Transport Canada / Transports Canada

Environmental Affairs, Programs
P.O. Box 8550
3rd Floor, 344 Edmonton Street
Winnipeg, Manitoba
R3C 0P6

Your file Votre reference

1BR-LTU1419

Our file Notre reference
7184-90-45

December 31, 2014

Ms Phyllis Beaulieu
Nunavut Water Board
P.O. Box 119
Gjoa Haven, Nunavut X0B 1J0

RE: Cancellation Application for Iqaluit Landfarm Water License # 1BR-LTU1419

Dear Ms Beaulieu,

Please find enclosed the cancellation application for the above water license. As you are aware, the Government of Nunavut (GN) removed the landfarms associated with the above water license in July 2014 without the knowledge or consent of Transport Canada (TC). TC; therefore, proceeded to complete a Phase I, II, III environmental investigation and remediation of the site.

It was determined that 405 m^3 of contaminated soil remained on site after the GN removed the landfarms. TC completed the remediation of the contaminated soil and delivered it to a licensed facility in Iqaluit for treatment. TC was able to confirm that all of the contaminated soil was removed. TC was fortunate to have the Enforcement Officer (Andrew Keim) from Aboriginal Affairs and Northern Development Canada (AANDC) on site while the remediation and confirmatory sampling was completed.

The attached application includes the following documents:

1) NWB cancellation application
2) Franz Environmental Phase I Report, 2014
3) Nunatta Environmental Remediation Phase II, III Report, 2014

The reports include a detailed description of the site, location of the contaminated soil, photographs, drawings and the laboratory results.

Should you have any questions or would like to discuss the application in more detail, please contact me by phone at 204.984.0440 or by e-mail at michael.molinski@tc.gc.ca.

Regards,

Mike Molinski
Environment Officer
Environmental Services, Programs
Prairie and Northern Region

Application for Water Licence Cancellation

Document Date: April 2013

Application Submission Date: December 31, 2014
Month/Day/Year

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OFFICE DES EAUX DU NUNAVUT

DOCUMENT MANAGEMENT

Original Document Date: April 2010

DOCUMENT AMENDMENTS

	Description	Date
(1)	Updated for public distribution as separate document from NWB Guide 7	June 2010
(2)	Updated NWB logos and reformatted table to allow rows to break across page	May 2011
(3)	New NWB logo and change to Block 9	April 2013
(4)		
(5)		
(6)		
(7)		
(8)		
(9)		
(10)		

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NUNAVUT WATER BOARD
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APPLICATION FOR WATER LICENCE CANCELLATION

1. LICENCE NO: 1BR LTU-1419	**2. EXPIRY DATE: June 11, 2019**
3. NAME AND MAILING ADDRESS OF LICENSEE Transport Canada 3-344 Edmonton St Winnipeg, MB R3X2C6 • Phone: 204. 984-0440 Fax: 204.983.5048 e-mail: michael.molinski@tc.gc.ca	**4. ADDRESS OF CORPORATE OFFICE IN CANADA** (if applicable) Phone: _____ Fax: _____ e-mail: _____

5. DECLARATION:

I, ___ Mike Molinski_____ on behalf of

_____Transport Canada___

hereby make application to cancel the above-noted water use licence effective

____March 1, 2015_____ (insert proposed date of cancellation)

Date of most recent water licence inspection: October 17, 2014 (Andrew Keim – AANDC)
(attach copy of inspection report, if available) Reports included, see Section 8 below.

Signature of Licensee: _____

Date: DECEMBER 31, 2014

6. CANCELLATION FEE:

Application fee of $30.00 CDN (payable to the Receiver General for Canada)

7. REASON – Provide written reason for cancellation request:

The Iqaluit airport has assumed the responsibility of the contaminated soil that Transport Canada (TC) was remediating under the water license 1BR-LTU-1419. TC has removed the remaining contaminated soil associated with the landfarms under the terms of the water license. The three (3) landfarms that were on site were removed by the Iqaluit airport (Government of Nunavut) in July 2014, without prior approval or knowledge from TC. TC removed residual contaminated soil that remained on site and completed confirmatory sampling indicating no contaminated soil from the landfarms were present. The remediation and confirmatory sampling were completed while the Aboriginal Affairs and Northern Development Canada (AANDC) Enforcement Officer (Andrew Keim) was on site on October 17, 2014. Confirmatory reporting is included in this application in the form of 2 reports that includes a Phase I/II Environmental Site Assessment (ESA) and the Phase III remediation of the site.

8. ABANDONMENT MEASURES

The following measures have been taken to address the final abandonment conditions required by the licence: (explain, with drawings, how abandonment conditions of the licence have been met; how stream channels have been rehabilitated; how tailings have been recontoured; how instream structures have been removed; and how waste materials have been disposed of. Enclose pictures if available.

TC completed a Phase I, II and III ESA due to the Iqaluit Airport assuming responsibility for the contaminated soil that TC was remediating (approx 6000m3). TC completed the investigation to identify the volume and location of the contaminated soil remaining and removed residual contaminated soil associated with the landfarm water license. The volume of soil removed was 405m3 of petroleum hydrocarbon (PHC) contaminated soil that was trucked off site and disposed of at the Nunatta Environmental LTD. commercial facility in Iqaluit for treatment. The site was contoured to match the surrounding topography that is located airside adjacent to the Apron at the Iqaluit Airport. The site is currently under construction for the airport improvement project that will require this location to be redeveloped and graded for the construction of a new taxiway.

Confirmatory sampling was completed once it was evident no contaminated soil remained on site. The AANDC Enforcement Officer (Andrew Keim) was on site to witness the excavation and sampling. The lab results indicate no contaminated soil remained on site associated with the water license landfarm facility. No waterways, stream channels or drainage ditches were impacted as a result of the works described.

Photos, site location, maps, drawings, lab results and the detailed discussion are included in the attached two reports:

1) Franz Environmental, Land Treatment Area Investigation, November 10, 2014
2) Nunatta Environmental, Environmental Investigation and Remediation, November 3, 2014

9. CERTIFICATE OF COMPLETION: Application for Licence Cancellation must be accompanied by either of the following:

☐ **AANDC will provide - Application for Certificate of Completion enclosed; or
☐ Certificate of Closure enclosed.

The applicant is advised to consult with Aboriginal Affairs and Northern Development Canada regarding provision of the requested certificate.

****Note:** TC consulted with the AANDC Enforcement Officer (Andrew Keim) by phone on November 25, 2014 to ensure the appropriate material and details are enclosed within this application. NWB was also consulted on November 25, 2014 for direction regarding the Certificate of Completion via e-mail.

Final Report

Nunatta Environmental Services Inc.

P.O Box 267
Iqaluit, NU, X0A 0H0
(867) 979-1488
nunatta@northwestel.net

Phase 11 & Phase 111
Environmental Investigation and Remediation
Iqaluit Airport
Iqaluit, Nunavut

Prepared for:
Ms Anita Gudmundson
Superintendent Contaminated Sites
& Elaine Ford
Transport Canada
Technical and Environmental Services
344 Edmonton St.
Winnipeg, MB
R3C 0P6

Prepared by:
Nunatta Environmental Services Inc.
P.O Box 267
Iqaluit, Nunavut, X0A 0H0

November 3, 2014

EXECUTIVE SUMMARY

On July 30, 2014 Mr. Steve Murray, from Transport Canada, contacted Nunatta Environmental Services Inc. in Iqaluit. Mr Murray called to enquire about getting some sampling done at a three cell LTU located on the Iqaluit Airport property.The sampling was required by The Nunavut Water Board to facillitate the decommissioning of the cells. A number of soil samples were required from the soil in each cell. Samples were also required under the liners in cases where the liners had been damaged or removed. Water samples were required in each monitoring well, sump areas and samples from areas of standing water. A site inspection in Auguest 2014 revealed the 3 landfarms had been completely removed and the contaminated soil within the facility had been used for fill material for the Airport expansion project in July 2014.

The sampling results indicated contaminated soil still exists at this location, specifically Ethylbenzene,Xylenes, and and Naphthalene in the soil. One water sample was also obtained that indicated it was also contaminated. Transport Canada contracted Nunatta Environmental and its Sub- Contractor Franz Environmental in September 2014 to complete a Phase Two Environmental Site Assessment(ESA) to determine the location and volume of contaimented soil that exist at the Iqaluit Airport Landfarm.The Environmental Investigation identified two areas of concern. One location contains(estimated) approximately 300 cubic meters of petroleum hydrocarbon(PHC) impacted soil.The second location is estimated to contain 900 cubic meters of PHC impacted soil.(See Environmental Investigation Phase Two Report attached)

The scope of work for the remediation part of this Project only addresses the area containing 300 cubic meters of soil. On October 16, 2014 Nunatta and a Subcontractor, Nunavut Excavating, with three 15 cubic meter Dump Trucks and a large heavy duty Excavator removed 20 truck loads at 15 cubic meters per load(300 cubic meters) of Hydrocarbon Impacted soil from the Iqaluit Airport LTU area. The contaminated soils were hauled to Nunatta's Landfarm for future remediation.

Andrew Keim from AANDC, Inspector for the Nunavut Water Board, was present to witness the Excavation. After the soil had been removed an inspection revealed there was more contamination at this site. The impacted area was deeper than the original estimated in the area where the liner had been damaged and affected area was longer than the estimate.

John Hawkings, Manager of the Iqaluit Airport, arrived at the site. John requested we continued to remove the remaining contaminated soils. John said he would get a Purchase Order for Nunatta to continue excavating the remaining impacted soil. Nunatta's Project Manager, James H. Wilson, said he would have to get permission from Transport Canada prior to starting this work. Jim contacted Anita Gudmundson at Transport Canada. Approximately 2 hours later Transport Canada called back and

granted permission. Nunatta using the Excavator and 3 Dump trucks on site removed another 105 cubic meters of PHC impacted soil.

Andrew Kiem, Inspector for the Nunavut Water Board, requested we take a number of samples to ensure the Berm Area is cleaned up. A total of 17 samples was collected for Laboratory testing. Andrew requested the samples be tested for all the parameters specified in Transport Canada's Maintenance Program for the LTU's. The cost of the Laboratory work was included in the Purchase Order issued by John Hawkins, Manager of the Iqaluit Airport. The results of the Laboratory testing is attached as a separate appendix.

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2.0 INTRODUCTION

The Iqaluit Airport is located adjacent to the City of Iqaluit in the Qikiqtani Region of Nunavut. Transport Canada(TC) engaged a contractor to construct Land Treatment Units(LTU'S) to treat petroleum hydrocarbon(PHC) contaminated soil at the Iqaluit Airport as a result of historical and current activities associated with the airport. The LTUs were completed in the fall of 2006.Early in July 2014, soil from the LTUs was removed and used as fill for the construction of the new Airport. In August 2014 Transport Canada contracted Nunatta Environmental Services to complete a confirmatory sampling program to identify if any cotamination soil remained on site. The Laboratory results indicated contaminated soil still exists at this location specifically Ethylbenzene,Xylenes, and and Naphthalene in the soil. One water sample was also obtained that indicated it was also contaminated.

Transport Canada contracted Nunatta Environmental in September 2014 to complete a Phase Two Environmental Site Assessnent(ESA) to determine the location and volume of contaimented soil that exist at the Iqaluit Airport Landfarm.The Environmental Investigation identified two areas of concern. One location contains(estimated) approximately 300 cubic meters of petroleum hydrocarbon(PHC) impacted soil.The second location is estimated to contain 900 cubic meters of PHC impacted soil.(See Environmental Investigation Phase Two Report attached)

Tranport Canada decided to remove up to 300 cubic meters of PHC impacted soil from pre-determined locations identified in the Phase 11 ESA. The scope of work for this Project only addresses the area containing 300 cubic meters of impacted soil. On October 16, 2014 Nunatta and a Subcontractor Nunavut Excavating with three 15 cubic meter Dump Trucks and and large heavy duty Excavator removed 20 truck loads at 15 cubic meters per load(300 cubic meters) of Hydrocarbon Impacted soil from the Iqaluit Airport LTU area. The contaminated soils were hauled to Nunatta's Landfarm facility for future remediation.

The Inspector from the Nunavut Water Board, Andrew Kiem,was present to witness the excavation. After the soil had been removed Nunatta's Project Manager, Jim Wilson and Andrew did a thorough inspection of the site.The inspection revealed there was more contamination at this site. The impacted area was deeper than the original estimated in the area where the liner had been damaged and affected area was longer than the estimate.

John Hawkins, Manager of the Iqaluit Airport, arrived at the site. John requested we continued to remove the remaining contaminated soils. John said he would get a Purchase Order for Nunatta to continue excavating the remaining impacted soil. Nunatta's Project Manager, Jim H Wilson, said he would have to get permission from Transport Canada prior to starting this work. Jim contacted Anita Gudmundson at Transport Canada. Approximately 2 hours later Transport Canada called back and

granted permission. Nunatta using the Excavator and 3 Dump trucks on site removed another 105 cubic meters of PHC impacted soil.

Andrew Kiem, Inspector for the Nunavut Water Board, requested we take a number of samples to ensure the LTU site is cleaned up. A total of 17 samples was collected for Laboratory testing. Andrew requested the samples be tested for all the parameters specified in Transport Canada's Maintenance Program for the LTU's. The cost of the Laboratory work was included in the Purchase Order issued by John Hawkins. The results of the Laboratory testing is attached as a separate appendix. (See Airport Final Results)

On Oct 17, 2014 Jim Wilson and Andrew Kiem returned to the Airport LTU site. Stakes were installed at all the sample locations. Using a GPS way points were establised at each sample location. A map showing the sample locations is attached in the appendixes.

3.0 Background

The airport has been in operation since it was originally founded as Frobisher Bay Air base in 1942.The base was closed in 1963 and converted into a civilian airport.TC transferred the Iqaluit Airport to the Government of Northwest Territories(GNWT) in 1995, which has now been transferred to the Government of Nunavut(GN) Airports Division of the Department of Economic Development and Transportation. As a condition of the Arctic "A" transfer agreement of July 1995 between GNWT and TC, the environmental issues that existed prior to the airport transfer must be remediated.

Three (3) Landfarms (90mx40m, 90x10 and 50mx50m) with an oil resistant reinforced polyethylene liner was constructed on site to contain the contaiminated soil. Monitoring wells were installed down gradient of the Landfarm to facilitate future monitoring of these sites.
In July 2014 the 3 Landfarms and contaminated soil within the facility was removed and the impacted soil was used as fill material for the Airport expansion project.
Nunatta Environmental Services, in Iqaluit was contracted to complete a confirmatory sampling program to identify if any contaminated soil remained on site. Laboratory results indicated there was still substantial contaminates on the LTU site.
Transport Canada based on the results of the confirmatory sampling decided to procede with a Phase2 ESA to determine the location and volume of impacted soil. It was further decided to remove up to 300 cubic meters of contaimented soil.

