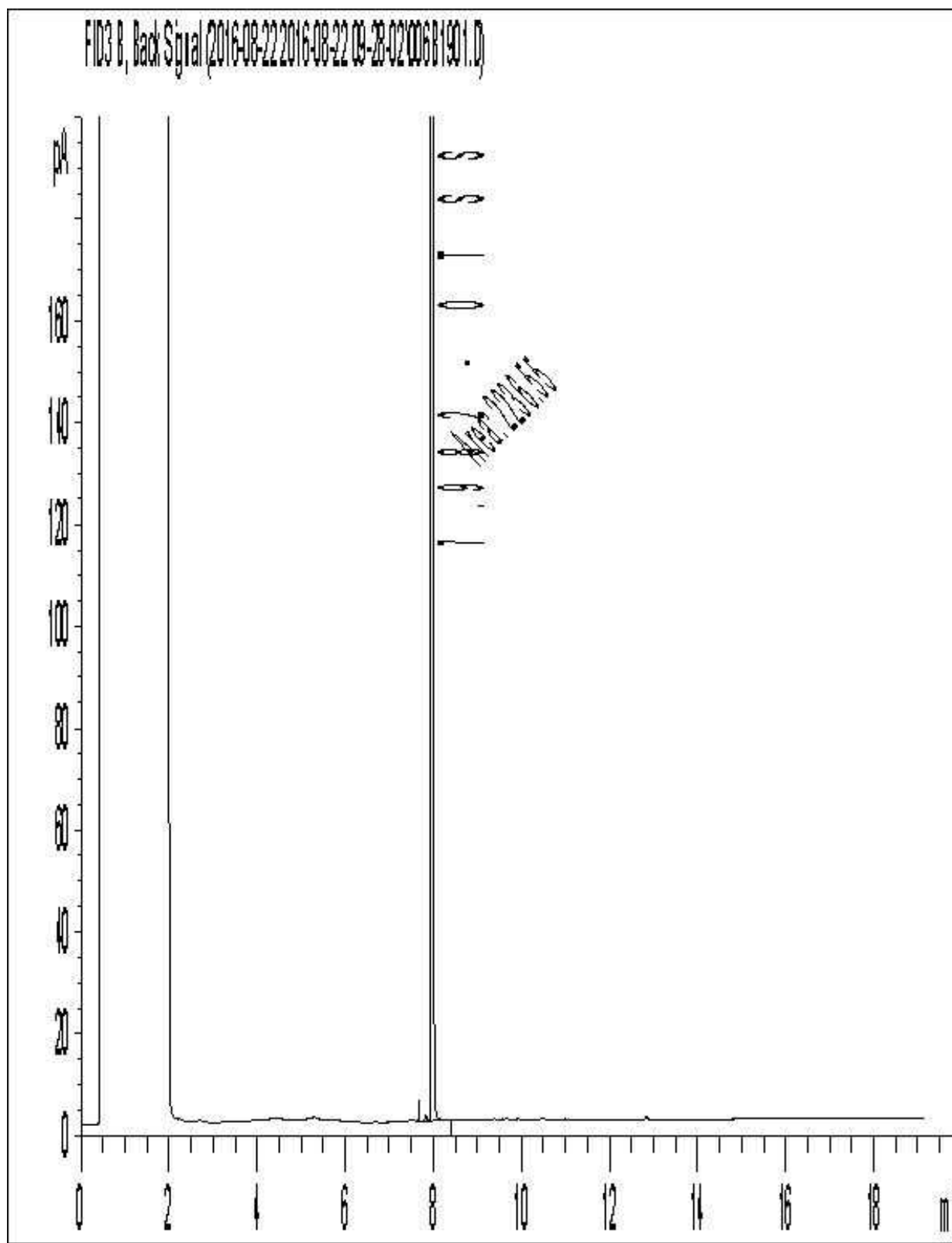
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



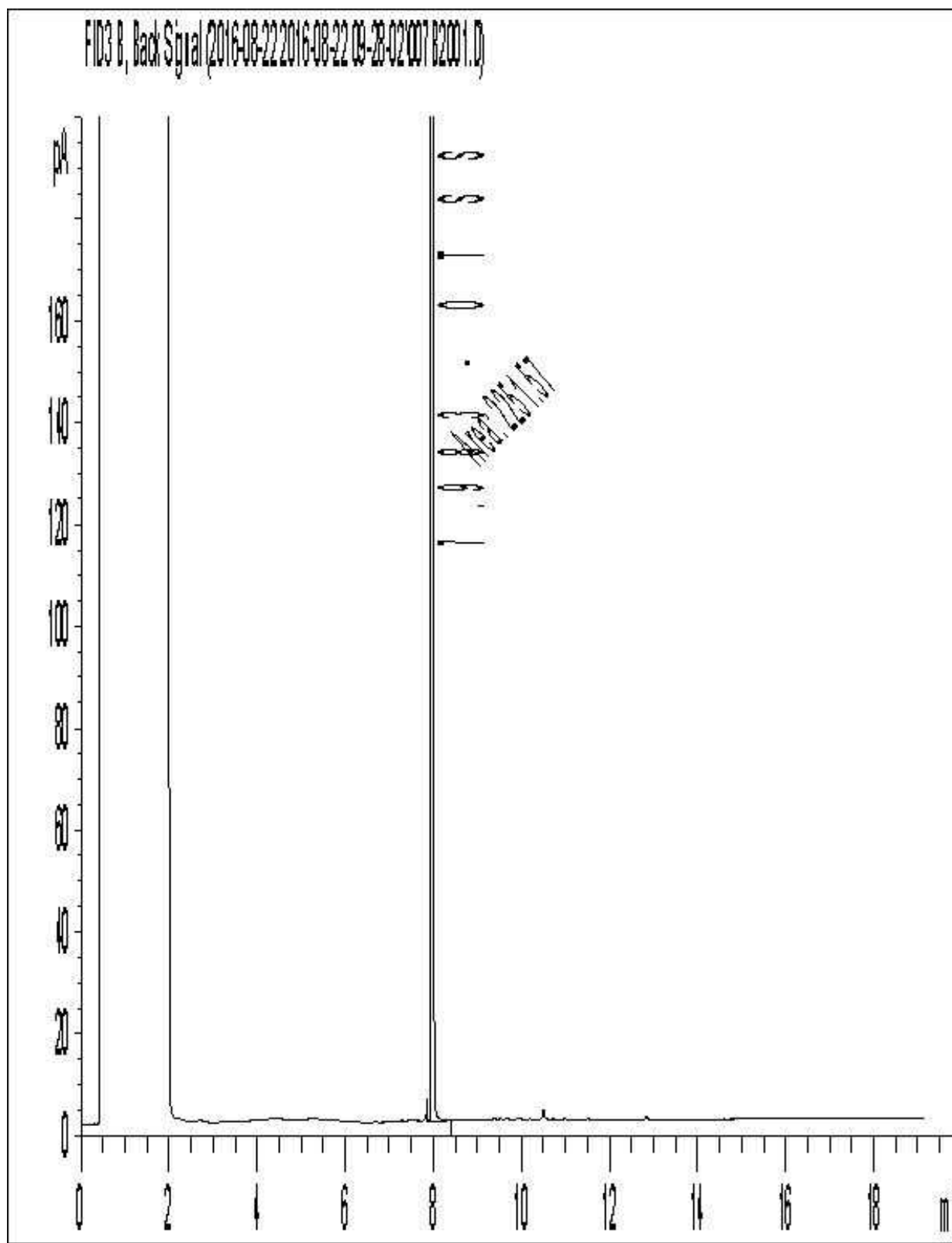
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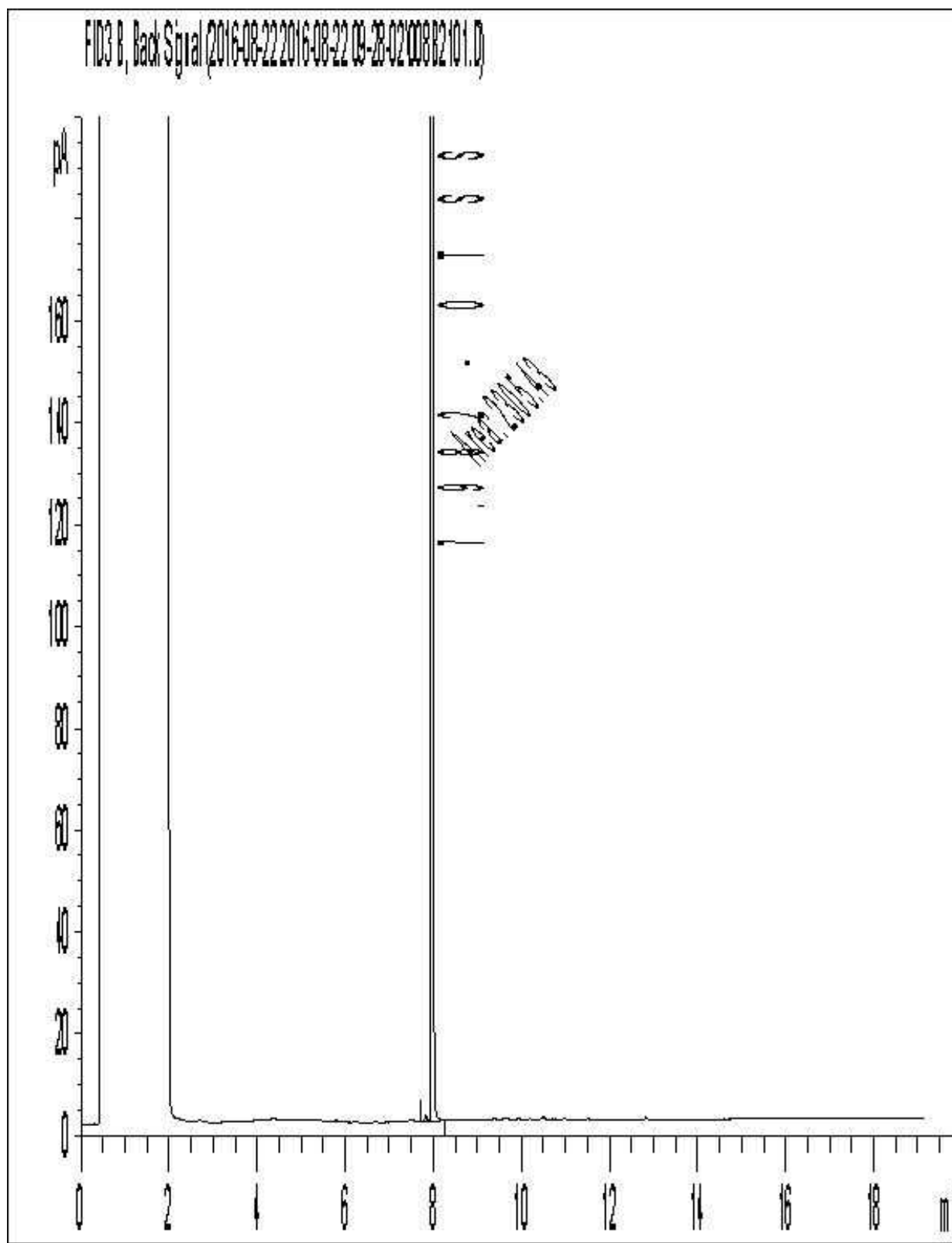
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



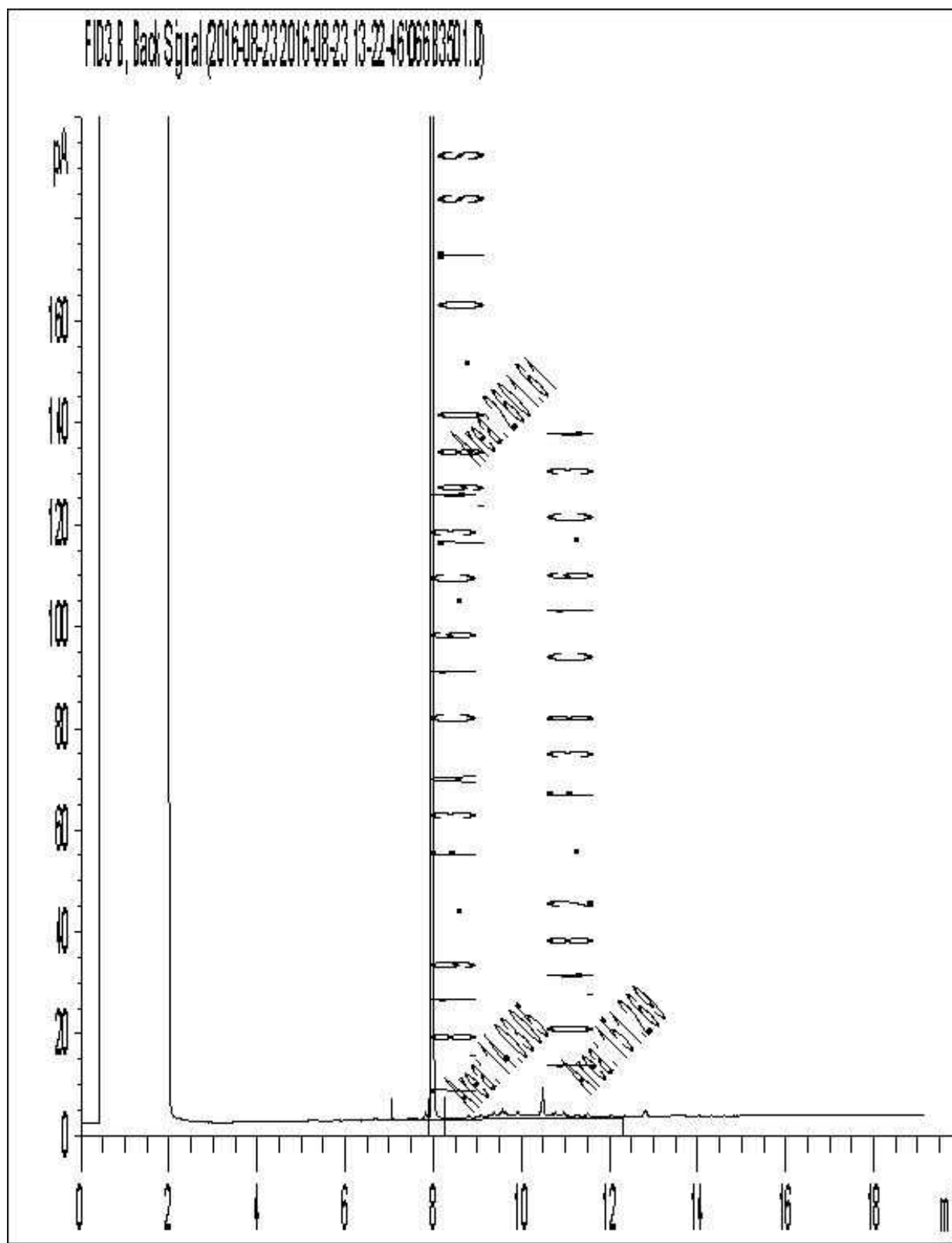
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



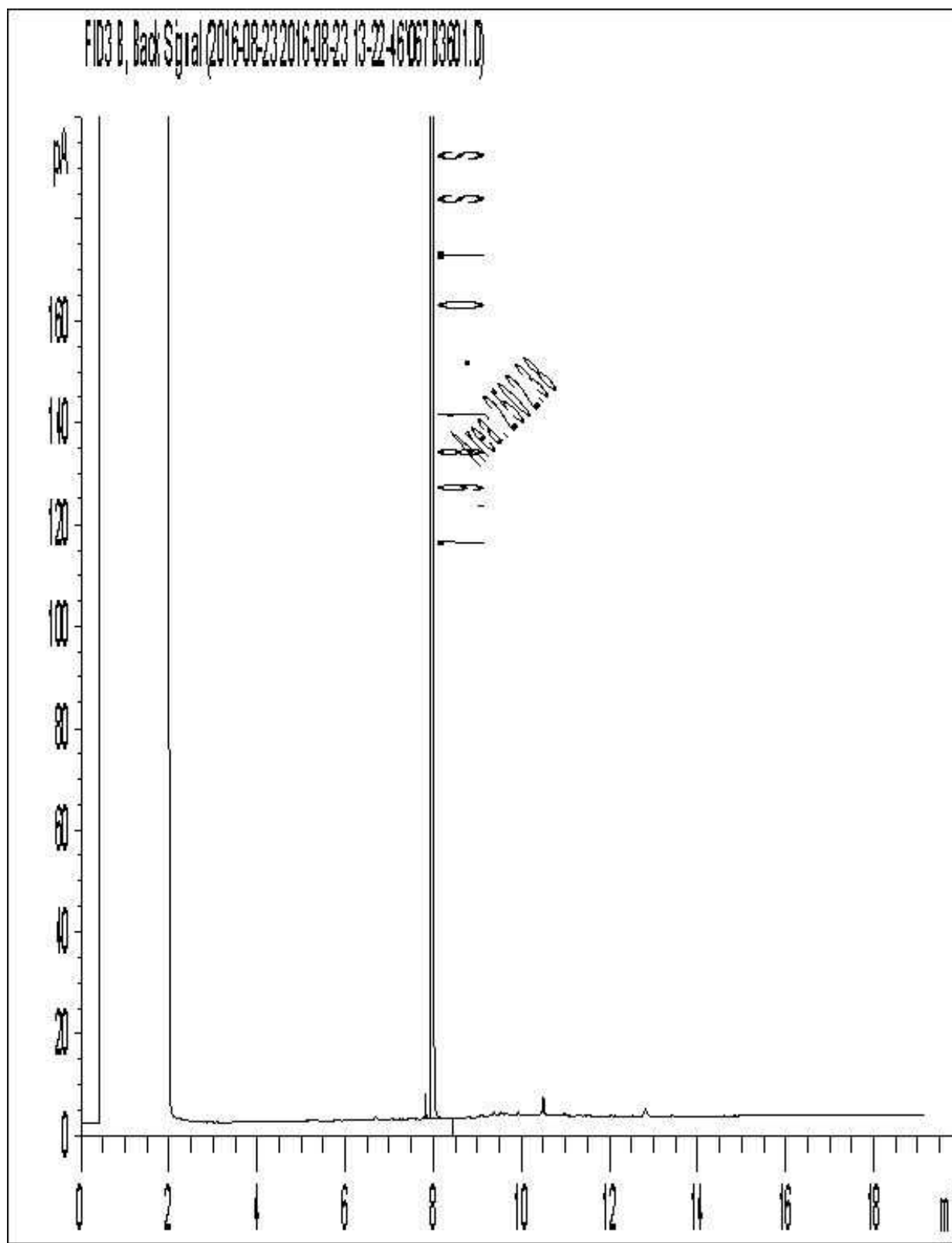
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



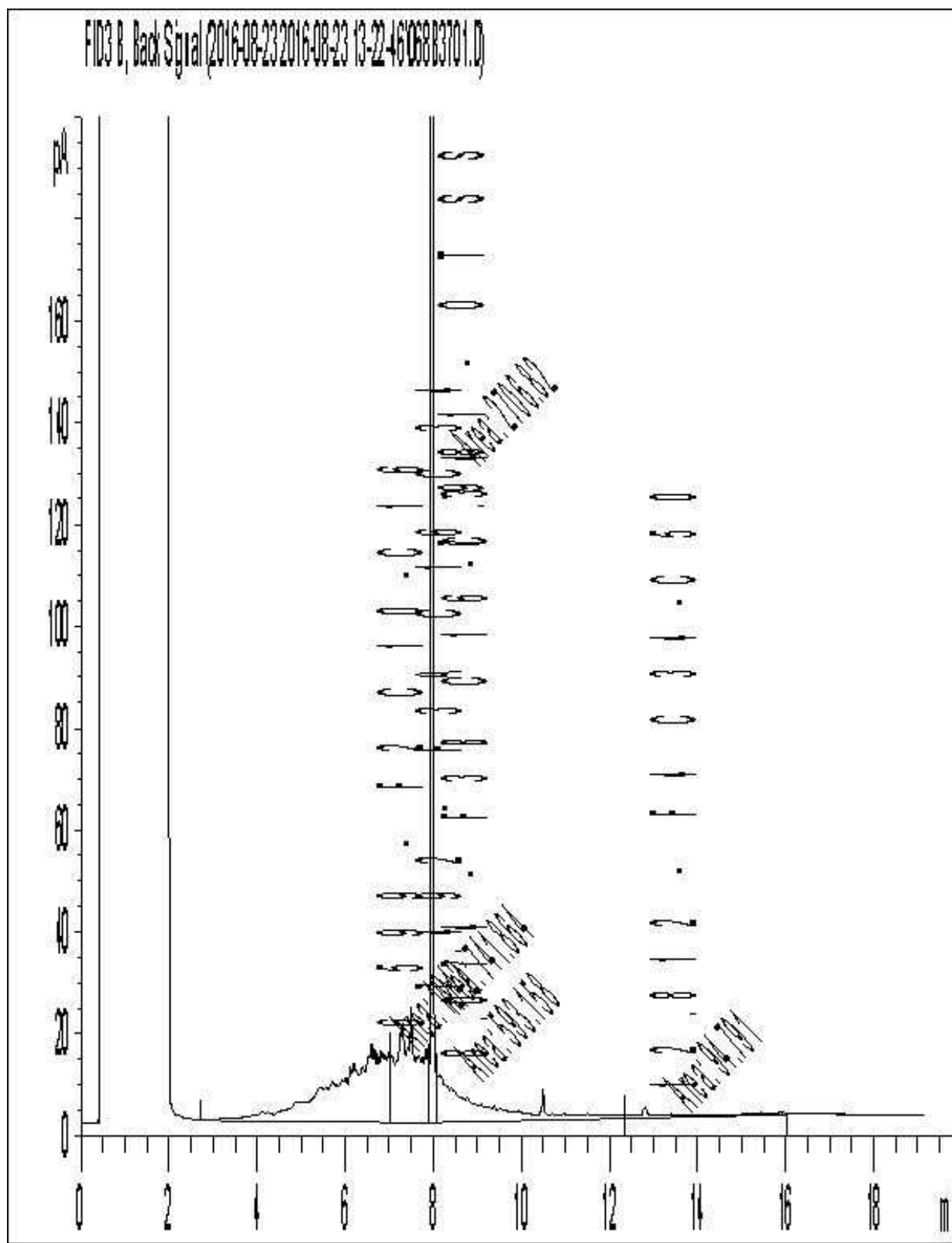
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



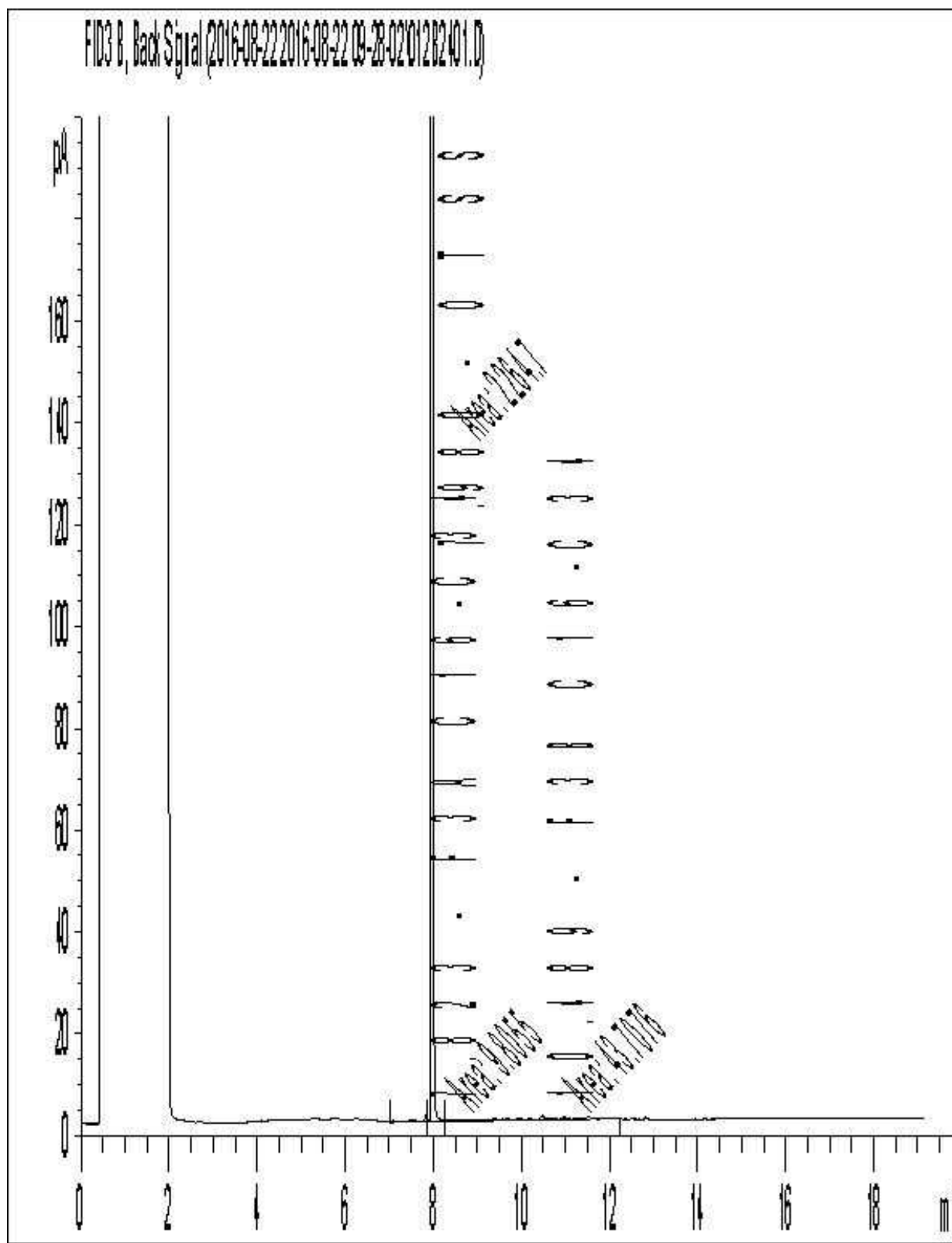
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



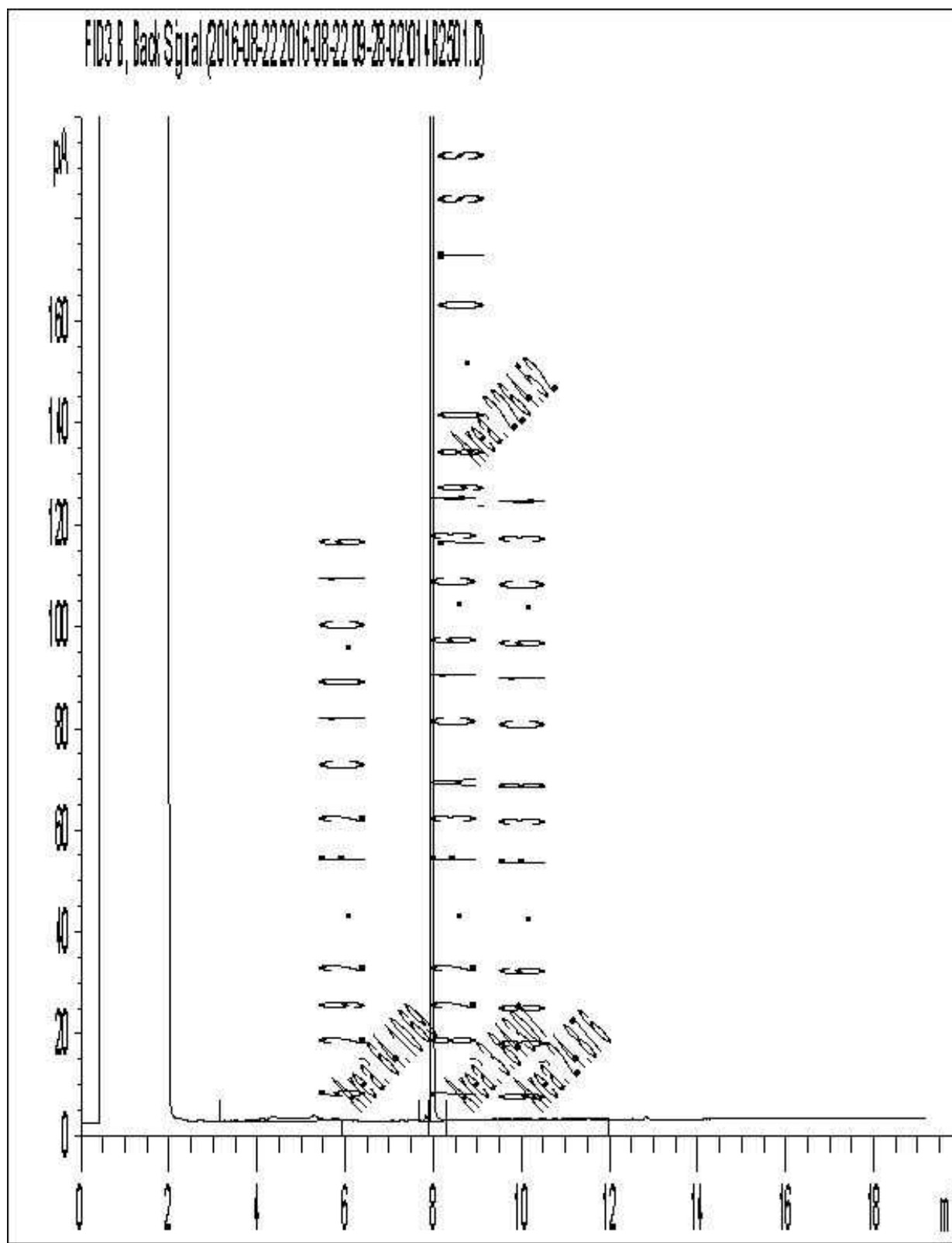
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FID3 B, Back Signal (2016-08-23 13:22:46) 06983801.D

The chromatogram displays detector response (pA) on the y-axis (0 to 180) against time (m) on the x-axis (0 to 20). A large initial peak is observed at approximately 2.1 minutes. A series of smaller peaks are visible between 6 and 10 minutes, with the following retention times and chemical formulas labeled above them: 6.82373 (C₃H₈O), 7.16818 (C₃H₈O), 7.59119 (C₃H₈O), 7.70217 (C₃H₈O), 7.82373 (C₃H₈O), 7.94471 (C₃H₈O), 8.06569 (C₃H₈O), 8.18667 (C₃H₈O), 8.30765 (C₃H₈O), 8.42863 (C₃H₈O), 8.54961 (C₃H₈O), 8.67059 (C₃H₈O), 8.79157 (C₃H₈O), 8.91255 (C₃H₈O), 9.03353 (C₃H₈O), 9.15451 (C₃H₈O), 9.27549 (C₃H₈O), 9.39647 (C₃H₈O), 9.51745 (C₃H₈O), 9.63843 (C₃H₈O), 9.75941 (C₃H₈O), 9.88039 (C₃H₈O), 10.00137 (C₃H₈O), 10.12235 (C₃H₈O), 10.24333 (C₃H₈O), 10.36431 (C₃H₈O), 10.48529 (C₃H₈O), 10.60627 (C₃H₈O), 10.72725 (C₃H₈O), 10.84823 (C₃H₈O), 10.96921 (C₃H₈O), 11.09019 (C₃H₈O), 11.21117 (C₃H₈O), 11.33215 (C₃H₈O), 11.45313 (C₃H₈O), 11.57411 (C₃H₈O), 11.69509 (C₃H₈O), 11.81607 (C₃H₈O), 11.93705 (C₃H₈O), 12.05803 (C₃H₈O), 12.17901 (C₃H₈O), 12.30000 (C₃H₈O), 12.42098 (C₃H₈O), 12.54196 (C₃H₈O), 12.66294 (C₃H₈O), 12.78392 (C₃H₈O), 12.90490 (C₃H₈O), 13.02588 (C₃H₈O), 13.14686 (C₃H₈O), 13.26784 (C₃H₈O), 13.38882 (C₃H₈O), 13.50980 (C₃H₈O), 13.63078 (C₃H₈O), 13.75176 (C₃H₈O), 13.87274 (C₃H₈O), 13.99372 (C₃H₈O), 14.11470 (C₃H₈O), 14.23568 (C₃H₈O), 14.35666 (C₃H₈O), 14.47764 (C₃H₈O), 14.59862 (C₃H₈O), 14.71960 (C₃H₈O), 14.84058 (C₃H₈O), 14.96156 (C₃H₈O), 15.08254 (C₃H₈O), 15.20352 (C₃H₈O), 15.32450 (C₃H₈O), 15.44548 (C₃H₈O), 15.56646 (C₃H₈O), 15.68744 (C₃H₈O), 15.80842 (C₃H₈O), 15.92940 (C₃H₈O), 16.05038 (C₃H₈O), 16.17136 (C₃H₈O), 16.29234 (C₃H₈O), 16.41332 (C₃H₈O), 16.53430 (C₃H₈O), 16.65528 (C₃H₈O), 16.77626 (C₃H₈O), 16.89724 (C₃H₈O), 17.01822 (C₃H₈O), 17.13920 (C₃H₈O), 17.26018 (C₃H₈O), 17.38116 (C₃H₈O), 17.50214 (C₃H₈O), 17.62312 (C₃H₈O), 17.74410 (C₃H₈O), 17.86508 (C₃H₈O), 17.98606 (C₃H₈O), 18.10704 (C₃H₈O), 18.22802 (C₃H₈O), 18.34900 (C₃H₈O), 18.47000 (C₃H₈O), 18.59098 (C₃H₈O), 18.71196 (C₃H₈O), 18.83294 (C₃H₈O), 18.95392 (C₃H₈O), 19.07490 (C₃H₈O), 19.19588 (C₃H₈O), 19.31686 (C₃H₈O), 19.43784 (C₃H₈O), 19.55882 (C₃H₈O), 19.67980 (C₃H₈O), 19.80078 (C₃H₈O), 19.92176 (C₃H₈O), 20.04274 (C₃H₈O), 20.16372 (C₃H₈O), 20.28470 (C₃H₈O), 20.40568 (C₃H₈O), 20.52666 (C₃H₈O), 20.64764 (C₃H₈O), 20.76862 (C₃H₈O), 20.88960 (C₃H₈O), 21.01058 (C₃H₈O), 21.13156 (C₃H₈O), 21.25254 (C₃H₈O), 21.37352 (C₃H₈O), 21.49450 (C₃H₈O), 21.61548 (C₃H₈O), 21.73646 (C₃H₈O), 21.85744 (C₃H₈O), 21.97842 (C₃H₈O), 22.09940 (C₃H₈O), 22.22038 (C₃H₈O), 22.34136 (C₃H₈O), 22.46234 (C₃H₈O), 22.58332 (C₃H₈O), 22.70430 (C₃H₈O), 22.82528 (C₃H₈O), 22.94626 (C₃H₈O), 23.06724 (C₃H₈O), 23.18822 (C₃H₈O), 23.30920 (C₃H₈O), 23.43018 (C₃H₈O), 23.55116 (C₃H₈O), 23.67214 (C₃H₈O), 23.79312 (C₃H₈O), 23.91410 (C₃H₈O), 24.03508 (C₃H₈O), 24.15606 (C₃H₈O), 24.27704 (C₃H₈O), 24.39802 (C₃H₈O), 24.51900 (C₃H₈O), 24.64000 (C₃H₈O), 24.76098 (C₃H₈O), 24.88196 (C₃H₈O), 25.00294 (C₃H₈O), 25.12392 (C₃H₈O), 25.24490 (C₃H₈O), 25.36588 (C₃H₈O), 25.48686 (C₃H₈O), 25.60784 (C₃H₈O), 25.72882 (C₃H