Inspection of the LTU area revealed there was more contaimenated soil on site. John hawkins, Airport Manager authorized a PO to continue removing the remaining impacted soils. A total of 17 confirmatory samples were taken and analysed for all the parameters stated in Transport Canada's Maintenance LTU Program. The results indicated the subject LTU area has been sucessfully remediated.

4.0 REGULATORY GUIDELINES

The *Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil* (CCME, 2008a) presents criteria for petroleum hydrocarbons in soil. These numerical standards are based on the assessment and consistent management of risks posed to humans, plants, animals and environmental processes under four common land uses (agricultural, residential/parkland, commercial and industrial). Under Tier 1 of the CWS, specific numerical levels are presented for the four land uses, two soil textures (coarse and fine) and the four defined petroleum hydrocarbon fractions (F1 (nC6-nC10); F2 (nC10-nC16); F3 (nC16-nC34); F4 (nC34+)).

The standards or guidelines adopted for this evaluation are as follows:

- *Environmental Guideline for Contaminated Site Remediation March 2009 (Revised)* (Government of Nunavut) **and** *Canadian Environmental Quality Guidelines* (CCME, 2007)) for residential/parkland land use ***and*** *Canada-Wide Standards for Petroleum Hydrocarbons (CWS - PHC) in Soil* (CCME, 2008a) - Tier 1 residential land use, coarse-grained soil, non-potable water.

Table 4.1 Canadian Wide Standards

Land Use	Soil Texture	Fraction 1	Fraction 2	Fraction 3	Fraction 4
Agriculture	Coarse-grained soil	30b	150	300	2800
Residential / Parkland	Coarse-grained soil	30b	150	300	2800
	grained soil				
Commercial	Coarse-grained soil	320 (240a)	260	1700	3300
Industrial	Coarse-grained soil	320 (170a)	260	1700	3300

5.0 Investigation Methology(For the Phase 11 Environmental Investigation)

5.1 Intrusive Field Investigation and Sampling

The proposed field program will involve excavating test pits with a mechanical excavator. Up to 20 test pits will be excavated to assess for the presence or absence of contamination and to provide an assessment of the horizontal and vertical extent of any contamination in the soil in the LTU area.

Test pitting will be completed using a backhoe owned and operated by a local contractor. It is planned that up to three soil samples will be collected from each test pit from the backhoe bucket: one representing the upper 1.5 m (surface soil), one from below 1.5 m (subsurface soil) and one from a depth expected to be clean to provide vertical delineation (one sample will be placed on hold depending on the olfactory and visual observations).

Soil descriptions including approximate grain size, colour, moisture content, stratigraphy, and nature and extent of apparent contamination will be recorded by the field technician.

Nunatta and FRANZ will conduct jar headspace analysis using a combustible gas detector with methane elimination (e.g., Gastechtor) to detect petroleum hydrocarbon vapours. Immediately after retrieval, samples will be placed into the jars for headspace analysis and also into laboratory bottles. This will allow for submission of the selected samples for detailed chemical analysis.

In general, only the contaminants of concern will be tested for, unless there is reason to suspect that other contaminants might be present. Contaminant analysis programs will be site specific. The chemical parameters for this project include:

- Petroleum hydrocarbon fractions F1-F4 [for all samples]
- Benzene, toluene, ethylbenzene and xylenes [for all samples]
- Polycyclic aromatic hydrocarbons [one sample per test pit]
- Metals [one sample per test pit]

Nunatta and FRANZ realize that groundwater or melt water may be present in some of the test pits. Two infiltration water samples are included in the work plan. The purpose of infiltration water sampling is to obtain information that can be used to determine the presence and possible extent of groundwater impacts and determine the potential for trans-boundary migration of contaminants. Water samples will be collected from pooled water in test pits. Sampling in such a manner may result in false negatives or non-detection of potential contaminants of concern in groundwater. Since there is a chance groundwater may not be present and the installation of wells may not be required (depending on the nature and location of soil impacts with respect to

the water table / active layer), the risk of false negatives is considered to be acceptable provided the sample results are not being used for regulatory purposes.

Laboratory Analysis

All chemical analysis will be completed by Maxxam Analytical Services (Maxxam) in Ottawa, Ontario or Mississauga, Ontario. Maxxam is certified by the Canadian Association for Laboratory Accreditation Inc. (CALA). The proposed laboratory program will include verification that the selected analytical methods will have minimum detection limits which are less than the applicable environmental quality criteria or standard on which the numerical comparison will be based.

Quality Assurance/Quality Control and Chemical Analyses

The field QA/QC program will consist of the following elements:

- Proper documentation of all aspects of the sampling program, which could potentially cause sampling bias. The documentation will include daily field summary sheets, separate filing of field notes, chain-of-custody forms and memos written when any major deviation from ideal protocol occurs (e.g., an ice-pack melts, a bottle is broken, etc.).
- Decontamination of sampling equipment in soil. All re-usable soil sampling apparatus such as hand augers will be successively washed with tri-sodium phosphate (TSP), rinsed with distilled water, rinsed with methanol and rinsed with distilled water.
- A minimum of 10% collected soil samples submitted to the laboratory will be blind field duplicates. These duplicates are in addition to any duplicates and replicates analyzed as part of the standard lab QA/QC procedures.
- Nunatta and FRANZ are aware of the sample holding time requirements. Samples will be delivered to the laboratory as soon as possible following the sampling, either directly by our personnel or by courier. Samples will be immediately transferred and stored in coolers with ice packs to hold the sample temperature at approximately 4 -10°C, as required by most laboratory protocols.

Site Survey

All sampling locations will be surveyed using a differential global positioning system. This will provide sufficient accuracy for any future excavation and disposal of impacts.

Data Analysis and Interpretation

Once the fieldwork is completed the data reduction and interpretation will begin.Stratigraphy will be analyzed to develop geological and hydrogeological models of the site. Soil properties and the results from the laboratory analysis will be used to evaluate the horizontal and vertical contamination of the site.

Field measurements, together with the results of the chemical analyses, will be used to characterize the soil conditions through comparison to background levels and applicable

standards. The volume of contaminated soil and groundwater (as applicable) on the airport property will be calculated where sufficient information exists; the likelihood of offsite contamination will also be evaluated.

An assessment of the site remediation and/or risk management requirements will be made in the context of the existing regulations and guidelines currently in force for both Nunavut and the Government of Canada (through the Contaminated Sites Management 10-step process).Impacted media will be delineated to develop volume estimates of contaminated media exceeding applicable guidelines and standards.

Reporting

A preliminary field report will be provided to TC after the analytical results of the field program are received. This report will include figures, tables, and a brief discussion of the results in a short letter. Preparing drawings for the report on this schedule will be possible only if TC can provide base drawings in AutoCAD-compatible format of the LTF area before the field program.

After the preliminary field report is submitted, draft report on the investigation will be prepared. The report will clearly identify areas of actual contamination in the areas investigated and the basis for all findings. Applicable federal, provincial, local legislation and published guidelines used as a basis for findings or conclusions respecting the determination of contamination will be referenced. Nunatta and FRANZ will also indicate the relative degree of uncertainty associated with evidence of potential contamination.

Nunatta and FRANZ will submit two digital copies of the draft and three paper copies and three digital copies of the final report.

6.0 INVESTIGATION RESULTS
(see Phase 11 Environmental Report Sent Previously)

7.0 Quality Assurance and Quality Control

Field personnel ensured NUNATTA'S Assurance/Quality Control (QA/QC) protocols, including appropriate techniques for soil sampling, sample storage, shipping and handling, as well as collection of duplicates

Soil samples collected for laboratory analysis were placed in laboratory prepared 250 ml glass jars fitted with screw-tight Teflon-lined lids. Sample numbers were clearly marked on the containers. The soil jars were filled to capacity with minimum headspace and stored in coolers with cold packs to moderate temperature fluctuations during transport to the laboratory. To prevent cross contamination, samples were collected with fresh nitrile gloves.

The samples were transported to the project laboratory, Maxxam Labs in Ottawa, ON, accompanied by a Chain of Custody form.

7.1 Laboratory Analytical Program

Maxxam Laboratory Inc. of Ottawa, Ontario was selected to complete the analytical testing for this project. Maxxam is certified by the Canadian Association for Laboratory Accreditation Inc. (CALA), and follows strict internal quality assurance/quality control (QA/QC) protocols. Its quality control program includes replicate analysis, blank spikes, matrix spikes, instrument calibration, internal standards, method blanks, and internal QC checks.

The laboratory QA/QC documentation is provided with the analytical report and it was reviewed by NUNATTA as part of the QA/QC protocol (see Appendix A)

8.0 Discussion

Based on the results of the 17 samples collected on October 16, 2014 from the excavated area. The contamination has been removed. None of the samples collected, post excavation, exhibited any concentrations above the Canadian Wide Standards. The verification sampling indicates that the excavation and remedial work was successful in removing the contaminated soil.

9.0 Conclusion

Based on the Laboratory Analysis, the results of the 17 samples collected in the berm area proved the remediation was sucessful.Some test locations in Cell C and A also exhibited elevated levels of Hydrocarbon Impacted contamination. See Laboratory results in The Phase 11 Report. These cells were not remediated. The scope of work for this project was limited to the berm area. A total of 405 cubic meters of contaminated soil was removed and transported to Nunatta's Landfarm for future remediation.

10.0 LIMITATIONS

This report has been prepared exclusively for Transport Canada. Any other person or entity may not rely upon without the express written consent from Nunatta Environmental Inc. and Transport canada..

Any use, which a third party makes of this report, or any reliance on decisions made based on it, is the responsibility of such third parties. Nunatta Environmental Services Inc. accept no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this report.

Some of the information presented in this report was provided through existing documents. Nunatta Environmental Services, Inc. in certain instances, have been required to assume that the information provided is accurate.

The conclusion presented represents the best judgment of these circumstances of the assessors based on the site conditions observed during the period of August 8 and 9th.

Should additional information become available, Nunatta Environmental Services, Inc. request that this information be brought to our attention so that we may re-assess the conclusions presented herein.

There is no warranty, expressed or implied that the work reported has uncovered all potential environmental liabilities, nor does the report preclude the possibility of contamination outside the areas of investigation. The findings of this report were developed in a manner consistent with a level of care and skill normally exercised by members of the engineering profession currently practicing under similar conditions in the area.

A potential remains for the presence of unknown, unidentified, or unforeseen surface and sub-surface contamination. Any evidence of such potential site contamination would require appropriate surface and sub-surface exploration and testing. If new information is developed in future work (which may include excavations, borings, or other studies), Nunatta Environmental, Inc. should be requested to re-evaluate the conclusions of this report, and to provide amendments as required.

8.0 CLOSURE

We trust that this information is satisfactory for your requirements. Should you have any questions or require additional information, please do not hesitate to contact the undersigned.

Yours truly,

James H Wilson
General Manager &
VP of Operations
Nunatta Environmental Services

Axel D Have P Eng.
Chairperson
Nunatta Environmental Services

FRANZ ENVIRONMENTAL INC.
♦ CONSULTING ♦ ENGINEERING ♦ TECHNOLOGIES ♦

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NUNATTA ENVIRONMENTAL SERVICES INC.

November 26, 2014

Transport Canada
344 Edmonton Street
Winnipeg, Manitoba R3B 2L4

Attention: Michael Molinski

Dear Mr. Molinski:

Re: Report on Soil Investigation, Former Land Treatment Facility Area

Nunatta Environmental Services Inc. (Nunatta) and Franz Environmental (FRANZ), a division of Arcadis Franz Canada Inc., are pleased to provide this summary of the soil investigation program at the Land Treatment Unit area of the Iqaluit Airport in Iqaluit, Nunavut.

This report was prepared in response to discussions between Nunatta and Transport Canada, and on the Nunatta/FRANZ *Proposal for Intrusive Investigation of Land Treatment Units Area at the Iqaluit Airport* dated September 5, 2014.

BACKGROUND

The Iqaluit airport is owned and operated by the Government of Nunavut (GN). The airport was previously owned by the Government of the Northwest Territories and, before that, the Department of Transport (Transport Canada or "TC") in right of the Crown. The airport runway was constructed in 1943 by the United States military. The site was subsequently used as a Strategic Air Command Base and one of the stations of the Pole Vault communication systems.

Various activities causing environmental impacts took place at the airport. As a condition of the transfer of the property to the GNWT, TC undertook to remediate all environmental issues known at the time of the transfer, and any that were identified by the GNWT within six years of the transfer.

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Various areas of the site have been remediated since the 1990s. Remediation of soil impacted by petroleum hydrocarbons (PHCs) typically consisted of constructing land treatment units (LTUs) at the site. Construction of these LTUs involved placing contaminated soil on a polyethylene liner and installing monitoring wells downgradient of the treatment cell. By 2014, two LTU cells (A and D) had been decommissioned, and two cells (B and C) remained in place. Sampling and maintenance of the LTU cells has been conducted by Nunatta and others since that time. A site plan is presented on Figure 1.

In August, 2014, Nunatta prepared to collect samples from the LTU cells. During a site visit with TC on August 7, Nunatta discovered that the LTU cells, liners and associated monitoring wells had been removed. This removal was related to the Iqaluit International Airport Improvement project construction, then underway in the area.

Nunatta collected soil samples from the areas below the (removed) liners and side walls of the cells. Nunatta also collected one water sample was collected from a pool of standing water. Nunatta submitted the soil samples for PHCs, metals and polycyclic aromatic hydrocarbons (PAHs) analysis and identified exceedances of relevant federal standards (see below) for PHCs, ethylbenzene, xylenes, naphthalene and phenanthrene.

The preliminary nature of the August Nunatta investigation did not permit a calculation of the total area of impacted soil.

ENVIRONMENTAL QUALITY GUIDELINES

Analytical results were compared to the CCME Canadian Environmental Quality Guidelines, specifically the *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health* (CSQGs) and the *Canada-Wide Standards for Petroleum Hydrocarbons in Soil* (CWS-PHC). These guidelines are applied to most federal contaminated sites. The guidelines are numerical limits intended to maintain, improve or protect environmental quality and human health at contaminated sites. They are derived using toxicological data and aesthetic considerations.

The CSQGs (CCME, 1999) are a subset of the Canadian Environmental Quality Guidelines and are derived to approximate a no- to low-effect level (or threshold level) based only on scientific data, including toxicology, fate, and behaviour. The guidelines are based on direct contact, ingestion, and inhalation toxicity data as well as check mechanisms to ensure that the guidelines are protective of receptors exposed indirectly to contaminants. Fact sheets are provided for 32 compounds. In this report, the benzene, toluene, ethylbenzene and xylenes fact sheets were used as sources of guidelines.

The CWS-PHC (CCME, 2008a) presents standards for petroleum hydrocarbons in soil. These numerical standards are based on the assessment and consistent management of risks posed

to humans, plants, animals and environmental processes under four common land uses (agricultural, residential/parkland, commercial and industrial). Under Tier 1 of the CWS-PHC, specific numerical levels are presented for the four land uses, two soil textures (coarse and fine) and the four defined petroleum hydrocarbon fractions (F1 (nC_6-nC_{10}); F2 (nC_{10}-nC_{16}); F3 (nC_{16}-nC_{34}); F4 (nC_{34}+)) for various exposure pathways, including vapour inhalation, drinking water and eco soil contact.

The CWS-PHC also include the option to generate Tier 2 levels where site-specific information indicates that site conditions exist that modify human or ecological exposure to PHC contamination. Such conditions may alter risks significantly relative to the generic conditions used to derive Tier 1 levels. A third tier in the CWS-PHC involves developing site-specific cleanup levels and management options using general and site-specific information in conducting a risk assessment.

As a preliminary and conservative determination of protection of human health and the environment at the Site, Nunatta/FRANZ has applied Tier 1 levels to all analytical results. The appropriate levels are presented with the laboratory analytical data in tables. The rationale for the selection of the appropriate criteria is discussed below.

The standards or guidelines adopted for this evaluation are presented as follows:

- *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health* (CCME, 1999, with updates) for industrial land use, including fact sheets for benzene, toluene, ethylbenzene, and xylenes. Based on site-specific data, criteria for coarse-grained soils and non-potable groundwater were used.
- *Canada-Wide Standards for Petroleum Hydrocarbons (CWS-PHC) in Soil* (CCME, 2008a) - Tier 1 industrial land use, coarse-grained soil, non-potable ground water.

BTEX Compounds

For the benzene, toluene, ethylbenzene and xylenes (BTEX) compounds specifically, the CSQGs were used to determine the appropriate pathway-specific guidelines. For benzene, for example, the 2004 fact sheet was used, with the following assumptions:

- Industrial land use
- Coarse-grained soils
- 10^{-5} acceptable incremental cancer risk
- With applicable guidelines the most conservative of:
    - Soil dermal contact guideline
    - Soil ingestion guideline
    - Soil inhalation guideline
    - Inhalation of indoor air check (slab-on-grade)
    - Eco soil contact

The groundwater check (drinking water) pathway was excluded, as groundwater in Iqaluit is not used as a source of potable water. The groundwater check (aquatic life) pathway was similarly excluded, as the presence of permafrost and relatively short thaw season in Iqaluit would tend to limit migration, even given that the former LTU area is relatively close to Frobisher Bay.

FIELD PROGRAM

Based on the previous investigation, Nunatta/FRANZ designed a field program to delineate the extent of impacts in the former LTU area. The field program included the following components, described in further detail below:

- Develop a health and safety plan;
- Obtain utility clearances;
- Collect soil and (where required) ground water samples; and
- Conduct a site survey.

Develop Health and Safety Plan

Before commencing activities, Nunatta/FRANZ prepared a site-specific health and safety plan (HASP). The HASP identified and provided mitigative actions for potential physical and chemical hazards associated with the work involved in the site assessment. The HASP also contained a listing of emergency contact numbers and provided protocols to follow in the event of an emergency. A copy of the HASP has been retained on file by Nunatta/FRANZ.

Utility Clearances

Prior to any subsurface investigation (test pitting) the underground services were cleared with local utilities and the airport management. In the absence of a Call-Before-You-Dig service in Iqaluit, and the fact that the entire investigation was on airport property, Nunatta and FRANZ discussed site utilities with the City of Iqaluit and the manager of the airport. According to both the City and the Airport authority, there were no utilities present in the investigation area.

Intrusive Field Investigation and Sampling

The field program consisted of the following activities:

- Advancing nine test pits in the former Cell C area;
- Advancing nine test pits in the former Cell D area;
- Advancing two test pits into the central berm; and
- Collecting soil samples from all test pits and the soil pile in the Cell C area.

Nunatta/FRANZ advanced test pits using a backhoe owned and operated by a local contractor, Nunavut Excavating.

Nunatta/FRANZ logged soil descriptions including approximate grain size, colour, moisture content, stratigraphy, and nature and extent of apparent contamination and conducted jar headspace analysis using a combustible gas detector with methane elimination.

The contaminant analysis for this project included:

- PHC fractions F1-F4,
- Benzene, toluene, ethylbenzene and xylenes (BTEX),
- Polycyclic aromatic hydrocarbons (PAHs), and
- Metals

Metals and PAHs were primarily collected from surface soil samples, as these were the most likely to be impacted by anthropogenic activities.

Soil sampling locations are presented on Figure 3.

Nunatta/FRANZ observed ground water in two of the test pits during the investigation, adjacent to the Cell A berm and the drainage ditch; however, after consultation with the TC Project Manager, no grab ground water samples were collected. Collecting infiltration water samples directly from test pits can create false positives as excessive sediment may be collected with the sample.

Laboratory Analysis

All chemical analysis was completed by Maxxam Analytical Services (Maxxam) in Ottawa, Ontario or Mississauga, Ontario. Maxxam is certified by the Canadian Association for Laboratory Accreditation Inc. (CALA).

Quality Assurance/Quality Control and Chemical Analyses

Field personnel employed Nunatta/FRANZ QA/QC protocols, including techniques for soil sampling, sample storage, shipping and handling, as well as collection of duplicates.

Field

Soil samples collected for potential laboratory analysis were placed in laboratory-prepared 120 mL glass jars fitted with screw-tight Teflon-lined lids. Sample numbers were clearly marked on the containers, as well as on the lids. The soil jars were filled to capacity with minimum headspace and stored in coolers with ice to moderate temperature fluctuations during transport to the laboratory. To prevent cross contamination, samples were collected with fresh nitrile gloves.

The samples were transported to the project laboratory, accompanied by a Chain of Custody form.

Laboratory

To assess the reliability of the laboratory data, duplicate samples were taken for approximately every ten samples collected by Nunatta/FRANZ. As a result, two blind field duplicates were collected in the soil sampling program, and one blind field duplicate was collected in the water sampling program.

Nunatta/FRANZ personnel generated the duplicate samples by alternately placing approximately 10 percent of the sample volume into the primary sample container and then placing the same amount into the duplicate container. The field staff continued placing aliquots of approximately 10 percent of the container volume into each container until both containers were filled.

Analytical data quality was assessed by submission of the following:

- Soil samples TC-TP14-1 (primary) and DUP1 (duplicate); and TC-TP17-2 (primary) and DUP2 (duplicate) were analyzed for BTEX and PHC fractions F1-F4.
- Soil samples TC-TP14-1 (primary) and DUP1 (duplicate) were also analyzed for metals and PAHs.

For each set of duplicates, the relative percent difference (RPD) was calculated using the following formula:

$$RPD = \frac{|X_1 - X_2|}{X_{average}} \times 100$$

where, X_1 and X_2 are the duplicate concentrations and $X_{average}$ is the mean of these two values. The duplicate results were evaluated using criteria developed by Zeiner (1994), which draws from several data validation guidelines developed by the United States Environmental Protection Agency (USEPA). According to these criteria, the RPD for duplicate samples should be less than 20% for aqueous samples, and less than 40% for solid samples. RPDs can be calculated only when the compound is detected in both the original and the duplicate sample at a concentration above the method detection limit. Alternative criteria are used to evaluate duplicate pairs where one or both of the results is less than five times the detection or quantitation limit, or where one or both of the results is less than the detection or quantitation limit (i.e., nd or 'not-detected'). A full description of the criteria is provided in Table 1, below.

Table 1: Criteria for the Evaluation of Duplicate Sample Results

Result A	Result B	Criteria for Acceptable Precision	
		Aqueous (water)	Solid (soil)
Organic			
nd	nd	acceptable precision, no evaluation required	
nd	positive	result B - 0.5 x QL < QL	result B - 0.5 x QL < 2 x QL
positive and > 5 x QL	positive and > 5 x QL	RPD < 20%	RPD < 40%
positive and < or = 5 x QL	positive	|result B - result A| < QL	|result B - result A| < 2 x QL
Inorganic			
nd	nd	acceptable precision, no evaluation required	
nd	positive	result B - IDL < LRL	result B - IDL < 2 x LRL
positive and > 5 x LRL	positive and > 5 x LRL	RPD < 20%	RPD < 40%
positive and < or = 5 x LRL	positive	|result B - result A| < QL	|result B - result A| < 2 x QL

Source: Zeiner, S.T., 1994

Notes:

nd – not detected
QL – quantitation limit
RPD – relative percent difference, $\frac{|X_1 - X_2|}{X_{average}} \times 100$
IDL – instrument detection limit
LRL – laboratory reporting limit

RESULTS

General Site Conditions

At the time of the site visit, all of the soil, liner and infrastructure from Cell C and Cell D had been removed from the LTU area with the exception of a portion of the former Cell A berm, which had been re-used as part of the Cell C berm (see Figure 2). Based on previous observations of the site, an additional 3 metres of soil in the Cell D area below the liner had been removed. A limited amount of soil below the liner had been removed in the Cell C area. Photographs of the site visit are provided in Appendix B.

A drainage ditch had been cut into the area north of the Cell A berm, removing water from the area towards the northeast.

A large soil stockpile, reportedly containing the soil that had been removed from the LTU area by the construction contractor, was present to the southwest of the LTU area. This reconstituted soil pile was outside the scope of this investigation.

A small pile of soil was also present in the former Cell C area.

Soil Stratigraphy and Geology

Nunatta/FRANZ collected soil from test pits in the former Cells C and D area and along the berm. In general, permafrost was encountered at approximately 2 metres below ground surface in the former Cell C area, and at approximately 0.5 metres below ground surface in the former Cell D area.

Soils in the former Cell C area were primarily brown sand and gravel, with some indications (rootlets and organic layers) that much of the material below the surface was native. At TP16, however, there was some subsurface debris including wood, wires and metal.

Soils in the former Cell D area were primarily brown and grey sand, appearing likely to be fill.

Soil Analytical Results

Soil analytical results are provided in Table 3 (PHCs), Table 4 (metals) and Table 5 (PAHs). Soil sampling locations are presented on Figure 3.

Petroleum Hydrocarbons and benzene, toluene, ethylbenzene and xylenes

Sixteen samples (including two duplicates) were collected in the former Cell C area. One additional sample was collected from the Cell C soil pile. Four samples (including one duplicate) exhibited exceedances of guidelines for benzene, xylenes, and PHC fractions F1 and F2.

Nine soil samples were collected from the former Cell D area. None of the samples exhibited exceedances of guidelines for PHCs or BTEX.

Nunatta/FRANZ collected ten soil samples from the area between Cells C and D, including the Former Cell A berm. One soil samples exhibited exceedances of guidelines for PHC fractions F1-F3, and a second sample exhibited an exceedance of the F2 guidelines only.

Metals

Nunatta/FRANZ collected 18 soil samples for metals analysis, primarily from surface soils. None of the soil samples exhibited exceedances of guidelines.

Polycyclic Aromatic Hydrocarbons

Nunatta/FRANZ collected 20 soil samples for PAH analysis. None of the soil samples exhibited exceedances of guidelines.

Quality Assurance and Quality Control

Nunatta/FRANZ quantitatively assessed the analytical quality of the data through calculating the relative percent difference (RPD) for each primary sample and its duplicate. A summary of the

analytical results for the original and duplicate samples, along with the calculated RPDs, are included in the soil analytical results for PHCs in Tables 3 through 5.

Values for RPDs below 40% are considered acceptable for soil duplicates.

Calculated RPDs for PHCs, metals and PAHs ranged from "acceptable" (i.e., both primary and duplicate concentrations were non-detect) to 108% for PHCs, 76% for metals, and 182% for PAHs, all of which are outside the acceptable range for soil, according to Table 1. This large discrepancy highlights the difficulty in obtaining true soil duplicates and the large relative differences that are possible at low concentrations, especially for PAHs. While every effort was made in the field to obtain good-quality duplicates, other sampling requirements (especially for volatile components) prohibit any additional soil handling or mixing than that outlined in the field procedures section. Nunatta/FRANZ considers that the high RPDs obtained in the field program underline the contingent nature of soil sampling and the need to estimate the extent of soil contamination conservatively.

Laboratory QA/QC results are presented in Table 2, below and documented in the laboratory certificates of analysis provided in Appendix A.

Table 2: Laboratory QA/QC

Quality Control Method	Result
Matrix Spike	Matrix spike results for PHCs, PAHs and metals were within laboratory limits, with the exception of some surrogates for which results were not calculated due to matrix interference from PHC compounds.
Spiked Blank	Spiked blank results were within laboratory limits for all compounds.
Method Blank	Neither PHCs, metals, nor PAHs were present in the laboratory blank at detectable levels, with the exception of copper, present marginally above the detection limit. The lab indicates that results at or near the detection limit for copper may be biased high.
Laboratory Duplicate	None of the laboratory duplicate analytes exhibited exceedances of the relative percent difference criteria; however, for most PHC and PAH compounds, the concentration in the sample and/or duplicate was too low to permit a reliable calculation.

Based on the laboratory QA/QC results provided, Nunatta/FRANZ considers the analytical data to be acceptable for its intended use.

DISCUSSION

Identification of Contaminated Sites

Soil analytical results collected in this investigation confirmed soil contamination in the following two areas of the former LTU area:

- Former Cell C Area, and
- Remaining Cell A Berm.

Soil impacts consisted of PHCs F1-F3 in the Cell A berm, and PHCs F1-F2, benzene and xylenes in the former Cell C area.

Delineation of Impacts

Impacts in Cell C Area

Figure 3 presents an estimate of the horizontal extent of contamination at the site. The estimated extent of contamination was determined by halving the distance between a test pit exhibiting an exceedance and a test pit exhibiting no exceedance. These "midpoints" were then connected to provide a median estimated extent of contamination. The estimated areal extent of impacts delineated by this method was 600 m^2. Using an average estimated depth to permafrost in the area of 1.5 m, Nunatta/FRANZ obtained an estimated volume of impacts of 900 m^3.

Remaining Cell A Berm

A cross-section of the Cell A berm is shown on Figure 4. Nunatta/FRANZ understands that a roadway was built on top of the Cell A berm and some Cell A soil. The berm and soil were not removed when Cell A was decommissioned as they were under the roadway. This section of berm also formed part of the Cell C berm while Cell C was in place.

Soil samples collected from the berm indicate that the Cell A soil is the only impacted material. The remaining berm was 70 metres long, and the approximate thickness of the soil impacts was observed to be 1.5 metres. The impacts extend approximately half-way into the berm, or 3 metres. As a result, Nunatta/FRANZ estimates the volume of impacted soil remaining in the berm at approximately 300 m^3.

LIMITATIONS

This report has been prepared exclusively for Nunatta Environmental Services Inc. and Transport Canada. Any other person or entity may not rely upon the report without the express written consent from Arcadis Franz Canada Inc., Nunatta Environmental Services Inc., Public Works and Government Services Canada and Transport Canada.

Any use, which a third party makes of this report, or any reliance on decisions made based on it, is the responsibility of such third parties. Arcadis Franz Canada Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Some of the information presented in this report was provided through existing documents and interviews. Although attempts were made, whenever possible, to obtain a minimum of two confirmatory sources of information, Arcadis Franz Canada Inc., in certain instances, has been required to assume that the information provided is accurate.