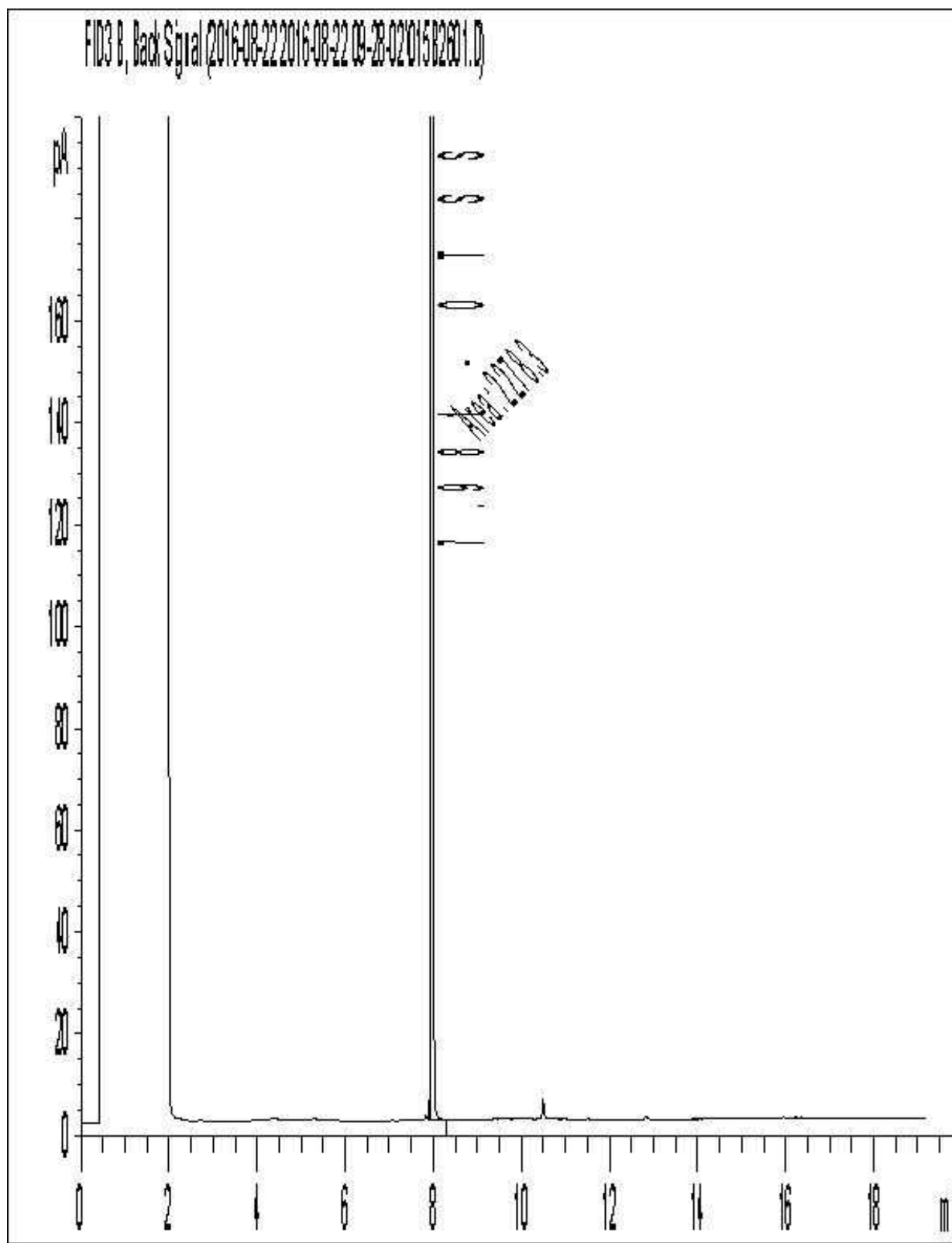
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



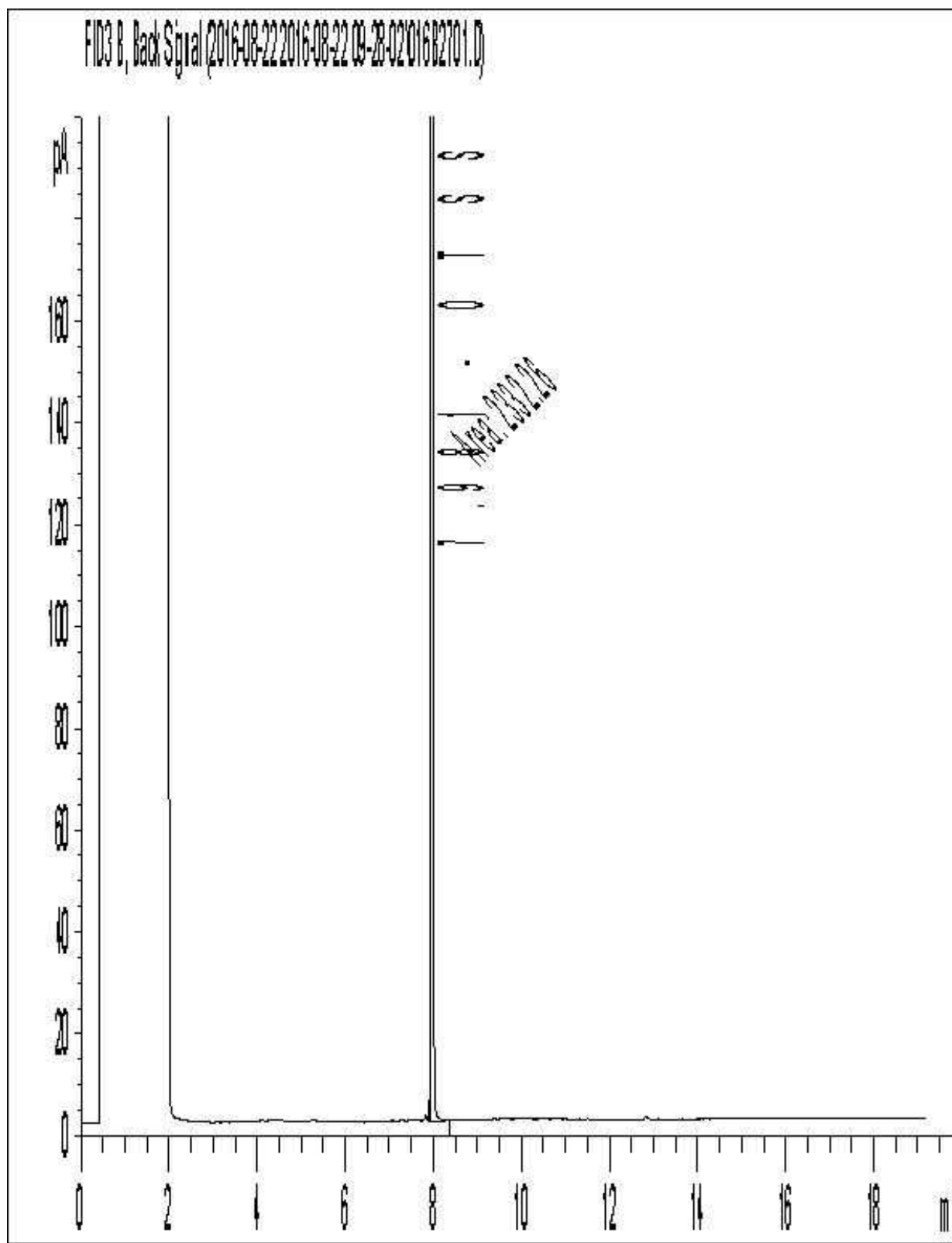
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



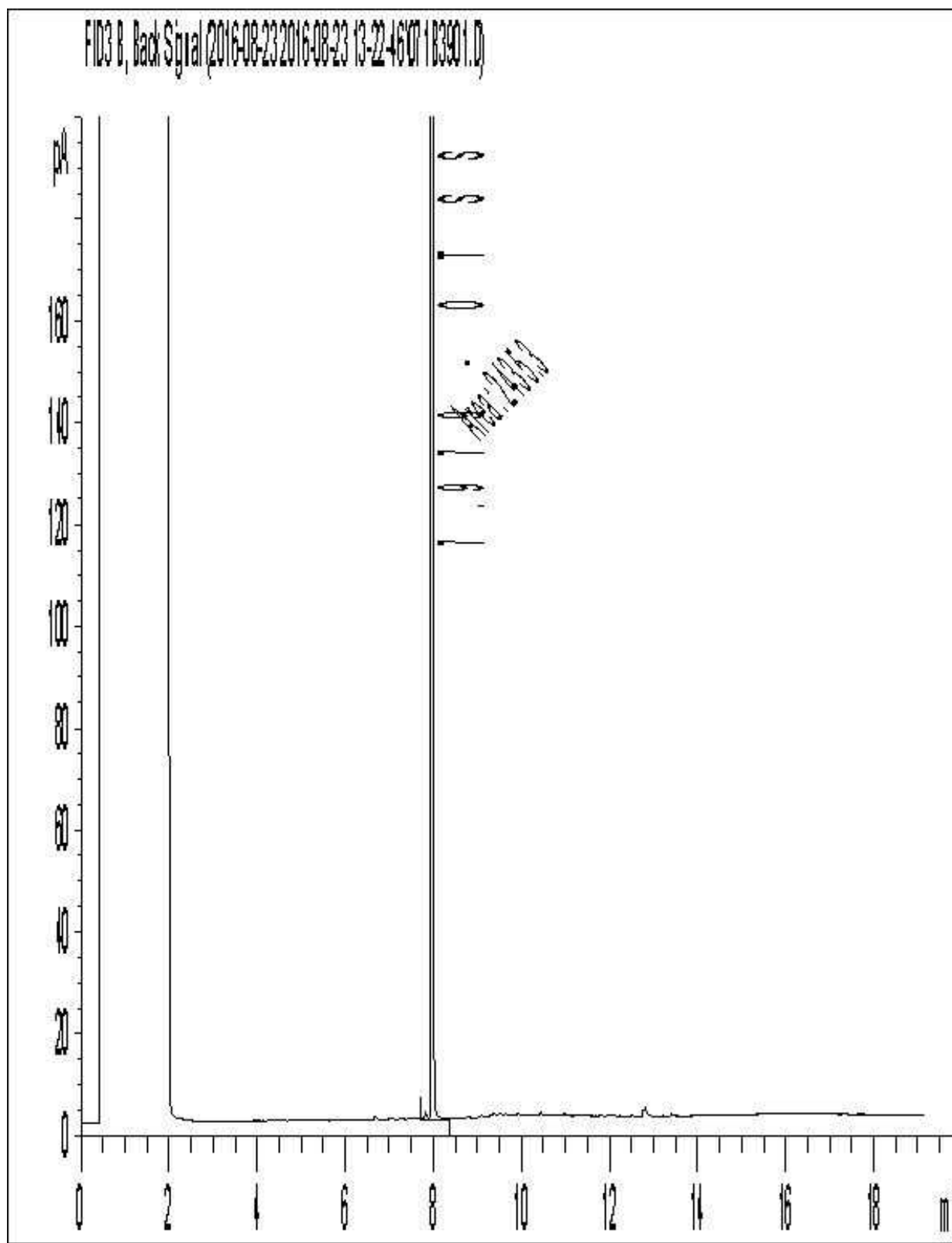
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



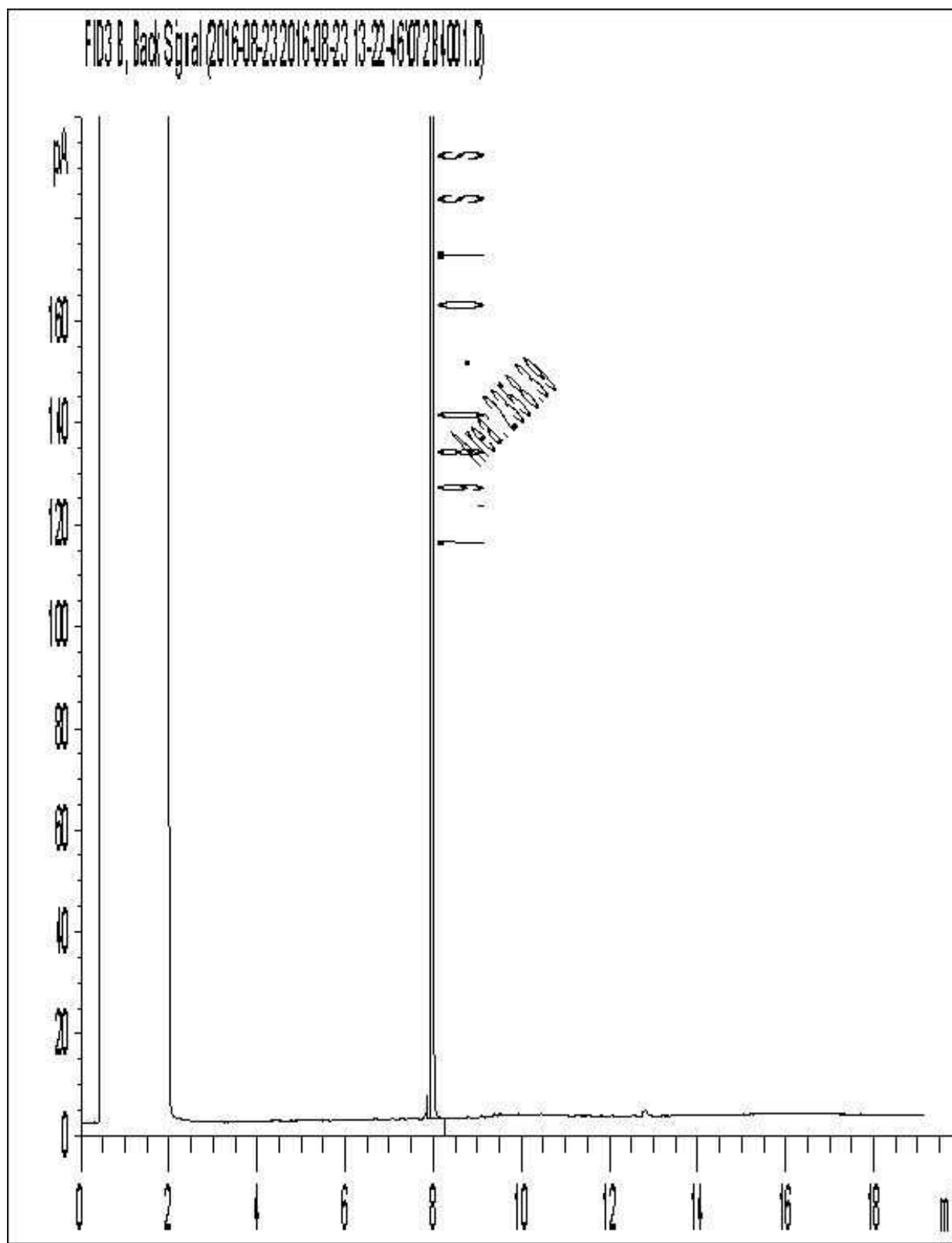
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



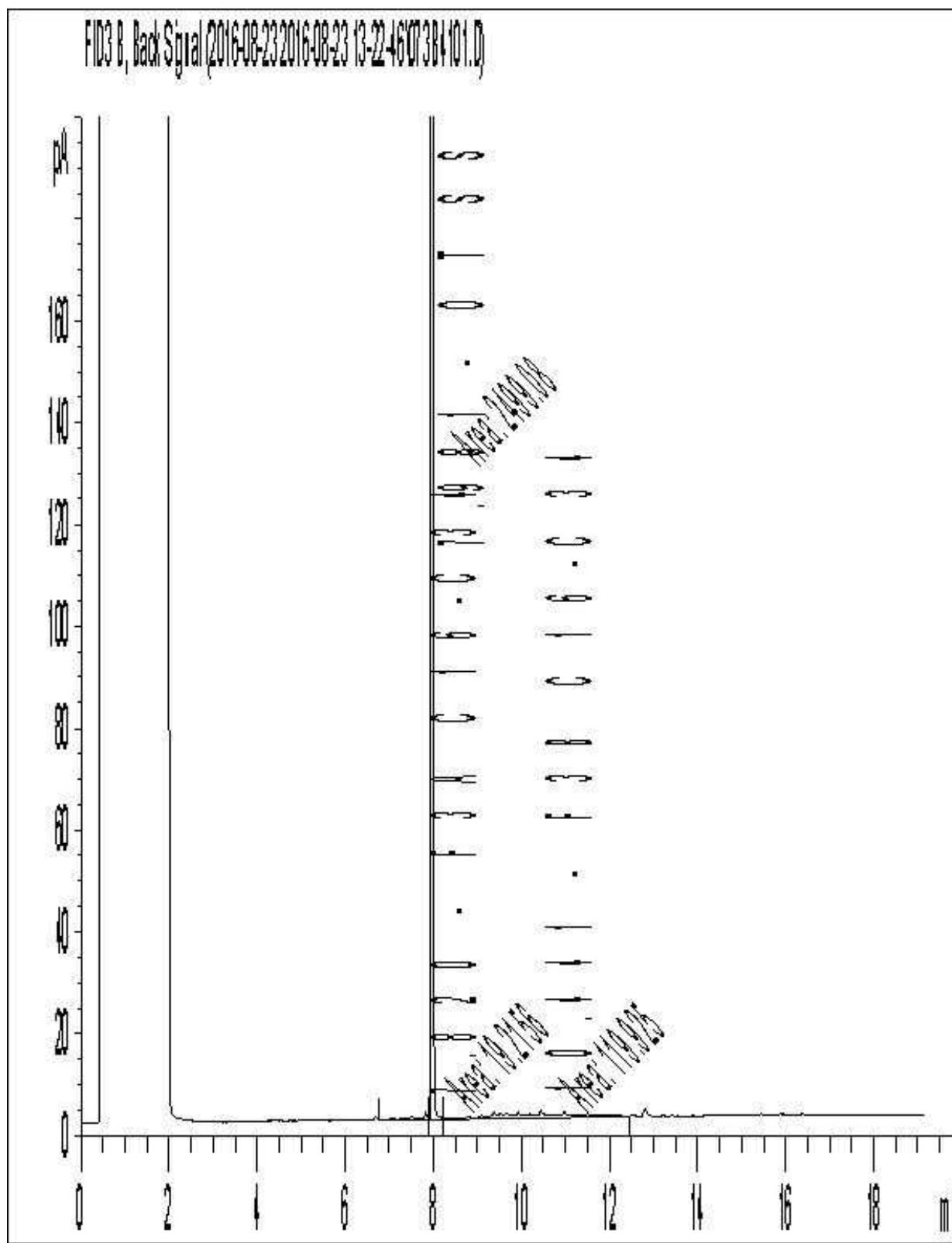
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



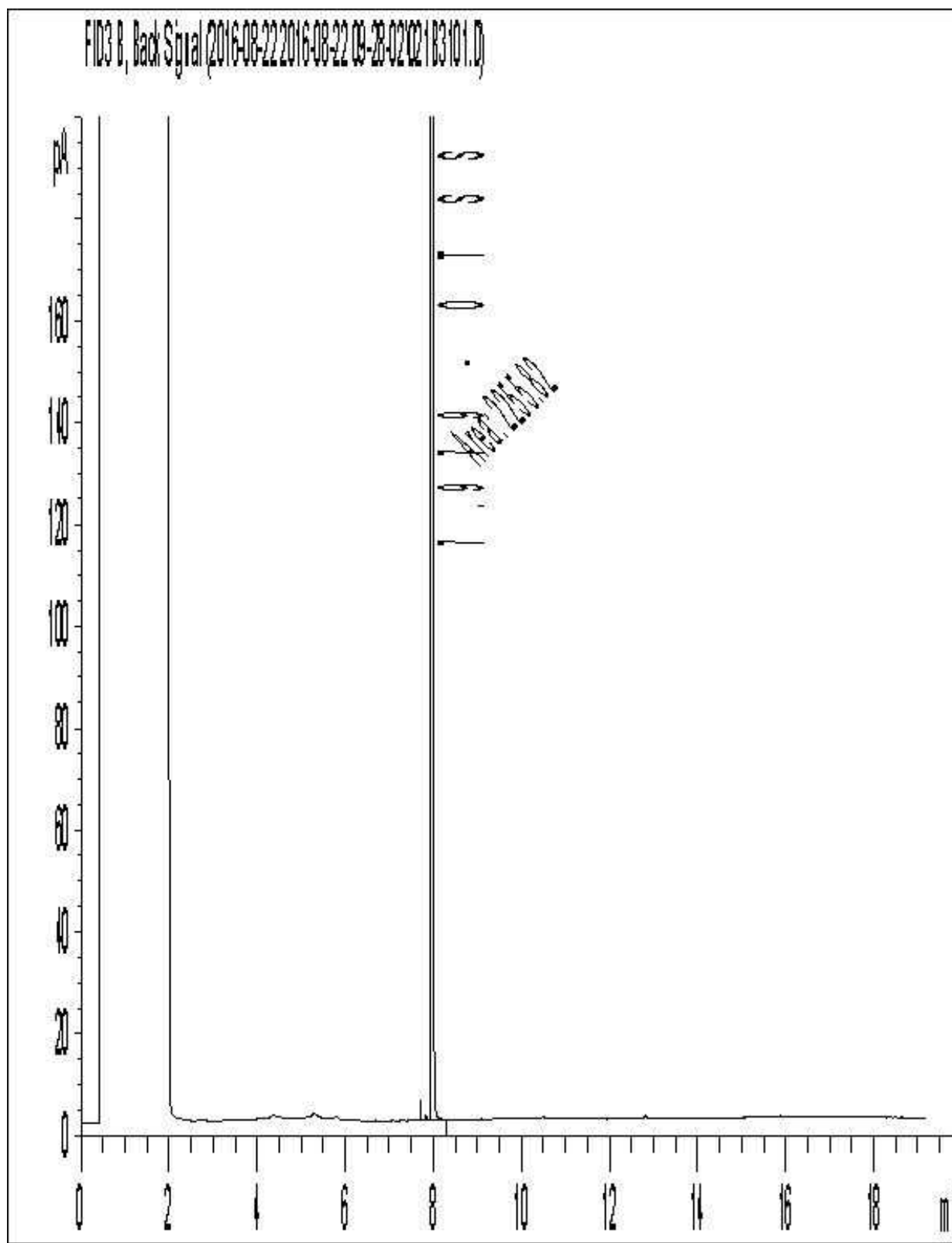
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



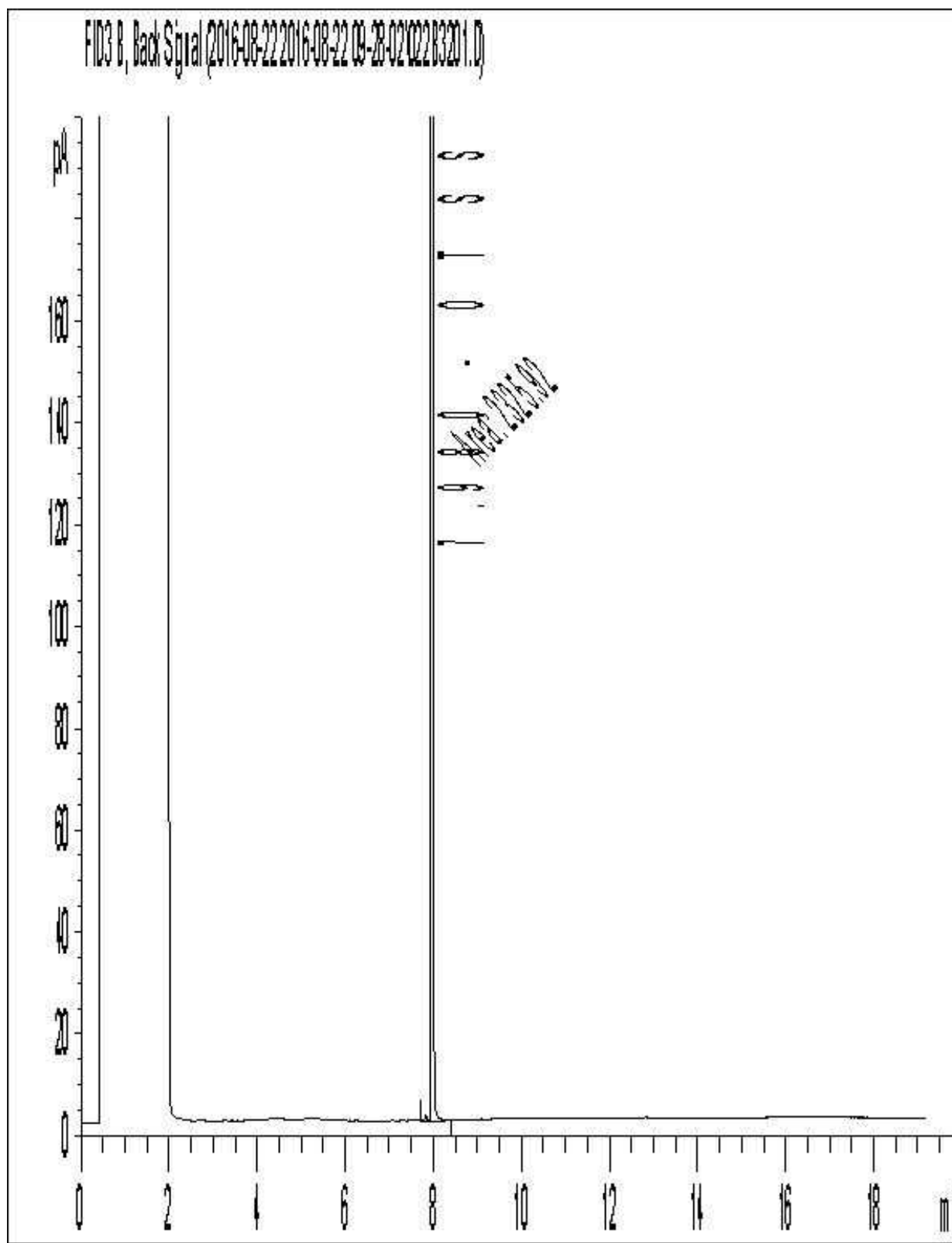
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



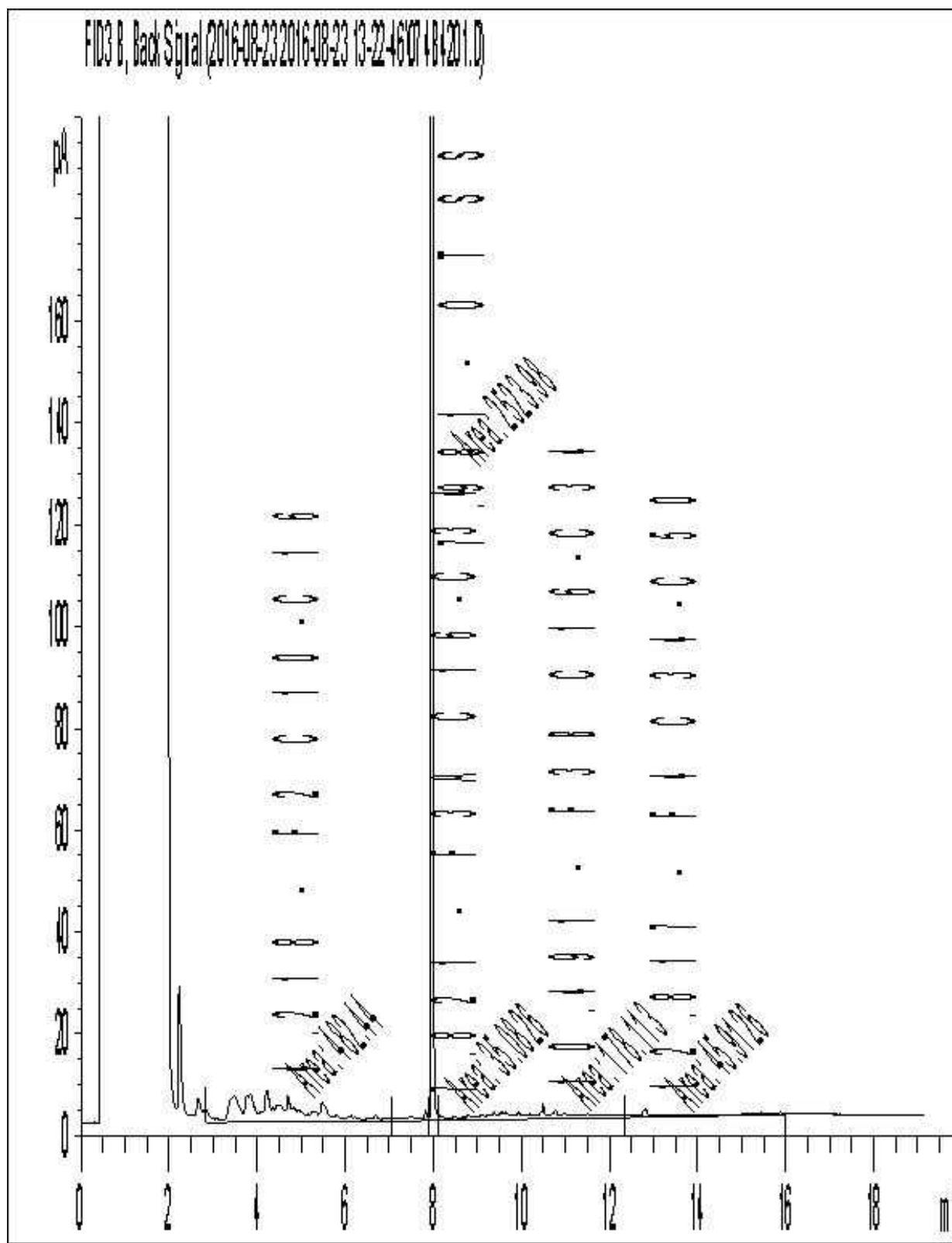
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