The conclusions presented represent the best judgment of the assessors based on current environmental standards, previous reports, and on the site conditions observed in site visits in September, 2014. Due to the nature of the investigation and the limited data available, the assessors cannot warrant against undiscovered environmental liabilities.

Should additional information become available, Arcadis Franz Canada Inc. requests that this information be brought to our attention so that we may re-assess the conclusions presented herein.

There is no warranty, expressed or implied that the work reported herein has uncovered all potential environmental liabilities, nor does the report preclude the possibility of contamination outside of the areas of investigation. The findings of this report were developed in a manner consistent with a level of care and skill normally exercised by members of the environmental science and engineering profession currently practicing under similar conditions in the area.

A potential remains for the presence of unknown, unidentified, or unforeseen surface and sub-surface contamination. Any evidence of such potential site contamination would require appropriate surface and sub-surface exploration and testing.

If new information is developed in future work (which may include excavations, borings, or other studies), Arcadis Franz Canada Inc. should be requested to re-evaluate the conclusions of this report, and to provide amendments as required.

CLOSURE

If you have any questions or comments, please contact the undersigned at your convenience.

Sincerely,

Nunatta Environmental Services and Franz Environmental

Julie Dittburner, B.Sc.
Environmental Scientist

Andrew Henderson, B.A.Sc.
Project Manager

Attachments: Figures
Tables
Appendix A: Laboratory Analytical Results
Appendix B: Site Visit Photographs

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Figures

LEGEND:

- BERM
- TOE OF BERM
- PILE OF SOIL
- FORMER CELL 'A' LOCATION
- MW — MONITORING WELL
- DRAINAGE DITCH

REFERENCE: FRANZ PROJECT 1584-0902

Title: IQALUIT AIRPORT FORMER LTU's - SITE PLAN

FRANZ ENVIRONMENTAL INC.
♦ CONSULTING ♦ ENGINEERING ♦ TECHNOLOGIES ♦

Project: IQALUIT AIRPORT LTU's
IQALUIT, NU

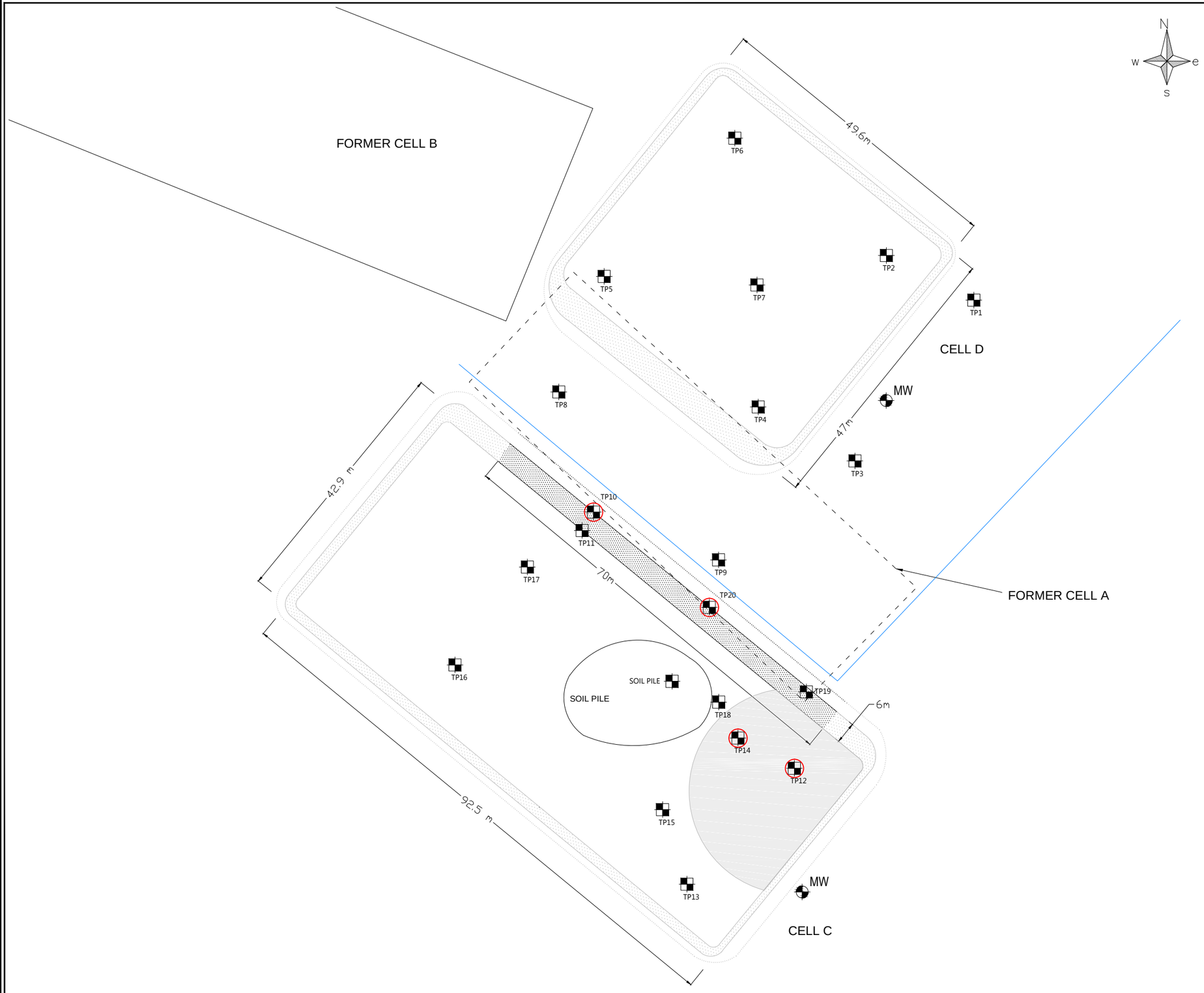
Date: OCTOBER 2014

Client: NUNATTA

0 10 20 Metres 1:650

FIGURE 1

Z:\Projects\2014\1584-1401 TC Iqaluit Airport Landfill\Figures\1-CAD\1584-1401 - Iqaluit Airport.dwg(layout)



LEGEND:

- BERM REMAINING
- TOE OF BERM
- FORMER BERM
- PILE OF SOIL
- FORMER CELL 'A' LOCATION
- MW — MONITORING WELL
- TP — TEST PIT
- DRAINAGE DITCH

Title:
IQALUIT AIRPORT FORMER LTU's - SAMPLE LOCATIONS

FRANZ ENVIRONMENTAL INC.
♦ CONSULTING ♦ ENGINEERING ♦ TECHNOLOGIES ♦

Project:
IQALUIT AIRPORT LTU's
IQALUIT, NU

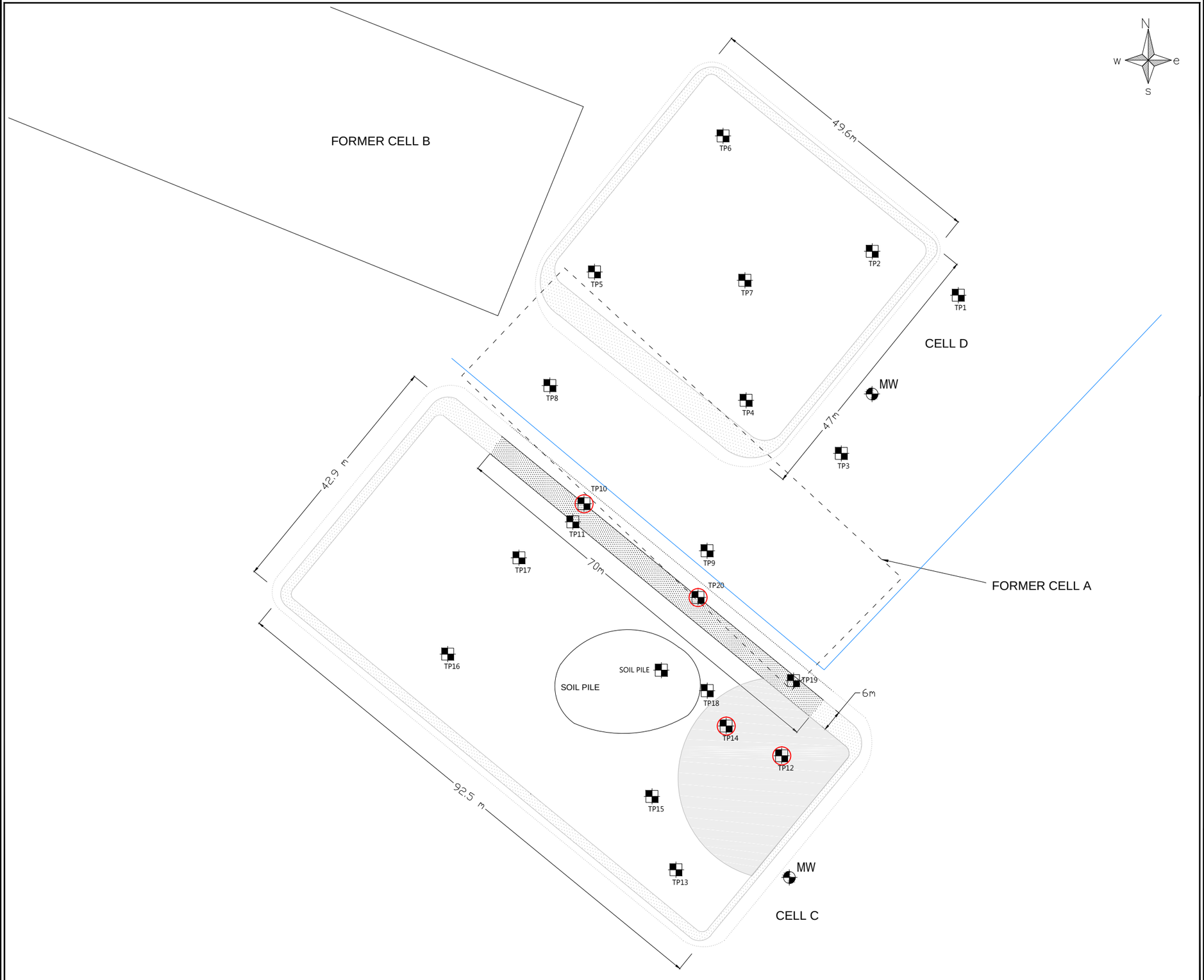
Date:
OCTOBER 2014

Client:
NUNATTA

0 10 20
Metres 1:650

FIGURE 2

Z:\Projects\2014\1584-1401 TC Iqaluit Airport Landfill\Figures\1-CAD\1584-1401 - Iqaluit Airport.dwg(layout)



LEGEND:

- BERM REMAINING
- TOE OF BERM
- FORMER BERM
- PILE OF SOIL
- FORMER CELL 'A' LOCATION
- MW — MONITORING WELL
- TP — TEST PIT
- SAMPLES COLLECTED AT LOCATION EXHIBIT EXCEEDANCES OF GUIDELINES FOR PHCs/BTEX
- MEDIAN ESTIMATE OF AREA OF IMPACTS (EXCLUDING BERM)
- DRAINAGE DITCH

Title:

EXCEEDANCES OF GUIDELINES

FRANZ ENVIRONMENTAL INC.
♦ CONSULTING ♦ ENGINEERING ♦ TECHNOLOGIES ♦

Project:
IQALUIT AIRPORT LTU's
IQALUIT, NU

Date:
OCTOBER 2014

Client:
NUNATTA

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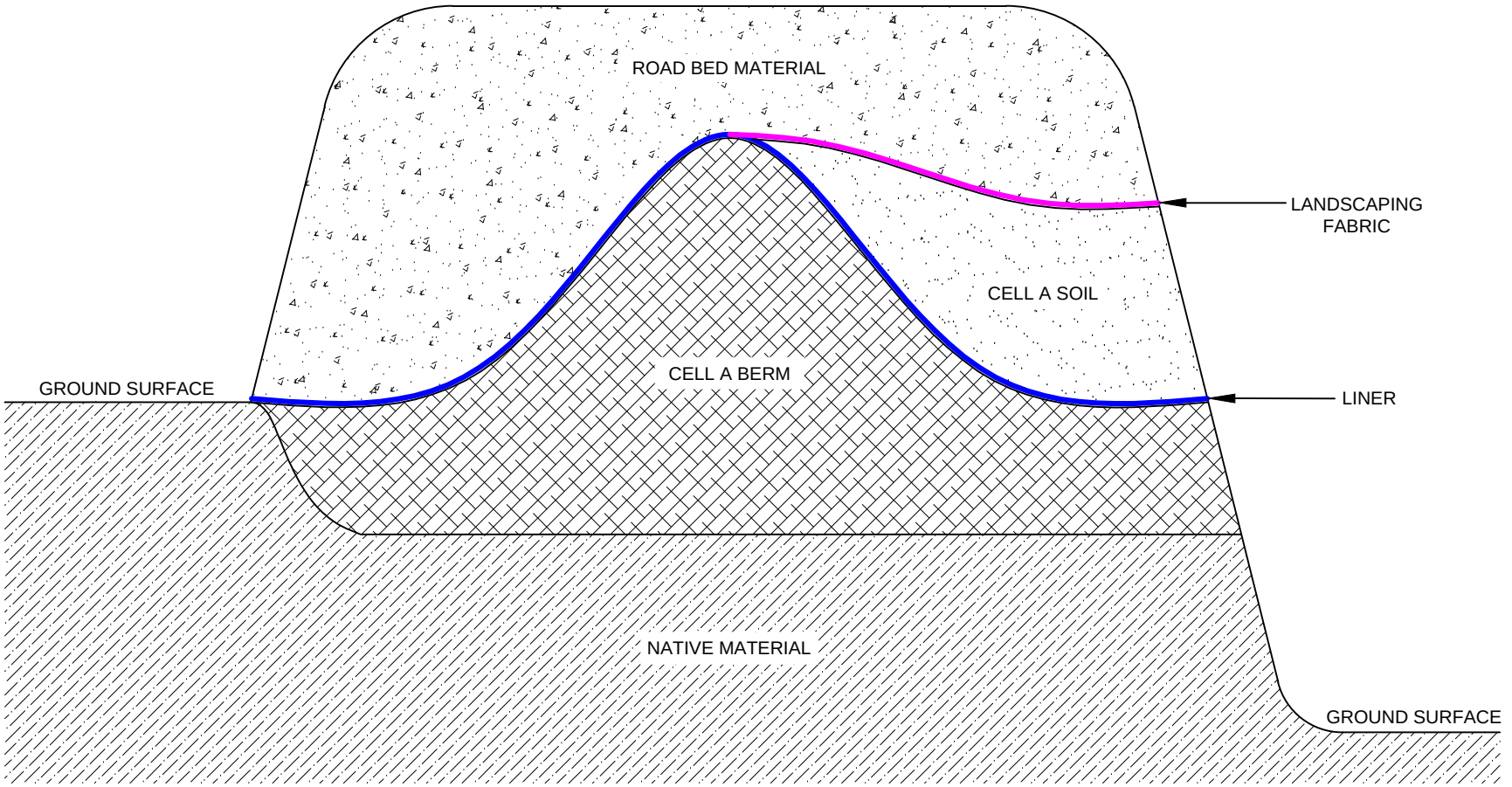
Metres 1:650