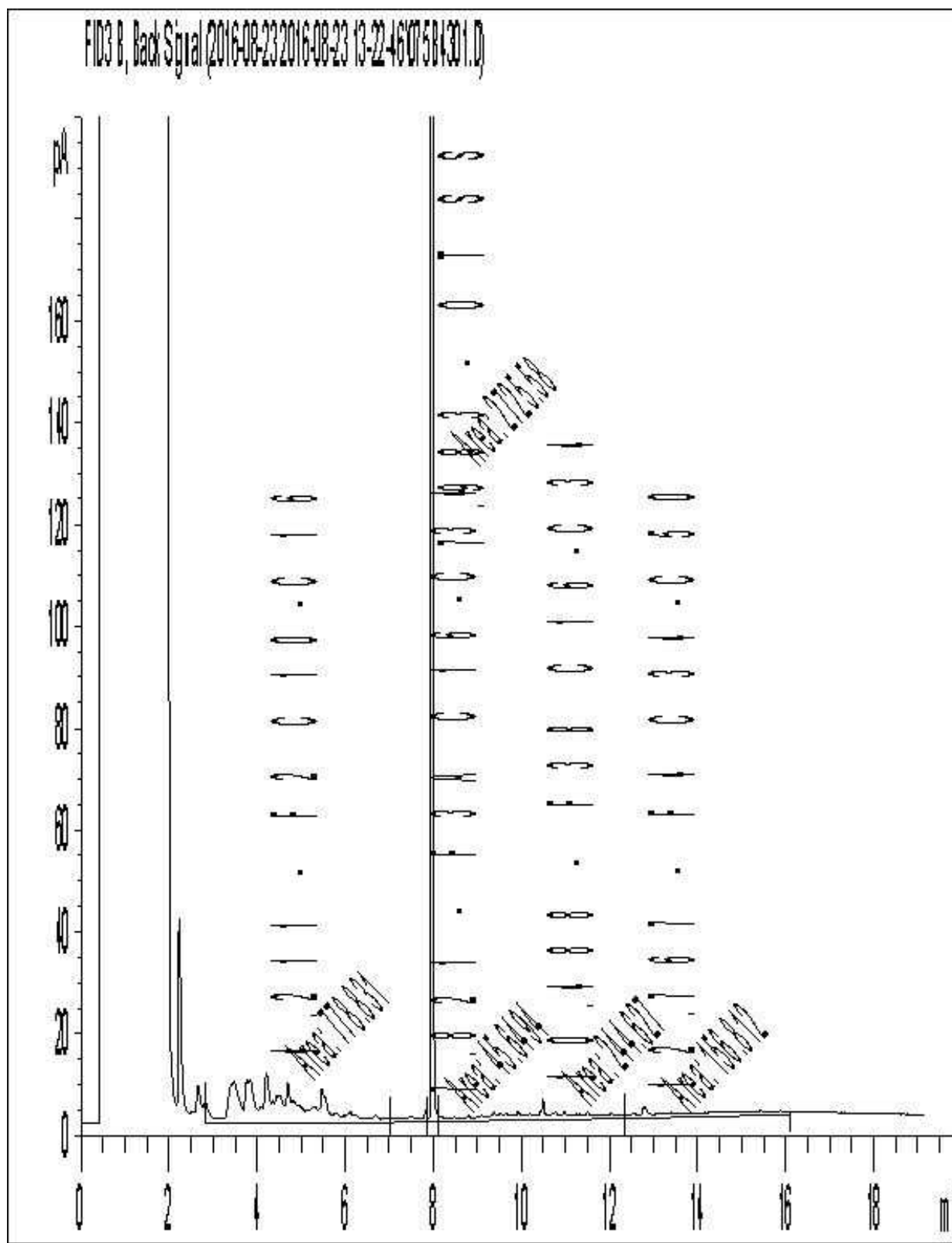
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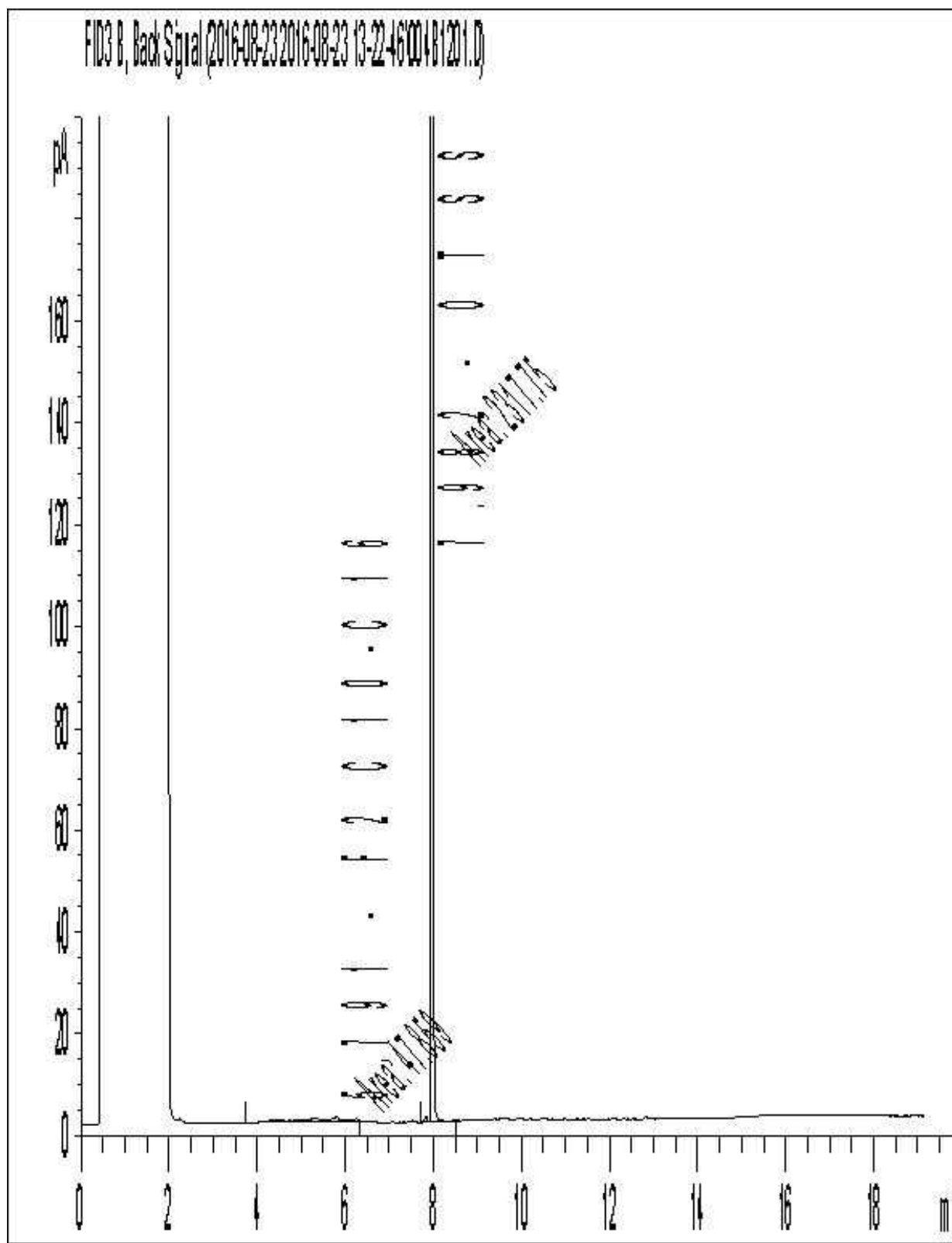
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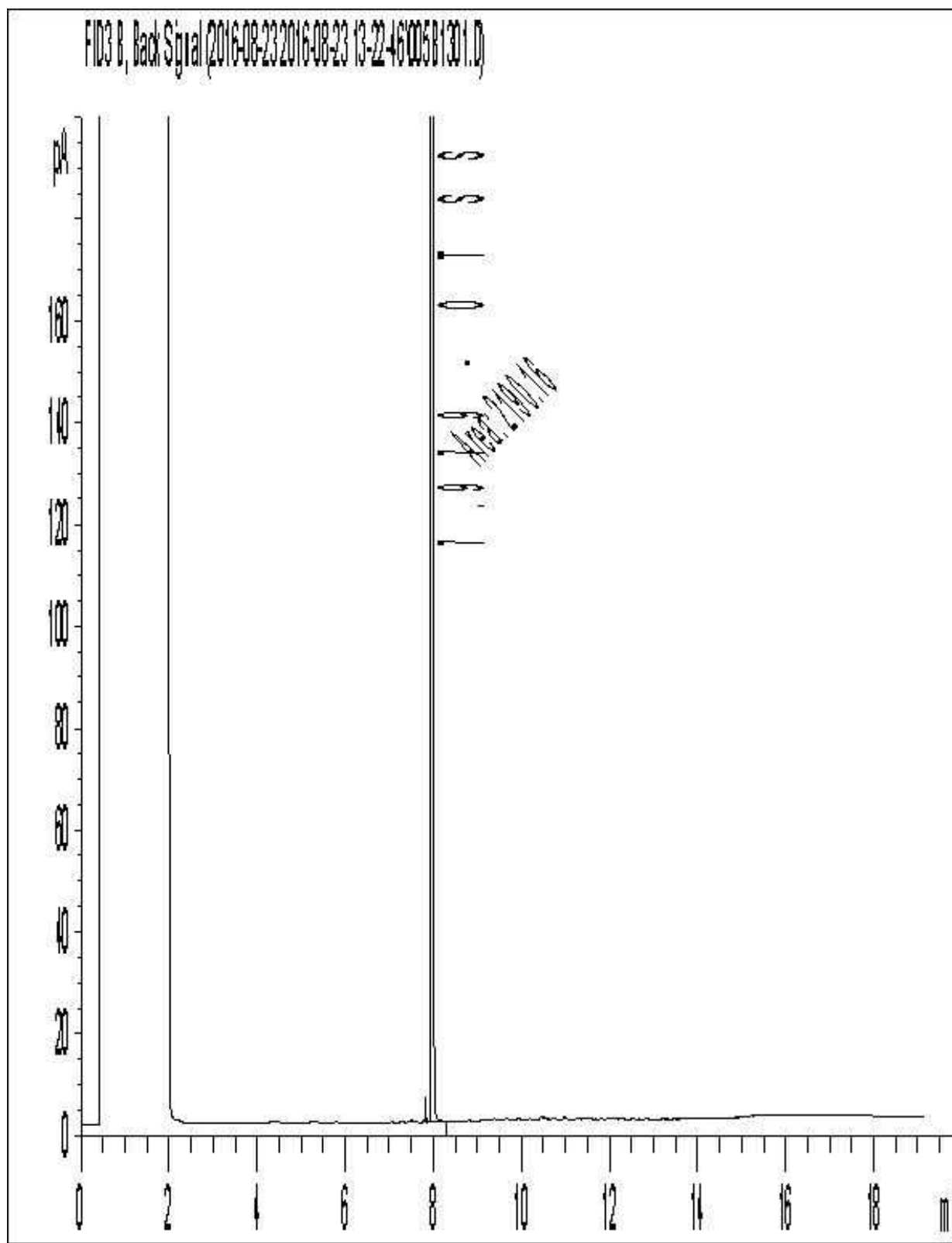
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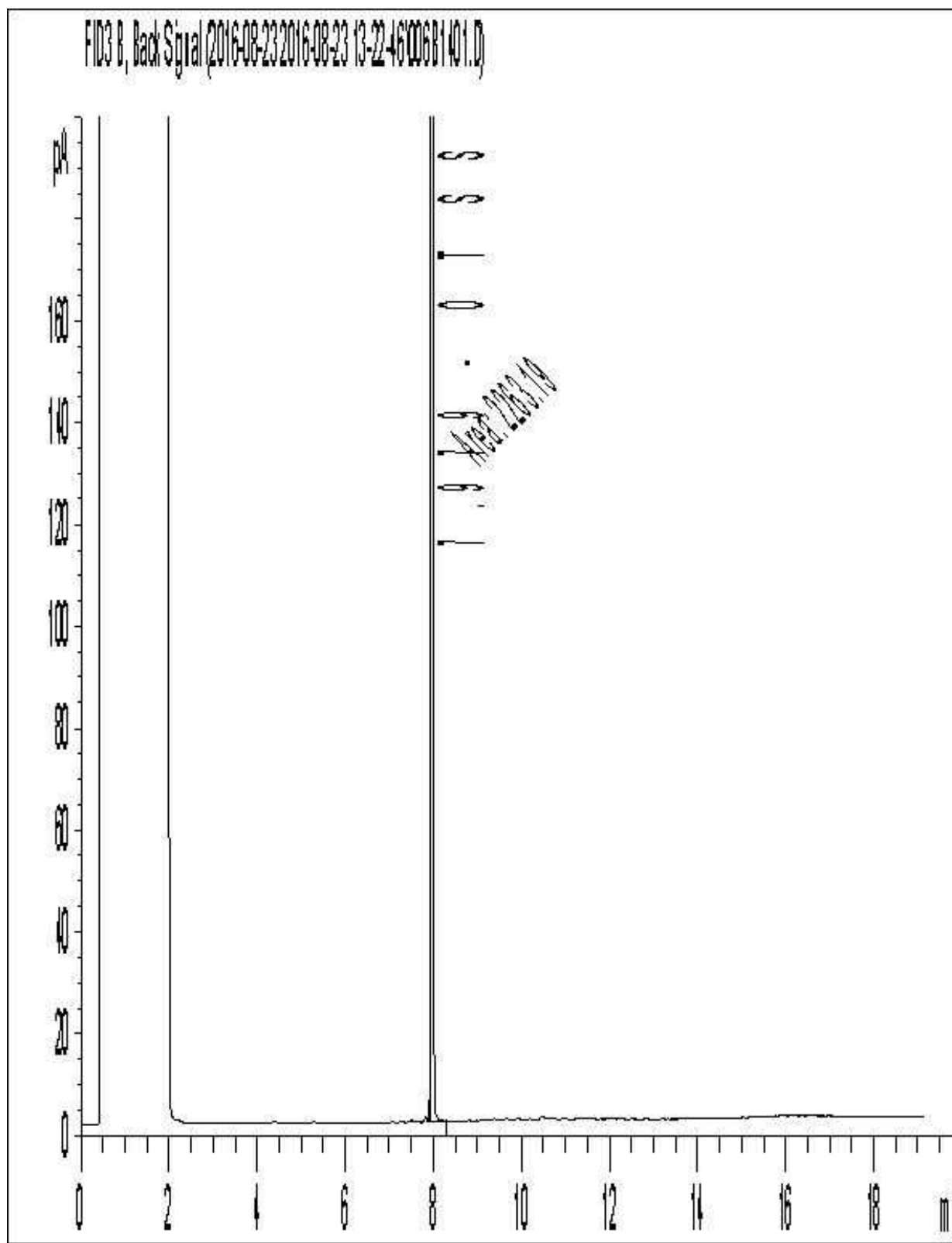
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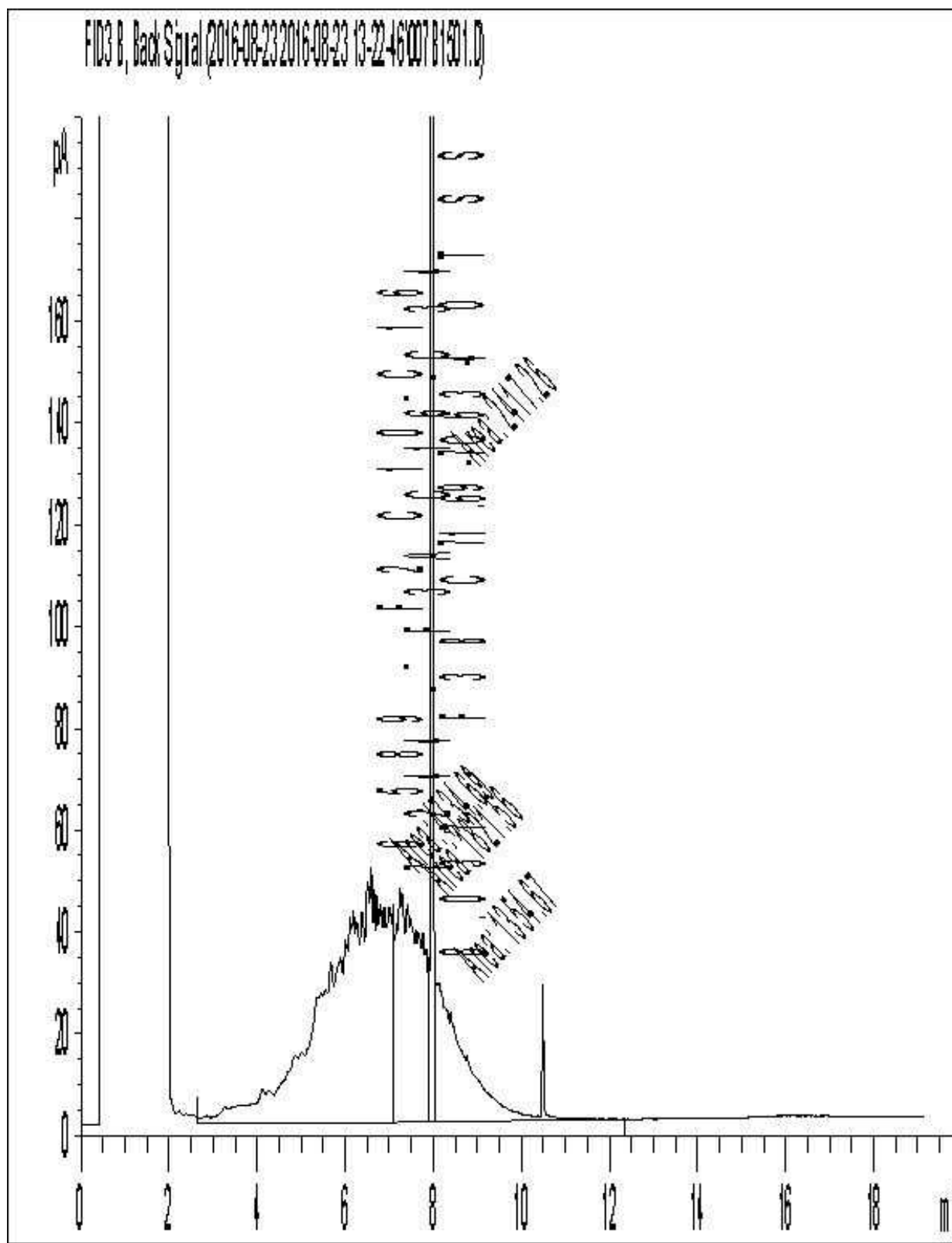
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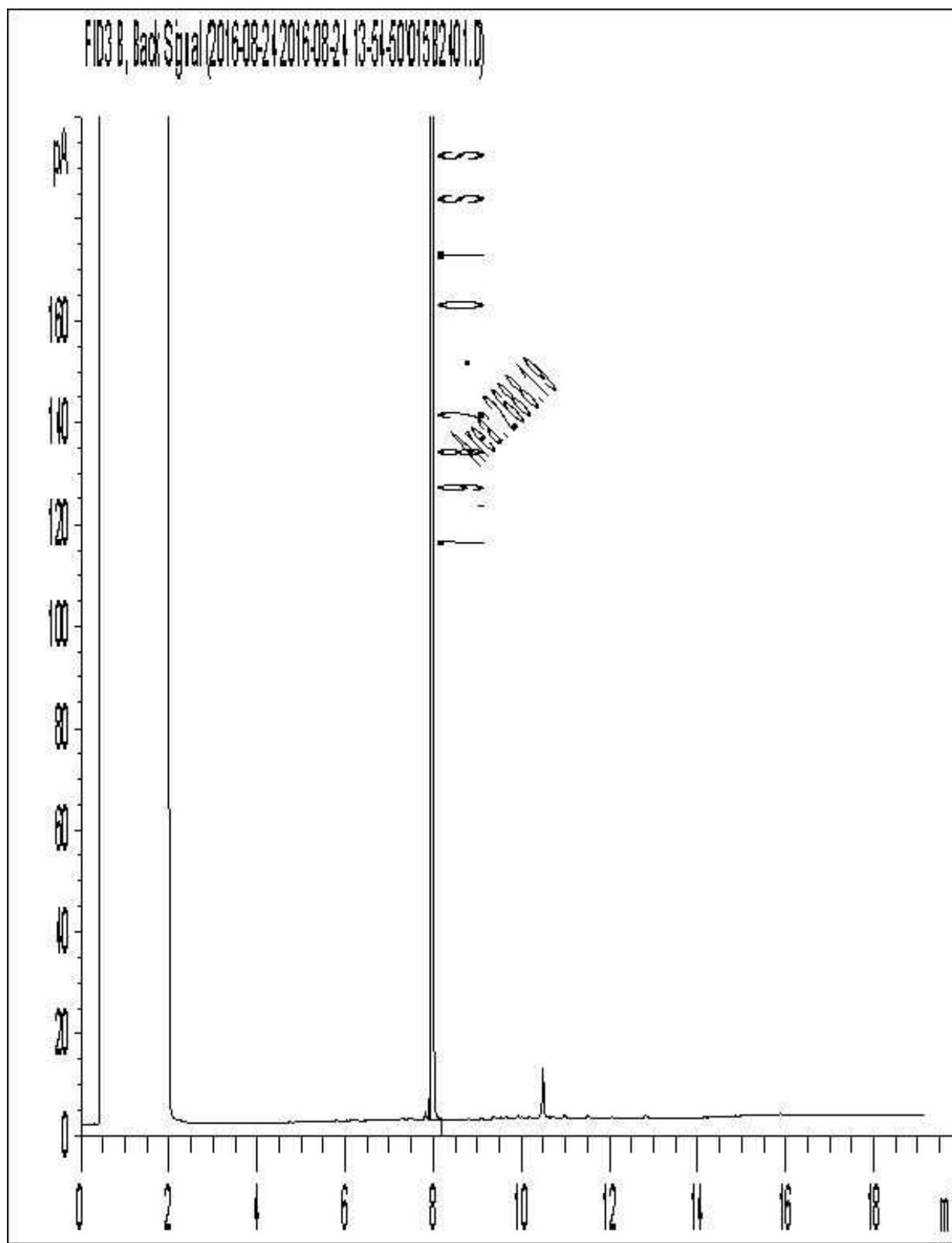
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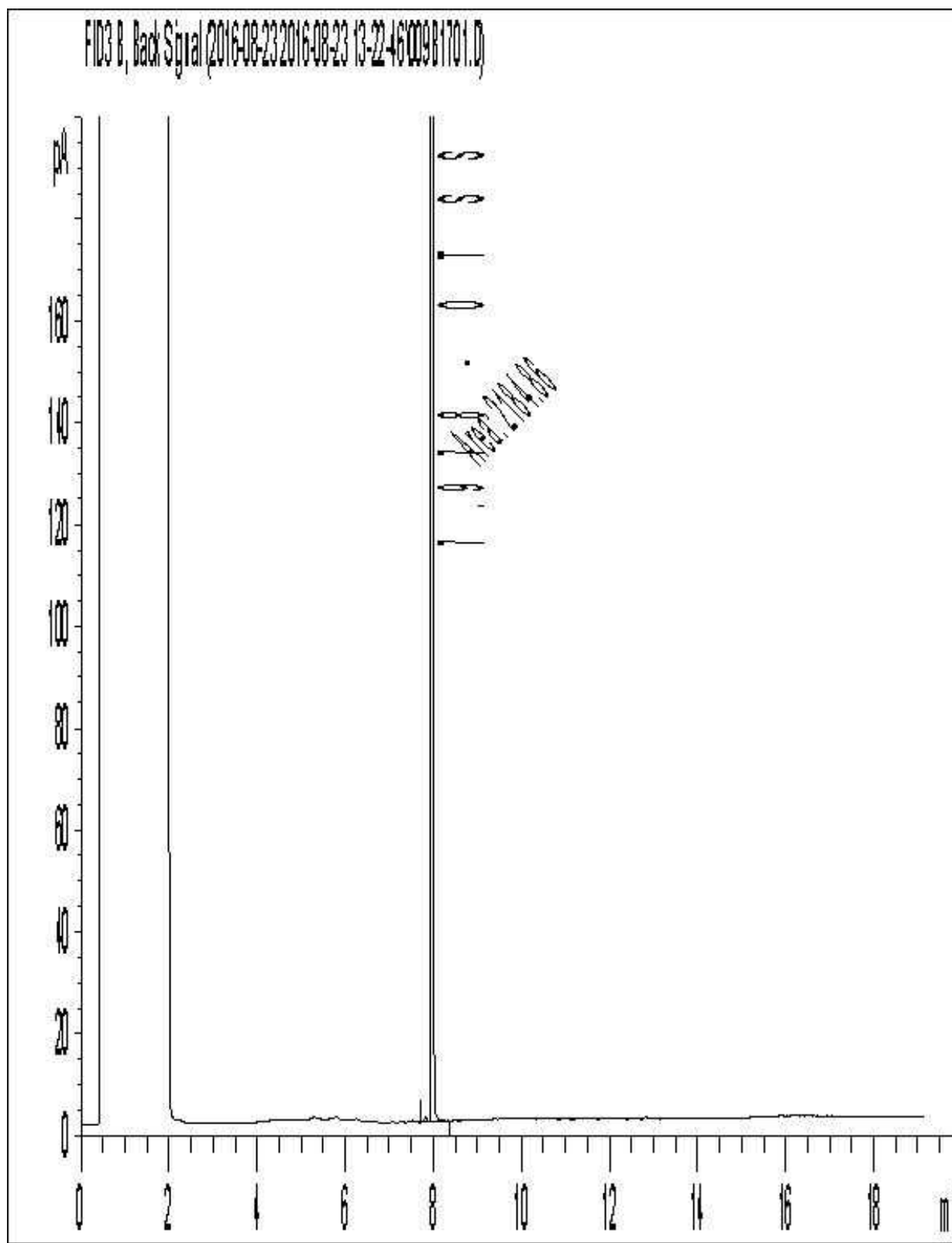
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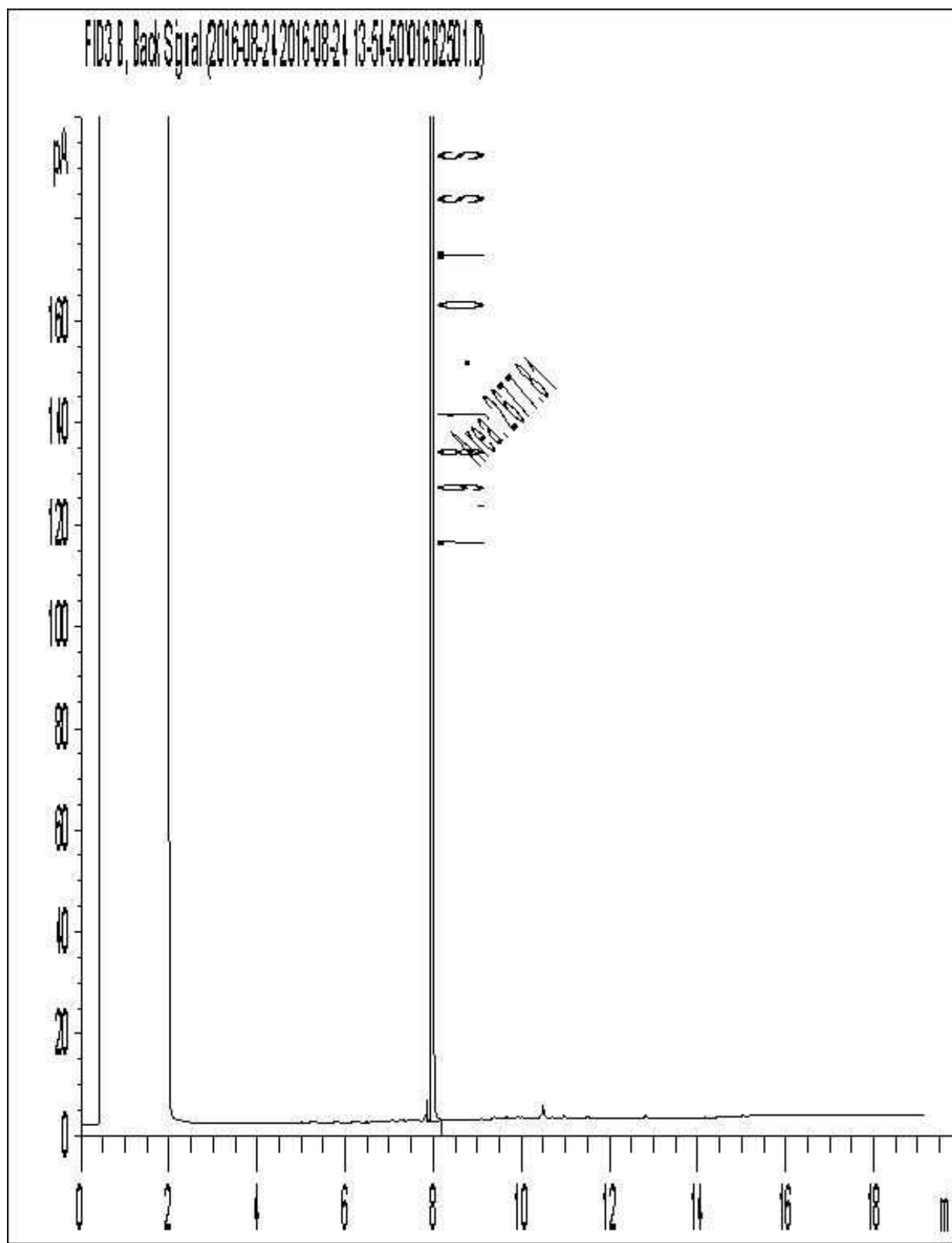
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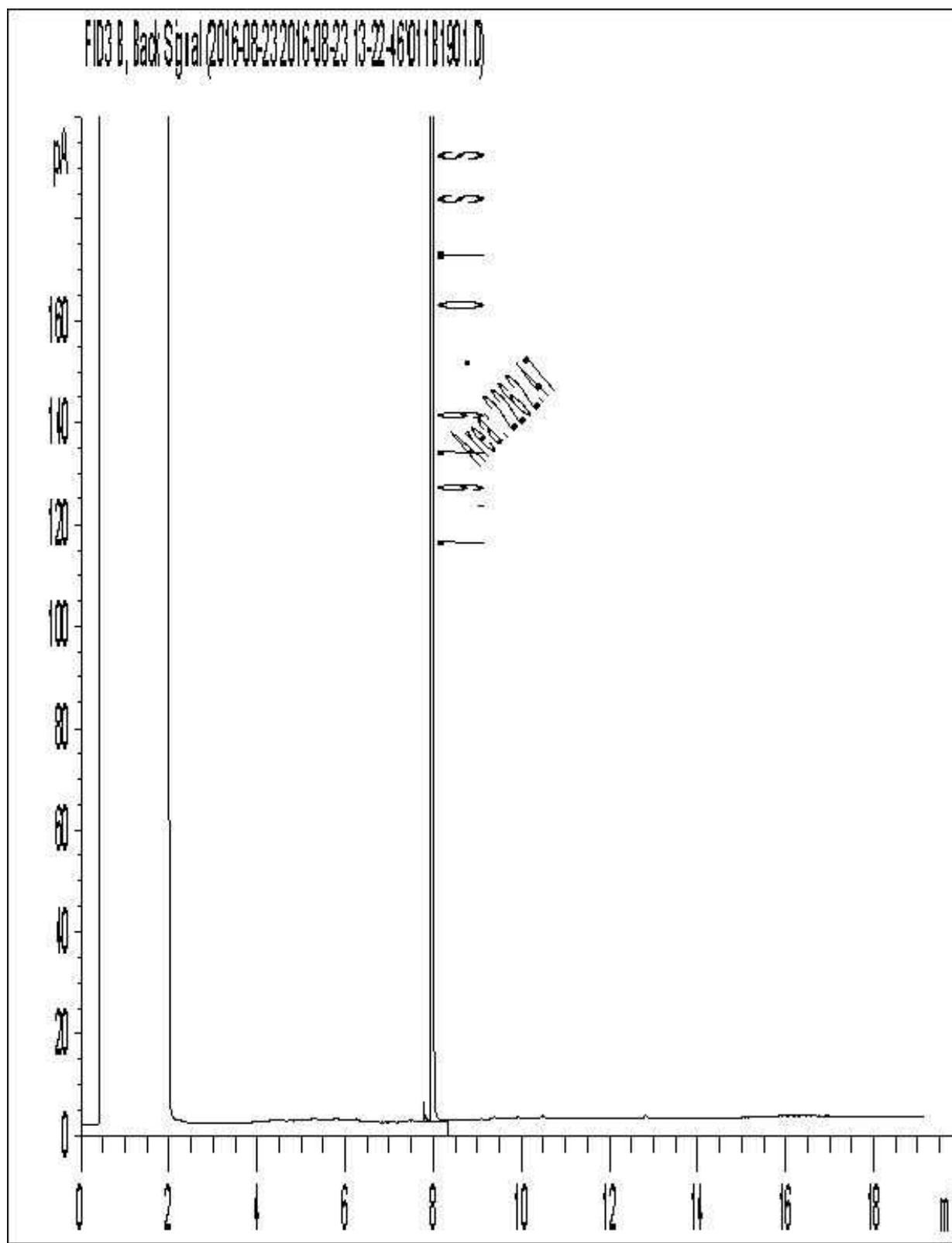
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



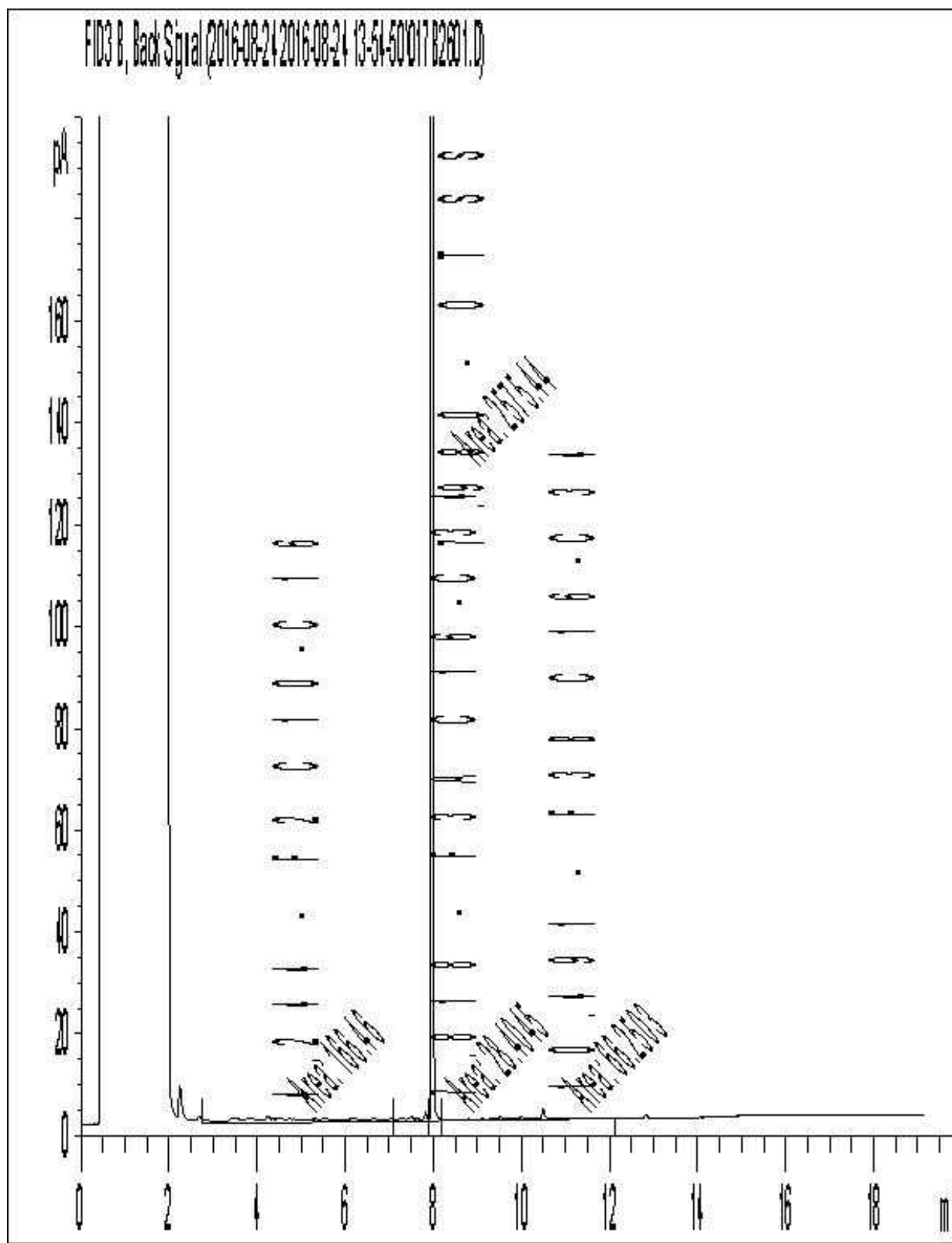
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



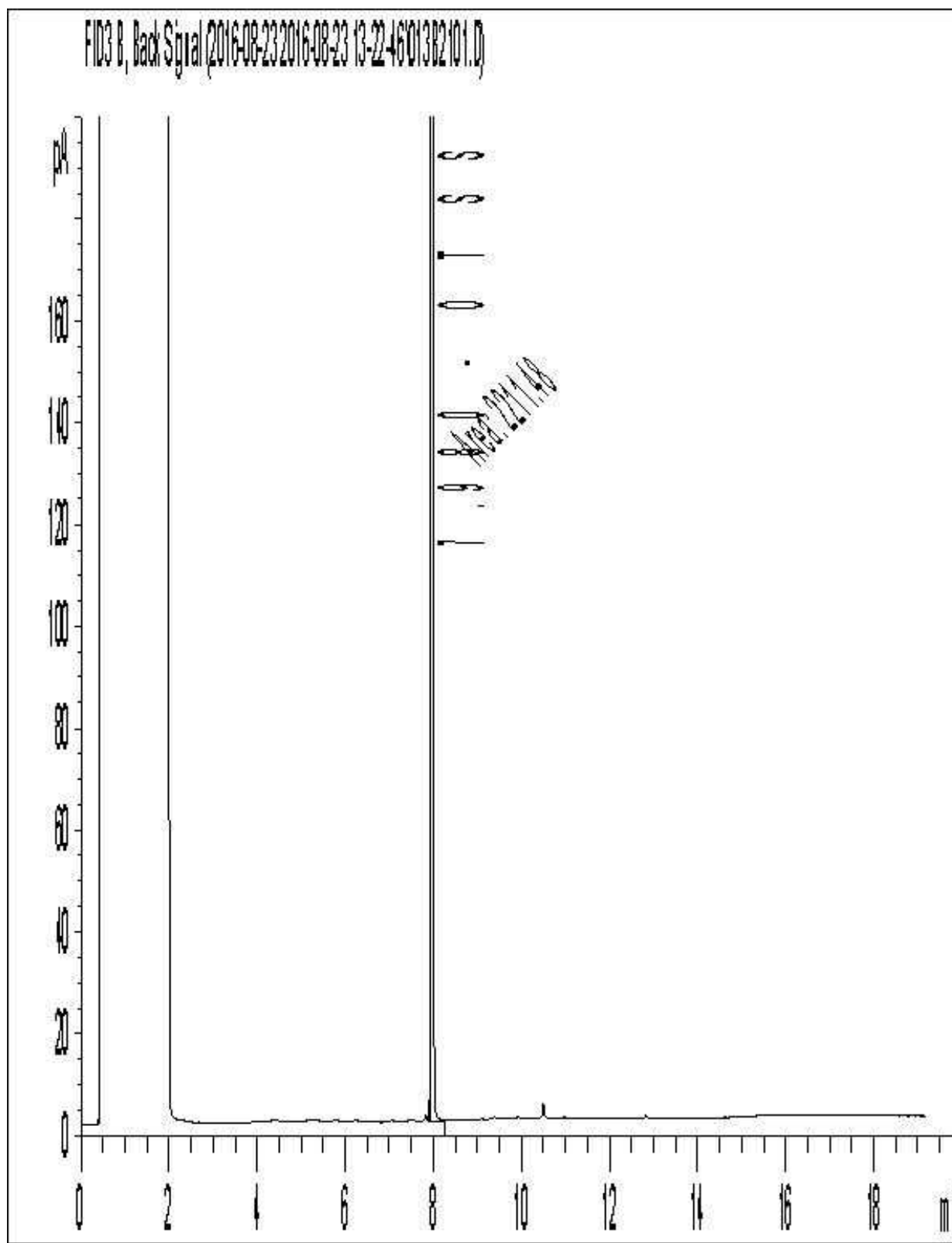
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



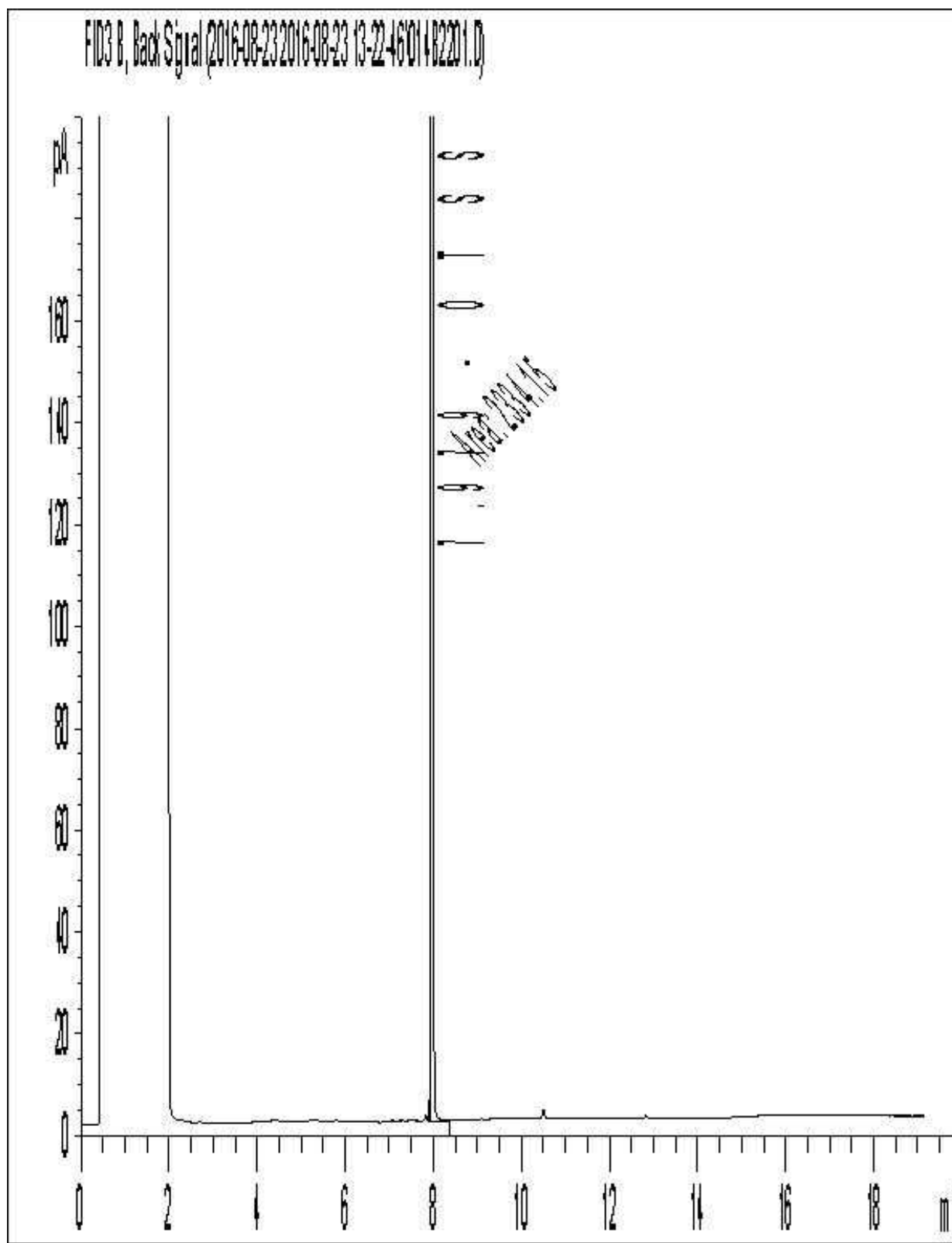
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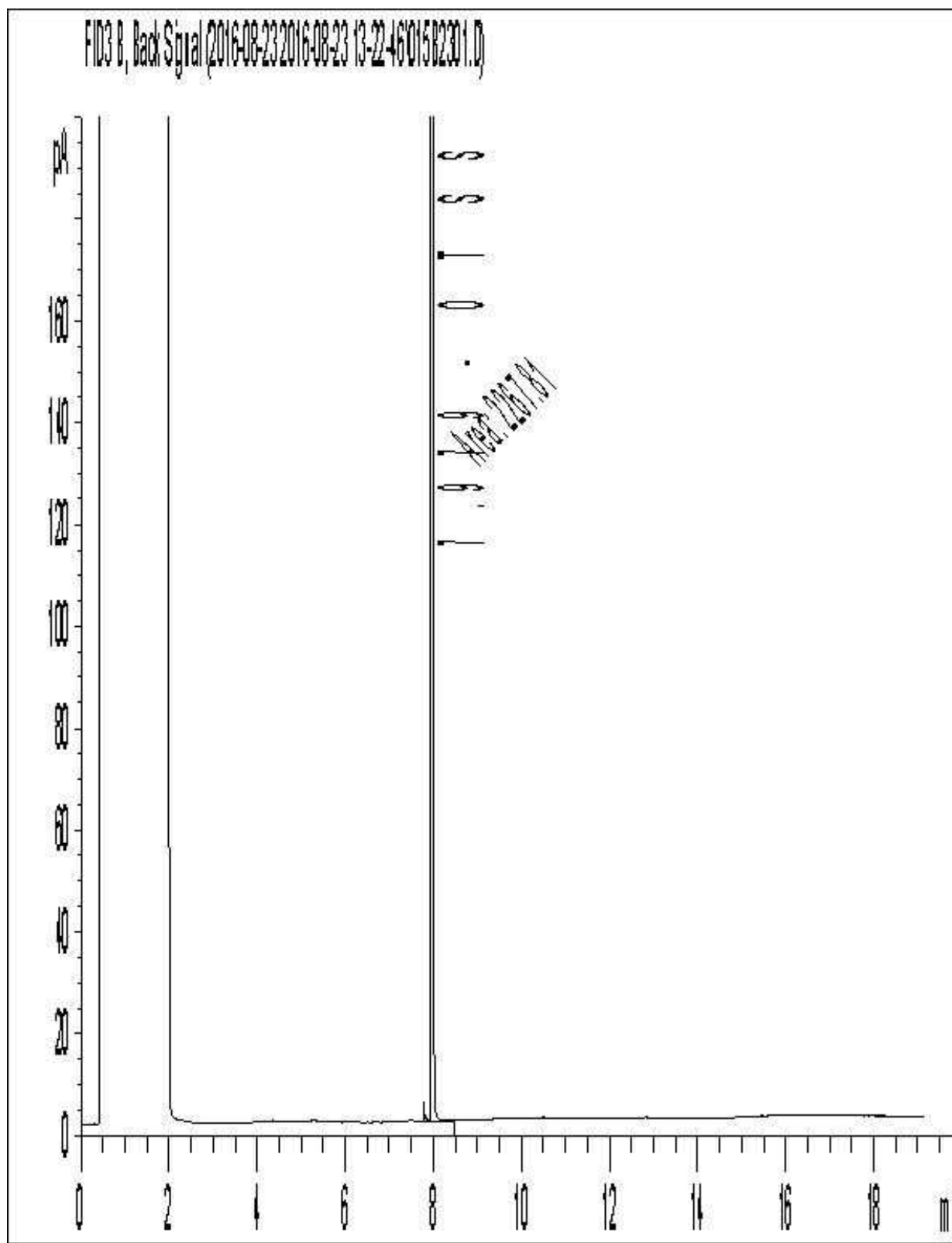
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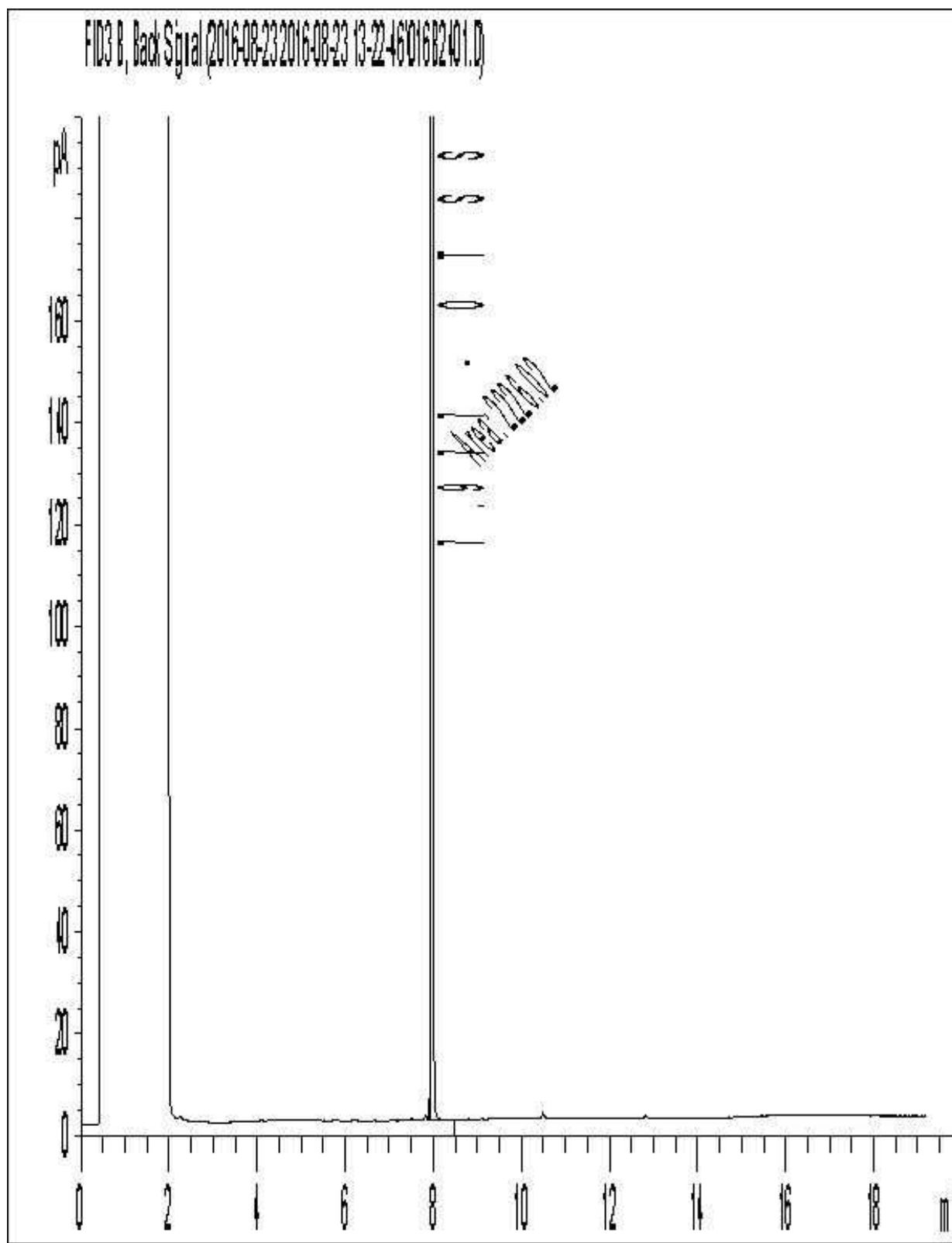
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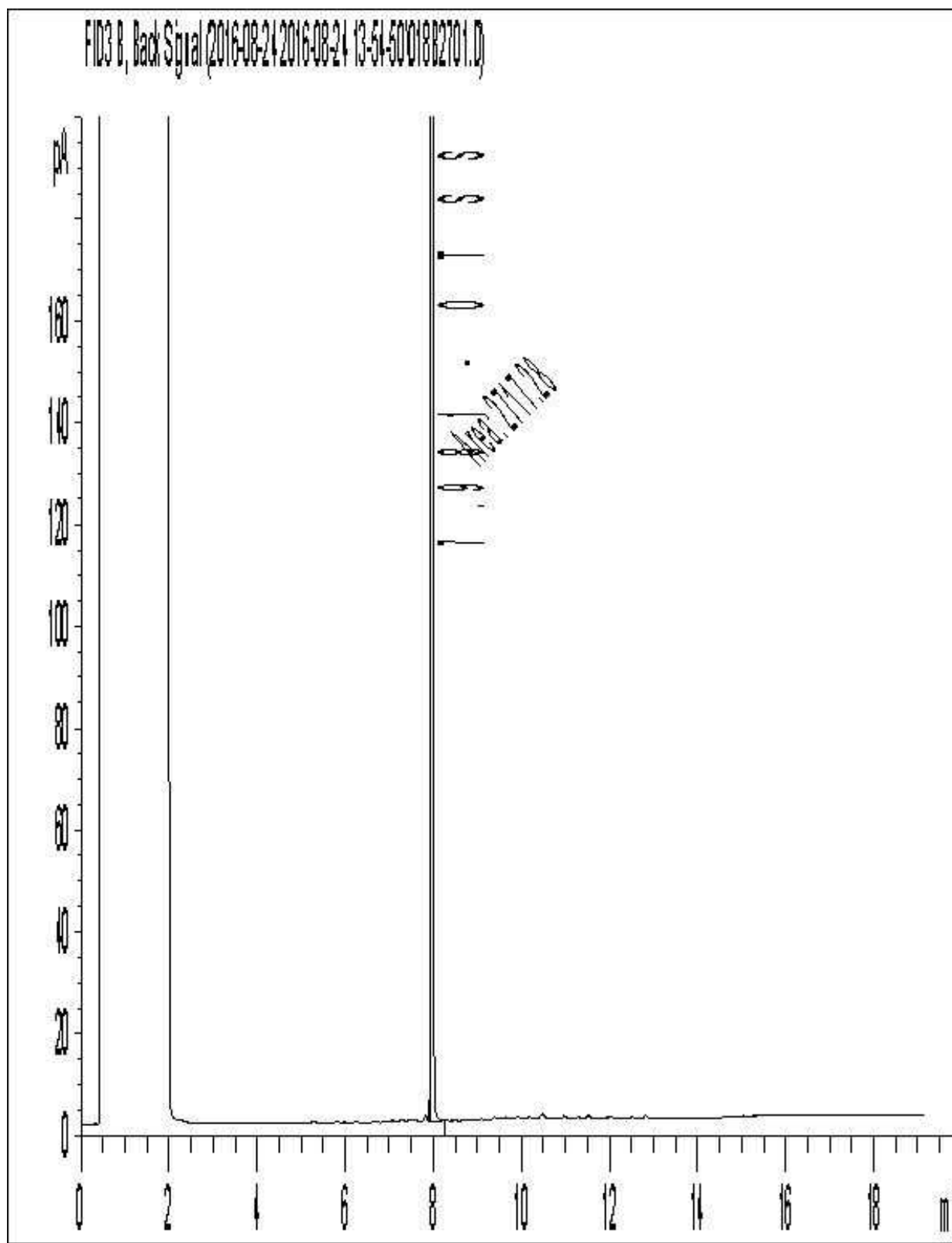
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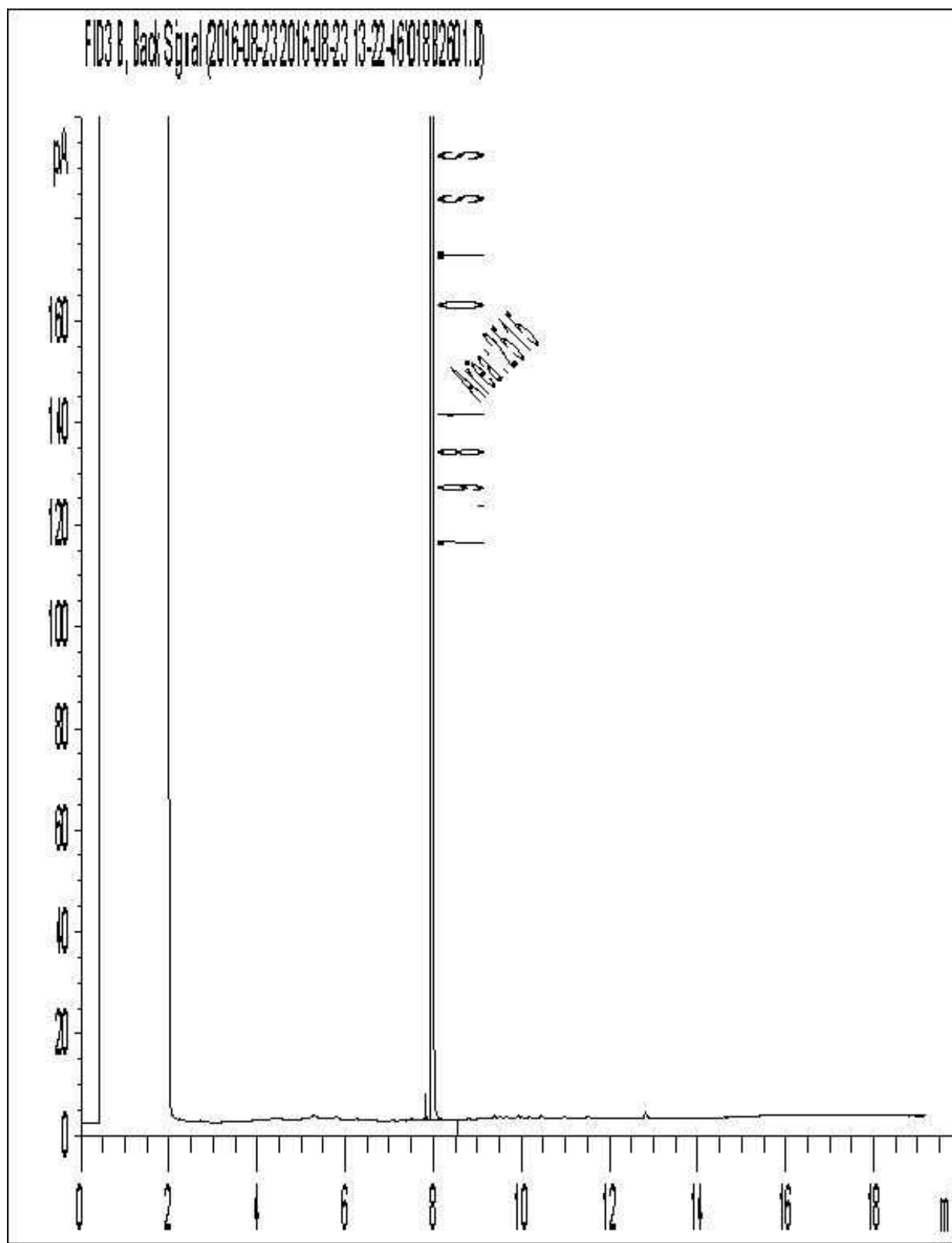
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



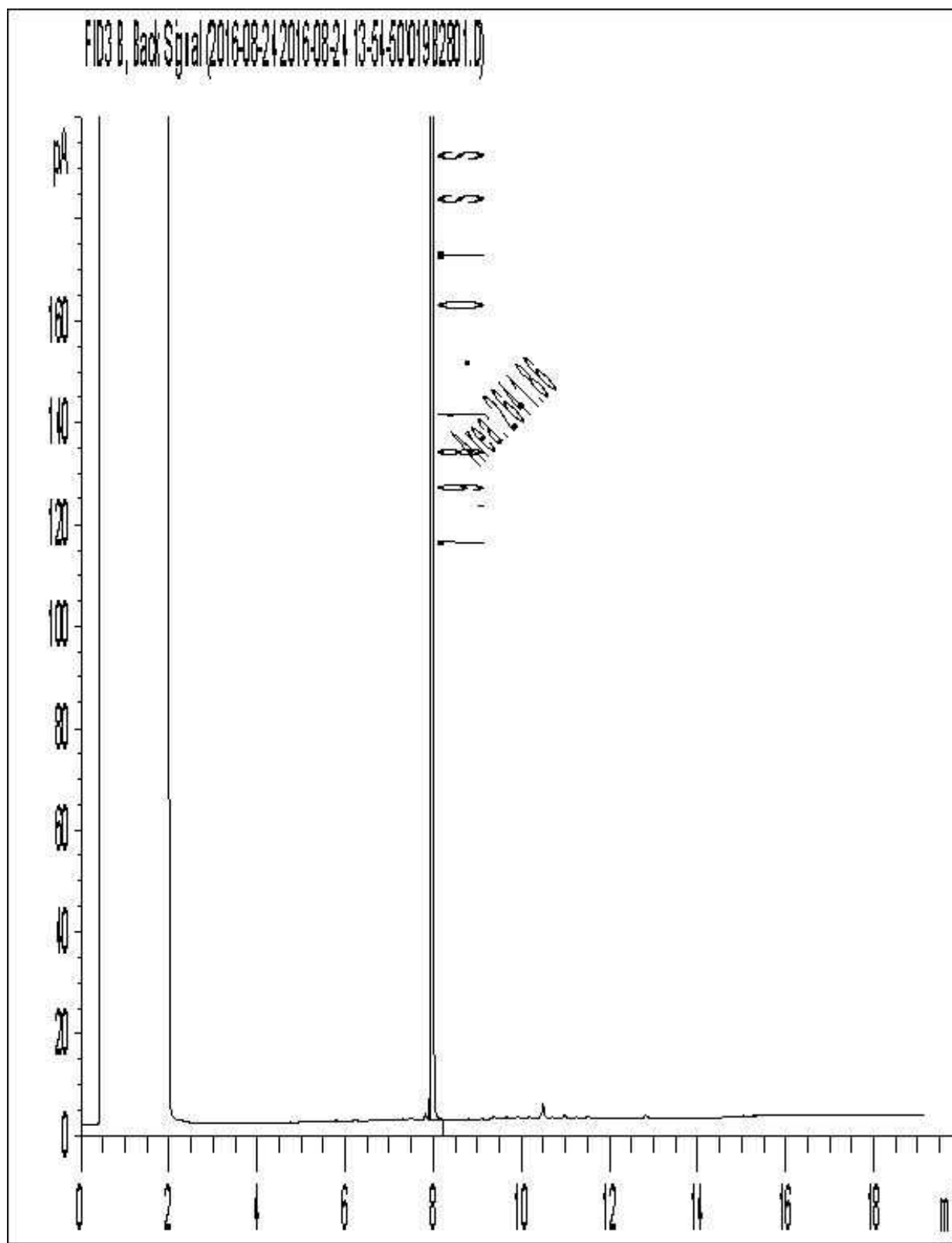
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



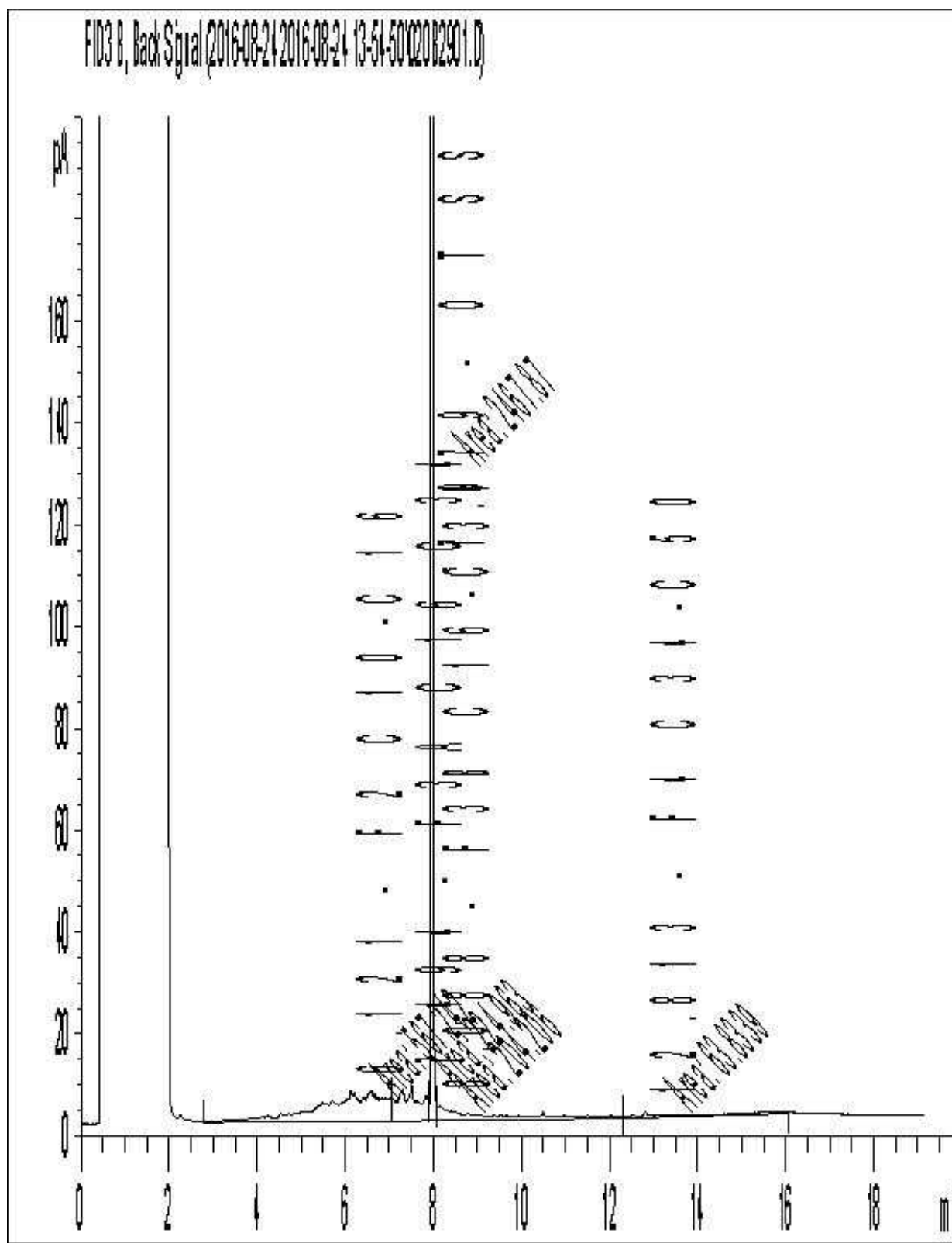
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



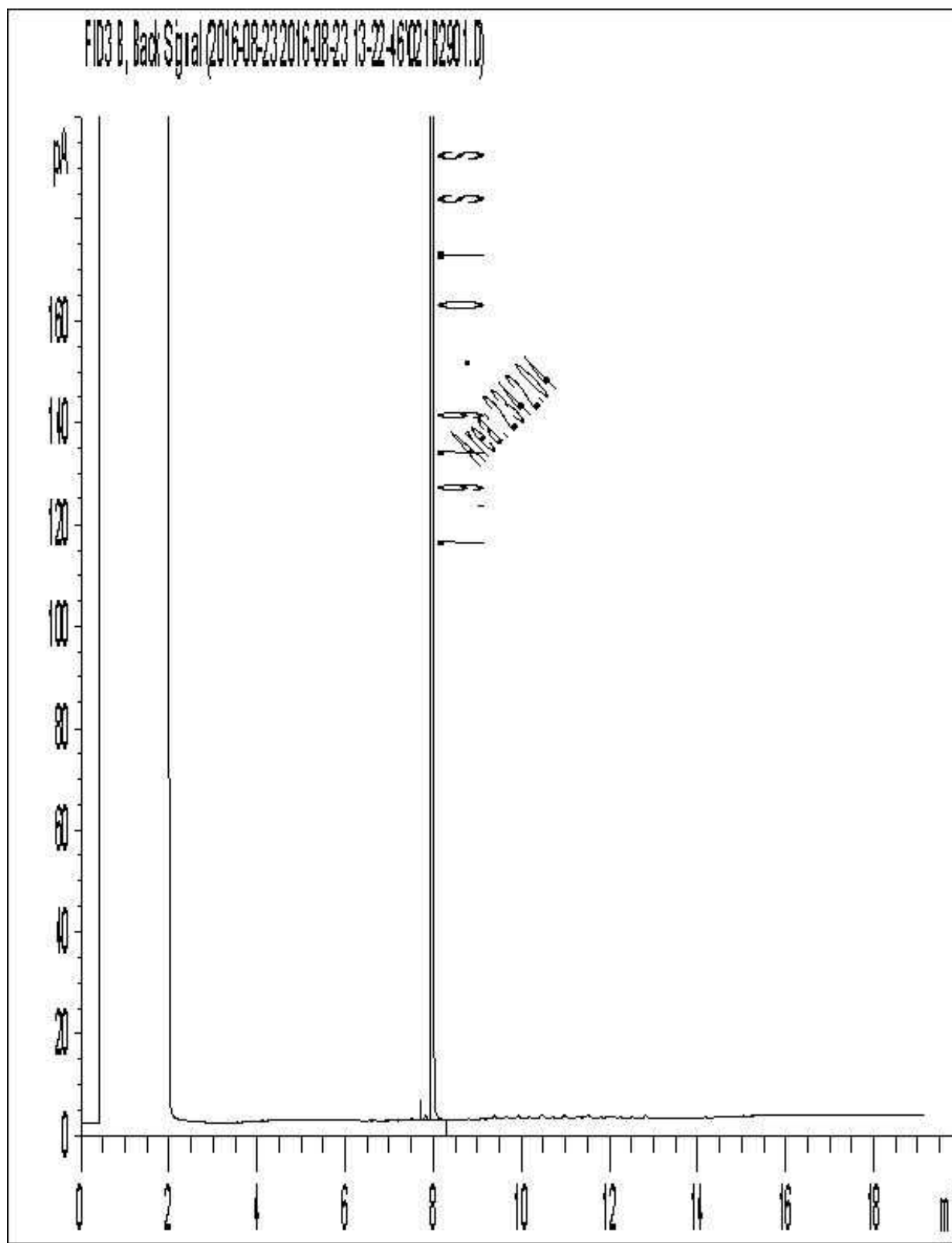
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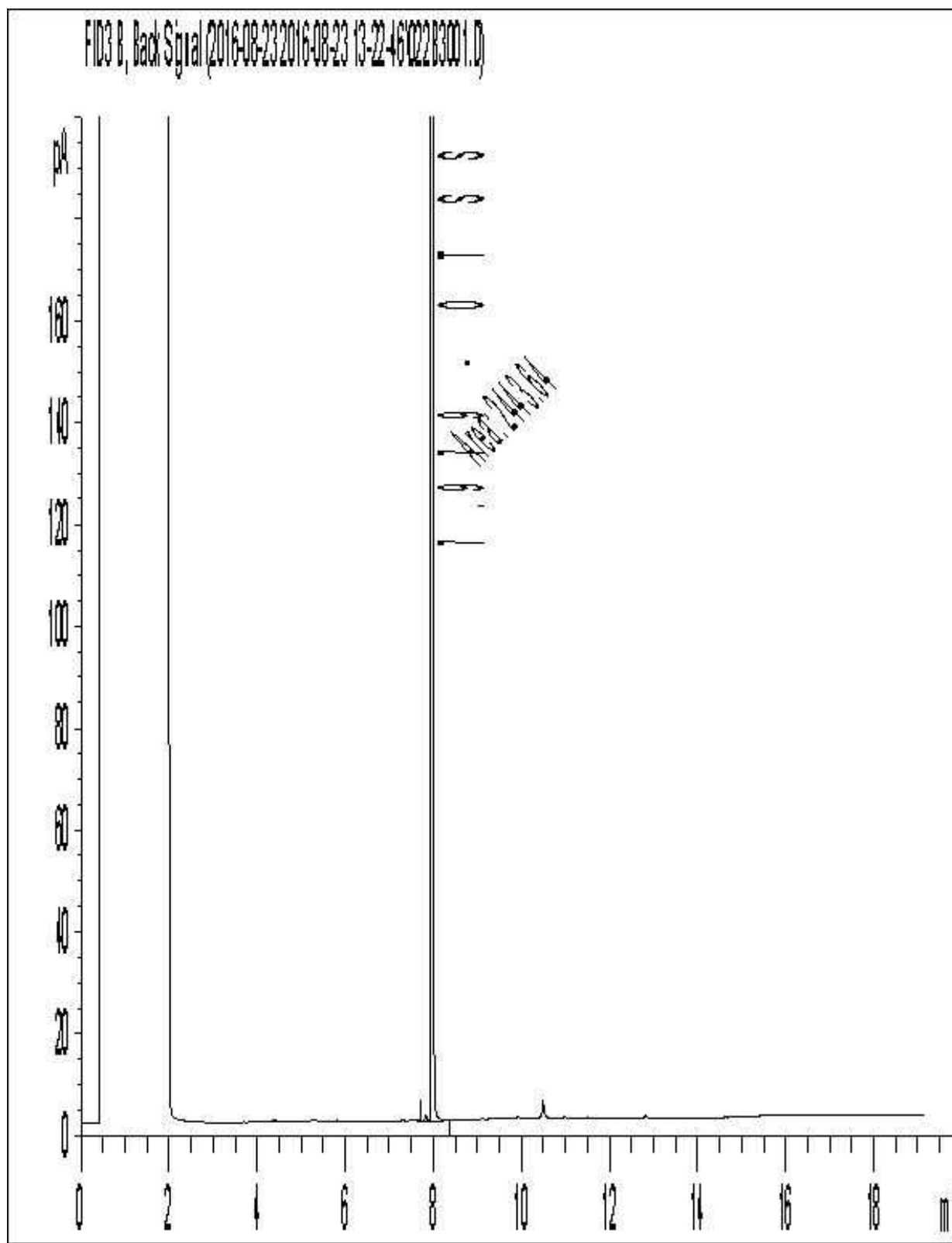
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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Your P.O. #: 10627
Your Project #: 640275
Your C.O.C. #: 575079-01-01

Attention:Melanie Siewert

SNC-Lavalin Inc
Nepean
455 René-Lévesque Blvd. West
Montreal, QC
H2Z 1Z3

Report Date: 2016/08/29

Report #: R4143626

Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6H9491

Received: 2016/08/23, 17:30

Sample Matrix: Soil
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2)	5	N/A	2016/08/26	OTT SOP-00002	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	5	2016/08/24	2016/08/24	OTT SOP-00001	CCME CWS
MOISTURE (1)	5	N/A	2016/08/25	CAM SOP-00445	McKeague 2nd ed 1978

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Ottawa

(2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.

(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Madison Bingley, Project Manager

Email: MBingley@maxxam.ca

Phone# (613)274-3549

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B6H9491
Report Date: 2016/08/29

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

RESULTS OF ANALYSES OF SOIL

Maxxam ID		CYB897	CYB898	CYB899	CYB900	CYB901		
Sampling Date		2016/08/23 10:00	2016/08/23 10:10	2016/08/23 11:40	2016/08/23 11:50	2016/08/23 12:30		
COC Number		575079-01-01	575079-01-01	575079-01-01	575079-01-01	575079-01-01		
	UNITS	BH16-25-3	BH16-25-5	BH16-26-2	BH16-26-4	BH16-28-3	RDL	QC Batch
Inorganics								
Moisture	%	35	44	30	35	32	0.2	4633048
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CYB897	CYB898	CYB899	CYB900	CYB901		
Sampling Date		2016/08/23 10:00	2016/08/23 10:10	2016/08/23 11:40	2016/08/23 11:50	2016/08/23 12:30		
COC Number		575079-01-01	575079-01-01	575079-01-01	575079-01-01	575079-01-01		
	UNITS	BH16-25-3	BH16-25-5	BH16-26-2	BH16-26-4	BH16-28-3	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	4632828
Toluene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4632828
Ethylbenzene	ug/g	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4632828
o-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4632828
p+m-Xylene	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4632828
Total Xylenes	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4632828
F1 (C6-C10)	ug/g	<10	<10	<10	<10	<10	10	4632828
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	<10	<10	10	4632828
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	<10	<10	<10	10	4633049
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	<50	<50	<50	50	4633049
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	<50	<50	<50	50	4633049
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes	Yes		4633049
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	89	90	91	91	91		4632828
4-Bromofluorobenzene	%	104	107	100	104	108		4632828
D10-Ethylbenzene	%	118	110	110	104	104		4632828
D4-1,2-Dichloroethane	%	89	89	90	90	89		4632828
o-Terphenyl	%	106	107	104	102	107		4633049
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								

TEST SUMMARY

Maxxam ID: CYB897
Sample ID: BH16-25-3
Matrix: Soil

Collected: 2016/08/23
Shipped:
Received: 2016/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4632828	N/A	2016/08/26	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4633049	2016/08/24	2016/08/24	Liliana Gaburici
MOISTURE	BAL	4633048	N/A	2016/08/25	Liliana Gaburici

Maxxam ID: CYB897 Dup
Sample ID: BH16-25-3
Matrix: Soil

Collected: 2016/08/23
Shipped:
Received: 2016/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4632828	N/A	2016/08/26	Steve Roberts

Maxxam ID: CYB898
Sample ID: BH16-25-5
Matrix: Soil

Collected: 2016/08/23
Shipped:
Received: 2016/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4632828	N/A	2016/08/26	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4633049	2016/08/24	2016/08/24	Liliana Gaburici
MOISTURE	BAL	4633048	N/A	2016/08/25	Liliana Gaburici

Maxxam ID: CYB899
Sample ID: BH16-26-2
Matrix: Soil

Collected: 2016/08/23
Shipped:
Received: 2016/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4632828	N/A	2016/08/26	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4633049	2016/08/24	2016/08/24	Liliana Gaburici
MOISTURE	BAL	4633048	N/A	2016/08/25	Liliana Gaburici

Maxxam ID: CYB900
Sample ID: BH16-26-4
Matrix: Soil

Collected: 2016/08/23
Shipped:
Received: 2016/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4632828	N/A	2016/08/26	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4633049	2016/08/24	2016/08/24	Liliana Gaburici
MOISTURE	BAL	4633048	N/A	2016/08/25	Liliana Gaburici

Maxxam ID: CYB901
Sample ID: BH16-28-3
Matrix: Soil

Collected: 2016/08/23
Shipped:
Received: 2016/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4632828	N/A	2016/08/26	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4633049	2016/08/24	2016/08/24	Liliana Gaburici

Maxxam Job #: B6H9491
Report Date: 2016/08/29

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

TEST SUMMARY

Maxxam ID: CYB901
Sample ID: BH16-28-3
Matrix: Soil

Collected: 2016/08/23
Shipped:
Received: 2016/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
MOISTURE	BAL	4633048	N/A	2016/08/25	Liliana Gaburici

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	6.3°C
-----------	-------

Results relate only to the items tested.