FIGURE 3

Z:\Projects\2014\1584-1401 TC Iqaluit Airport Landfill\Figures\1-CAD\1584-1401 - Iqaluit Airport.dwg(layout)



Title: BERM CROSS SECTION

FRANZ ENVIRONMENTAL INC.
♦ CONSULTING ♦ ENGINEERING ♦ TECHNOLOGIES ♦

Project: IQALUIT AIRPORT LTU's IQALUIT, NU

Date: NOVEMBER 2014

Client: NUNATTA

Approximate Scale 1:50

1.0 0.75 0.5 0 0.5 1.0 metres

FIGURE 4

TO BE PRINTED IN COLOUR ON 8.5"X11" PAPER ONLY - DO NOT SCALE

updated on: 6-Nov-14 by dlogan

Z:\Projects\2014\1584-1401 TC Iqaluit Airport Landfill\Figures\1-CAD\1584 - Berm Cross Section.dwg(layout)

Tables

Table 3
Soil Analytical Results - Petroleum Hydrocarbons

Parameter		Canadian Federal				TC-TP1-1	TC-TP2-1	TC-TP3-1	TC-TP3-2	TC-TP4-1	TC-TP5-1	TC-TP5-2	TC-TP6-1	TC-TP7-1	TC-TP8-1	TC-TP9-1	TC-TP10-1	TC-TP10-2
Depth (m)		CCME[1] Industrial		CWS for PHC [2] in Soil (Tier 1)		0-0.45m	0-0.50m	0-0.80m	0.80-1.00m	0-0.50m	0-1.00m	1.00-1.50m	0-0.50m	0-0.50m	0-0.40m	0-0.50m	0-1.00m	1.00-1.50m
Sampling Date						23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014
Description		Surface (<1.5m)	Subsoil (>1.5m)	Surface (<1.5m)	Subsoil (>1.5m)	Cell D Area	Cell D Area	Cell D Area	Cell D Area	Cell D Area	Cell D Area	Cell D Area	Cell D Area	Cell D Area	Near drainage ditch between Cells C and D	Near drainage ditch between Cells C and D	Sidewall fo berm between Cell C and D	Sidewall fo berm between Cell C and D
Soil Description						grey sand, some gravel	mix of brown and grey sand, some gravel	brown sand fill, no gravel, medium, damp	brown sand fill, no gravel, medium, damp	brown sand fill, medium to fine, damp	sand and gravel fill, some cobbles and boulders, medium, hydrocarbon odours	sand and gravel fill, some cobbles and boulders, medium, hydrocarbon odours	mix of brown and grey sand, medium to fine	brown sand with some grey, medium to fine, damp with thin layer of peat at 0.40-0.41 m bgs	sand and gravel fill, some cobbles, medium	sand and gravel fill, brown, coarse, some cobbles and boulders	Sand and gravel fill, strong hydrocarbon odour and staining	sand and gravel fill, cobbles and boulders, some slight staining and odours
BTEX mg/kg	Benzene	0.30	0.32	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005
	Toluene	250	500	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.2	<0.02
	Ethylbenzene	300	600	---	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.1	<0.01
	m & p-Xylene	---	---	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.7	<0.02
	o-Xylene	---	---	---	---	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.4	<0.04
	Total Xylenes	160	170	---	---	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.7	<0.04
PHCs mg/kg	C6-C10 Hydrocarbons	---	---	---	---	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	650	<10
	C6-C10 less BTEX (F1)	---	---	320	320	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	650	<10
	C10-C16 Hydrocarbons (F2)	---	---	260	1700	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	2300	<10
	C16-C34 Hydrocarbons (F3)	---	---	1700	4300	<10	<10	<10	<10	<10	11	<10	<10	<10	<10	<10	2200	20
	C34-C50 Hydrocarbons (F4)	---	---	3300	10000	<10	<10	<10	<10	<10	11	<10	<10	<10	<10	<10	440	<10
	Reached Baseline at C50 (or F4G, where analyzed)	---	---	3300	10000	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: All units in mg/kg, unless stated otherwise.

1 CCME Canadian Soil Quality Guidelines, (Using Industrial Land Use, Coarse-grained Soil). Further detail on sources are presented to the right.

2 CCME CWS-PHC Table 1: Summary of Tier 1 Levels (mk/kg soil) surface soil, (2008). (Using Industrial land use, Coarse-grained soil, non-potable groundwater)

--- No criterion/guideline established Laboratory method detection limit

<0.20 Not detectable (at detection limit 0.20 in this example)

NC Not calculated

20 Denotes chemical exceedances

Table 3
Soil Analytical Results - Petroleum Hydrocarbons

Parameter		Canadian Federal				TC-TP11-1	TC-TP11-2	TC-TP12-1	TC-TP12-2	TC-TP13-1	TC-TP13-2	TC-TP14-1	DUP1	Duplicate Analysis	TC-TP14-2	TC-TP15-1	TC-TP15-2	TC-TP16-1	TC-TP16-2	TC-TP17-1	TC-TP17-2
Depth (m)		CCME[1] Industrial		CWS for PHC [2] in Soil (Tier 1)		0-1.00m	1.00-2.00m	0-1.00m	1.00-1.75m	0-0.75m	0.75-1.75m	0-0.75m	0-0.75m		0.75-1.50m	0-0.50m	1.00-1.50m	0-0.40m	1.00-1.40m	0-0.50m	1.00-1.40m
Sampling Date						23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	24/09/2014	24/09/2014		24/09/2014	24/09/2014	24/09/2014	24/09/2014	24/09/2014	24/09/2014	24/09/2014
Description		Surface (<1.5m)	Subsoil (>1.5m)	Surface (<1.5m)	Subsoil (>1.5m)	West side of berm between Cells C and D	West side of berm between Cells C and D	Cell C Area	Cell C Area	Cell C Area	Cell C Area	Cell C Area	Duplicate of TP14-1		Cell C Area	Cell C Area	Cell C Area	Cell C Area	Cell C Area	Cell C Area	Cell C Area
Soil Description						sand and gravel fill, brown, some cobbles	sand and gravel fill, brown, some cobbles	sand and gravel fill, medium with organic layer at 1 m	sand and gravel fill, medium to coarse	sand and gravel fill, brown with minor debris at 0.20 m and rootlets at 0.40 m and slight odour	sand and gravel fill, brown with slight odour	sand and gravel fill, brown with organic matter and rootlets at 0.3m bgs	sand and gravel fill, brown with organic matter and rootlets at 0.3m bgs		sand and gravel fill, brown with organic matter and rootlets at 0.3m bgs	sand and gravel fill, brown	sand and gravel fill, brown, wet at bottom	sand and gravel fill, with debris including wires, wood, metal	sand and gravel fill, with debris including wires, wood, metal, orange sand at bottom	sand and gravel fill, brown, moist, slight hydrocarbon odour.	sand and gravel fill, brown, moist, slight hydrocarbon odour, suspected native material
BTEX mg/kg	Benzene	0.30	0.32	---	---	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	0.5	0.5	0%	1.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Toluene	250	500	---	---	<0.02	<0.02	<0.02	<0.2	<0.02	<0.02	41	58	34%	95	<0.02	<0.02	0.12	<0.02	<0.02	<0.02
	Ethylbenzene	300	600	---	---	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	16	26	48%	23	<0.01	<0.01	0.01	<0.01	<0.01	<0.01
	m & p-Xylene	---	---	---	---	<0.02	<0.02	<0.02	<0.2	<0.02	<0.02	310	430	32%	170	<0.02	<0.02	0.08	<0.02	<0.02	<0.02
	o-Xylene	---	---	---	---	<0.04	<0.04	<0.04	<0.4	<0.04	<0.04	580	800	32%	400	<0.04	<0.04	0.19	<0.04	<0.04	<0.04
	Total Xylenes	160	170	---	---	<0.04	<0.04	<0.04	<0.4	<0.04	<0.04	890	1200	30%	570	<0.04	<0.04	0.26	<0.04	<0.04	<0.04
PHCs mg/kg	C6-C10 Hydrocarbons	---	---	---	---	<10	<10	<10	530	<10	<10	5000	8100	47%	5600	<10	<10	<10	<10	<10	<10
	C6-C10 less BTEX (F1)	---	---	320	320	<10	<10	<10	530	<10	<10	4000	6800	52%	4900	<10	<10	<10	<10	<10	<10
	C10-C16 Hydrocarbons (F2)	---	---	260	1700	<10	<10	<10	4000	<10	<10	3400	2200	43%	3900	<10	<10	<10	<10	88	<10
	C16-C34 Hydrocarbons (F3)	---	---	1700	4300	40	<10	58	420	160	<10	260	600	79%	260	<10	<10	<10	<10	180	<10
	C34-C50 Hydrocarbons (F4)	---	---	3300	10000	66	<10	12	<10	180	<10	170	570	108%	29	<10	<10	<10	<10	<10	<10
	Reached Baseline at C50 (or F4G, where analyzed)	---	---	3300	10000	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: All units in mg/kg, unless stated otherwise.

1 CCME Canadian Soil Quality Guidelines, (Using Industrial Land Use, Coarse-grained Soil). Further detail on sources are presented to the right.

2 CCME CWS-PHC Table 1: Summary of Tier 1 Levels (mk/kg soil) surface soil, (2008). (Using Industrial land use, Coarse-grained soil, non-potable groundwater)

--- No criterion/guideline established Laboratory method detection limit

<0.20 Not detectable (at detection limit 0.20 in this example)

NC Not calculated

20 Denotes chemical exceedances

Table 3
Soil Analytical Results - Petroleum Hydrocarbons

Parameter		Canadian Federal				DUP2	Duplicate Analysis	TC-TP18-1	TC-TP18-2	TC-TP19-1	TC-TP19-2	TC-TP20-1	TC-TP20-2	TC-SOIL PILE
Depth (m)		CCME[1] Industrial		CWS for PHC [2] in Soil (Tier 1)		0-0.50m		0-0.40m	1.00-1.30m	NA	NA	NA	NA	NA
Sampling Date						24/09/2014		24/09/2014	24/09/2014	24/09/2014	24/09/2014	24/09/2014	24/09/2014	24/09/2014
Description		Surface (<1.5m)	Subsoil (>1.5m)	Surface (<1.5m)	Subsoil (>1.5m)	Duplicate of TP17-2		Cell C Area	Cell C Area	South end of berm, east site, above liner	South end of berm, east site, below liner	Central berm on east side, on top of liner	Central berm on east side, below liner	East side of soil pile in Cell C
Soil Description						sand and gravel fill, brown, moist, slight hydrocarbon odour, suspected native material		sand and gravel, brown, moist with slight odour at surface	sand and gravel, brown, moist	some odours, brown sand	some odours, brown sand	some odours, brown sand	some odours, brown sand	no odours or staining.
BTEX mg/kg	Benzene	0.30	0.32	---	---	<0.005	Acceptable	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Toluene	250	500	---	---	<0.02	Acceptable	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02
	Ethylbenzene	300	600	---	---	<0.01	Acceptable	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	m & p-Xylene	---	---	---	---	<0.02	Acceptable	<0.02	0.02	0.03	<0.02	0.03	<0.02	0.08
	o-Xylene	---	---	---	---	<0.04	Acceptable	<0.04	0.07	0.07	<0.04	0.08	<0.04	0.15
	Total Xylenes	160	170	---	---	<0.04	Acceptable	<0.04	0.09	0.11	<0.04	0.1	<0.04	0.22
PHCs mg/kg	C6-C10 Hydrocarbons	---	---	---	---	<10	Acceptable	<10	18	<10	<10	63	<10	<10
	C6-C10 less BTEX (F1)	---	---	320	320	<10	Acceptable	<10	18	<10	<10	63	<10	<10
	C10-C16 Hydrocarbons (F2)	---	---	260	1700	<10	Acceptable	<10	<10	24	<10	510	<10	<10
	C16-C34 Hydrocarbons (F3)	---	---	1700	4300	<10	Acceptable	36	<10	64	<10	220	<10	120
	C34-C50 Hydrocarbons (F4)	---	---	3300	10000	<10	Acceptable	31	<10	14	<10	230	<10	130
	Reached Baseline at C50 (or F4G, where analyzed)	---	---	3300	10000	Yes		Yes	Yes	Yes	Yes	Yes	Yes	500

Notes: All units in mg/kg, unless stated otherwise.

1 CCME Canadian Soil Quality Guidelines, (Using Industrial Land Use, Coarse-grained Soil). Further detail on sources are presented to the right.

2 CCME CWS-PHC Table 1: Summary of Tier 1 Levels (mk/kg soil) surface soil, (2008). (Using Industrial land use, Coarse-grained soil, non-potable groundwater)

--- No criterion/guideline established Laboratory method detection limit

<0.20 Not detectable (at detection limit 0.20 in this example)