QUALITY ASSURANCE REPORT

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
4632828	1,4-Difluorobenzene	2016/08/26	90	60 - 140	90	60 - 140	91	%		
4632828	4-Bromofluorobenzene	2016/08/26	107	60 - 140	109	60 - 140	105	%		
4632828	D10-Ethylbenzene	2016/08/26	115	30 - 130	110	30 - 130	116	%		
4632828	D4-1,2-Dichloroethane	2016/08/26	88	60 - 140	87	60 - 140	89	%		
4633049	o-Terphenyl	2016/08/24	86	30 - 130	88	30 - 130	98	%		
4632828	Benzene	2016/08/26	78	60 - 140	77	60 - 140	<0.0050	ug/g	NC	50
4632828	Ethylbenzene	2016/08/26	85	60 - 140	83	60 - 140	<0.010	ug/g	NC	50
4632828	F1 (C6-C10) - BTEX	2016/08/26					<10	ug/g	NC	50
4632828	F1 (C6-C10)	2016/08/26	97	60 - 140	106	80 - 120	<10	ug/g	NC	50
4632828	o-Xylene	2016/08/26	84	60 - 140	83	60 - 140	<0.020	ug/g	NC	50
4632828	p+m-Xylene	2016/08/26	77	60 - 140	75	60 - 140	<0.040	ug/g	NC	50
4632828	Toluene	2016/08/26	78	60 - 140	77	60 - 140	<0.020	ug/g	NC	50
4632828	Total Xylenes	2016/08/26					<0.040	ug/g	NC	50
4633048	Moisture	2016/08/25							7.5	50
4633049	F2 (C10-C16 Hydrocarbons)	2016/08/24	109	50 - 130	105	80 - 120	<10	ug/g	NC	50
4633049	F3 (C16-C34 Hydrocarbons)	2016/08/24	109	50 - 130	105	80 - 120	<50	ug/g	NC	50
4633049	F4 (C34-C50 Hydrocarbons)	2016/08/24	109	50 - 130	105	80 - 120	<50	ug/g	NC	50

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

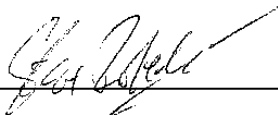
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Paul Rubinato, Analyst, Maxxam Analytics



Steve Roberts, Ottawa Lab Manager

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Maxxam Analytics International Corporation o/a Maxxam Analytics
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel: (905) 817-5700 Toll-free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name: #2033 SNC-Lavalin Inc	Company Name: SNC-Lavalin	Quotation #: B63173	Maxxam Job #:	Bottle Order #:	COC #:		Project Manager:
Attention: Accounts Payable	Attention: Melanie Siewert	P.O. #: 10627	Barcode: 575079		COC #: [Barcode]		Madison Bingley
Address: 455 René-Lévesque Blvd. West	Address:	Project: 640275	COC #: [Barcode]		COC #: C#575079-01-01		
Montreal QC H2Z 1Z3		Project Name:					
Tel: (514) 393-1000 x Fax: (514) 866-0795 x	Tel: x221 Fax:	Site #:					
Email: payables@snclavalin.com	Email: melanie.siewert@snclavalin.ca	Sampled By:					

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)		Other Regulations		Special Instructions		Field Filtered (please circle):		ANALYSIS REQUESTED (PLEASE BE SPECIFIC)		Turnaround Time (TAT) Required:	
<input type="checkbox"/> Table 1	<input type="checkbox"/> Res/Park	<input checked="" type="checkbox"/> Medium/Fine	<input checked="" type="checkbox"/> CCME	<input type="checkbox"/> Sanitary Sewer Bylaw		Metals / Hg / Cr / V	CCME PHC	LOTEX			Regular (Standard) TAT:
<input checked="" type="checkbox"/> Table 2	<input type="checkbox"/> Ind/Comm	<input type="checkbox"/> Coarse	<input type="checkbox"/> Reg 558	<input type="checkbox"/> Storm Sewer Bylaw							(will be applied if Rush TAT is not specified):
<input type="checkbox"/> Table 3	<input checked="" type="checkbox"/> Agri/Other	<input type="checkbox"/> For RSC	<input type="checkbox"/> MISA	Municipality							Standard TAT = 5-7 Working days for most tests.
<input type="checkbox"/> Table			<input type="checkbox"/> PWQO								Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.
Include Criteria on Certificate of Analysis (Y/N)?											Job Specific Rush TAT (if applies to entire submission)
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix							Date Required: Time Required:
1	BH16-25-3	2016/08/23	10:00	Soil							Rush Confirmation Number: (call lab for #)
2	BH16-25-5		10:10	Soil							# of Bottles
3	BH16-26-2		11:40	Soil							Comments
4	BH16-26-4		11:50	Soil							
5	BH16-28-3		12:30	Soil							
6											
7											
8											
9											
10											

23-Aug-16 17:30
Madison Bingley
B6H9491
FHB OTT-002

RECEIVED IN OTTAWA

ON ICE

* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only		
Scott Clum		2016/08/23	17:30	Paul Wamba		2016/08/23	17:30		Time Sensitive	Temperature (°C) on Receipt	Custody Seal
										4, 7, 8	Present
											Intact

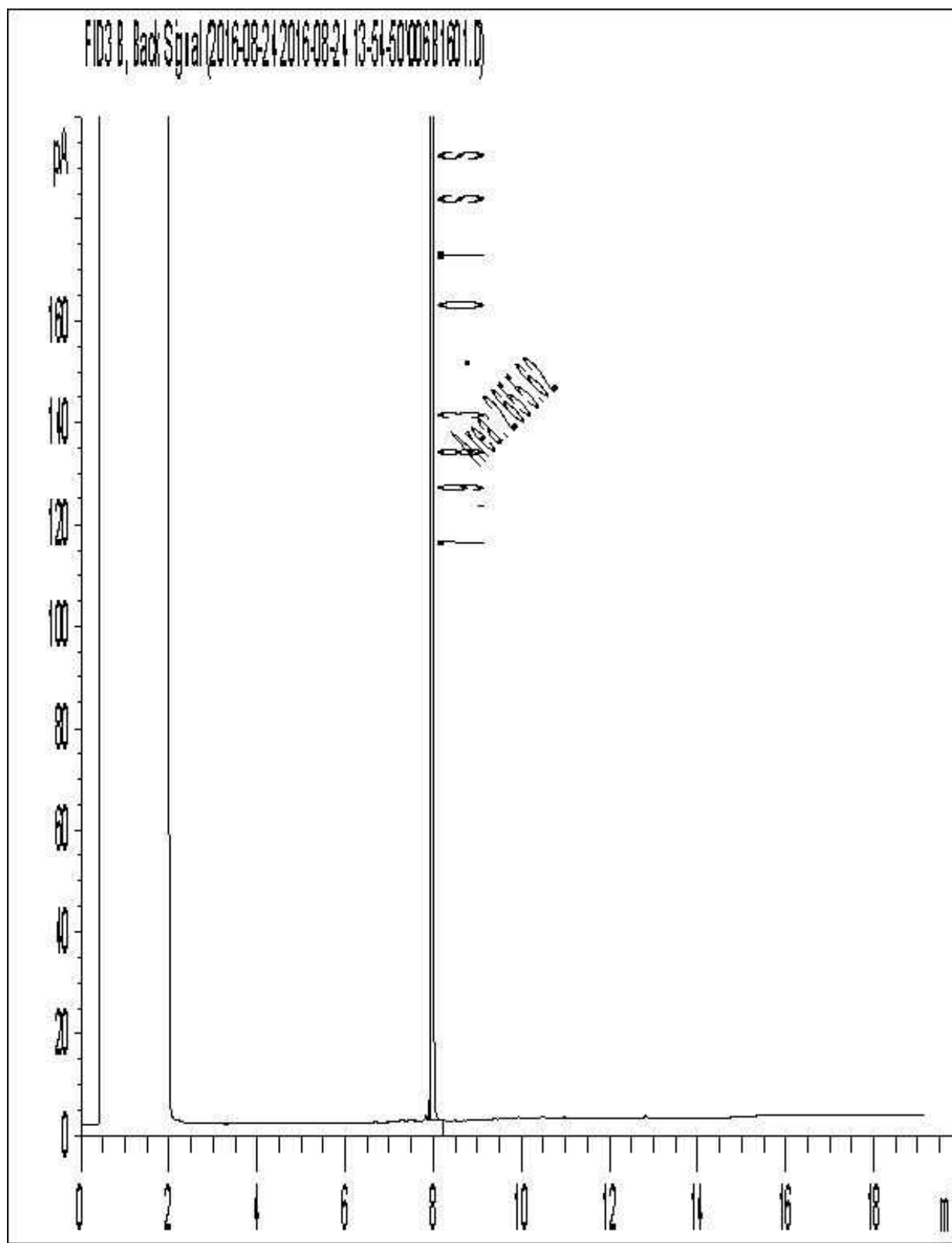
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

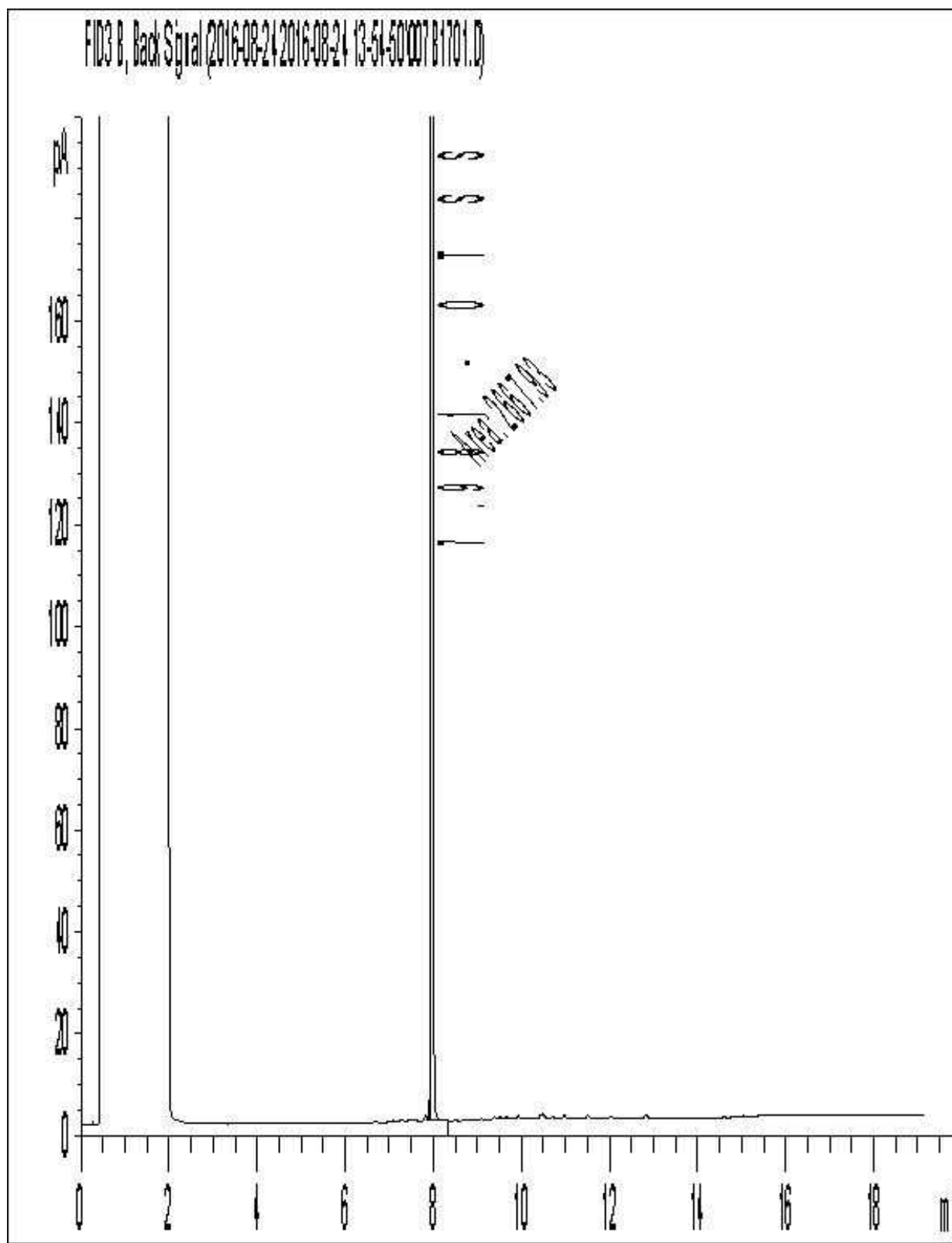
Maxxam Analytics International Corporation o/a Maxxam Analytics

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



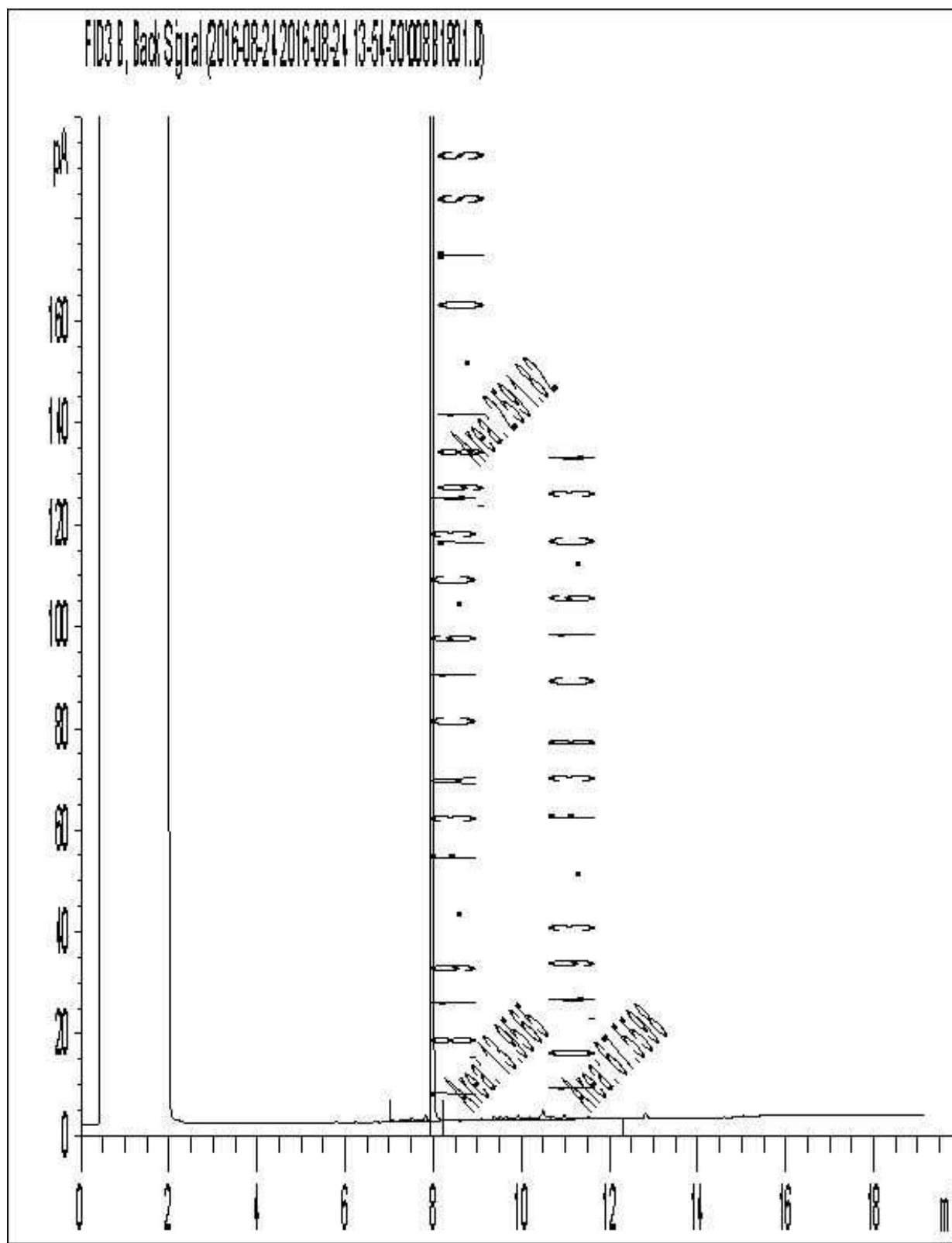
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



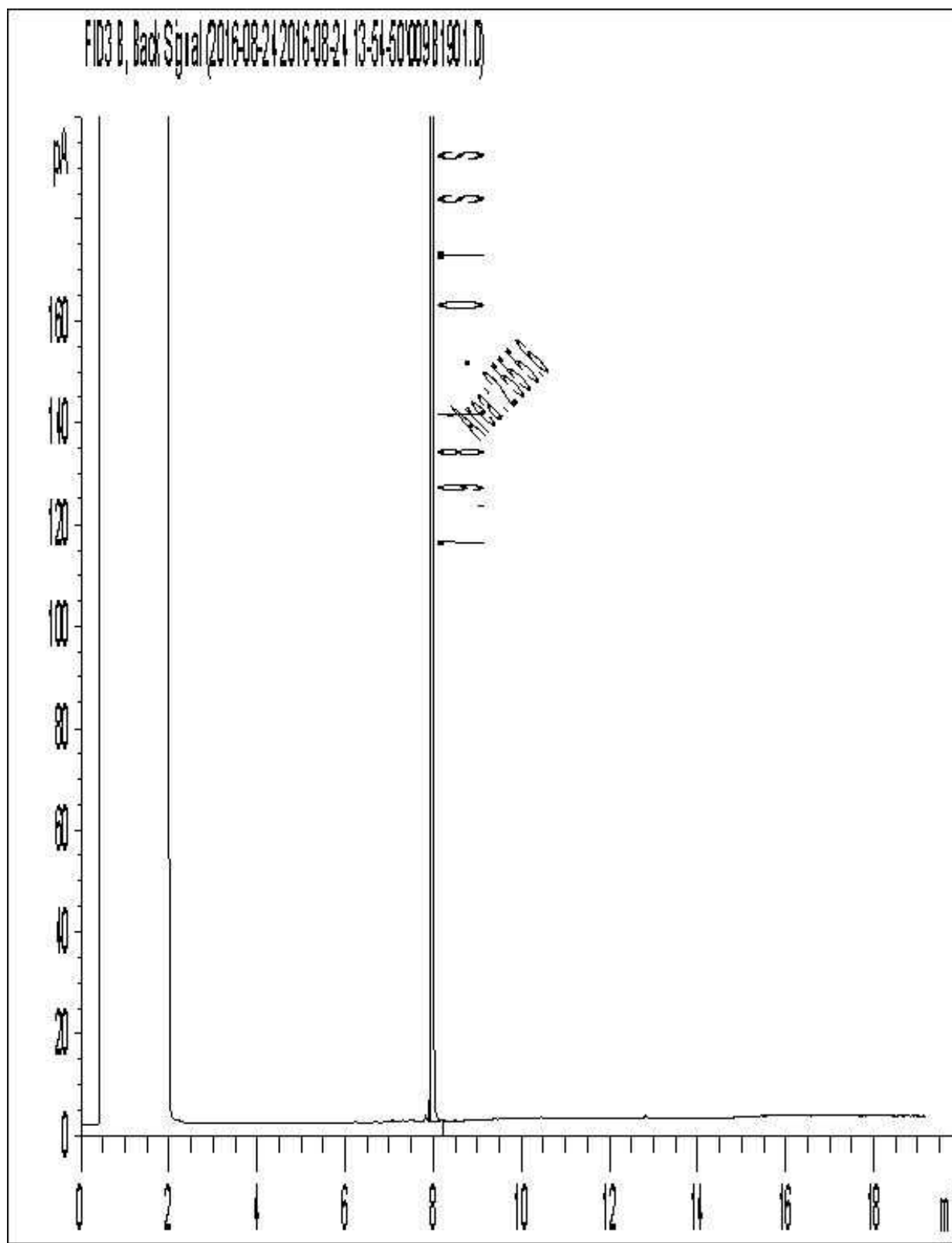
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



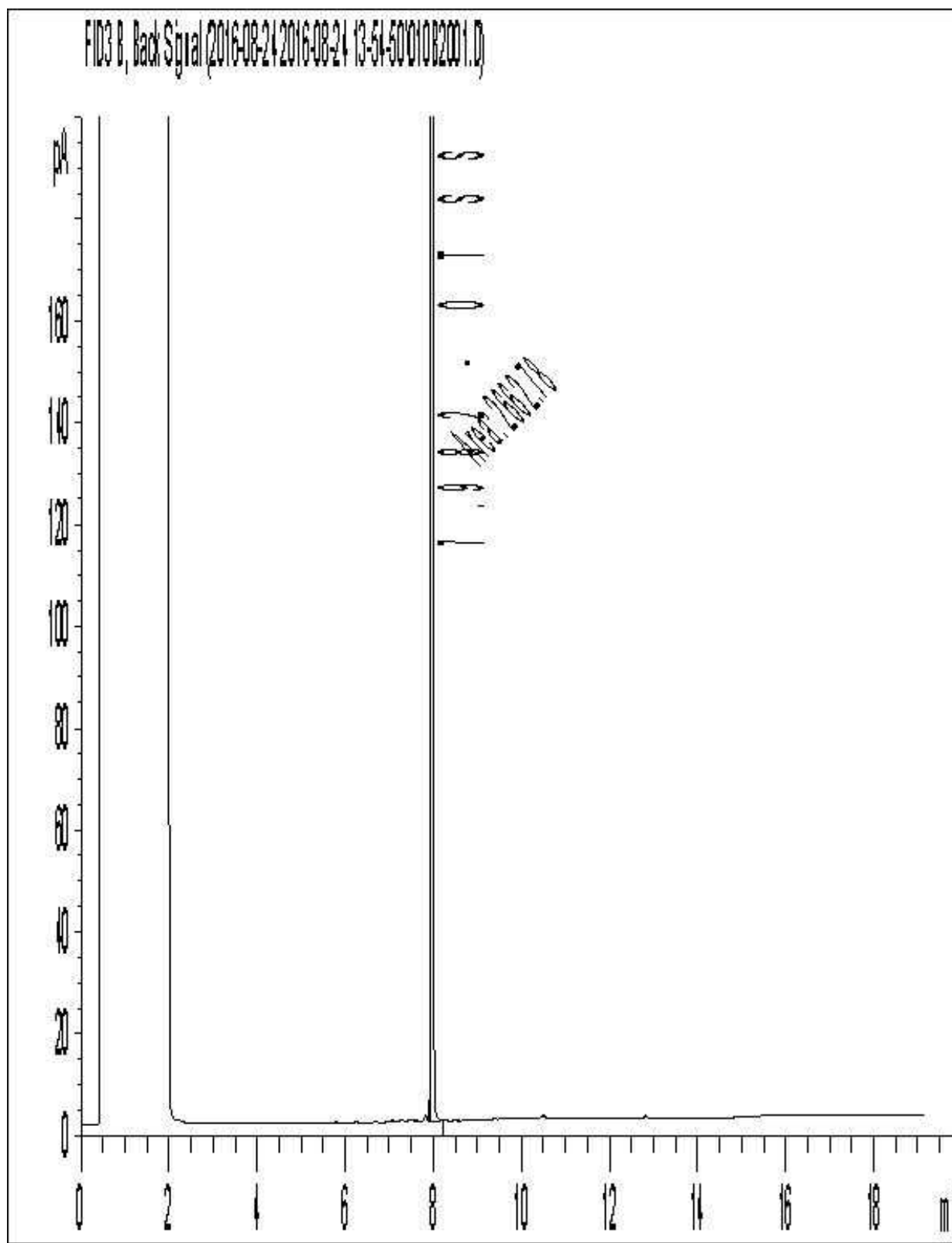
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Appendix F

Laboratory Certificates of Analysis

Soil (Waste Characterization)

Your P.O. #: 10627
Your Project #: 640275
Your C.O.C. #: 574053-01-01

Attention: Melanie Siewert

SNC-Lavalin Inc
Nepean
20 Colonnade Rd
Suite 110
Ottawa, ON
K2E 7M6

Report Date: 2016/09/19
Report #: R4172802
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B6H6642

Received: 2016/08/19, 12:45

Sample Matrix: Soil
Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
Semivolatile Organic Compounds (TCLP)	1	2016/08/29	2016/08/31	CAM SOP-00301	EPA 8270D m
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	1	N/A	2016/08/24	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	1	2016/08/23	2016/08/23	CAM SOP-00316	CCME CWS m
F4G (CCME Hydrocarbons Gravimetric)	1	2016/08/22	2016/08/25	CAM SOP-00316	CCME PHC-CWS m
Total Metals in TCLP Leachate by ICPMS	1	2016/08/23	2016/08/23	CAM SOP-00447	EPA 6020A m
Moisture	1	N/A	2016/08/24	CAM SOP-00445	Carter 2nd ed 51.2 m
Polychlorinated Biphenyl in Leachate	1	2016/08/23	2016/08/23	CAM SOP-00309	EPA 8082A m
TCLP - % Solids	1	2016/08/22	2016/08/23	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid	1	N/A	2016/08/23	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH	1	N/A	2016/08/23	CAM SOP-00401	EPA 1311 Update I m
TCLP Zero Headspace Extraction	1	2016/08/22	2016/08/23	CAM SOP-00430	EPA 1311 m
VOCs in ZHE Leachates	1	2016/08/22	2016/08/23	CAM SOP-00226	EPA 8260C m

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

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Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

- (1) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
- (2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Your P.O. #: 10627
Your Project #: 640275
Your C.O.C. #: 574053-01-01

Attention:Melanie Siewert

SNC-Lavalin Inc
Nepean
20 Colonnade Rd
Suite 110
Ottawa, ON
K2E 7M6

Report Date: 2016/09/19
Report #: R4172802
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B6H6642
Received: 2016/08/19, 12:45

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Madison Bingley, Project Manager

Email: MBingley@maxxam.ca

Phone# (613)274-3549

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

RESULTS OF ANALYSES OF SOIL

Maxxam ID		CXO146		
Sampling Date		2016/08/18 15:30		
COC Number		574053-01-01		
	UNITS	TCLP	RDL	QC Batch
Charge/Prep Analysis				
Amount Extracted (Wet Weight) (g)	N/A	23	N/A	4629280
Inorganics				
Final pH	pH	5.20		4630897
Initial pH	pH	8.95		4630897
Moisture	%	32	1.0	4633492
TCLP - % Solids	%	100	0.2	4630893
TCLP Extraction Fluid	N/A	FLUID 1		4630895
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		CX0146		
Sampling Date		2016/08/18 15:30		
COC Number		574053-01-01		
	UNITS	TCLP	RDL	QC Batch
Metals				
Leachable Arsenic (As)	mg/L	<0.2	0.2	4631336
Leachable Barium (Ba)	mg/L	<0.2	0.2	4631336
Leachable Boron (B)	mg/L	0.4	0.1	4631336
Leachable Cadmium (Cd)	mg/L	<0.05	0.05	4631336
Leachable Chromium (Cr)	mg/L	<0.1	0.1	4631336
Leachable Lead (Pb)	mg/L	<0.1	0.1	4631336
Leachable Selenium (Se)	mg/L	<0.1	0.1	4631336
Leachable Silver (Ag)	mg/L	<0.01	0.01	4631336
Leachable Uranium (U)	mg/L	<0.01	0.01	4631336
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		CX0146		
Sampling Date		2016/08/18 15:30		
COC Number		574053-01-01		
	UNITS	TCLP	RDL	QC Batch
Semivolatile Organics				
Leachable Benzo(a)pyrene	ug/L	<10	10	4641025
Leachable m/p-Cresol	ug/L	<250	250	4641025
Leachable o-Cresol	ug/L	<250	250	4641025
Leachable Cresol Total	ug/L	<25000	25000	4641025
Leachable 2,4-Dichlorophenol	ug/L	<250	250	4641025
Leachable 2,4-Dinitrotoluene	ug/L	<130 (1)	130	4641025
Leachable Hexachlorobenzene	ug/L	<130 (1)	130	4641025
Leachable Hexachlorobutadiene	ug/L	<500 (1)	500	4641025
Leachable Hexachloroethane	ug/L	<1000	1000	4641025
Leachable Nitrobenzene	ug/L	<1000	1000	4641025
Leachable Pentachlorophenol	ug/L	<250	250	4641025
Leachable Pyridine	ug/L	<1000	1000	4641025
Leachable 2,3,4,6-Tetrachlorophenol	ug/L	<250	250	4641025
Leachable 2,4,5-Trichlorophenol	ug/L	<50	50	4641025
Leachable 2,4,6-Trichlorophenol	ug/L	<250	250	4641025
Surrogate Recovery (%)				
Leachable 2,4,6-Tribromophenol	%	60		4641025
Leachable 2-Fluorobiphenyl	%	48		4641025
Leachable 2-Fluorophenol	%	28		4641025
Leachable D14-Terphenyl (FS)	%	93		4641025
Leachable D5-Nitrobenzene	%	56		4641025
Leachable D5-Phenol	%	21		4641025
RDL = Reportable Detection Limit QC Batch = Quality Control Batch (1) Detection limit was lowered under the requirement of the client. Low standards were detected before and after the sample.				

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		CXO146		
Sampling Date		2016/08/18 15:30		
COC Number		574053-01-01		
	UNITS	TCLP	RDL	QC Batch
Volatile Organics				
Leachable Benzene	mg/L	<0.020	0.020	4630142
Leachable Carbon Tetrachloride	mg/L	<0.020	0.020	4630142
Leachable Chlorobenzene	mg/L	<0.020	0.020	4630142
Leachable Chloroform	mg/L	<0.020	0.020	4630142
Leachable 1,2-Dichlorobenzene	mg/L	<0.050	0.050	4630142
Leachable 1,4-Dichlorobenzene	mg/L	<0.050	0.050	4630142
Leachable 1,2-Dichloroethane	mg/L	<0.050	0.050	4630142
Leachable 1,1-Dichloroethylene	mg/L	<0.020	0.020	4630142
Leachable Methylene Chloride(Dichloromethane)	mg/L	<0.20	0.20	4630142
Leachable Methyl Ethyl Ketone (2-Butanone)	mg/L	<1.0	1.0	4630142
Leachable Tetrachloroethylene	mg/L	<0.020	0.020	4630142
Leachable Trichloroethylene	mg/L	<0.020	0.020	4630142
Leachable Vinyl Chloride	mg/L	<0.020	0.020	4630142
Surrogate Recovery (%)				
Leachable 4-Bromofluorobenzene	%	100		4630142
Leachable D4-1,2-Dichloroethane	%	99		4630142
Leachable D8-Toluene	%	98		4630142
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CX0146		
Sampling Date		2016/08/18 15:30		
COC Number		574053-01-01		
	UNITS	TCLP	RDL	QC Batch
BTEX & F1 Hydrocarbons				
Benzene	ug/g	0.047	0.020	4632544
Toluene	ug/g	<0.020	0.020	4632544
Ethylbenzene	ug/g	0.29	0.020	4632544
o-Xylene	ug/g	<0.020	0.020	4632544
p+m-Xylene	ug/g	0.48	0.040	4632544
Total Xylenes	ug/g	0.48	0.040	4632544
F1 (C6-C10)	ug/g	51	10	4632544
F1 (C6-C10) - BTEX	ug/g	50	10	4632544
F2-F4 Hydrocarbons				
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	<100	100	4634241
F2 (C10-C16 Hydrocarbons)	ug/g	400	10	4630713
F3 (C16-C34 Hydrocarbons)	ug/g	220	50	4630713
F4 (C34-C50 Hydrocarbons)	ug/g	<50	50	4630713
Reached Baseline at C50	ug/g	Yes		4630713
Surrogate Recovery (%)				
1,4-Difluorobenzene	%	101		4632544
4-Bromofluorobenzene	%	101		4632544
D10-Ethylbenzene	%	103		4632544
D4-1,2-Dichloroethane	%	98		4632544
o-Terphenyl	%	92		4630713
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				

Maxxam Job #: B6H6642
Report Date: 2016/09/19

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		CXO146		
Sampling Date		2016/08/18 15:30		
COC Number		574053-01-01		
	UNITS	TCLP	RDL	QC Batch
PCBs				
Leachable Total PCB	ug/L	<3.0	3.0	4631299
Surrogate Recovery (%)				
Leachable Decachlorobiphenyl	%	83		4631299
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				

Maxxam Job #: B6H6642
Report Date: 2016/09/19

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

TEST SUMMARY

Maxxam ID: CXO146
Sample ID: TCLP
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Semivolatile Organic Compounds (TCLP)	GC/MS	4641025	2016/08/29	2016/08/31	Thoai Truyen Huynh
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	4632544	N/A	2016/08/24	Abdi Mohamud
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	4630713	2016/08/23	2016/08/23	Zhiyue (Frank) Zhu
F4G (CCME Hydrocarbons Gravimetric)	BAL	4634241	2016/08/22	2016/08/25	Sandeep Kaur
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	4631336	2016/08/23	2016/08/23	Cristina Petran
Moisture	BAL	4633492	N/A	2016/08/24	Shivani Desai
Polychlorinated Biphenyl in Leachate	GC/ECD	4631299	2016/08/23	2016/08/23	Dawn Alarie
TCLP - % Solids	BAL	4630893	2016/08/22	2016/08/23	Jian (Ken) Wang
TCLP - Extraction Fluid		4630895	N/A	2016/08/23	Jian (Ken) Wang
TCLP - Initial and final pH	PH	4630897	N/A	2016/08/23	Jian (Ken) Wang
TCLP Zero Headspace Extraction		4629280	2016/08/22	2016/08/23	Walt Wang
VOCs in ZHE Leachates	GC/MS	4630142	2016/08/22	2016/08/23	Juan Pangilinan

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.0°C
Package 2	1.7°C
Package 3	4.0°C

Sample CXO146-01 : ABN Analysis: Due to the nature of sample, a smaller than usual amount of sample was used for the analysis. Detection limits were adjusted accordingly.

Results relate only to the items tested.