NC Not calculated

20 Denotes chemical exceedances

Table 4
Soil Analytical Results - Metals

	PARAMETER	CCME 1999 [1] Industrial													
	Sample Number		TC-TP1-1	TC-TP2-1	TC-TP3-1	TC-TP4-1	TC-TP5-1	TC-TP6-1	TC-TP7-1	TC-TP8-1	TC-TP9-1	TC-TP10-1	TC-TP11-1	TC-TP12-1	TC-TP13-1	TC-TP14-1
	Depth (m)		0-0.45m	0-0.50m	0-0.80m	0-0.50m	0-1.00m	0-0.50m	0-0.50m	0-0.40m	0-0.50m	0-1.00m	0-1.00m	0-1.00m	0-0.75m	0-0.75m
	Sampling Date		23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	24/09/2014
	Description		Cell D Area	Cell D Area	Cell D Area	Cell D Area	Cell D Area	Cell D Area	Cell D Area	Cell D Area	Cell D Area	Cell C Area	Cell C Area	Cell C Area	Cell C Area	Cell C Area
	Metals (ug/g)															
Metals and Inorganics mg/kg	Acid Extractable Aluminum (Al)	---	4200	3900	3600	3400	2700	4000	4500	2500	2500	4800	4000	4400	3900	4000
	Acid Extractable Antimony (Sb)	40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.22	0.22	<0.20	0.38	<0.20
	Acid Extractable Arsenic (As)	12	<1.0	<1.0	<1.0	<1.0	8.3	<1.0	<1.0	1.9	1.1	<1.0	1.2	<1.0	<1.0	<1.0
	Acid Extractable Barium (Ba)	2000	30	27	25	22	15	26	32	10	12	31	28	38	26	21
	Acid Extractable Beryllium (Be)	8	0.21	0.2	<0.20	<0.20	<0.20	0.21	0.24	<0.20	<0.20	0.24	0.21	0.23	0.21	0.21
	Acid Extractable Bismuth (Bi)	---	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Acid Extractable Boron (B)	No Data	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	Acid Extractable Cadmium (Cd)	22	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
	Acid Extractable Calcium (Ca)	---	11000	9500	11000	9600	16000	11000	3100	11000	19000	6400	8400	4500	9500	3500
	Acid Extractable Chromium (Cr)	87	20	20	20	15	41	19	18	49	32	28	23	21	24	23
	Acid Extractable Cobalt (Co)	300	5	4.6	4.4	4.3	7.2	4.8	6.2	8.2	6.7	6.5	5.9	5.1	5.6	5
	Acid Extractable Copper (Cu)	91	9.5	7.9	8	7.9	16	9.6	11	14	12	13	12	11	12	7.2
	Acid Extractable Iron (Fe)	No Data	19000	19000	20000	16000	42000	20000	13000	54000	33000	29000	26000	23000	26000	24000
	Acid Extractable Lead (Pb)	600	2.7	2.4	2.5	2.2	5.2	2.7	2.7	3.4	2.9	19	7.1	11	14	13
	Acid Extractable Magnesium (Mg)	---	3800	3600	3200	2900	2300	3400	3000	2500	2400	3300	2900	3000	2900	2800
	Acid Extractable Manganese (Mn)	---	140	130	130	120	180	140	81	180	160	340	190	180	180	180
	Acid Extractable Molybdenum (Mo)	40	0.77	0.89	1.5	0.6	1.3	1.1	<0.50	1.4	0.91	0.92	0.76	0.68	0.67	0.69
	Acid Extractable Nickel (Ni)	50	7.9	7.4	7.1	6.5	9.4	7.8	7.2	9.5	7.2	9.9	8.4	7.9	8.4	7.2
	Acid Extractable Phosphorus (P)	---	840	890	810	780	590	950	800	530	590	750	690	590	660	520
	Acid Extractable Potassium (K)	---	990	910	800	700	350	910	700	280	340	700	650	640	620	420
	Acid Extractable Selenium (Se)	2.9	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Acid Extractable Silver (Ag)	40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	Acid Extractable Sodium (Na)	---	590	340	360	420	130	510	220	150	230	190	170	170	180	130
	Acid Extractable Strontium (Sr)	---	22	20	21	18	21	22	8.6	21	27	14	15	11	16	11
	Acid Extractable Thallium (Tl)	1	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
	Acid Extractable Tin (Sn)	300	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	Acid Extractable Uranium (U)	300	0.56	0.49	0.49	0.43	0.48	0.53	0.41	0.38	0.45	0.51	0.5	0.45	0.53	0.37
	Acid Extractable Vanadium (V)	130	36	36	37	29	86	36	33	110	68	58	49	45	50	52
	Acid Extractable Zinc (Zn)	360	30	28	27	26	29	30	31	29	26	48	37	40	42	32
	Acid Extractable Mercury (Hg)	50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050

Notes: All units in ug/g.

1 Canadian Council of Ministers of the Environment, Table 1 - Soil Quality Guideline, Coarse-Grained Soils, 2007 Update. (Industrial Land Use).

NC Not calculated

<0.20 Not detectable (at detection limit 0.20 in this example)

--- Not analysed or no criterion/guideline established.

20 Denotes guidelines used to determine chemical exceedances

20 Denotes exceedances of the CCME fine-grained soil residential guidelines

Table 4
Soil Analytical Results - Metals

	PARAMETER	CCME 1999 [1] Industrial					
	Sample Number		DUP1	Duplicate Analysis	TC-TP15-1	TC-TP16-1	TC-TP17-1
	Depth (m)		0-0.75m		0-0.50m	0-0.40m	0-0.50m
	Sampling Date		24/09/2014		24/09/2014	24/09/2014	24/09/2014
	Description		Duplicate of TP14-1		Cell C Area	Cell C Area	Cell C Area
	Metals (ug/g)						
Metals and Inorganics mg/kg	Acid Extractable Aluminum (Al)	---	4200	5%	4200	4200	4100
	Acid Extractable Antimony (Sb)	40	0.32	0.22	<0.20	2.2	<0.20
	Acid Extractable Arsenic (As)	12	1.1	0.6	1.6	1.6	<1.0
	Acid Extractable Barium (Ba)	2000	29	32%	28	45	24
	Acid Extractable Beryllium (Be)	8	0.23	9%	0.2	0.23	0.21
	Acid Extractable Bismuth (Bi)	---	<1.0	Acceptable	<1.0	<1.0	<1.0
	Acid Extractable Boron (B)	No Data	<5.0	Acceptable	<5.0	<5.0	<5.0
	Acid Extractable Cadmium (Cd)	22	<0.10	Acceptable	<0.10	0.3	<0.10
	Acid Extractable Calcium (Ca)	---	7800	76%	6500	6600	3300
	Acid Extractable Chromium (Cr)	87	24	4%	22	24	28
	Acid Extractable Cobalt (Co)	300	5.7	13%	5.2	5.5	5.6
	Acid Extractable Copper (Cu)	91	11	42%	9.8	21	13
	Acid Extractable Iron (Fe)	No Data	26000	8%	23000	26000	30000
	Acid Extractable Lead (Pb)	600	23	56%	4.2	48	6.2
	Acid Extractable Magnesium (Mg)	---	3100	10%	3200	3100	2800
	Acid Extractable Manganese (Mn)	---	210	15%	160	190	210
	Acid Extractable Molybdenum (Mo)	40	0.78	12%	0.61	0.79	0.89
	Acid Extractable Nickel (Ni)	50	8.9	21%	7.7	9	9.2
	Acid Extractable Phosphorus (P)	---	670	25%	670	560	540
	Acid Extractable Potassium (K)	---	630	40%	700	690	580
	Acid Extractable Selenium (Se)	2.9	<0.50	Acceptable	<0.50	<0.50	<0.50
	Acid Extractable Silver (Ag)	40	<0.20	Acceptable	<0.20	<0.20	<0.20
	Acid Extractable Sodium (Na)	---	180	32%	180	210	140
	Acid Extractable Strontium (Sr)	---	14	24%	14	20	9.1
	Acid Extractable Thallium (Tl)	1	<0.050	Acceptable	<0.050	<0.050	<0.050
	Acid Extractable Tin (Sn)	300	<5.0	Acceptable	<5.0	<5.0	<5.0
	Acid Extractable Uranium (U)	300	0.45	20%	0.55	0.39	0.44
	Acid Extractable Vanadium (V)	130	52	0%	44	53	63
	Acid Extractable Zinc (Zn)	360	38	17%	31	110	37
	Acid Extractable Mercury (Hg)	50	<0.050	Acceptable	<0.050	<0.050	<0.050

Notes: All units in ug/g.

1 Canadian Council of Ministers of the Environment, Table 1 - Soil Quality Guideline, Coarse-Grained Soils, 2007 Update. (Industrial Land Use).

NC Not calculated

<0.20 Not detectable (at detection limit 0.20 in this example)

--- Not analysed or no criterion/guideline established.

20 Denotes guidelines used to determine chemical exceedanc

20 Denotes exceedances of the CCME fine-grained soil reside

Table 5
Soil Analytical Results - Polycyclic Aromatic Hydrocarbons

Parameter		Canadian Federal													
Sample Number				TC-TP1-1	TC-TP2-1	TC-TP3-1	TC-TP4-1	TC-TP5-1	TC-TP6-1	TC-TP7-1	TC-TP8-1	TC-TP9-1	TC-TP10-1	TC-TP11-2	TC-TP12-1	TC-TP13-1	TC-TP14-1
Depth (m)		CCME[1] Industrial		0-0.45m	0-0.50m	0-0.80m	0-0.50m	0-1.00m	0-0.50m	0-0.50m	0-0.40m	0-0.50m	0-1.00m	0-1.00m	0-1.00m	0-0.75m	0-0.75m
Sampling Date				23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	23/09/2014	24/09/2014
Description		SQG_E	BaP PEF[2]	Cell D Area	Cell D Area	Cell D Area	Cell D Area	Cell D Area	Cell D Area	Cell D Area	Cell D Area	Cell D Area	Cell C Area	Cell C Area	Cell C Area	Cell C Area	Cell C Area
Polycyclic Aromatic Hydrocarbons (ug/g)	Acenaphthene			<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.42	<0.0050	<0.0050	<0.020	0.52
	Acenaphthylene			<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.099	<0.0050	<0.0050	<0.020	0.06
	Anthracene	32		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.07	<0.0050	<0.0050	<0.020	0.49
	Benzo(a)anthracene	10	0.1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.065	<0.0050	<0.0050	0.024	0.41
	Benzo(a)pyrene	72	1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.048	<0.0050	0.0059	0.033	0.25
	Benzo(b/j)fluoranthene	10	0.1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.067	<0.0050	<0.0050	0.046	0.35
	Benzo(g,h,i)perylene		0.01	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.044	0.0071	0.041	0.05	0.23
	Benzo(k)fluoranthene	10	0.1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.020	<0.0050	<0.0050	<0.020	0.13
	Chrysene		0.01	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.055	<0.0050	<0.0050	0.031	0.34
	Dibenz(a,h)anthracene	10	1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.020	<0.0050	<0.0050	<0.020	0.036
	Fluoranthene	180		<0.0050	<0.0050	<0.0050	<0.0050	0.0096	<0.0050	<0.0050	<0.0050	<0.0050	0.18	<0.0050	<0.0050	0.028	0.99
	Fluorene			<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.37	<0.0050	<0.0050	<0.020	0.48
	Indeno(1,2,3-cd)pyrene	10	0.1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.029	<0.0050	0.0096	0.03	0.17
	1-Methylnaphthalene			<0.0050	<0.0050	<0.0050	<0.0050	0.029	<0.0050	<0.0050	<0.0050	<0.0050	5.2	<0.0050	<0.0050	<0.020	18
	2-Methylnaphthalene			<0.0050	<0.0050	<0.0050	<0.0050	0.014	<0.0050	<0.0050	<0.0050	<0.0050	5.1	<0.0050	<0.0050	<0.020	32
	Methylnaphthalene, 2-(1-)			<0.0071	<0.0071	<0.0071	<0.0071	0.043	<0.0071	<0.0071	<0.0071	<0.0071	10	<0.0071	<0.0071	<0.028	50
	Naphthalene	-		<0.0050	<0.0050	<0.0050	<0.0050	<0.010 (1)	0.0068	<0.0050	<0.0050	<0.0050	1.5	0.008	<0.0050	<0.020	41
	Phenanthrene	-		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.69	<0.0050	<0.0050	<0.020	1.6
	Pyrene	10		<0.0050	<0.0050	<0.0050	<0.0050	0.0096	<0.0050	<0.0050	<0.0050	<0.0050	0.19	<0.0050	<0.0050	0.057	0.84
	Benzo[a]pyrene TPE (calc.)		5.8	0.0121	0.0121	0.012	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.08709	0.012121	0.01382	0.06581	0.3977

Notes: All units in ug/g.

1 Canadian Council of Ministers of the Environment *Polycyclic Aromatic Hydrocarbons* 2010 using Commercial values, with PCB values from *Polychlorinated Biphenyls (Total)* 1999, also stipulating Industrial land use.

2 Benzo[a]pyrene Total Potency Equivalents, which is the sum of estimated cancer potency relative to B[a]P for all potentially carcinogenic unsubstituted PAHs. The B[a]P TPE for a soil sample is calculated by multiplying the concentration of each PAH in the sample by its B[a]P Potency Equivalence Factor (PEF), given below, and summing these products B[a]P PEFs are order of magnitude estimates of carcinogenic potential and are based on the World Health Organization (WHO/IPCS 1998) scheme. (See reference above)

<0.20 Not detectable (at detection limit 0.20 in this example)

--- Not analysed or no criterion/guideline established.

20 Denotes exceedances of the guidelines

Table 5
Soil Analytical Results - Polycyclic Aromatic Hydrocarbons

Parameter		Canadian Federal								
Sample Number				DUP1	Duplicate Analysis	TC-TP15-1	TC-TP16-1	TC-TP17-1	TC-TP18-1	TC-TP19-1
Depth (m)		CCME[1] Industrial		0-0.75m		0-0.50m	0-0.40m	0-0.50m	0-0.40m	NA
Sampling Date				24/09/2014		24/09/2014	24/09/2014	24/09/2014	24/09/2014	24/09/2014
Description		SQG_E	BaP PEF[2]	Duplicate of TP14-1		Cell C Area	Cell C Area	Cell C Area	Cell C Area	South end of berm, east site, above liner
Polycyclic Aromatic Hydrocarbons (ug/g)	Acenaphthene			0.17	101%	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Acenaphthylene			0.068	13%	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Anthracene	32		0.041	169%	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Benzo(a)anthracene	10	0.1	0.024	178%	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Benzo(a)pyrene	72	1	0.016	176%	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Benzo(b/j)fluoranthene	10	0.1	0.019	179%	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Benzo(g,h,i)perylene		0.01	0.019	169%	<0.0050	<0.0050	0.011	0.0099	<0.0050
	Benzo(k)fluoranthene	10	0.1	<0.0050	0.1275	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Chrysene		0.01	0.028	170%	<0.0050	<0.0050	<0.0050	0.0052	<0.0050
	Dibenz(a,h)anthracene	10	1	<0.0050	0.0335	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Fluoranthene	180		0.047	182%	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Fluorene			0.31	43%	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Indeno(1,2,3-cd)pyrene	10	0.1	0.011	176%	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	1-Methylnaphthalene			13	32%	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	2-Methylnaphthalene			19	51%	<0.0050	0.0063	<0.0050	<0.0050	<0.0050
	Methylnaphthalene, 2-(1-)			32	44%	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071
	Naphthalene	-		16	88%	0.005	0.0054	0.0077	<0.0050	0.0051
	Phenanthrene	-		0.34	130%	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Pyrene	10		0.066	171%	<0.0050	<0.0050	0.0077	<0.0050	<0.0050
	Benzo[a]pyrene TPE (calc.)		5.8	0.02737	174%	0.0121	0.0121	0.01216	0.012151	0.0121

Notes: All units in ug/g.

1 Canadian Council of Ministers of the Environment *Polycyclic Aromatic Hydrocarbons* 2010 using Commercial values, with PCB values from *Polychlorinated Biphenyls (Total)* 1999, also stipulating Industrial land use.

2 Benzo[a]pyrene Total Potency Equivalents, which is the sum of estimated cancer potency relative to B[a]P for all potentially carcinogenic unsubstituted PAHs. The B[a]P TPE for a soil sample is calculated by multiplying the concentration of each PAH in the sample by its B[a]P Potency Equivalence Factor (PEF), given below, and summing these products B[a]P PEFs are order of magnitude estimates of carcinogenic potential and are based on the World Health Organization (WHO/IPCS 1998) scheme. (See reference above)

<0.20 Not detectable (at detection limit 0.20 in this example)

--- Not analysed or no criterion/guideline established.