QUALITY ASSURANCE REPORT

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4630142	Leachable 4-Bromofluorobenzene	2016/08/23	101	70 - 130	101	70 - 130	98	%				
4630142	Leachable D4-1,2-Dichloroethane	2016/08/23	96	70 - 130	95	70 - 130	95	%				
4630142	Leachable D8-Toluene	2016/08/23	100	70 - 130	100	70 - 130	99	%				
4630713	o-Terphenyl	2016/08/23	92	60 - 130	95	60 - 130	94	%				
4631299	Leachable Decachlorobiphenyl	2016/08/23	86	30 - 130	87	30 - 130	89	%				
4632544	1,4-Difluorobenzene	2016/08/24	98	60 - 140	100	60 - 140	101	%				
4632544	4-Bromofluorobenzene	2016/08/24	99	60 - 140	100	60 - 140	101	%				
4632544	D10-Ethylbenzene	2016/08/24	93	60 - 140	100	60 - 140	88	%				
4632544	D4-1,2-Dichloroethane	2016/08/24	99	60 - 140	98	60 - 140	100	%				
4641025	Leachable 2,4,6-Tribromophenol	2016/08/31	71	10 - 130	76	10 - 130	75	%				
4641025	Leachable 2-Fluorobiphenyl	2016/08/31	64	30 - 130	73	30 - 130	64	%				
4641025	Leachable 2-Fluorophenol	2016/08/31	27	10 - 130	29	10 - 130	23	%				
4641025	Leachable D14-Terphenyl (FS)	2016/08/31	96	30 - 130	93	30 - 130	91	%				
4641025	Leachable D5-Nitrobenzene	2016/08/31	68	30 - 130	78	30 - 130	67	%				
4641025	Leachable D5-Phenol	2016/08/31	27	10 - 130	32	10 - 130	27	%				
4630142	Leachable 1,1-Dichloroethylene	2016/08/23	103	70 - 130	106	70 - 130	<0.020	mg/L	NC	30		
4630142	Leachable 1,2-Dichlorobenzene	2016/08/23	97	70 - 130	98	70 - 130	<0.050	mg/L	NC	30		
4630142	Leachable 1,2-Dichloroethane	2016/08/23	91	70 - 130	91	70 - 130	<0.050	mg/L	NC	30		
4630142	Leachable 1,4-Dichlorobenzene	2016/08/23	98	70 - 130	102	70 - 130	<0.050	mg/L	NC	30		
4630142	Leachable Benzene	2016/08/23	99	70 - 130	100	70 - 130	<0.020	mg/L	NC	30		
4630142	Leachable Carbon Tetrachloride	2016/08/23	97	70 - 130	103	70 - 130	<0.020	mg/L	NC	30		
4630142	Leachable Chlorobenzene	2016/08/23	98	70 - 130	99	70 - 130	<0.020	mg/L	NC	30		
4630142	Leachable Chloroform	2016/08/23	96	70 - 130	98	70 - 130	<0.020	mg/L	NC	30		
4630142	Leachable Methyl Ethyl Ketone (2-Butanone)	2016/08/23	94	60 - 140	91	60 - 140	<1.0	mg/L	NC	30		
4630142	Leachable Methylene Chloride(Dichloromethane)	2016/08/23	99	70 - 130	98	70 - 130	<0.20	mg/L	NC	30		
4630142	Leachable Tetrachloroethylene	2016/08/23	95	70 - 130	98	70 - 130	<0.020	mg/L	NC	30		
4630142	Leachable Trichloroethylene	2016/08/23	95	70 - 130	99	70 - 130	<0.020	mg/L	NC	30		
4630142	Leachable Vinyl Chloride	2016/08/23	98	70 - 130	102	70 - 130	<0.020	mg/L	NC	30		
4630713	F2 (C10-C16 Hydrocarbons)	2016/08/24	88	50 - 130	90	80 - 120	<10	ug/g	1.5	30		

QUALITY ASSURANCE REPORT(CONT'D)

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4630713	F3 (C16-C34 Hydrocarbons)	2016/08/24	88	50 - 130	91	80 - 120	<50	ug/g	NC	30		
4630713	F4 (C34-C50 Hydrocarbons)	2016/08/24	87	50 - 130	89	80 - 120	<50	ug/g	NC	30		
4631299	Leachable Total PCB	2016/08/23	86	30 - 130	91	30 - 130	<3.0	ug/L	NC	40		
4631336	Leachable Arsenic (As)	2016/08/23	99	80 - 120	100	80 - 120	<0.2	mg/L	NC	35	<0.2	mg/L
4631336	Leachable Barium (Ba)	2016/08/23	98	80 - 120	101	80 - 120	<0.2	mg/L	NC	35	<0.2	mg/L
4631336	Leachable Boron (B)	2016/08/23	107	80 - 120	108	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4631336	Leachable Cadmium (Cd)	2016/08/23	101	80 - 120	102	80 - 120	<0.05	mg/L	NC	35	<0.05	mg/L
4631336	Leachable Chromium (Cr)	2016/08/23	99	80 - 120	99	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4631336	Leachable Lead (Pb)	2016/08/23	94	80 - 120	95	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4631336	Leachable Selenium (Se)	2016/08/23	99	80 - 120	102	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
4631336	Leachable Silver (Ag)	2016/08/23	96	80 - 120	97	80 - 120	<0.01	mg/L	NC	35	<0.01	mg/L
4631336	Leachable Uranium (U)	2016/08/23	95	80 - 120	96	80 - 120	<0.01	mg/L	NC	35	<0.01	mg/L
4632544	Benzene	2016/08/24	93	60 - 140	106	60 - 140	<0.020	ug/g	NC	50		
4632544	Ethylbenzene	2016/08/24	102	60 - 140	108	60 - 140	<0.020	ug/g	NC	50		
4632544	F1 (C6-C10) - BTEX	2016/08/24					<10	ug/g	NC	30		
4632544	F1 (C6-C10)	2016/08/24	74	60 - 140	100	80 - 120	<10	ug/g	NC	30		
4632544	o-Xylene	2016/08/24	104	60 - 140	108	60 - 140	<0.020	ug/g	NC	50		
4632544	p+m-Xylene	2016/08/24	94	60 - 140	100	60 - 140	<0.040	ug/g	NC	50		
4632544	Toluene	2016/08/24	95	60 - 140	102	60 - 140	<0.020	ug/g	NC	50		
4632544	Total Xylenes	2016/08/24					<0.040	ug/g	NC	50		
4633492	Moisture	2016/08/24							1.1	20		
4634241	F4G-sg (Grav. Heavy Hydrocarbons)	2016/08/25	NC	65 - 135	102	65 - 135	<100	ug/g	5.4	50		
4641025	Leachable 2,3,4,6-Tetrachlorophenol	2016/08/31	78	10 - 130	82	10 - 130	<2.5	ug/L	NC	40		
4641025	Leachable 2,4,5-Trichlorophenol	2016/08/31	67	10 - 130	79	10 - 130	<0.50	ug/L	NC	40		
4641025	Leachable 2,4,6-Trichlorophenol	2016/08/31	63	10 - 130	74	10 - 130	<2.5	ug/L	NC	40		
4641025	Leachable 2,4-Dichlorophenol	2016/08/31	65	10 - 130	76	10 - 130	<2.5	ug/L	NC	40		
4641025	Leachable 2,4-Dinitrotoluene	2016/08/31	77	30 - 130	81	30 - 130	<10	ug/L	NC	40		
4641025	Leachable Benzo(a)pyrene	2016/08/31	100	30 - 130	97	30 - 130	<0.10	ug/L	NC	40		
4641025	Leachable Cresol Total	2016/08/31	65	10 - 130	75	10 - 130	<2.5	ug/L	NC	40		
4641025	Leachable Hexachlorobenzene	2016/08/31	80	30 - 130	86	30 - 130	<10	ug/L	NC	40		

QUALITY ASSURANCE REPORT(CONT'D)

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
4641025	Leachable Hexachlorobutadiene	2016/08/31	63	30 - 130	70	30 - 130	<10	ug/L	NC	40		
4641025	Leachable Hexachloroethane	2016/08/31	63	30 - 130	72	30 - 130	<10	ug/L	NC	40		
4641025	Leachable m/p-Cresol	2016/08/31	57	10 - 130	67	10 - 130	<2.5	ug/L	NC	40		
4641025	Leachable Nitrobenzene	2016/08/31	69	30 - 130	80	30 - 130	<10	ug/L	NC	40		
4641025	Leachable o-Cresol	2016/08/31	71	10 - 130	82	10 - 130	<2.5	ug/L	NC	40		
4641025	Leachable Pentachlorophenol	2016/08/31	83	30 - 130	81	30 - 130	<2.5	ug/L	NC	40		
4641025	Leachable Pyridine	2016/08/31	13	10 - 130	23	10 - 130	<10	ug/L	NC	40		

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Leachate Blank: A blank matrix containing all reagents used in the leaching procedure. Used to determine any process contamination.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

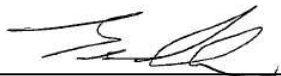
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Brad Newman, Scientific Specialist



Cristina Carriere, Scientific Services





Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#2033 SNC-Lavalin Inc	Company Name:	#18603 SNC-Lavalin Inc	Quotation #:	B63173	Maxxam Job #:	Bottle Order #:
Attention:	Accounts Payable	Attention:	Melanie Siewert	P.O. #:	10627		
Address:	455 René-Lévesque Blvd. West Montreal QC H2Z 1Z3	Address:	20 Colonnade Rd Suite 110 Ottawa ON K2E 7M6	Project:	640275		574053
Tel:	(514) 393-1000 x	Tel:	() - x221	Project Name:		COC #:	Project Manager:
Fax:	(514) 866-0795 x	Fax:		Site #:			Madison Bingley
Email:	payables@snclavalin.com	Email:	melanie.siewert@snclavalin.com	Sampled By:		G#574053-01-01	

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE
SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)			Other Regulations		Special Instructions
<input type="checkbox"/> Table 1	<input type="checkbox"/> Res/Park	<input type="checkbox"/> Medium/Fine	<input type="checkbox"/> CCME	<input type="checkbox"/> Sanitary Sewer Bylaw	<p>Should Filtered (please circle): Metals / Hg / Cr / VI</p> <p>Petroleum Hydrocarbons</p> <p>Chloride, Fluoride, Phosphates, PCBs, TCLP Metals, TCLP VOCs, SVOCs</p>
<input type="checkbox"/> Table 2	<input type="checkbox"/> Ind/Comm	<input type="checkbox"/> Coarse	<input type="checkbox"/> Reg 558.	<input type="checkbox"/> Storm Sewer Bylaw	
<input type="checkbox"/> Table 3	<input type="checkbox"/> Agri/Other	<input type="checkbox"/> For RSC	<input type="checkbox"/> MISA	Municipality _____	
<input type="checkbox"/> Table _____			<input type="checkbox"/> PWQO	_____	
			<input type="checkbox"/> Other _____	_____	
<p>Include Criteria on Certificate of Analysis (Y/N)?</p>					


Sample Barcode Label										Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	FIR	CCME	Spring PCBs, TCLP	# of Bottles	(call lab for #) Comments
1																	6	
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

19-Aug-16 12:45
 Madison Bingley

 B6H6642
 FHB OTT-002

RECEIVED IN OTTAWA

ON 11E

19-Aug-16 12:45
Madison Bingley

B6H6642
FHB OTT-002

RECEIVED IN OTTAWA

AN 1 RE

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only					
[Signature] Scott Cline	2016/08/19	12:45	Paul Wambo [Signature]	2016/08/19	12:45		Time Sensitive	Temperature (°C) on Receipt	Custody Seal Present	Yes	No	
								0, 2, 4 1, 2, 4		/		

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS

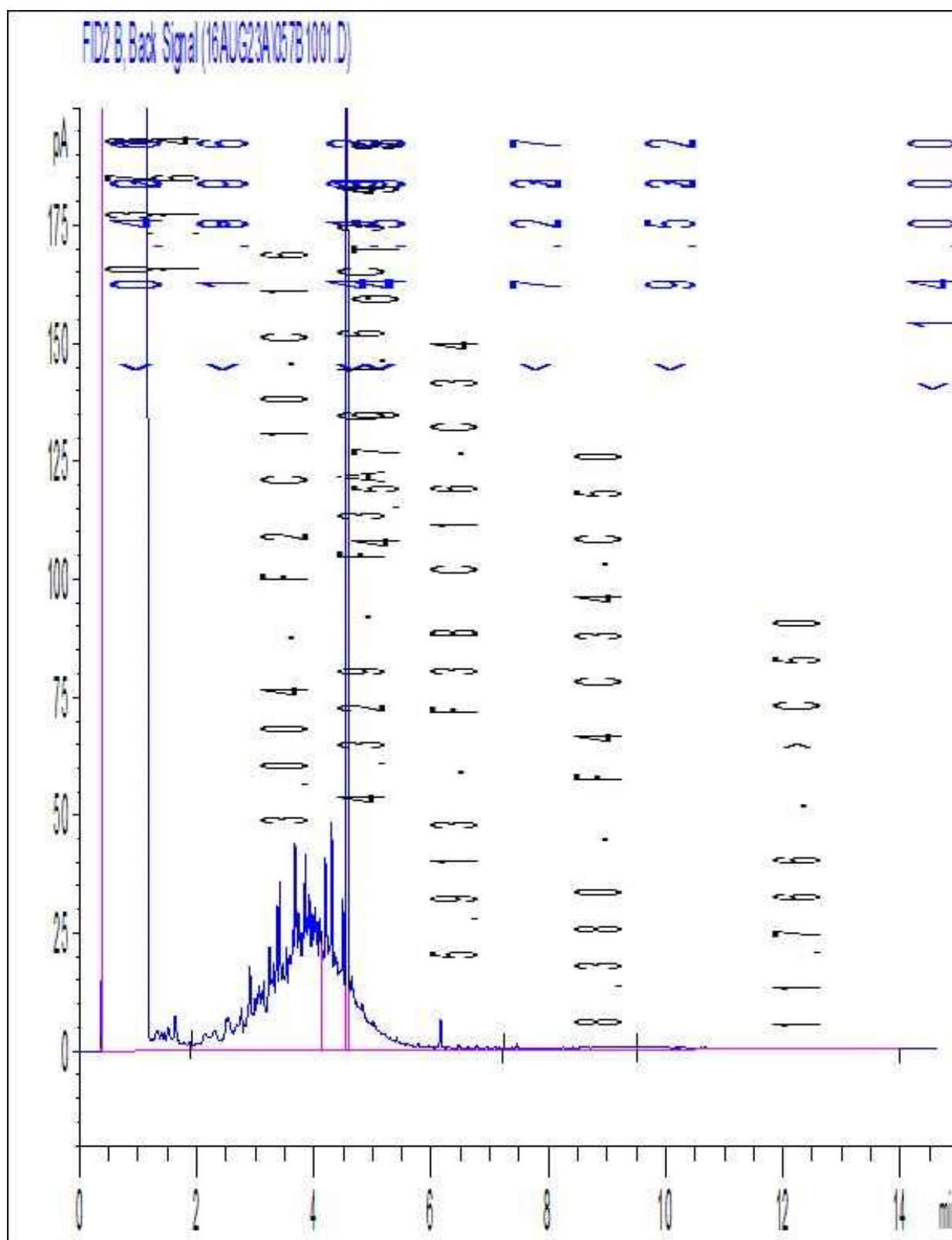
SAMPLES MUST BE KEPT COOL ($< 10^{\circ}\text{C}$) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

4, 5, 5

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: MB6H6642

Site Location: 640275

Your C.O.C. #: 1 of 1

Attention: SUB CONTRACTOR

MAXXAM ANALYTICS
CAMPOBELLO
6740 CAMPOBELLO ROAD
MISSISSAUGA, ON
CANADA L5N 2L8

Report Date: 2016/08/22

Report #: R2243493

Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B670717

Received: 2016/08/20, 08:29

Sample Matrix: Soil
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Flash Point	1	N/A	2016/08/22	AB SOP-00062	ASTM D3828-12A/A m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Carmen McKay, Project Manager

Email: CMcKay@maxxam.ca

Phone# (403) 219-3683

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B670717
Report Date: 2016/08/22

MAXXAM ANALYTICS
Client Project #: MB6H6642
Site Location: 640275

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		PH8451	
Sampling Date		2016/08/18 15:30	
COC Number		1 of 1	
	UNITS	TCLP (CXO146)	QC Batch
Physical Properties			
Closed Cup Flash point	deg. C	>61	8371786

Maxxam Job #: B670717
Report Date: 2016/08/22

MAXXAM ANALYTICS
Client Project #: MB6H6642
Site Location: 640275

TEST SUMMARY

Maxxam ID: PH8451
Sample ID: TCLP (CXO146)
Matrix: Soil

Collected: 2016/08/18
Shipped:
Received: 2016/08/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Flash Point	FLAS	8371786	N/A	2016/08/22	Jason Hollingsworth

Maxxam Job #: B670717
Report Date: 2016/08/22

MAXXAM ANALYTICS
Client Project #: MB6H6642
Site Location: 640275

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.7°C
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Results relate only to the items tested.

Maxxam Job #: B670717
Report Date: 2016/08/22

QUALITY ASSURANCE REPORT

MAXXAM ANALYTICS
Client Project #: MB6H6642
Site Location: 640275

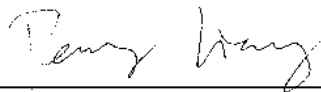
QC Batch	Parameter	Date	RPD	
			Value (%)	QC Limits
8371786	Closed Cup Flash point	2016/08/22	NC	35
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.				
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).				

Maxxam Job #: B670717
Report Date: 2016/08/22

MAXXAM ANALYTICS
Client Project #: MB6H6642
Site Location: 640275

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Harry (Peng) Liang, Senior Analyst

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

MAXXAM ANALYTICS
32 Colonnade Unit 1000
Nepean, Ontario, K2E 7J6
Phone: (613) 274-0573
Fax: (613) 274-0574

Maxxam
SUBCONTRACTING REQUEST FORM

873

Page #: 1

SNC-Lavalin Inc - Nepean
Maxxam PM Madison Bingley

To: Campo to Calgary Subcontract

Job# B6H6642

☐ Yes ☐ No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
☐ Yes ☐ No Special Protocol (if yes, Protocol _____)

Sample ID	Matrix	Test(s) Required	Container	Date Sampled	Date Required
CXO146-03R \ TCLP	S	Subcontracted Analysis	1(TVOC)	2016/08/18 15:30	2016/08/25

	Temp. 1	Temp. 2	Temp. 3	
Cooler #1	4	6	4	Custody Seal Present YES NO Custody Seal Intact YES NO Ice Present Upon Receipt YES NO
Cooler #2				Custody Seal Present YES NO Custody Seal Intact YES NO Ice Present Upon Receipt YES NO
Cooler #3				Custody Seal Present YES NO Custody Seal Intact YES NO Ice Present Upon Receipt YES NO

Receiving Maxxam Location: Campo to Calgary Subcontract

JOB # _____

Relinquished by (Sign) _____

(Print) _____

Date and Time 2016/08/19 16:30

Received by (Sign) _____

(Print) _____

Date and Time 2016/08/20 08:29

Subcontract Comments

SUB-MISC IS FOR FLASHPOINT TEST AT CALGARY.

NOTES:

- 1) Please call us if due date cannot be met. Please reference Sample ID on your report.
- 2) Include copy of this completed form, Client COC & signed final report to scontractor@maxxam.ca

Reporting Requirements:

National: N001, N004

Regional: O036

SHIPPING INSTRUCTIONS

☐ Ship Immediately (highlight Yellow) ☐ Ship Cold
☐ Requires 9am ☐ Ship Room Temp
☐ Requires Sat. Delivery ☐ Ship Frozen
☐ Regular Ship next available day ☐ COC Must be Attached
Sender (Print) _____ Initial _____

SHIPPING DEPARTMENT CHECKLIST

☐ Correct Shipping location
☐ Correct Sample Ids (Paperwork vs Bottles)
☐ Yes ☐ No Special-Cooler, Ice, Tape-custody seal, Date&Sign
Date Shipped _____ Number of coolers _____
Shipper (Print) _____ Initial _____



CHAIN OF CUSTODY RECORD

Page 18

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#2033 SNC-Lavalin Inc	Company Name:	#18603 SNC-Lavalin Inc	Quotation #	B63173	Maximum Job #:	Bottle Order #:
Attention:	Accounts Payable	Attention:	Melanie Siewert	P.O. #	10627		
Address:	455 René-Lévesque Blvd. West	Address:	20 Colonnade Rd Suite 110	Project:	640225		574053
	Montreal QC H2Z 123		Ottawa ON K2E 7M6	Project Name:		CDC #:	Project Manager:
Tel:	(514) 383-1000 x	Fax:	(514) 686-0795 x	Site #:			Melison Enghy
Email:	payables@snc-lavalin.com	Email:	melanie.siewert@snc-lavalin.com	Sampled By:		CAS14053-01-01	

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required

Please provide advance notice for rush projects.

[illegible]

19-Aug-16 12:45

-Madison Bingley

B6H6642

FHB OTT-002

RECEIVED IN OTTAWA

ON 116

* RELINQUISHED BY: (Signature/Print)		Date: (YYMMDD)	Time	RECEIVED BY: (Signature/Print)		Date: (YYMMDD)	Time	If jars used and not submitted	Laboratory Use Only				
[Signature] CCA/CLM		2016/08/19	12:45	Paul Warnko [Signature]		2016/08/19	12:45		Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
									0, 2, 4 1, 2, 2	Present	/		
										Intact	/		
*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY. RECORD AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.								SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXAM					
								White: Maxam Yellow: CLM					

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLES MUST BE KEPT COOL ($< 10^{\circ}\text{C}$) FROM TIME OF SAMPLING UNTIL DELIVERY TO ANALYST

White: Maxxam Yellow: Client

Maxxam Analytics International Corporation c/o Maxxam Analytics

4, 5, 5

Appendix G

Laboratory Certificates of Analysis

Groundwater

Your P.O. #: 10627
Your Project #: 640275
Your C.O.C. #: 573170-02-01, 573170-01-01

Attention: Melanie Siewert

SNC-Lavalin Inc
Nepean
455 René-Lévesque Blvd. West
Montreal, QC
H2Z 1Z3

Report Date: 2016/08/16
Report #: R4117513
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6G8137

Received: 2016/08/10, 09:50

Sample Matrix: Water
Samples Received: 12

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Petroleum Hydro. CCME F1 & BTEX in Water	8	N/A	2016/08/12	OTT SOP-00002	CCME CWS
Petroleum Hydro. CCME F1 & BTEX in Water	1	N/A	2016/08/13	OTT SOP-00002	CCME CWS
Petroleum Hydro. CCME F1 & BTEX in Water	3	N/A	2016/08/15	OTT SOP-00002	CCME CWS
Petroleum Hydrocarbons F2-F4 in Water (1)	12	2016/08/12	2016/08/15	OTT SOP-00001	CCME Hydrocarbons

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Madison Bingley, Project Manager

Email: MBingley@maxxam.ca

Phone# (613)274-3549

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CVZ092	CVZ093	CVZ094	CVZ095	CVZ096	CVZ097		
Sampling Date		2016/08/09 08:30	2016/08/09 09:00	2016/08/09 09:30	2016/08/09 10:20	2016/08/09 11:00	2016/08/09 11:20		
COC Number		573170-02-01	573170-02-01	573170-02-01	573170-02-01	573170-02-01	573170-02-01		
	UNITS	MW18	MW34	MW28	MW21	MW20	MW24	RDL	QC Batch
BTEX & F1 Hydrocarbons									
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	4615262
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	4615262
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	4615262
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	4615262
p+m-Xylene	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	4615262
Total Xylenes	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	4615262
F1 (C6-C10)	ug/L	<25	<25	<25	<25	<25	<25	25	4615262
F1 (C6-C10) - BTEX	ug/L	<25	<25	<25	<25	<25	<25	25	4615262
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	<100	<100	<100	<100	100	4616978
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	<200	<200	<200	<200	200	4616978
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	<200	<200	<200	<200	200	4616978
Reached Baseline at C50	ug/L	Yes	Yes	Yes	Yes	Yes	Yes		4616978
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	103	105	105	104	104	98		4615262
4-Bromofluorobenzene	%	108	109	106	109	108	112		4615262
D10-Ethylbenzene	%	86	96	96	90	94	84		4615262
D4-1,2-Dichloroethane	%	101	101	101	100	101	99		4615262
o-Terphenyl	%	89	91	92	91	91	100		4616978
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CVZ098		CVZ099	CVZ100		CVZ101	CVZ114		
Sampling Date		2016/08/09 11:40		2016/08/09 11:55	2016/08/09 12:00		2016/08/09 12:30	2016/08/09 11:00		
COC Number		573170-02-01		573170-02-01	573170-02-01		573170-02-01	573170-01-01		
	UNITS	MW19	RDL	MW6	MW6A	RDL	MW1	MW-99	RDL	QC Batch
BTEX & F1 Hydrocarbons										
Benzene	ug/L	<0.20	0.20	2500	3600	2.0	<0.20	<0.20	0.20	4615262
Toluene	ug/L	<0.20	0.20	31	66	2.0	<0.20	<0.20	0.20	4615262
Ethylbenzene	ug/L	<0.20	0.20	33	51	2.0	0.98	<0.20	0.20	4615262
o-Xylene	ug/L	<0.20	0.20	19	22	2.0	<0.20	<0.20	0.20	4615262
p+m-Xylene	ug/L	<0.40	0.40	940	1200	4.0	<0.40	<0.40	0.40	4615262
Total Xylenes	ug/L	<0.40	0.40	960	1200	4.0	<0.40	<0.40	0.40	4615262
F1 (C6-C10)	ug/L	<25	25	4200	5800	250	<25	<25	25	4615262
F1 (C6-C10) - BTEX	ug/L	<25	25	700	890	250	<25	<25	25	4615262
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/L	<100	100	200	310	100	110	<100	100	4616978
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	<200	<200	200	<200	<200	200	4616978
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	<200	<200	200	<200	<200	200	4616978
Reached Baseline at C50	ug/L	Yes		Yes	Yes		Yes	Yes		4616978
Surrogate Recovery (%)										
1,4-Difluorobenzene	%	103		96	97		101	100		4615262
4-Bromofluorobenzene	%	113		107	111		109	110		4615262
D10-Ethylbenzene	%	95		91	88		94	86		4615262
D4-1,2-Dichloroethane	%	99		100	104		102	97		4615262
o-Terphenyl	%	91		91	89		93	89		4616978
RDL = Reportable Detection Limit										
QC Batch = Quality Control Batch										

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CVZ115		
Sampling Date		2016/08/09 13:00		
COC Number		573170-01-01		
	UNITS	FIELD BLANK	RDL	QC Batch
BTEX & F1 Hydrocarbons				
Benzene	ug/L	<0.20	0.20	4615262
Toluene	ug/L	<0.20	0.20	4615262
Ethylbenzene	ug/L	<0.20	0.20	4615262
o-Xylene	ug/L	<0.20	0.20	4615262
p+m-Xylene	ug/L	<0.40	0.40	4615262
Total Xylenes	ug/L	<0.40	0.40	4615262
F1 (C6-C10)	ug/L	<25	25	4615262
F1 (C6-C10) - BTEX	ug/L	<25	25	4615262
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/L	<100	100	4616978
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	4616978
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	4616978
Reached Baseline at C50	ug/L	Yes		4616978
Surrogate Recovery (%)				
1,4-Difluorobenzene	%	102		4615262
4-Bromofluorobenzene	%	109		4615262
D10-Ethylbenzene	%	97		4615262
D4-1,2-Dichloroethane	%	98		4615262
o-Terphenyl	%	92		4616978
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				

Maxxam Job #: B6G8137
Report Date: 2016/08/16

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

TEST SUMMARY

Maxxam ID: CVZ092
Sample ID: MW18
Matrix: Water

Collected: 2016/08/09
Shipped:
Received: 2016/08/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4615262	N/A	2016/08/12	Lyndsey Hart
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4616978	2016/08/12	2016/08/15	Liliana Gaburici

Maxxam ID: CVZ092 Dup
Sample ID: MW18
Matrix: Water

Collected: 2016/08/09
Shipped:
Received: 2016/08/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4615262	N/A	2016/08/12	Lyndsey Hart
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4616978	2016/08/12	2016/08/15	Liliana Gaburici

Maxxam ID: CVZ093
Sample ID: MW34
Matrix: Water

Collected: 2016/08/09
Shipped:
Received: 2016/08/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4615262	N/A	2016/08/12	Lyndsey Hart
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4616978	2016/08/12	2016/08/15	Liliana Gaburici

Maxxam ID: CVZ094
Sample ID: MW28
Matrix: Water

Collected: 2016/08/09
Shipped:
Received: 2016/08/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4615262	N/A	2016/08/12	Lyndsey Hart
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4616978	2016/08/12	2016/08/15	Liliana Gaburici

Maxxam ID: CVZ095
Sample ID: MW21
Matrix: Water

Collected: 2016/08/09
Shipped:
Received: 2016/08/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4615262	N/A	2016/08/12	Lyndsey Hart
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4616978	2016/08/12	2016/08/15	Liliana Gaburici

Maxxam ID: CVZ096
Sample ID: MW20
Matrix: Water

Collected: 2016/08/09
Shipped:
Received: 2016/08/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4615262	N/A	2016/08/12	Lyndsey Hart
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4616978	2016/08/12	2016/08/15	Liliana Gaburici

Maxxam Job #: B6G8137
Report Date: 2016/08/16

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

TEST SUMMARY

Maxxam ID: CVZ097
Sample ID: MW24
Matrix: Water

Collected: 2016/08/09
Shipped:
Received: 2016/08/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4615262	N/A	2016/08/12	Lyndsey Hart
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4616978	2016/08/12	2016/08/15	Liliana Gaburici

Maxxam ID: CVZ098
Sample ID: MW19
Matrix: Water

Collected: 2016/08/09
Shipped:
Received: 2016/08/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4615262	N/A	2016/08/12	Lyndsey Hart
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4616978	2016/08/12	2016/08/15	Liliana Gaburici

Maxxam ID: CVZ099
Sample ID: MW6
Matrix: Water

Collected: 2016/08/09
Shipped:
Received: 2016/08/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4615262	N/A	2016/08/15	Lyndsey Hart
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4616978	2016/08/12	2016/08/15	Liliana Gaburici

Maxxam ID: CVZ100
Sample ID: MW6A
Matrix: Water

Collected: 2016/08/09
Shipped:
Received: 2016/08/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4615262	N/A	2016/08/15	Lyndsey Hart
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4616978	2016/08/12	2016/08/15	Liliana Gaburici

Maxxam ID: CVZ101
Sample ID: MW1
Matrix: Water

Collected: 2016/08/09
Shipped:
Received: 2016/08/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4615262	N/A	2016/08/15	Lyndsey Hart
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4616978	2016/08/12	2016/08/15	Liliana Gaburici

Maxxam ID: CVZ114
Sample ID: MW-99
Matrix: Water

Collected: 2016/08/09
Shipped:
Received: 2016/08/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4615262	N/A	2016/08/13	Lyndsey Hart
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4616978	2016/08/12	2016/08/15	Liliana Gaburici

Maxxam Job #: B6G8137
Report Date: 2016/08/16

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

TEST SUMMARY

Maxxam ID: CVZ115
Sample ID: FIELD BLANK
Matrix: Water

Collected: 2016/08/09
Shipped:
Received: 2016/08/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4615262	N/A	2016/08/12	Lyndsey Hart
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4616978	2016/08/12	2016/08/15	Liliana Gaburici

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	7.7°C
-----------	-------

Sample CVZ099-01 : F1/BTEX Analysis: Sample was diluted due to high concentration of target compounds. Reporting limits were adjusted accordingly.

Sample CVZ100-01 : F1/BTEX Analysis: Sample was diluted due to high concentration of target compounds. Reporting limits were adjusted accordingly.

Results relate only to the items tested.

QUALITY ASSURANCE REPORT

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 10627
Sampler Initials: SC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
4615262	1,4-Difluorobenzene	2016/08/12	101	70 - 130	103	70 - 130	104	%		
4615262	4-Bromofluorobenzene	2016/08/12	109	70 - 130	109	70 - 130	108	%		
4615262	D10-Ethylbenzene	2016/08/12	94	70 - 130	89	70 - 130	94	%		
4615262	D4-1,2-Dichloroethane	2016/08/12	101	70 - 130	99	70 - 130	99	%		
4616978	o-Terphenyl	2016/08/15	98	30 - 130	97	30 - 130	93	%		
4615262	Benzene	2016/08/12	93	70 - 130	88	70 - 130	<0.20	ug/L	NC	40
4615262	Ethylbenzene	2016/08/12	100	70 - 130	96	70 - 130	<0.20	ug/L	NC	40
4615262	F1 (C6-C10) - BTEX	2016/08/12					<25	ug/L	NC	40
4615262	F1 (C6-C10)	2016/08/12	87	70 - 130	88	70 - 130	<25	ug/L	NC	40
4615262	o-Xylene	2016/08/12	97	70 - 130	92	70 - 130	<0.20	ug/L	NC	40
4615262	p+m-Xylene	2016/08/12	92	70 - 130	88	70 - 130	<0.40	ug/L	NC	40
4615262	Toluene	2016/08/12	90	70 - 130	93	70 - 130	<0.20	ug/L	NC	40
4615262	Total Xylenes	2016/08/12					<0.40	ug/L	NC	40
4616978	F2 (C10-C16 Hydrocarbons)	2016/08/15	104	50 - 130	95	80 - 120	<100	ug/L	NC	50
4616978	F3 (C16-C34 Hydrocarbons)	2016/08/15	104	50 - 130	95	80 - 120	<200	ug/L	NC	50
4616978	F4 (C34-C50 Hydrocarbons)	2016/08/15	104	50 - 130	95	80 - 120	<200	ug/L	NC	50

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

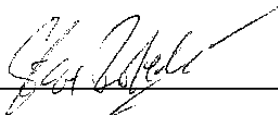
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).






Paul Rubinato, Analyst, Maxxam Analytics




Steve Roberts, Ottawa Lab Manager

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name: #2033 SNC-Lavalin Inc		Company Name: Melanie Siewert		Quotation #: B63173		Maxxam Job #:	
Attention: Accounts Payable		Attention: Melanie Siewert		P.O. #: 10627		Bottle Order #:	
Address: 455 René-Lévesque Blvd. West		Address:		Project: 640275			
Montreal QC H2Z 1Z3				Project Name:		COC #:	
Tel: (514) 393-1000 x Fax: (514) 866-0795 x		Tel: () - x221 Fax:		Site #:			
Email: payables@snclavalin.com		Email: melanie.siewert@snclavalin.com		Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY										ANALYSIS REQUESTED (PLEASE BE SPECIFIC)										Turnaround Time (TAT) Required: Please provide advance notice for rush projects			
Regulation 153 (2011)			Other Regulations			Special Instructions			Field Filtered (please circle): Metals / Hg / Cr / V	CCME Petroleum Hydrocarbons											Regular (Standard) TAT: (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____ Rush Confirmation Number: _____ (call lab for #)		
<input type="checkbox"/> Table 1 <input type="checkbox"/> Res/Park <input type="checkbox"/> Medium/Fine <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse <input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/Other <input type="checkbox"/> For RSC <input type="checkbox"/> Table _____			<input checked="" type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> Reg 558 <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> MISA Municipality _____ <input type="checkbox"/> PWQO <input type="checkbox"/> Other _____																		# of Bottles	Comments	
Include Criteria on Certificate of Analysis (Y/N)? _____																							
	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix																		
1		MW18	20160809	8:30	GW															4	Some samples		
2		MW34		9:00																4	may contain sediment run as JS		
3		MW28		9:30																4			
4		MW21		10:20																4			
5		MW20		11:00																4			
6		MW24		11:20																4			
7		MW19		11:40																4			
8		MW6		11:55																4			
9		MW6A		12:00																4			
10		MW1	✓	12:30	✓															4	✓		

10-Aug-16 09:50
 Madison Bingley

 B6G8137
 FHB
 OTT-001

* RELINQUISHED BY: (Signature/Print)

Scott Clew / Scott Clew

Date: (YY/MM/DD)

2016/08/10

Time

9:50

RECEIVED BY: (Signature/Print)

Fatench Habib Fatench Habib

Date: (YY/MM/DD)

2016/08/10

Time

09:50

jars used and not submitted

Laboratory Use Only

Time Sensitive

Temperature (°C) on Receipt

7, 8, 8

Custody Seal

Present

Yes

✓

No

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

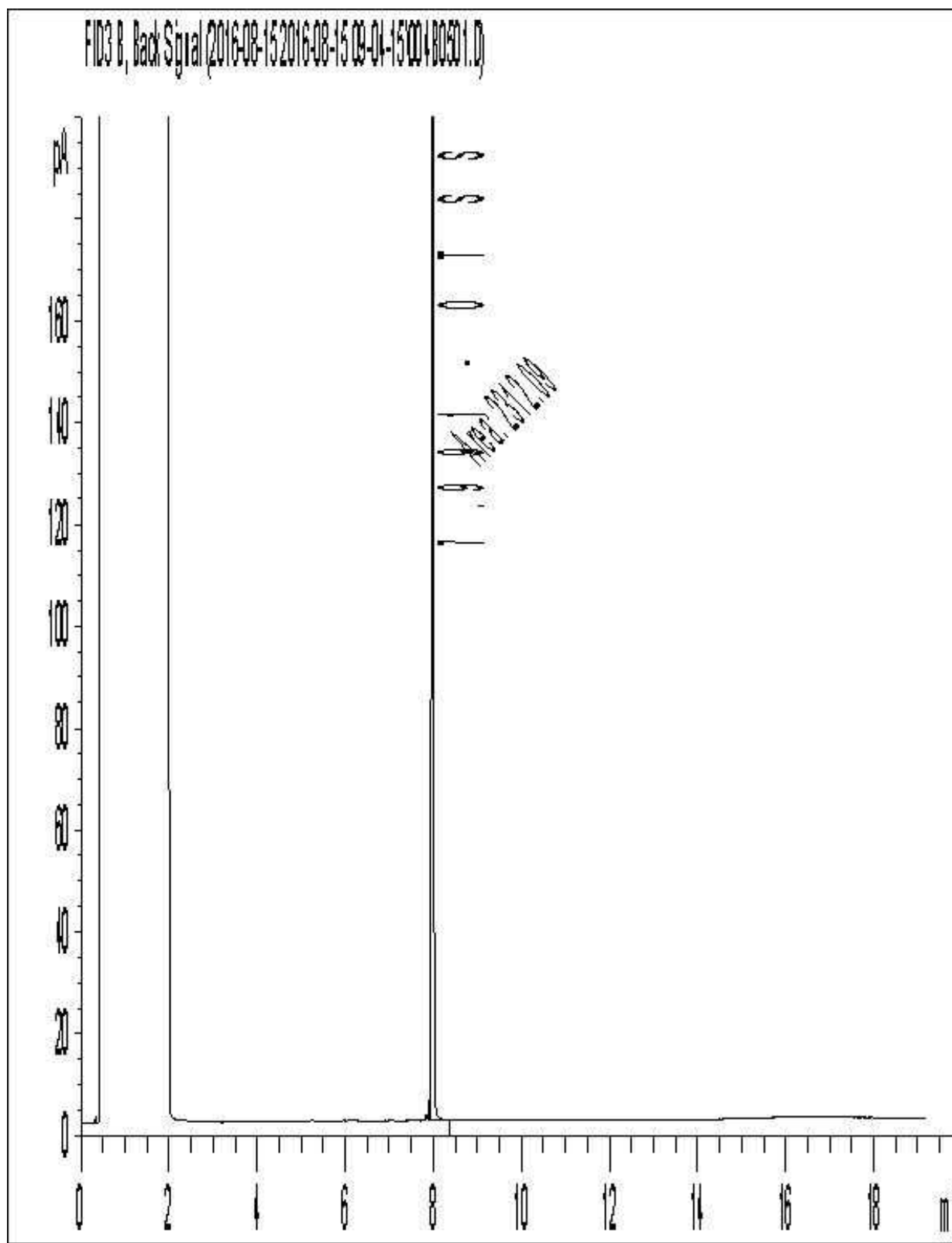
White: Maxxam Yellow: Client

INVOICE TO:				REPORT TO:				PROJECT INFORMATION:				Laboratory Use Only:			
Company Name: #2033 SNC-Lavalin Inc				Company Name:				Quotation #: B63173				Maxxam Job #:		Bottle Order #:	
Attention: Accounts Payable				Attention: Melanie Siewert				P.O. #: 10627						Project Manager: Madison Bingley	
Address: 455 René-Lévesque Blvd. West Montreal QC H2Z 1Z3				Address:				Project #: 640275							
Tel: (514) 393-1000 x Fax: (514) 866-0795 x				Tel: () - x221 Fax:				Project Name:				COC #:			
Email: payables@sncclavalin.com				Email: melanie.siewert@sncclavalin.com				Site #:							
								Sampled By:				C#573170-01-01			
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY												Turnaround Time (TAT) Required: Please provide advance notice for rush projects			
Regulation 153 (2011) <input type="checkbox"/> Table 1 <input type="checkbox"/> Res/Park <input type="checkbox"/> Medium/Fine <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse <input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/Other <input type="checkbox"/> For RSC <input type="checkbox"/> Table _____				Other Regulations <input checked="" type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> Reg 558 <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> MISA Municipality _____ <input type="checkbox"/> PWQO <input type="checkbox"/> Other _____				Special Instructions				Regular (Standard) TAT: (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.			
Include Criteria on Certificate of Analysis (Y/N)? _____												Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____ Rush Confirmation Number: _____ (call lab for #)			
	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	CCME Petroleum Hydrocarbons							# of Bottles	Comments
1		MW-99	20160809	11:00	GW		X							4	Sample max carbon sediment on 15-15
2		Field Blank	20160809	13:00	GW		X							4	
3															
4															
5															
6															
7															
8															
9															
10															
* RELINQUISHED BY: (Signature/Print)			Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)			Date: (YY/MM/DD)	Time	# jars used and not submitted		Laboratory Use Only Temperature (°C) on Receipt: 7, 8, 8 Custody Seal: Present <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>			
Scott Clana 2016/08/10 9:50					Fateneh Habib 2016/08/10 09:50										
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.															
SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM															
White: Maxxam Yellow: Client															

Maxxam Analytics International Corporation o/a Maxxam Analytics

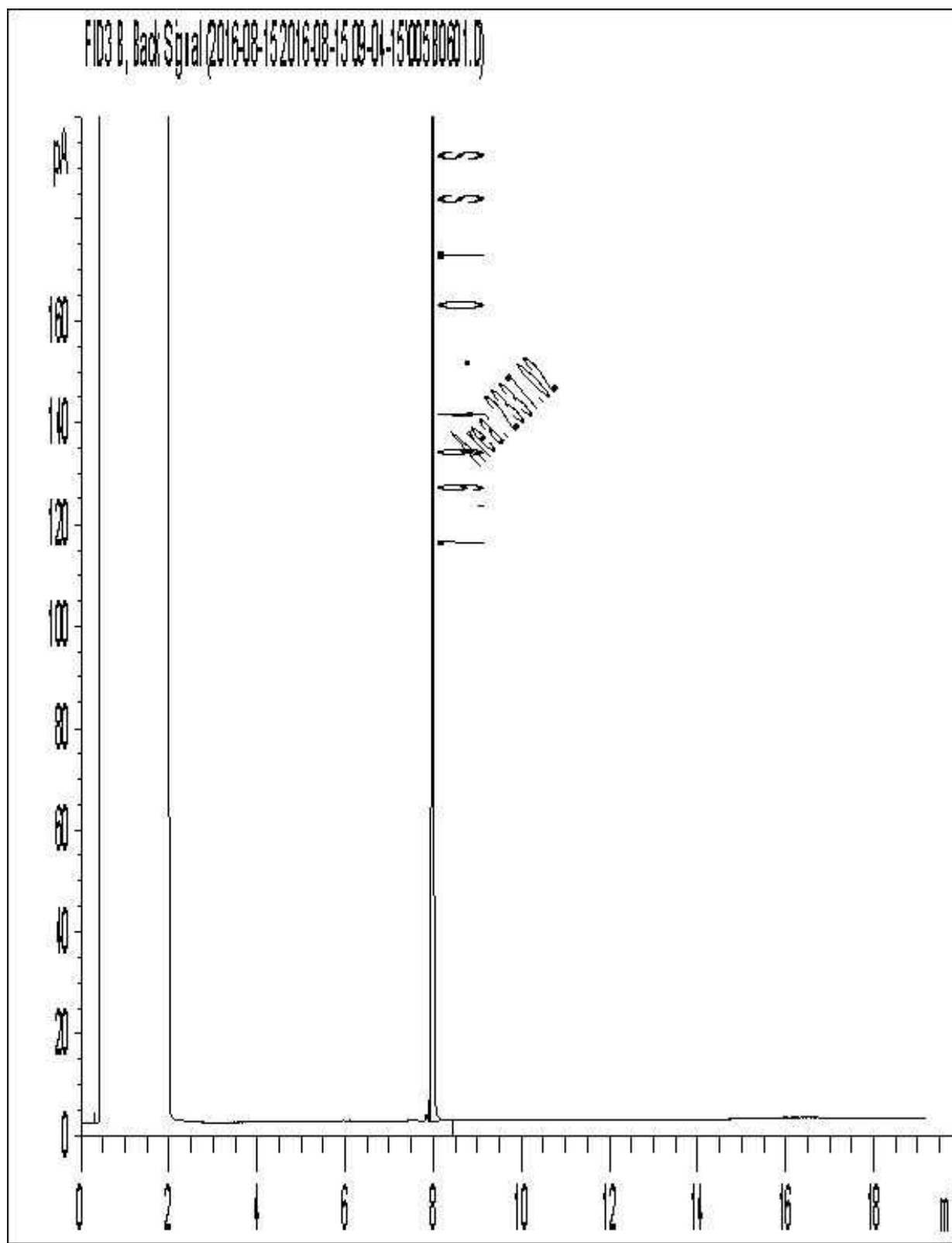
RECEIVED IN OTTAWA

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



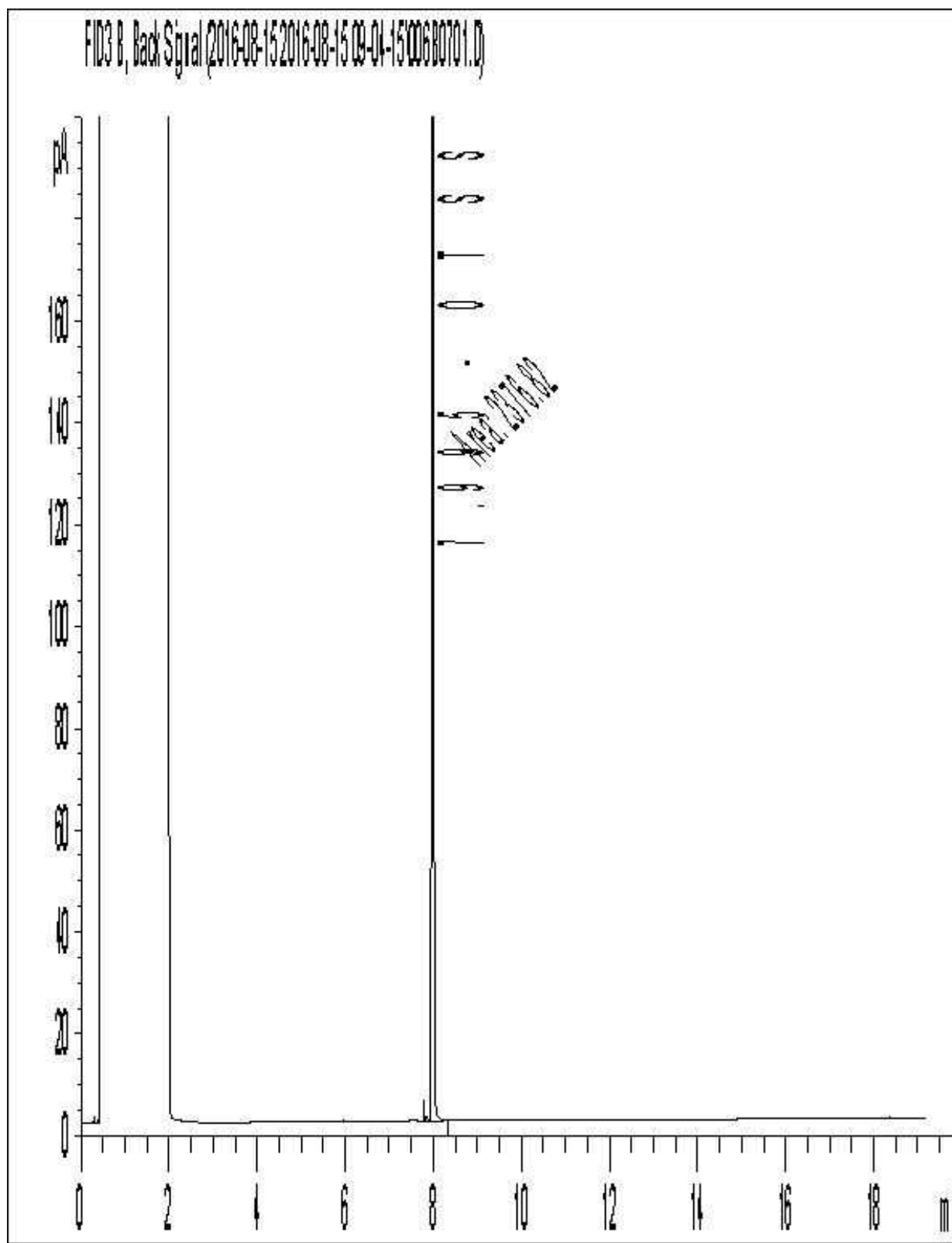
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



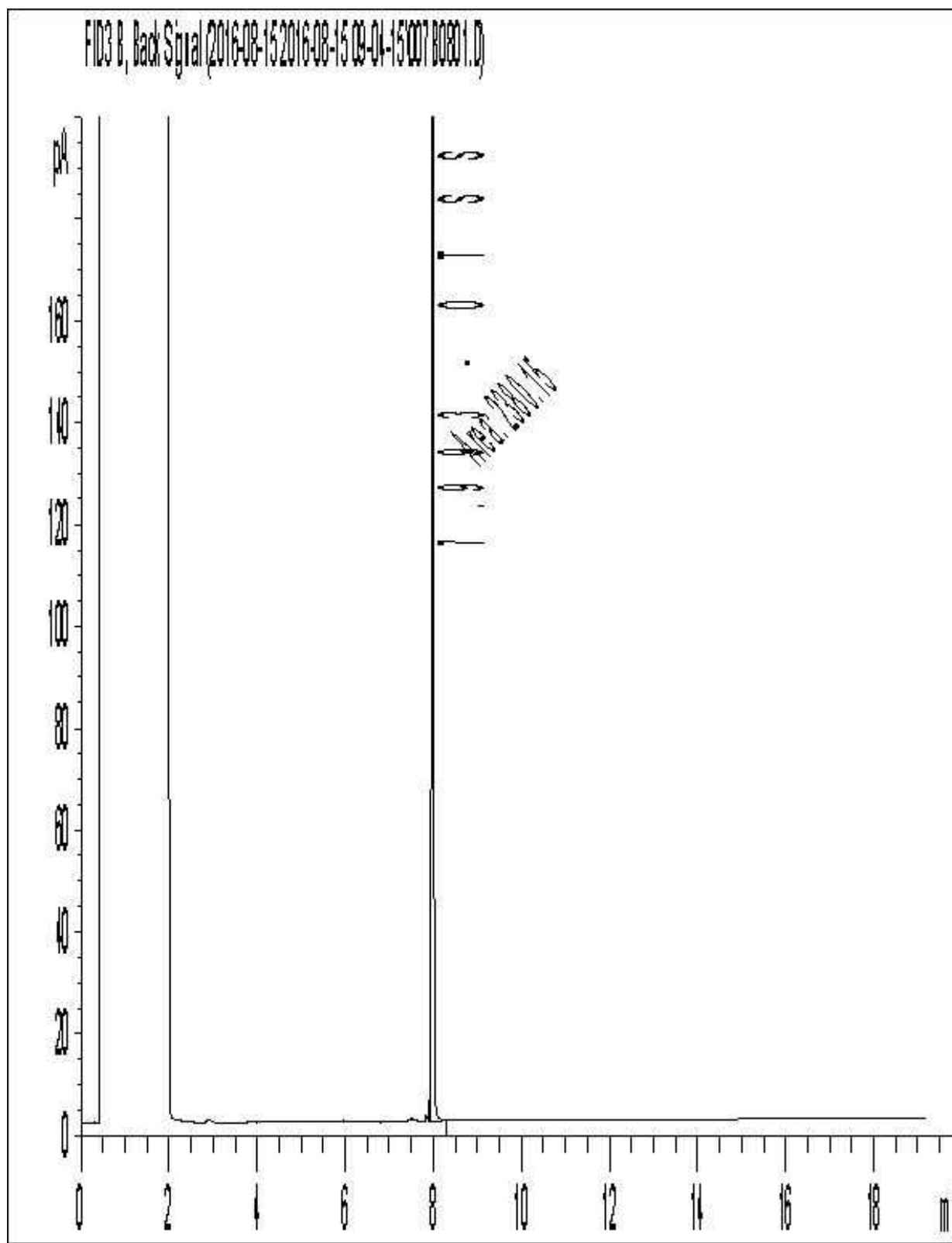
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



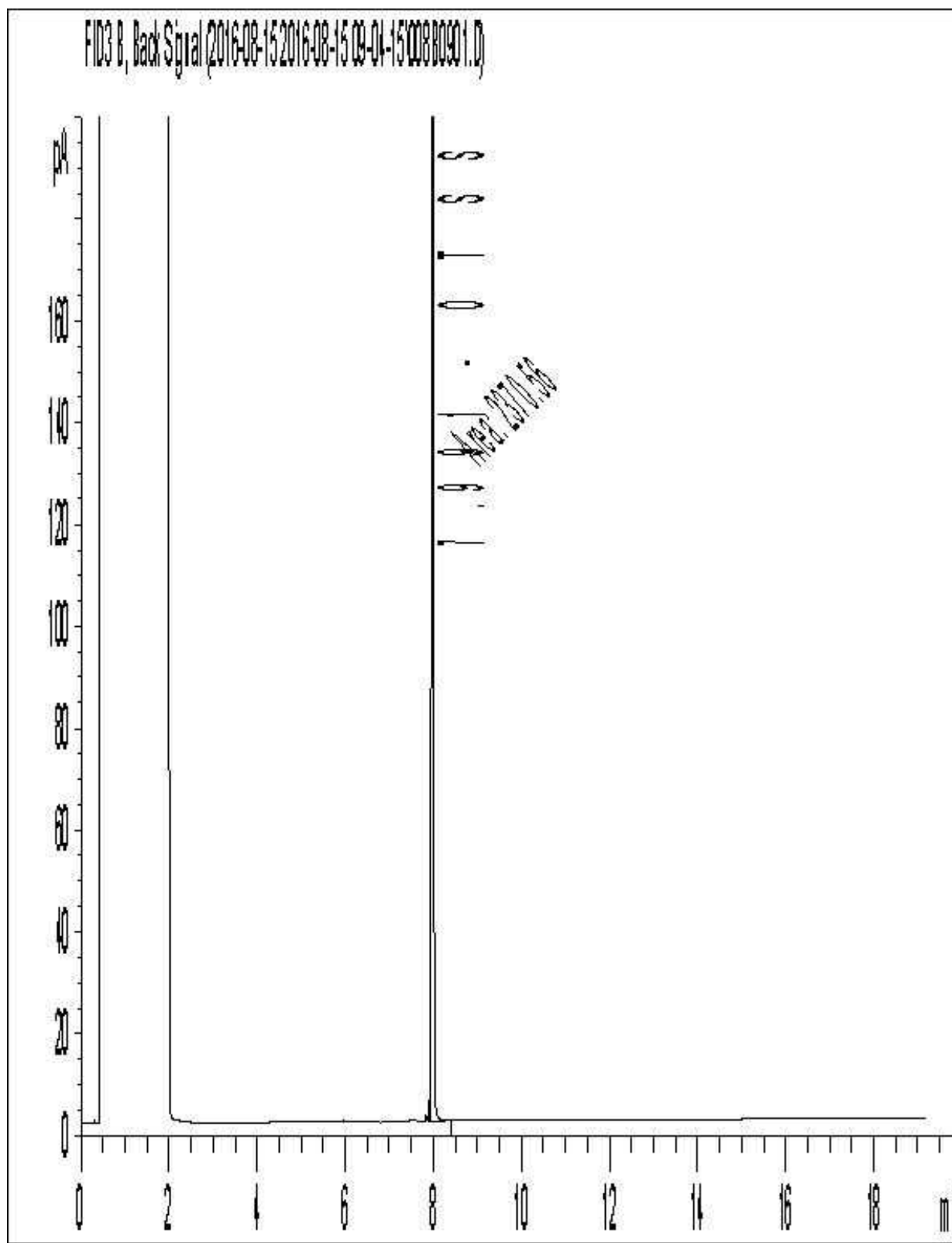
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



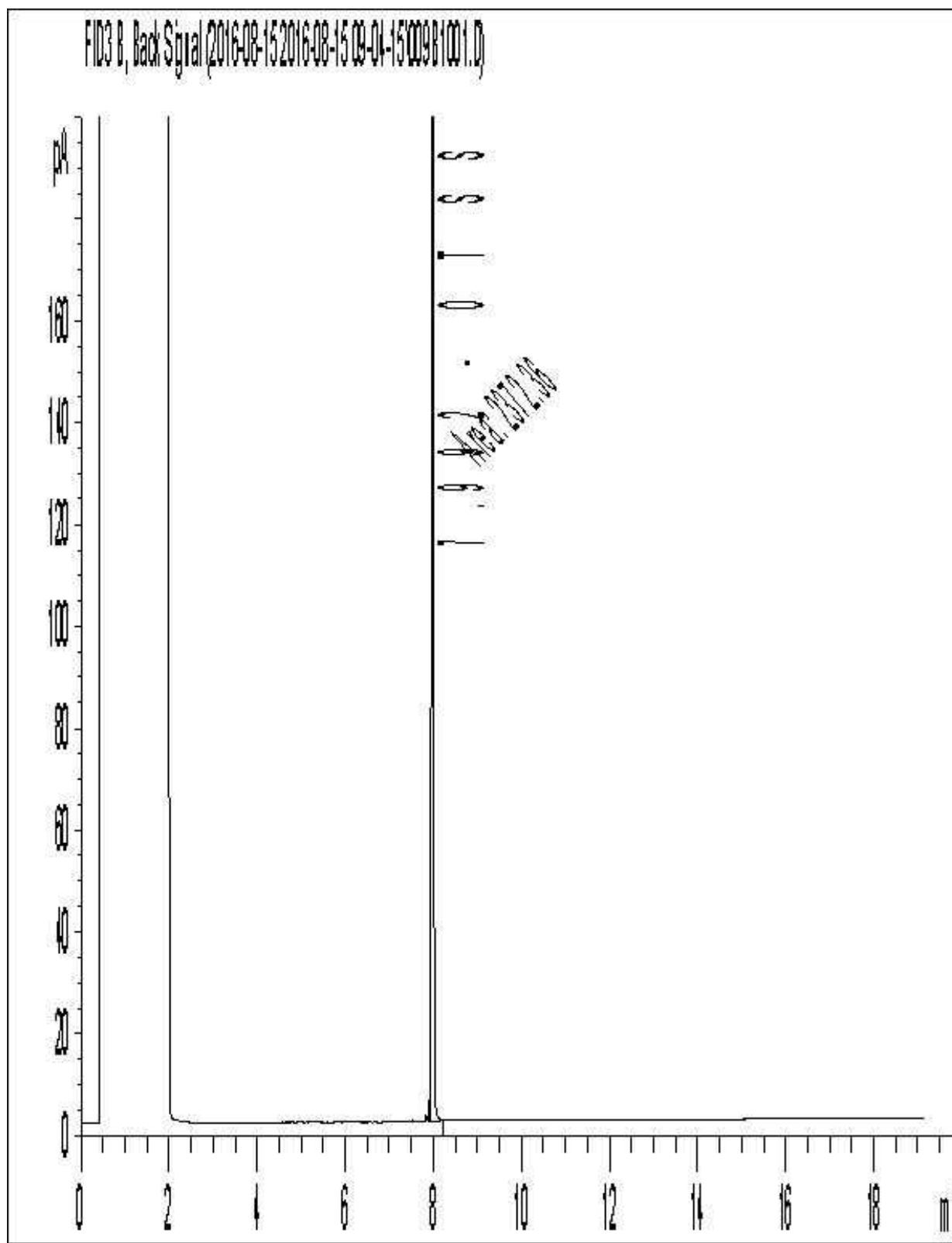
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



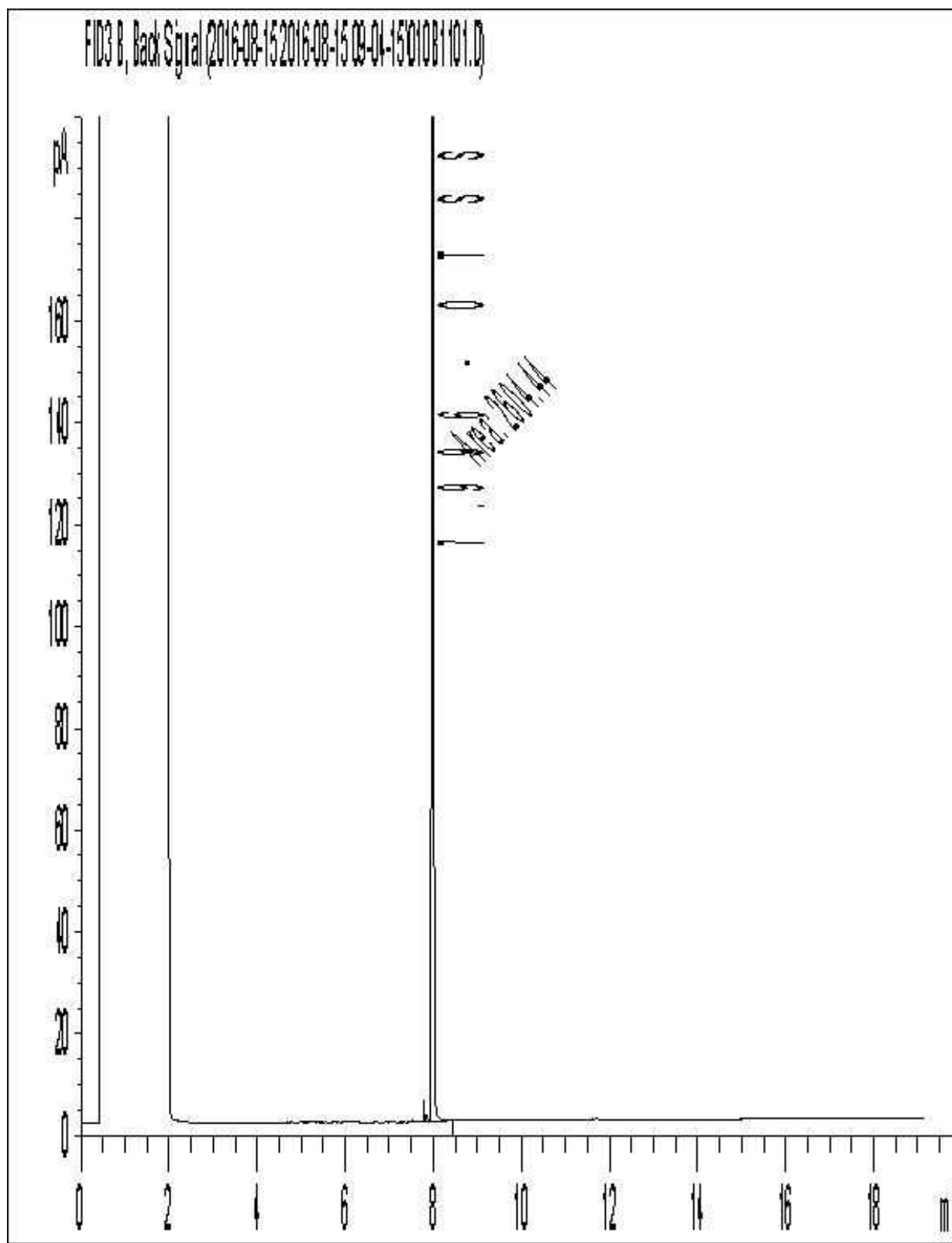
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



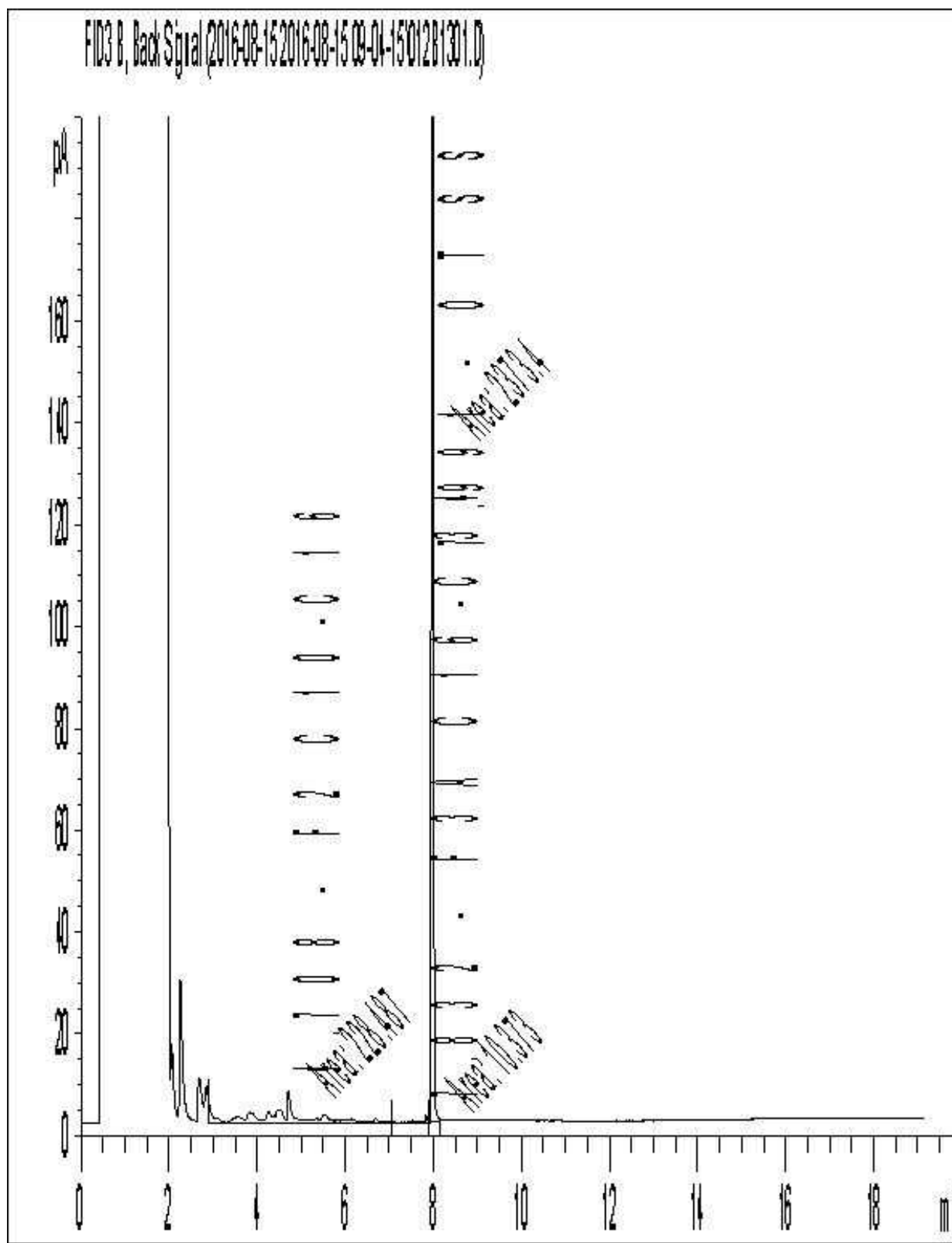
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

FID3 B, Back Signal (2016-08-15 2016-08-15 09:04:15 01181201.D)

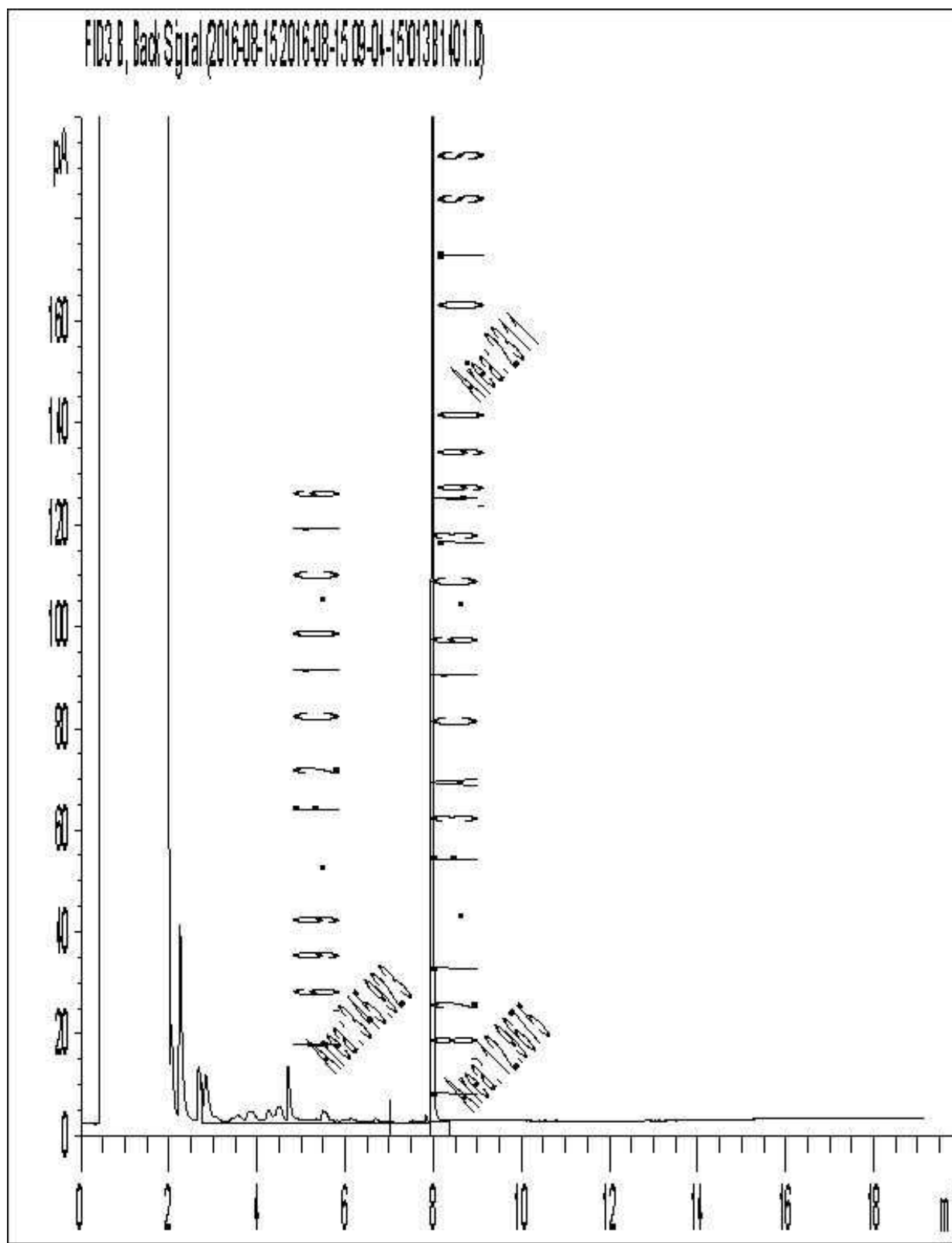
Chromatogram showing a single sharp peak at approximately 8.2 minutes. The y-axis is labeled 'pA' and ranges from 0 to 180. The x-axis is labeled 'm' and ranges from 0 to 18. A handwritten note 'Area: 237.88' is present near the peak.