20 Denotes exceedances of the guidelines

APPENDIX A

Laboratory Certificates of Analysis

Your Project #: 1584-1401
Site Location: TC IQUALUIT AIRPORT

Attention:Andrew Henderson

Franz Environmental Inc
329 Churchill Ave N
Suite 200
Ottawa, ON
K1Z 5B8

Your C.O.C. #: 486472-02-01, 486472-03-01, 486472-04-01, 486472-05-01

Report Date: 2014/10/03
Report #: R3177514
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4H9280
Received: 2014/09/26, 14:50

Sample Matrix: Soil
Samples Received: 36

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum (1)	20	N/A	2014/10/01	CAM SOP-00301	EPA 8270D m
Petroleum Hydro. CCME F1 & BTEX in Soil	2	2014/09/29	2014/09/30	OTT SOP-00002	CCME CWS
Petroleum Hydro. CCME F1 & BTEX in Soil	21	2014/09/29	2014/10/02	OTT SOP-00002	CCME CWS
Petroleum Hydro. CCME F1 & BTEX in Soil	13	2014/09/29	2014/10/03	OTT SOP-00002	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	10	2014/09/29	2014/09/29	OTT SOP-00001	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	4	2014/09/30	2014/09/30	OTT SOP-00001	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	22	2014/09/30	2014/10/01	OTT SOP-00001	CCME CWS
F4G (CCME Hydrocarbons Gravimetric)	1	2014/10/02	2014/10/02	OTT SOP-00001	CCME CWS
Strong Acid Leachable Metals by ICPMS (1)	18	2014/10/01	2014/10/02	CAM SOP-00447	EPA 6020A m
MOISTURE	10	N/A	2014/09/30	CAM SOP-00445	McKeague 2nd ed 1978
MOISTURE	26	N/A	2014/10/01	CAM SOP-00445	McKeague 2nd ed 1978
PAH Compounds in Soil by GC/MS (SIM) (1)	6	2014/09/29	2014/09/29	CAM SOP-00318	EPA 8270D m
PAH Compounds in Soil by GC/MS (SIM) (1)	14	2014/09/29	2014/09/30	CAM SOP-00318	EPA 8270D 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.

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 the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

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

Your Project #: 1584-1401
Site Location: TC IQUALUIT AIRPORT

Attention:Andrew Henderson

Franz Environmental Inc
329 Churchill Ave N
Suite 200
Ottawa, ON
K1Z 5B8

Your C.O.C. #: 486472-02-01, 486472-03-01, 486472-04-01, 486472-05-01

Report Date: 2014/10/03
Report #: R3177514
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4H9280
Received: 2014/09/26, 14:50

weeks from receipt of data or as per contract.

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

(1) This test was performed by Maxxam Analytics Mississauga

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Parnian Baber, Project Manager
Email: pbaber@maxxam.ca
Phone# (613) 274-0573

==========

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 #: B4H9280
Report Date: 2014/10/03

Franz Environmental Inc
Client Project #: 1584-1401
Site Location: TC IQUALUIT AIRPORT
Sampler Initials: JD

O.REG 153 PAHS (SOIL)

Maxxam ID		XT1902	XT1903	XT1904	XT1906		XT1907		
Sampling Date		2014/09/23	2014/09/23	2014/09/23	2014/09/23		2014/09/23		
COC Number		486472-02-01	486472-02-01	486472-02-01	486472-02-01		486472-02-01		
	Units	**TC-TP1-1**	**TC-TP2-1**	**TC-TP3-1**	**TC-TP4-1**	**RDL**	**TC-TP5-1**	**RDL**	**QC Batch**
Calculated Parameters									
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	<0.0071	<0.0071	<0.0071	0.0071	0.043	0.0071	3764146
Polyaromatic Hydrocarbons									
Acenaphthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	<0.0050	0.0050	3765684
Acenaphthylene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	<0.0050	0.0050	3765684
Anthracene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	<0.0050	0.0050	3765684
Benzo(a)anthracene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	<0.0050	0.0050	3765684
Benzo(a)pyrene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	<0.0050	0.0050	3765684
Benzo(b/j)fluoranthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	<0.0050	0.0050	3765684
Benzo(g,h,i)perylene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	<0.0050	0.0050	3765684
Benzo(k)fluoranthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	<0.0050	0.0050	3765684
Chrysene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	<0.0050	0.0050	3765684
Dibenz(a,h)anthracene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	<0.0050	0.0050	3765684
Fluoranthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	0.0096	0.0050	3765684
Fluorene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	<0.0050	0.0050	3765684
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	<0.0050	0.0050	3765684
1-Methylnaphthalene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	0.029	0.0050	3765684
2-Methylnaphthalene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	0.014	0.0050	3765684
Naphthalene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	<0.010 (1)	0.010	3765684
Phenanthrene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	<0.0050	0.0050	3765684
Pyrene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	0.0096	0.0050	3765684
Surrogate Recovery (%)									
D10-Anthracene	%	88	90	91	93		87		3765684
D14-Terphenyl (FS)	%	95	98	98	101		93		3765684
D8-Acenaphthylene	%	76	77	76	78		75		3765684

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) DL was raised due to matrix interference.

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B4H9280
Report Date: 2014/10/03

Franz Environmental Inc
Client Project #: 1584-1401
Site Location: TC IQUALUIT AIRPORT
Sampler Initials: JD

O.REG 153 PAHS (SOIL)

Maxxam ID		XT1909	XT1910	XT1911	XT1935		XT1936		
Sampling Date		2014/09/23	2014/09/23	2014/09/23	2014/09/23		2014/09/23		
COC Number		486472-02-01	486472-02-01	486472-02-01	486472-03-01		486472-03-01		
	Units	**TC-TP6-1**	**TC-TP7-1**	**TC-TP8-1**	**TC-TP9-1**	**RDL**	**TC-TP10-1**	**RDL**	**QC Batch**
Calculated Parameters									
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	<0.0071	<0.0071	<0.0071	0.0071	10	0.028	3764146
Polyaromatic Hydrocarbons									
Acenaphthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	0.42	0.020	3765684
Acenaphthylene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	0.099	0.020	3765684
Anthracene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	0.070	0.020	3765684
Benzo(a)anthracene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	0.065	0.020	3765684
Benzo(a)pyrene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	0.048	0.020	3765684
Benzo(b/j)fluoranthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	0.067	0.020	3765684
Benzo(g,h,i)perylene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	0.044	0.020	3765684
Benzo(k)fluoranthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	<0.020	0.020	3765684
Chrysene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	0.055	0.020	3765684
Dibenz(a,h)anthracene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	<0.020	0.020	3765684
Fluoranthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	0.18	0.020	3765684
Fluorene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	0.37	0.020	3765684
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	0.029	0.020	3765684
1-Methylnaphthalene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5.2	0.020	3765684
2-Methylnaphthalene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5.1	0.020	3765684
Naphthalene	ug/g	0.0068	<0.0050	<0.0050	<0.0050	0.0050	1.5	0.020	3765684
Phenanthrene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	0.69	0.020	3765684
Pyrene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	0.19	0.020	3765684
Surrogate Recovery (%)									
D10-Anthracene	%	85	81	94	91		97		3765684
D14-Terphenyl (FS)	%	92	87	101	98		92		3765684
D8-Acenaphthylene	%	65	71	79	77		78		3765684

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4H9280
Report Date: 2014/10/03

Franz Environmental Inc
Client Project #: 1584-1401
Site Location: TC IQUALUIT AIRPORT
Sampler Initials: JD

O.REG 153 PAHS (SOIL)

Maxxam ID		XT1939	XT1941		XT1943	XT1950		XT1952		
Sampling Date		2014/09/23	2014/09/23		2014/09/23	2014/09/24		2014/09/24		
COC Number		486472-03-01	486472-03-01		486472-03-01	486472-04-01		486472-04-01		
	Units	**TC-TP11-2**	**TC-TP12-1**	**RDL**	**TC-TP13-1**	**TC-TP14-1**	**RDL**	**TC-TP15-1**	**RDL**	**QC Batch**
Calculated Parameters										
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	<0.0071	0.0071	<0.028	50	0.028	<0.0071	0.0071	3764146
Polyaromatic Hydrocarbons										
Acenaphthene	ug/g	<0.0050	<0.0050	0.0050	<0.020	0.52	0.020	<0.0050	0.0050	3765684
Acenaphthylene	ug/g	<0.0050	<0.0050	0.0050	<0.020	0.060	0.020	<0.0050	0.0050	3765684
Anthracene	ug/g	<0.0050	<0.0050	0.0050	<0.020	0.49	0.020	<0.0050	0.0050	3765684
Benzo(a)anthracene	ug/g	<0.0050	<0.0050	0.0050	0.024	0.41	0.020	<0.0050	0.0050	3765684
Benzo(a)pyrene	ug/g	<0.0050	0.0059	0.0050	0.033	0.25	0.020	<0.0050	0.0050	3765684
Benzo(b/j)fluoranthene	ug/g	<0.0050	<0.0050	0.0050	0.046	0.35	0.020	<0.0050	0.0050	3765684
Benzo(g,h,i)perylene	ug/g	0.0071	0.041	0.0050	0.050	0.23	0.020	<0.0050	0.0050	3765684
Benzo(k)fluoranthene	ug/g	<0.0050	<0.0050	0.0050	<0.020	0.13	0.020	<0.0050	0.0050	3765684
Chrysene	ug/g	<0.0050	<0.0050	0.0050	0.031	0.34	0.020	<0.0050	0.0050	3765684
Dibenz(a,h)anthracene	ug/g	<0.0050	<0.0050	0.0050	<0.020	0.036	0.020	<0.0050	0.0050	3765684
Fluoranthene	ug/g	<0.0050	<0.0050	0.0050	0.028	0.99	0.020	<0.0050	0.0050	3765684
Fluorene	ug/g	<0.0050	<0.0050	0.0050	<0.020	0.48	0.020	<0.0050	0.0050	3765684
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	0.0096	0.0050	0.030	0.17	0.020	<0.0050	0.0050	3765684
1-Methylnaphthalene	ug/g	<0.0050	<0.0050	0.0050	<0.020	18	0.020	<0.0050	0.0050	3765684
2-Methylnaphthalene	ug/g	<0.0050	<0.0050	0.0050	<0.020	32	0.020	<0.0050	0.0050	3765684
Naphthalene	ug/g	0.0080	<0.0050	0.0050	<0.020	41	0.020	0.0050	0.0050	3765684
Phenanthrene	ug/g	<0.0050	<0.0050	0.0050	<0.020	1.6	0.020	<0.0050	0.0050	3765684
Pyrene	ug/g	<0.0050	<0.0050	0.0050	0.057	0.84	0.020	<0.0050	0.0050	3765684
Surrogate Recovery (%)										
D10-Anthracene	%	86	90		102	98		95		3765684
D14-Terphenyl (FS)	%	94	98		93	101		101		3765684
D8-Acenaphthylene	%	77	79		75	82		82		3765684

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4H9280
Report Date: 2014/10/03

Franz Environmental Inc
Client Project #: 1584-1401
Site Location: TC IQUALUIT AIRPORT
Sampler Initials: JD

O.REG 153 PAHS (SOIL)

Maxxam ID		XT1954	XT1956	XT1958	XT1963	XT1963	XT1968		
Sampling Date		2014/09/24	2014/09/24	2014/09/24	2014/09/24	2014/09/24	2014/09/24		
COC Number		486472-04-01	486472-04-01	486472-04-01	486472-05-01	486472-05-01	486472-05-01		
	Units	**TC-TP16-1**	**TC-TP17-1**	**TC-TP18-1**	**TC-TP19-1**	**TC-TP19-1 Lab-Dup**	**DUP1**	**RDL**	**QC Batch**
Calculated Parameters									
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	<0.0071	<0.0071	<0.0071		32	0.0071	3764146
Polyaromatic Hydrocarbons									
Acenaphthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.17	0.0050	3765684
Acenaphthylene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.068	0.0050	3765684
Anthracene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.041	0.0050	3765684
Benzo(a)anthracene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.024	0.0050	3765684
Benzo(a)pyrene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.016	0.0050	3765684
Benzo(b/j)fluoranthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.019	0.0050	3765684
Benzo(g,h,i)perylene	ug/g	<0.0050	0.011	0.0099	<0.0050	<0.0050	0.019	0.0050	3765684
Benzo(k)fluoranthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	3765684
Chrysene	ug/g	<0.0050	<0.0050	0.0052	<0.0050	<0.0050	0.028	0.0050	3765684
Dibenz(a,h)anthracene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	3765684
Fluoranthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.047	0.0050	3765684
Fluorene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.31	0.0050	3765684
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.011	0.0050	3765684
1-Methylnaphthalene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	13	0.0050	3765684
2-Methylnaphthalene	ug/g	0.0063	<0.0050	<0.0050	<0.0050	<0.0050	19	0.0050	3765684
Naphthalene	ug/g	0.0054	0.0077	<0.0050	0.0051	<0.0050	16	0.0050	3765684
Phenanthrene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.34	0.0050	3765684
Pyrene	ug/g	<0.0050	0.0077	<0.0050	<0.0050	<0.0050	0.066	0.0050	3765684
Surrogate Recovery (%)									
D10-Anthracene	%	89	89	86	91	89	85		3765684
D14-Terphenyl (FS)	%	97	99	95	99	97	91		3765684
D8-Acenaphthylene	%	82	80	78	79	78	81		3765684

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Report Date: 2014/10/03

Franz Environmental Inc
Client Project #: 1584-1401
Site Location: TC IQUALUIT AIRPORT
Sampler Initials: JD

RESULTS OF ANALYSES OF SOIL

Maxxam ID		XT1902	XT1903	XT1904	XT1905	XT1906	XT1907		
Sampling Date		2014/09/23	2014/09/23	2014/09/23	2014/09/23	2014/09/23	2014/09/23		
COC Number		486472-02-01	486472-02-01	486472-02-01	486472-02-01	486472-02-01	486472-02-01		
	Units	**TC-TP1-1**	**TC-TP2-1**	**TC-TP3-1**	**TC-TP3-2**	**TC-TP4-1**	**TC-TP5-1**	**RDL**	**QC Batch**
Inorganics									
Moisture	%	18	17	15	19	19	4.0	0.2	3765687

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		XT1908	XT1909	XT1910	XT1911		XT1935		
Sampling Date		2014/09/23	2014/09/23	2014/09/23	2014/09/23		2014/09/23		
COC Number		486472-02-01	486472-02-01	486472-02-01	486472-02-01		486472-03-01		
	Units	**TC-TP5-2**	**TC-TP6-1**	**TC-TP7-1**	**TC-TP8-1**	**QC Batch**	**TC-TP9-1**	**RDL**	**QC Batch**
Inorganics									
Moisture	%	12	17	18	5.0	3765687	13	0.2	3766274

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		XT1935	XT1936	XT1937	XT1938	XT1939	XT1941		
Sampling Date		2014/09/23	2014/09/23	2014/09/23	2014/09/23	2014/09/23	2014/09/23		
COC Number		486472-03-01	486472-03-01	486472-03-01	486472-03-01	486472-03-01	486472-03-01		
	Units	**TC-TP9-1 Lab-Dup**	**TC-TP10-1**	**TC-TP10-2**	**TC-TP11-1**	**TC-TP11-2**	**TC-TP12-1**	**RDL**	**QC Batch**
Inorganics									
Moisture	%	16	7.4	7.1	4.2	4.1	5.8	0.2	3766274