Page 20 of 25

Petroleum Hydrocarbons F2-F4 in Water Chromatogram

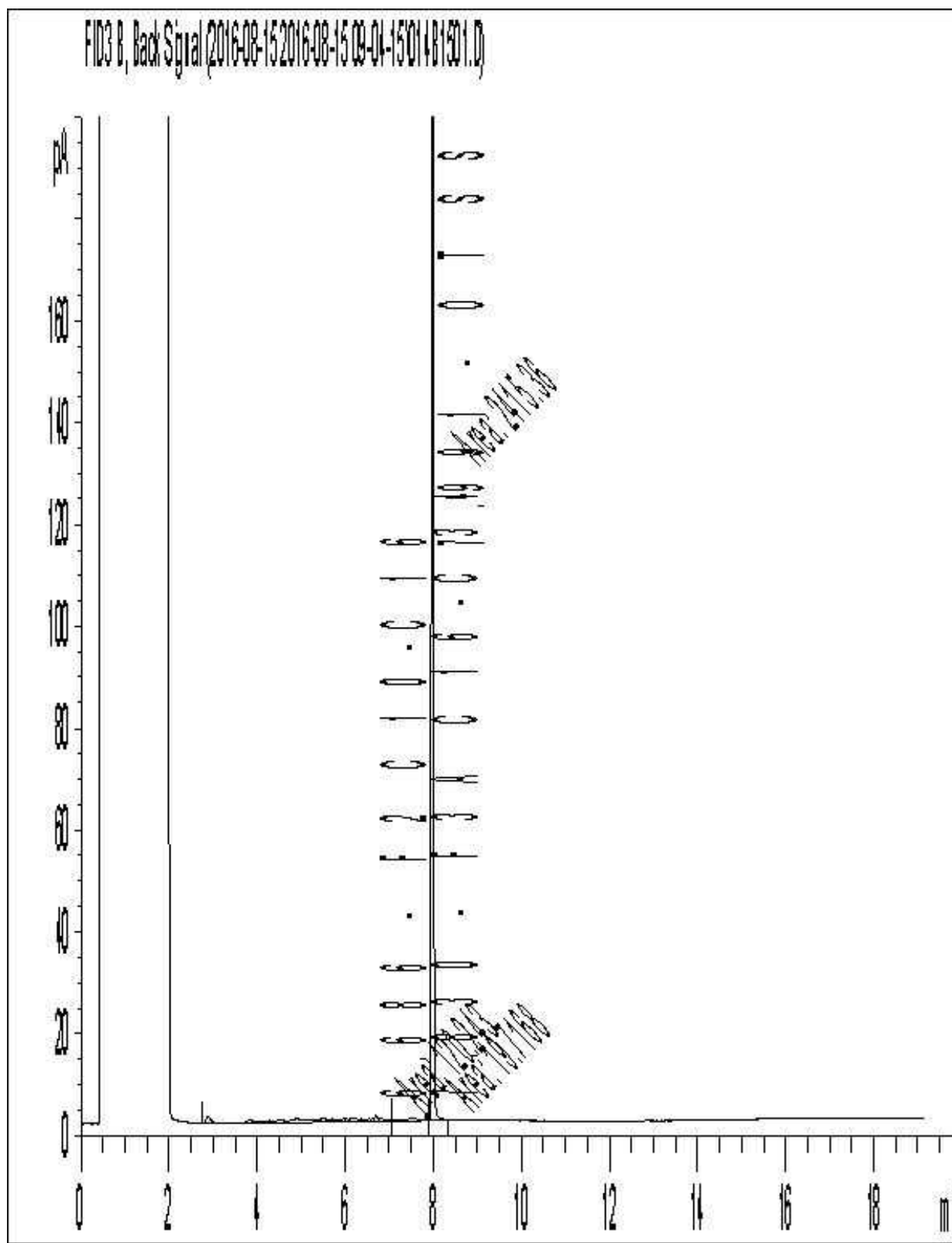


Petroleum Hydrocarbons F2-F4 in Water Chromatogram



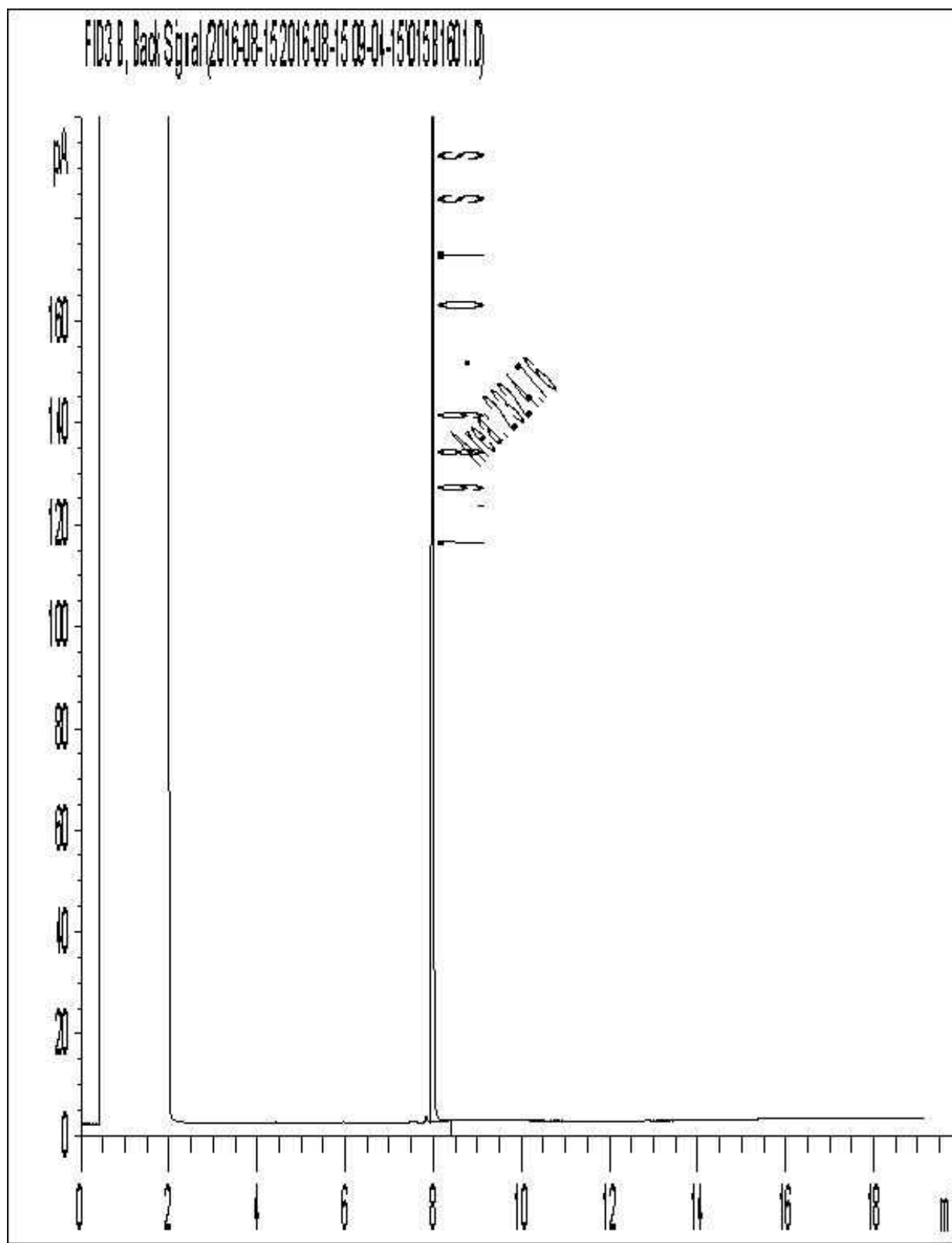
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



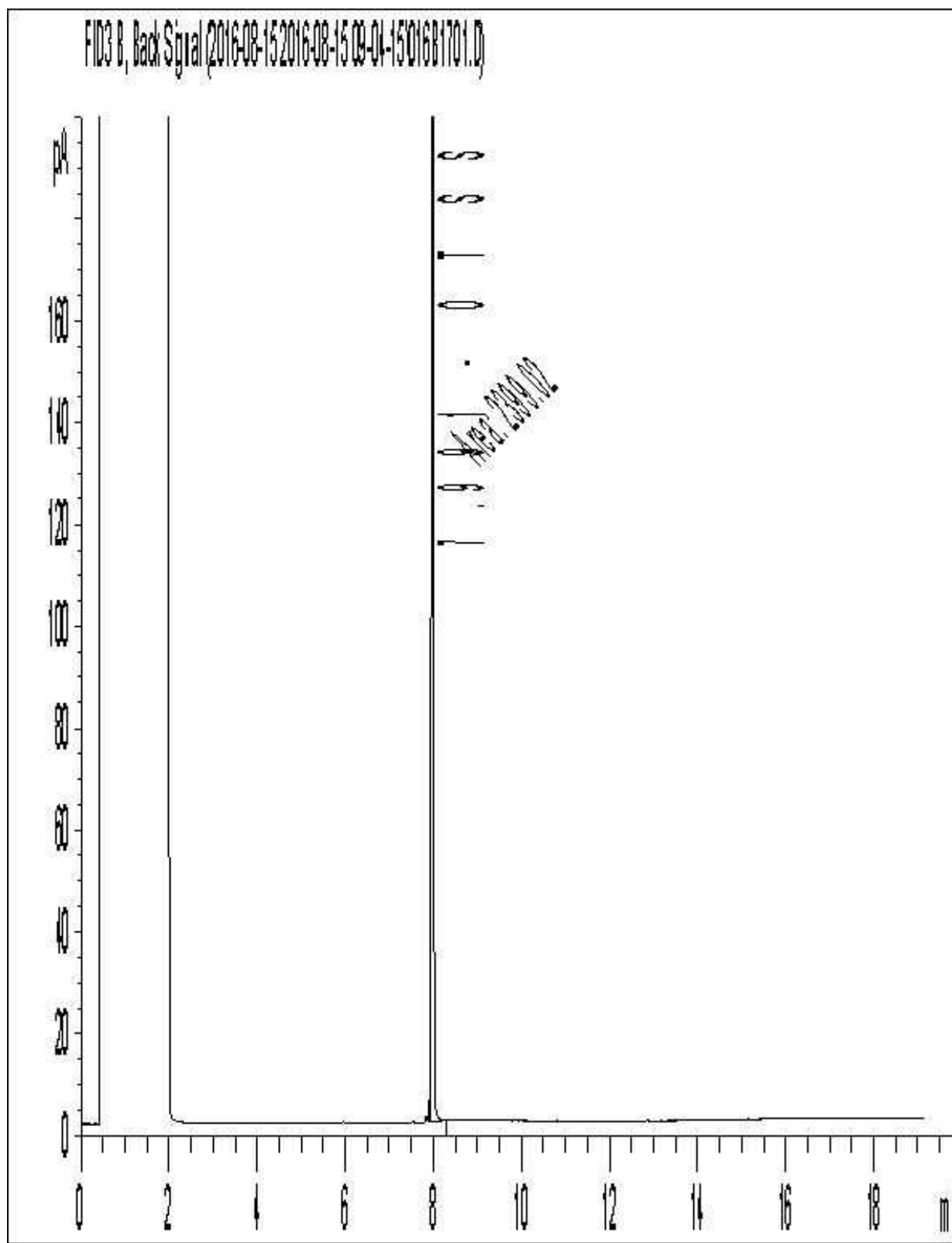
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your P.O. #: 640275
Your Project #: 640275
Your C.O.C. #: 575557-01-01

Attention: Melanie Siewert

SNC-Lavalin Inc
Nepean
20 Colonnade Rd
Suite 110
Ottawa, ON
K2E 7M6

Report Date: 2016/09/06
Report #: R4155503
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6I5452

Received: 2016/08/30, 12:35

Sample Matrix: Water
Samples Received: 5

Analyses	Date		Laboratory Method	Reference
	Quantity	Extracted	Analyzed	
Petroleum Hydro. CCME F1 & BTEX in Water	4	N/A	2016/09/01 OTT SOP-00002	CCME CWS
Petroleum Hydro. CCME F1 & BTEX in Water	1	N/A	2016/09/02 OTT SOP-00002	CCME CWS
Petroleum Hydrocarbons F2-F4 in Water (1)	5	2016/08/31	2016/08/31 OTT SOP-00001	CCME Hydrocarbons

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Madison Bingley, Project Manager

Email: MBingley@maxxam.ca

Phone# (613)274-3549

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		CZE685	CZE686	CZE687	CZE688	CZE689		
Sampling Date		2016/08/30 09:15	2016/08/30 08:55	2016/08/30 08:30	2016/08/30 08:30	2016/08/30		
COC Number		575557-01-01	575557-01-01	575557-01-01	575557-01-01	575557-01-01		
	UNITS	MW1A	MW16-27	MW16-20	MW16-2020	FILED BLANK	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/L	0.50	<0.20	<0.20	<0.20	<0.20	0.20	4644179
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	4644179
Ethylbenzene	ug/L	2.1	<0.20	<0.20	<0.20	<0.20	0.20	4644179
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	4644179
p+m-Xylene	ug/L	0.51	<0.40	<0.40	<0.40	<0.40	0.40	4644179
Total Xylenes	ug/L	0.51	<0.40	<0.40	<0.40	<0.40	0.40	4644179
F1 (C6-C10)	ug/L	<25	<25	<25	<25	<25	25	4644179
F1 (C6-C10) - BTEX	ug/L	<25	<25	<25	<25	<25	25	4644179
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/L	420	<100	<100	<100	<100	100	4642416
F3 (C16-C34 Hydrocarbons)	ug/L	240	<200	<200	<200	<200	200	4642416
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	<200	<200	<200	200	4642416
Reached Baseline at C50	ug/L	Yes	Yes	Yes	Yes	Yes		4642416
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	100	97	98	101	99		4644179
4-Bromofluorobenzene	%	107	97	95	94	93		4644179
D10-Ethylbenzene	%	126	129	127	100	122		4644179
D4-1,2-Dichloroethane	%	102	104	102	100	102		4644179
o-Terphenyl	%	98	95	95	93	97		4642416
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								

TEST SUMMARY

Maxxam ID: CZE685
Sample ID: MW1A
Matrix: Water

Collected: 2016/08/30
Shipped:
Received: 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4644179	N/A	2016/09/02	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4642416	2016/08/31	2016/08/31	Liliana Gaburici

Maxxam ID: CZE685 Dup
Sample ID: MW1A
Matrix: Water

Collected: 2016/08/30
Shipped:
Received: 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4644179	N/A	2016/09/02	Steve Roberts

Maxxam ID: CZE686
Sample ID: MW16-27
Matrix: Water

Collected: 2016/08/30
Shipped:
Received: 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4644179	N/A	2016/09/01	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4642416	2016/08/31	2016/08/31	Liliana Gaburici

Maxxam ID: CZE687
Sample ID: MW16-20
Matrix: Water

Collected: 2016/08/30
Shipped:
Received: 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4644179	N/A	2016/09/01	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4642416	2016/08/31	2016/08/31	Liliana Gaburici

Maxxam ID: CZE688
Sample ID: MW16-2020
Matrix: Water

Collected: 2016/08/30
Shipped:
Received: 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4644179	N/A	2016/09/01	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4642416	2016/08/31	2016/08/31	Liliana Gaburici

Maxxam ID: CZE689
Sample ID: FILED BLANK
Matrix: Water

Collected: 2016/08/30
Shipped:
Received: 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	4644179	N/A	2016/09/01	Steve Roberts
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	4642416	2016/08/31	2016/08/31	Liliana Gaburici

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	13.7°C
-----------	--------

Results relate only to the items tested.

QUALITY ASSURANCE REPORT

SNC-Lavalin Inc
Client Project #: 640275
Your P.O. #: 640275
Sampler Initials: CR

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
4642416	o-Terphenyl	2016/08/31	127	30 - 130	104	30 - 130	98	%		
4644179	1,4-Difluorobenzene	2016/09/01	96	70 - 130	95	70 - 130	99	%		
4644179	4-Bromofluorobenzene	2016/09/01	99	70 - 130	97	70 - 130	98	%		
4644179	D10-Ethylbenzene	2016/09/01	118	70 - 130	115	70 - 130	117	%		
4644179	D4-1,2-Dichloroethane	2016/09/01	101	70 - 130	100	70 - 130	102	%		
4642416	F2 (C10-C16 Hydrocarbons)	2016/08/31	89	50 - 130	90	80 - 120	<100	ug/L	NC	50
4642416	F3 (C16-C34 Hydrocarbons)	2016/08/31	89	50 - 130	90	80 - 120	<200	ug/L	NC	50
4642416	F4 (C34-C50 Hydrocarbons)	2016/08/31	89	50 - 130	90	80 - 120	<200	ug/L	NC	50
4644179	Benzene	2016/09/02	97	70 - 130	100	70 - 130	<0.20	ug/L	NC	40
4644179	Ethylbenzene	2016/09/02	102	70 - 130	106	70 - 130	<0.20	ug/L	2.4	40
4644179	F1 (C6-C10) - BTEX	2016/09/02					<25	ug/L	NC	40
4644179	F1 (C6-C10)	2016/09/02	99	70 - 130	100	70 - 130	<25	ug/L	NC	40
4644179	o-Xylene	2016/09/02	101	70 - 130	102	70 - 130	<0.20	ug/L	NC	40
4644179	p+m-Xylene	2016/09/02	92	70 - 130	95	70 - 130	<0.40	ug/L	NC	40
4644179	Toluene	2016/09/02	94	70 - 130	99	70 - 130	<0.20	ug/L	NC	40
4644179	Total Xylenes	2016/09/02					<0.40	ug/L	NC	40

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

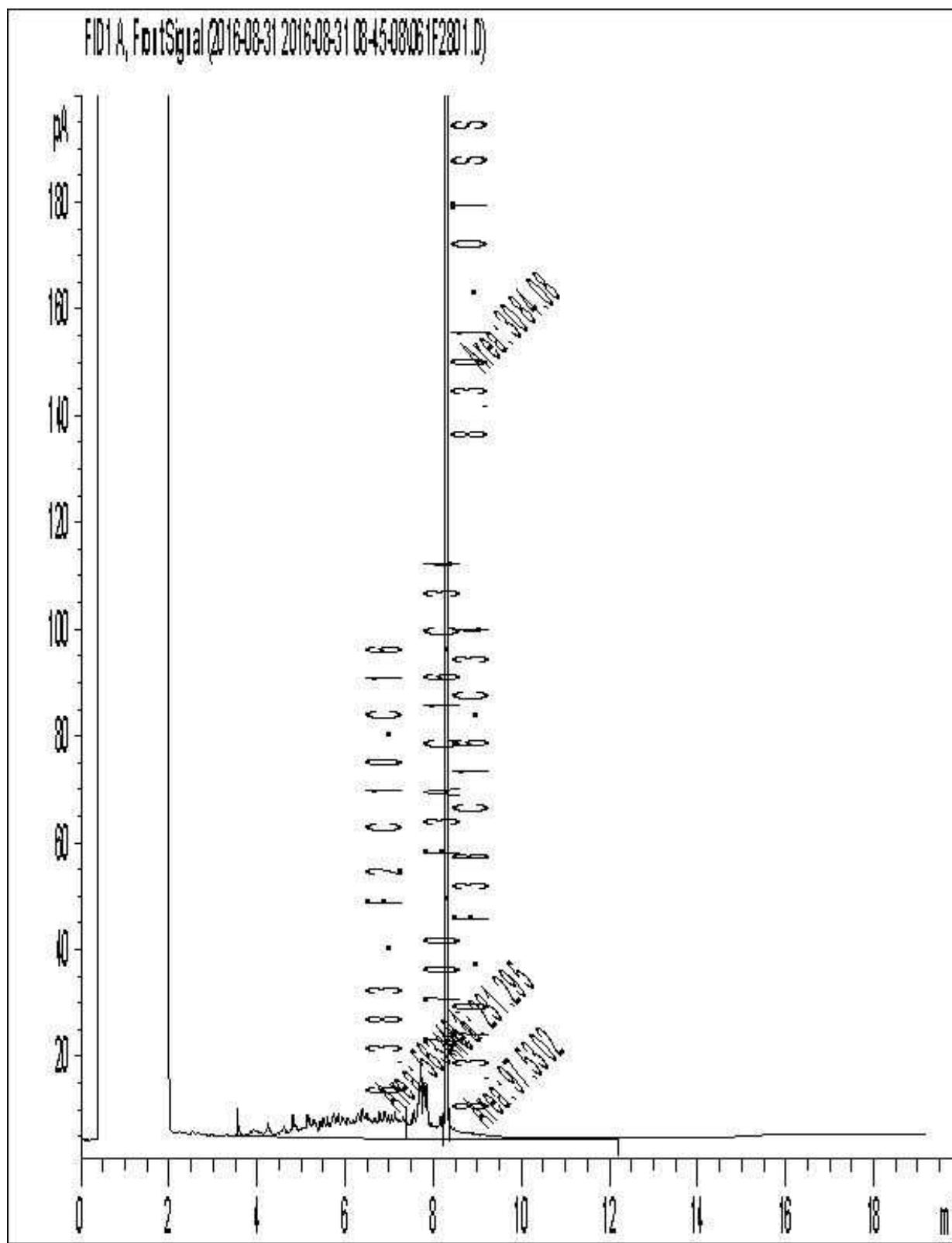


Paul Rubinato, Analyst, Maxxam Analytics

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

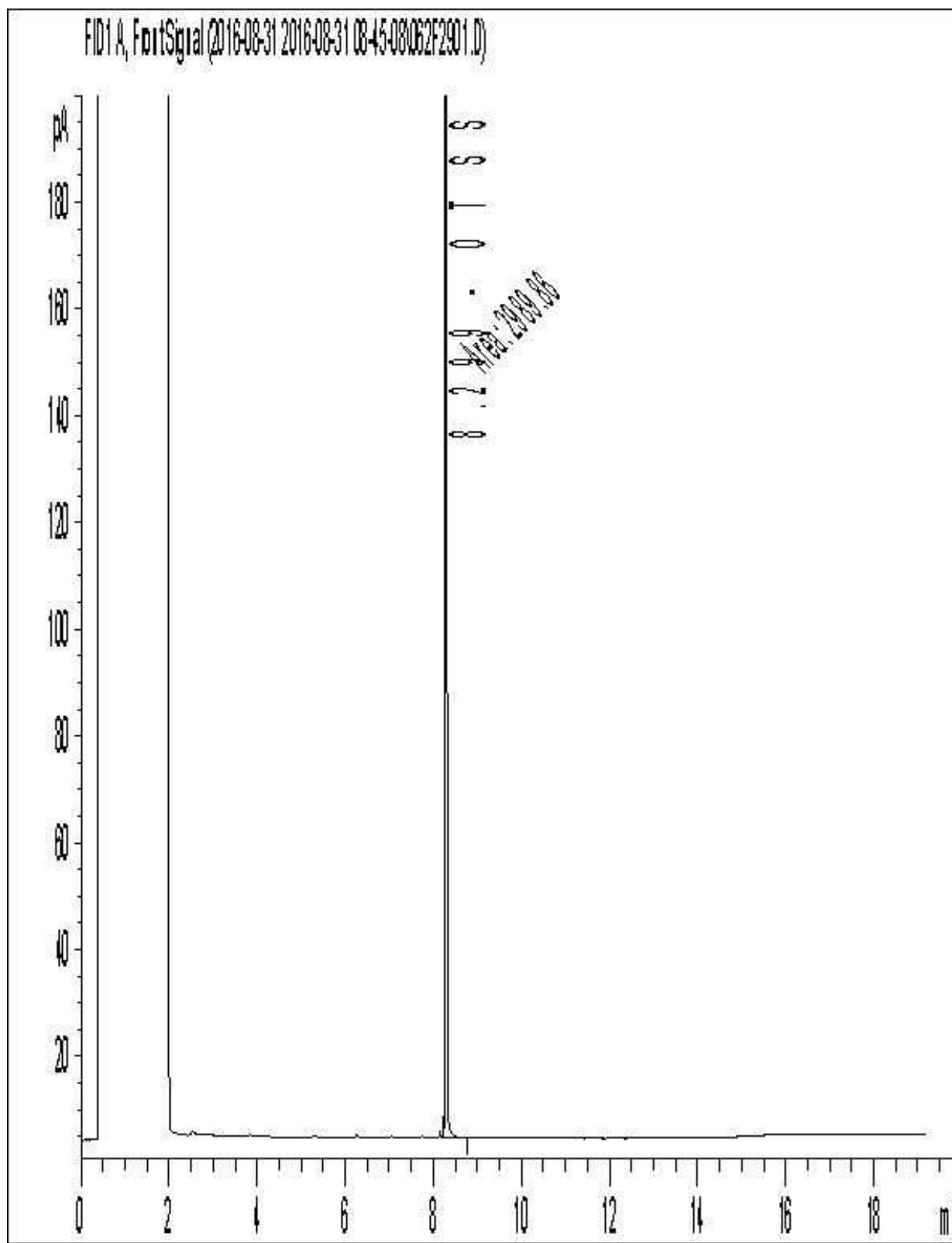
INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:							
Company Name: #2033 SNC-Lavalin Inc		Company Name: #18603 SNC-Lavalin Inc		Quotation #: B63173		Maxxam Job #:							
Attention: Accounts Payable		Attention: Melanie Siewert		P.O. #: 640275		Bottle Order #:							
Address: 455 René-Lévesque Blvd. West		Address: 20 Colonnade Rd Suite 110		Project: 640275		575557							
Montreal QC H2Z 1Z3		Ottawa ON K2E 7M6		Project Name:		COC #:							
Tel: (514) 393-1000 x Fax: (514) 866-0795 x		Tel: () - x221 Fax:		Site #:		Project Manager:							
Email: payables@snclavalin.com		Email: melanie.siewert@snclavalin.com		Sampled By:		Madison Bingley							
						C#575557-01-01							
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY				ANALYSIS REQUESTED (PLEASE BE SPECIFIC)				Turnaround Time (TAT) Required: Please provide advance notice for rush projects					
Regulation 153 (2011)		Other Regulations		Special Instructions		Field Filtered (please circle): Metals / Hg / Cr-VI CCME Petroleum Hydrocarbons (F- F-4/8/TEX)		Regular (Standard) TAT: (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.					
<input type="checkbox"/> Table 1 <input type="checkbox"/> Res/Park <input type="checkbox"/> Medium/Fine <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse <input type="checkbox"/> Table 3 <input type="checkbox"/> Agr/Other <input type="checkbox"/> For RSC <input type="checkbox"/> Table _____		<input checked="" type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> Reg 558 <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> MISA Municipality _____ <input type="checkbox"/> PWQO <input type="checkbox"/> Other _____		CCME 2016 OREG 153/04				Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____ Rush Confirmation Number: _____ (call lab for #)					
Include Criteria on Certificate of Analysis (Y/N)? _____													
	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix			# of Bottles	Comments				
1		MW1A	16/08/30	09:15	CW		X	4	SILTY; PROCEED WITH ANALYSIS				
2		MW16-27	16/08/30	08:55	CW		X	4	SILTY; PROCEED WITH ANALYSIS				
3		MW16-20	16/08/30	08:30	CW		X	4	u				
4		MW16-2020	16/08/30	08:30	CW		X	4	u				
5													
6													
7													
8													
9													
10													
* RELINQUISHED BY: (Signature/Print) CHRIS PALMER			Date: (YY/MM/DD) 16/08/30	Time 12:35	RECEIVED BY: (Signature/Print) Paul Wambo	Date: (YY/MM/DD) 26/08/30	Time 12:35	# jars used and not submitted	Laboratory Use Only				
								Time Sensitive	Temperature (°C) on Receipt 11, 15, 15	Custody Seal Present	Yes	No	
										Intact			
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.										SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM			White: Maxxam Yellow: Client

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



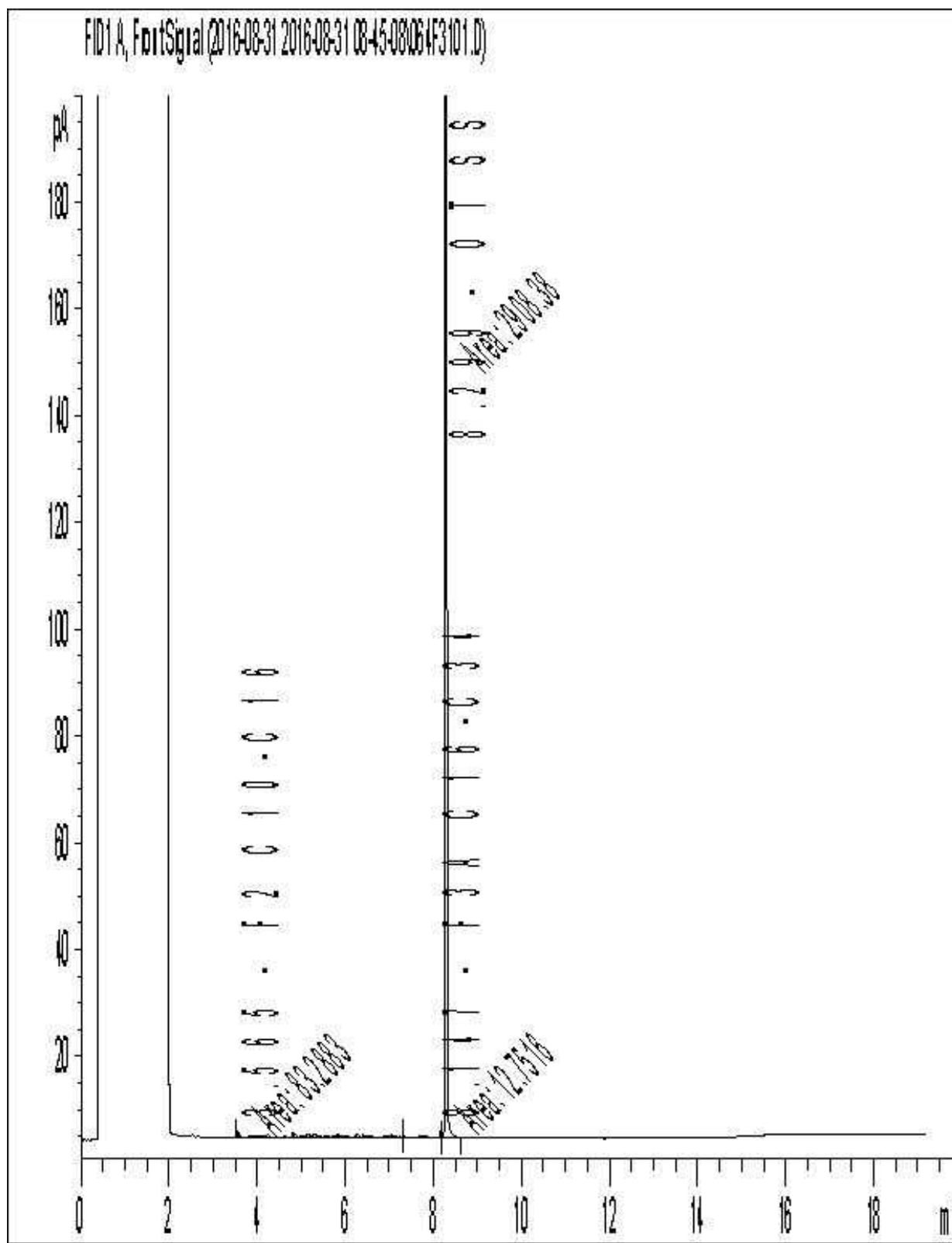
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



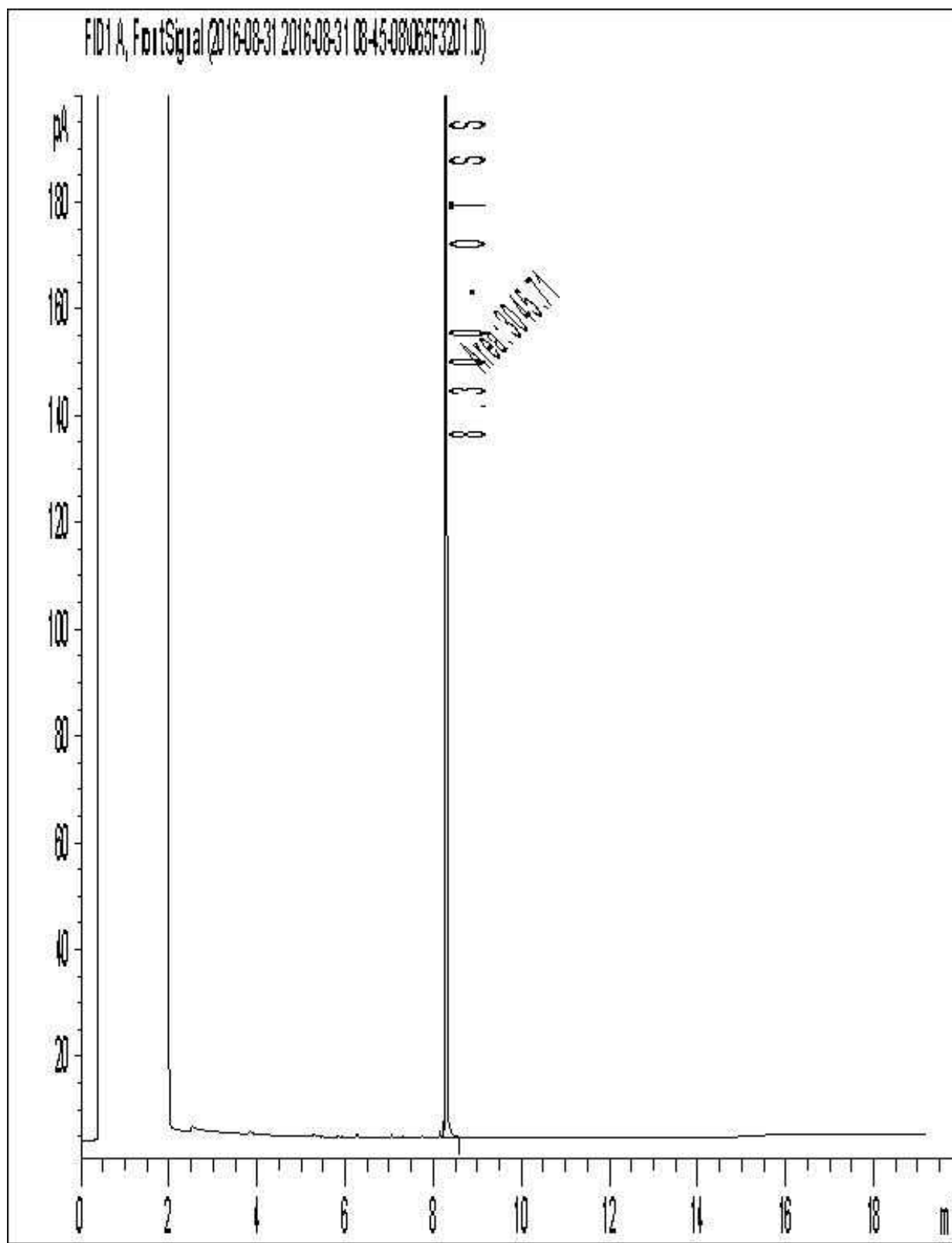
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Appendix H

Field Quality Assurance and Quality Control Samples

TABLE H.1: Soil RPD Calculations
16 Tauvette Street, Ottawa, ON

SNC-Lavalin Sample ID Laboratory Sample ID Sample Location Sampling Date (yyyy/mm/dd)			BH16-6 CXN732 BH16-6-6 2016/08/18	BH16-6 CXN656 BH16-6-66 2016/08/18 Duplicate of BH16-6-6	RPD	BH16-9 CXN647 BH16-9-4 2016/08/17	BH16-9 CXN648 BH16-9-99 2016/08/17 Duplicate of BH16-9-4	RPD	TP16-2 DLU079 TP16-2-5 2016/11/16	TP16-2 DLU081 TP16-2-55 2016/11/16 Duplicate of TP16-2-5	RPD
Parameter	RDL	Units									
Physical Parameters											
Moisture	0.2	%	37	33	11%	31	30	3%	17	16	6%
OM	-	ppm	260	260	*	1,760	1,760	*	-	-	-
Volatiles											
Benzene	0.0050	µg/g	1.5	1.4	7%	2.3	3.3	36%	< 0.0050	< 0.0050	*
Toluene	0.020	µg/g	0.11	0.13	17%	0.69	0.59	16%	< 0.020	< 0.020	*
Ethylbenzene	0.010	µg/g	5.1	6.5	24%	13	13	0%	< 0.010	< 0.010	*
Xylenes	0.040	µg/g	15	19	24%	52	53	2%	< 0.040	< 0.040	*
m+p-Xylenes	0.040	µg/g	15	18	18%	47	47	0%	< 0.040	< 0.040	*
o-Xylenes	0.020	µg/g	0.17	0.21	21%	5.0	5.6	11%	< 0.020	< 0.020	*
Petroleum Hydrocarbon (PHC) Fractions											
PHC F1	10	µg/g	270	320	17%	570	530	7%	< 10	< 10	*
PHC F2	10	µg/g	< 10	49	*	190	230	19%	< 10	< 10	*
PHC F3	50	µg/g	< 50	< 50	*	83	86	*	< 50	< 50	*
PHC F4	50	µg/g	< 50	< 50	*	< 50	< 50	*	< 50	< 50	*
PHC F4 (gravimetric)	100	µg/g	-	-	-	-	-	-	-	-	-

All terms defined within the body of SNC-Lavalin's report.
Laboratory analysis by Maxxam Analytics Inc., , ON
RDL - Reportable Detection Limit, unless otherwise noted
< - Denotes concentration less than indicated detection limit
"- " - Not analyzed
na - Not applicable
µg/g - micrograms per gram, dry weight basis
RPD - Relative Percent Difference (not calculated when one or both results are less than or equal to 5X RDL)
* - RPD not calculable

TABLE H.2: Groundwater RPD Calculations
16 Tauvette Street, Ottawa, ON

Sample Location Laboratory Sample ID SNC-Lavalin Sample ID Sampling Date (yyyy/mm/dd)			MW20 CVZ096 MW20 2016/08/09	MW20 CVZ114 MW-99 2016/08/09 Duplicate of MW20	RPD	MW16-20 CZE687 MW16-20 2016/08/30	MW16-20 CZE688 MW16-2020 2016/08/30 Duplicate of MW16-20	RPD
Parameter	RDL	Units						
<u>Volatiles</u>								
Benzene	0.20	µg/L	< 0.20	< 0.20	*	< 0.20	< 0.20	*
Toluene	0.20	µg/L	< 0.20	< 0.20	*	< 0.20	< 0.20	*
Ethylbenzene	0.20	µg/L	< 0.20	< 0.20	*	< 0.20	< 0.20	*
Xylenes	0.40	µg/L	< 0.40	< 0.40	*	< 0.40	< 0.40	*
m+p-Xylenes	0.40	µg/L	< 0.40	< 0.40	*	< 0.40	< 0.40	*
o-Xylenes	0.20	µg/L	< 0.20	< 0.20	*	< 0.20	< 0.20	*
<u>Petroleum Hydrocarbon (PHC) Fractions</u>								
PHC F1	25	µg/L	< 25	< 25	*	< 25	< 25	*
PHC F2	100	µg/L	< 100	< 100	*	< 100	< 100	*
PHC F3	200	µg/L	< 200	< 200	*	< 200	< 200	*
PHC F4	200	µg/L	< 200	< 200	*	< 200	< 200	*

All terms defined within the body of SNC-Lavalin's report.

Laboratory analysis by Maxxam Analytics Inc., ON

RDL - Reportable Detection Limit, unless otherwise noted

< - Denotes concentration less than indicated detection limit

"-" - Not analyzed

na - Not applicable

µg/L – micrograms per litre

RPD - Relative Percent Difference (not calculated when one or both results are less than or equal to 5X RDL)

* - RPD not calculable

TABLE H.3: Groundwater Analytical Results Blank QA/QC
16 Tauvette Street, Ottawa, ON

Sample Location Laboratory Sample ID SNC-Lavalin Sample ID Sampling Date (yyyy/mm/dd)			Field Blank CVZ115 Field Blank 2016/08/09	Field Blank CZE689 Field Blank 2016/08/30
Parameter	RDL	Units		
<u>Volatiles</u>				
Benzene	0.20	µg/L	< 0.20	< 0.20
Toluene	0.20	µg/L	< 0.20	< 0.20
Ethylbenzene	0.20	µg/L	< 0.20	< 0.20
Xylenes	0.40	µg/L	< 0.40	< 0.40
m+p-Xylenes	0.40	µg/L	< 0.40	< 0.40
o-Xylenes	0.20	µg/L	< 0.20	< 0.20
<u>Petroleum Hydrocarbon (PHC) Fractions</u>				
PHC F1	25	µg/L	< 25	< 25
PHC F2	100	µg/L	< 100	< 100
PHC F3	200	µg/L	< 200	< 200
PHC F4	200	µg/L	< 200	< 200

All terms defined within the body of SNC-Lavalin's report.

Laboratory analysis by Maxxam Analytics Inc., ON

RDL - Reportable Detection Limit, unless otherwise noted

< - Denotes concentration less than indicated detection limit

"-" - Not analyzed

na - Not applicable

µg/L – micrograms per litre



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