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam ID		XT1942	XT1943	XT1944	XT1950	XT1951	XT1952		
Sampling Date		2014/09/23	2014/09/23	2014/09/23	2014/09/24	2014/09/24	2014/09/24		
COC Number		486472-03-01	486472-03-01	486472-03-01	486472-04-01	486472-04-01	486472-04-01		
	Units	**TC-TP12-2**	**TC-TP13-1**	**TC-TP13-2**	**TC-TP14-1**	**TC-TP14-2**	**TC-TP15-1**	**RDL**	**QC Batch**
Inorganics									
Moisture	%	11	5.7	7.1	5.9	15	10	0.2	3766274

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RESULTS OF ANALYSES OF SOIL

Maxxam ID		XT1953	XT1954	XT1955	XT1956	XT1957	XT1958		
Sampling Date		2014/09/24	2014/09/24	2014/09/24	2014/09/24	2014/09/24	2014/09/24		
COC Number		486472-04-01	486472-04-01	486472-04-01	486472-04-01	486472-04-01	486472-04-01		
	Units	**TC-TP15-2**	**TC-TP16-1**	**TC-TP16-2**	**TC-TP17-1**	**TC-TP17-2**	**TC-TP18-1**	**RDL**	**QC Batch**
Inorganics									
Moisture	%	8.2	4.7	8.7	4.7	5.4	7.5	0.2	3766274

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		XT1959	XT1963		XT1964	XT1965	XT1965		
Sampling Date		2014/09/24	2014/09/24		2014/09/24	2014/09/24	2014/09/24		
COC Number		486472-04-01	486472-05-01		486472-05-01	486472-05-01	486472-05-01		
	Units	**TC-TP18-2**	**TC-TP19-1**	**QC Batch**	**TC-TP19-2**	**TC-TP20-1**	**TC-TP20-1 Lab-Dup**	**RDL**	**QC Batch**
Inorganics									
Moisture	%	7.6	15	3766274	3.8	9.3	8.9	0.2	3767074

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam ID		XT1966	XT1967	XT1968	XT1969		
Sampling Date		2014/09/24	2014/09/24	2014/09/24	2014/09/24		
COC Number		486472-05-01	486472-05-01	486472-05-01	486472-05-01		
	Units	**TC-TP20-2**	**TC-SOIL PILE**	**DUP1**	**DUP2**	**RDL**	**QC Batch**
Inorganics							
Moisture	%	4.3	7.8	7.7	7.7	0.2	3767074

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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		XT1902	XT1903	XT1904	XT1906		XT1907		
Sampling Date		2014/09/23	2014/09/23	2014/09/23	2014/09/23		2014/09/23		
COC Number		486472-02-01	486472-02-01	486472-02-01	486472-02-01		486472-02-01		
	Units	**TC-TP1-1**	**TC-TP2-1**	**TC-TP3-1**	**TC-TP4-1**	**RDL**	**TC-TP5-1**	**RDL**	**QC Batch**
Metals									
Acid Extractable Aluminum (Al)	ug/g	4200	3900	3600	3400	50	2700	50	3769654
Acid Extractable Antimony (Sb)	ug/g	<0.20	<0.20	<0.20	<0.20	0.20	<0.20	0.20	3769654
Acid Extractable Arsenic (As)	ug/g	<1.0	<1.0	<1.0	<1.0	1.0	8.3	1.0	3769654
Acid Extractable Barium (Ba)	ug/g	30	27	25	22	0.50	15	0.50	3769654
Acid Extractable Beryllium (Be)	ug/g	0.21	0.20	<0.20	<0.20	0.20	<0.20	0.20	3769654
Acid Extractable Bismuth (Bi)	ug/g	<1.0	<1.0	<1.0	<1.0	1.0	<1.0	1.0	3769654
Acid Extractable Boron (B)	ug/g	<5.0	<5.0	<5.0	<5.0	5.0	<5.0	5.0	3769654
Acid Extractable Cadmium (Cd)	ug/g	<0.10	<0.10	<0.10	<0.10	0.10	<0.10	0.10	3769654
Acid Extractable Calcium (Ca)	ug/g	11000	9500	11000	9600	50	16000	50	3769654
Acid Extractable Chromium (Cr)	ug/g	20	20	20	15	1.0	41	1.0	3769654
Acid Extractable Cobalt (Co)	ug/g	5.0	4.6	4.4	4.3	0.10	7.2	0.10	3769654
Acid Extractable Copper (Cu)	ug/g	9.5	7.9	8.0	7.9	0.50	16	0.50	3769654
Acid Extractable Iron (Fe)	ug/g	19000	19000	20000	16000	50	42000	250	3769654
Acid Extractable Lead (Pb)	ug/g	2.7	2.4	2.5	2.2	1.0	5.2	1.0	3769654
Acid Extractable Magnesium (Mg)	ug/g	3800	3600	3200	2900	50	2300	50	3769654
Acid Extractable Manganese (Mn)	ug/g	140	130	130	120	1.0	180	1.0	3769654
Acid Extractable Molybdenum (Mo)	ug/g	0.77	0.89	1.5	0.60	0.50	1.3	0.50	3769654
Acid Extractable Nickel (Ni)	ug/g	7.9	7.4	7.1	6.5	0.50	9.4	0.50	3769654
Acid Extractable Phosphorus (P)	ug/g	840	890	810	780	50	590	50	3769654
Acid Extractable Potassium (K)	ug/g	990	910	800	700	200	350	200	3769654
Acid Extractable Selenium (Se)	ug/g	<0.50	<0.50	<0.50	<0.50	0.50	<0.50	0.50	3769654
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	<0.20	<0.20	0.20	<0.20	0.20	3769654
Acid Extractable Sodium (Na)	ug/g	590	340	360	420	100	130	100	3769654
Acid Extractable Strontium (Sr)	ug/g	22	20	21	18	1.0	21	1.0	3769654
Acid Extractable Thallium (Tl)	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	<0.050	0.050	3769654
Acid Extractable Tin (Sn)	ug/g	<5.0	<5.0	<5.0	<5.0	5.0	<5.0	5.0	3769654
Acid Extractable Uranium (U)	ug/g	0.56	0.49	0.49	0.43	0.050	0.48	0.050	3769654
Acid Extractable Vanadium (V)	ug/g	36	36	37	29	5.0	86	5.0	3769654
Acid Extractable Zinc (Zn)	ug/g	30	28	27	26	5.0	29	5.0	3769654
Acid Extractable Mercury (Hg)	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	<0.050	0.050	3769654

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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		XT1909	XT1910		XT1911		XT1935	XT1936		
Sampling Date		2014/09/23	2014/09/23		2014/09/23		2014/09/23	2014/09/23		
COC Number		486472-02-01	486472-02-01		486472-02-01		486472-03-01	486472-03-01		
	Units	**TC-TP6-1**	**TC-TP7-1**	**RDL**	**TC-TP8-1**	**RDL**	**TC-TP9-1**	**TC-TP10-1**	**RDL**	**QC Batch**
Metals										
Acid Extractable Aluminum (Al)	ug/g	4000	4500	50	2500	50	2500	4800	50	3769654
Acid Extractable Antimony (Sb)	ug/g	<0.20	<0.20	0.20	<0.20	0.20	<0.20	0.22	0.20	3769654
Acid Extractable Arsenic (As)	ug/g	<1.0	<1.0	1.0	1.9	1.0	1.1	<1.0	1.0	3769654
Acid Extractable Barium (Ba)	ug/g	26	32	0.50	10	0.50	12	31	0.50	3769654
Acid Extractable Beryllium (Be)	ug/g	0.21	0.24	0.20	<0.20	0.20	<0.20	0.24	0.20	3769654
Acid Extractable Bismuth (Bi)	ug/g	<1.0	<1.0	1.0	<1.0	1.0	<1.0	<1.0	1.0	3769654
Acid Extractable Boron (B)	ug/g	<5.0	<5.0	5.0	<5.0	5.0	<5.0	<5.0	5.0	3769654
Acid Extractable Cadmium (Cd)	ug/g	<0.10	<0.10	0.10	<0.10	0.10	<0.10	<0.10	0.10	3769654
Acid Extractable Calcium (Ca)	ug/g	11000	3100	50	11000	50	19000	6400	50	3769654
Acid Extractable Chromium (Cr)	ug/g	19	18	1.0	49	1.0	32	28	1.0	3769654
Acid Extractable Cobalt (Co)	ug/g	4.8	6.2	0.10	8.2	0.10	6.7	6.5	0.10	3769654
Acid Extractable Copper (Cu)	ug/g	9.6	11	0.50	14	0.50	12	13	0.50	3769654
Acid Extractable Iron (Fe)	ug/g	20000	13000	50	54000	250	33000	29000	50	3769654
Acid Extractable Lead (Pb)	ug/g	2.7	2.7	1.0	3.4	1.0	2.9	19	1.0	3769654
Acid Extractable Magnesium (Mg)	ug/g	3400	3000	50	2500	50	2400	3300	50	3769654
Acid Extractable Manganese (Mn)	ug/g	140	81	1.0	180	1.0	160	340	1.0	3769654
Acid Extractable Molybdenum (Mo)	ug/g	1.1	<0.50	0.50	1.4	0.50	0.91	0.92	0.50	3769654
Acid Extractable Nickel (Ni)	ug/g	7.8	7.2	0.50	9.5	0.50	7.2	9.9	0.50	3769654
Acid Extractable Phosphorus (P)	ug/g	950	800	50	530	50	590	750	50	3769654
Acid Extractable Potassium (K)	ug/g	910	700	200	280	200	340	700	200	3769654
Acid Extractable Selenium (Se)	ug/g	<0.50	<0.50	0.50	<0.50	0.50	<0.50	<0.50	0.50	3769654
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	0.20	<0.20	0.20	<0.20	<0.20	0.20	3769654
Acid Extractable Sodium (Na)	ug/g	510	220	100	150	100	230	190	100	3769654
Acid Extractable Strontium (Sr)	ug/g	22	8.6	1.0	21	1.0	27	14	1.0	3769654
Acid Extractable Thallium (Tl)	ug/g	<0.050	<0.050	0.050	<0.050	0.050	<0.050	<0.050	0.050	3769654
Acid Extractable Tin (Sn)	ug/g	<5.0	<5.0	5.0	<5.0	5.0	<5.0	<5.0	5.0	3769654
Acid Extractable Uranium (U)	ug/g	0.53	0.41	0.050	0.38	0.050	0.45	0.51	0.050	3769654
Acid Extractable Vanadium (V)	ug/g	36	33	5.0	110	5.0	68	58	5.0	3769654
Acid Extractable Zinc (Zn)	ug/g	30	31	5.0	29	5.0	26	48	5.0	3769654
Acid Extractable Mercury (Hg)	ug/g	<0.050	<0.050	0.050	<0.050	0.050	<0.050	<0.050	0.050	3769654

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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		XT1938	XT1941	XT1943	XT1950	XT1952		
Sampling Date		2014/09/23	2014/09/23	2014/09/23	2014/09/24	2014/09/24		
COC Number		486472-03-01	486472-03-01	486472-03-01	486472-04-01	486472-04-01		
	Units	**TC-TP11-1**	**TC-TP12-1**	**TC-TP13-1**	**TC-TP14-1**	**TC-TP15-1**	**RDL**	**QC Batch**
Metals								
Acid Extractable Aluminum (Al)	ug/g	4000	4400	3900	4000	4200	50	3769654
Acid Extractable Antimony (Sb)	ug/g	0.22	<0.20	0.38	<0.20	<0.20	0.20	3769654
Acid Extractable Arsenic (As)	ug/g	1.2	<1.0	<1.0	<1.0	1.6	1.0	3769654
Acid Extractable Barium (Ba)	ug/g	28	38	26	21	28	0.50	3769654
Acid Extractable Beryllium (Be)	ug/g	0.21	0.23	0.21	0.21	0.20	0.20	3769654
Acid Extractable Bismuth (Bi)	ug/g	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3769654
Acid Extractable Boron (B)	ug/g	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	3769654
Acid Extractable Cadmium (Cd)	ug/g	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	3769654
Acid Extractable Calcium (Ca)	ug/g	8400	4500	9500	3500	6500	50	3769654
Acid Extractable Chromium (Cr)	ug/g	23	21	24	23	22	1.0	3769654
Acid Extractable Cobalt (Co)	ug/g	5.9	5.1	5.6	5.0	5.2	0.10	3769654
Acid Extractable Copper (Cu)	ug/g	12	11	12	7.2	9.8	0.50	3769654
Acid Extractable Iron (Fe)	ug/g	26000	23000	26000	24000	23000	50	3769654
Acid Extractable Lead (Pb)	ug/g	7.1	11	14	13	4.2	1.0	3769654
Acid Extractable Magnesium (Mg)	ug/g	2900	3000	2900	2800	3200	50	3769654
Acid Extractable Manganese (Mn)	ug/g	190	180	180	180	160	1.0	3769654
Acid Extractable Molybdenum (Mo)	ug/g	0.76	0.68	0.67	0.69	0.61	0.50	3769654
Acid Extractable Nickel (Ni)	ug/g	8.4	7.9	8.4	7.2	7.7	0.50	3769654
Acid Extractable Phosphorus (P)	ug/g	690	590	660	520	670	50	3769654
Acid Extractable Potassium (K)	ug/g	650	640	620	420	700	200	3769654
Acid Extractable Selenium (Se)	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	3769654
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	3769654
Acid Extractable Sodium (Na)	ug/g	170	170	180	130	180	100	3769654
Acid Extractable Strontium (Sr)	ug/g	15	11	16	11	14	1.0	3769654
Acid Extractable Thallium (Tl)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	3769654
Acid Extractable Tin (Sn)	ug/g	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	3769654
Acid Extractable Uranium (U)	ug/g	0.50	0.45	0.53	0.37	0.55	0.050	3769654
Acid Extractable Vanadium (V)	ug/g	49	45	50	52	44	5.0	3769654
Acid Extractable Zinc (Zn)	ug/g	37	40	42	32	31	5.0	3769654
Acid Extractable Mercury (Hg)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	3769654

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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		XT1952	XT1954	XT1956	XT1968		
Sampling Date		2014/09/24	2014/09/24	2014/09/24	2014/09/24		
COC Number		486472-04-01	486472-04-01	486472-04-01	486472-05-01		
	Units	**TC-TP15-1 Lab-Dup**	**TC-TP16-1**	**TC-TP17-1**	**DUP1**	**RDL**	**QC Batch**
Metals							
Acid Extractable Aluminum (Al)	ug/g	4200	4200	4100	4200	50	3769654
Acid Extractable Antimony (Sb)	ug/g	<0.20	2.2	<0.20	0.32	0.20	3769654
Acid Extractable Arsenic (As)	ug/g	1.1	1.6	<1.0	1.1	1.0	3769654
Acid Extractable Barium (Ba)	ug/g	27	45	24	29	0.50	3769654
Acid Extractable Beryllium (Be)	ug/g	0.22	0.23	0.21	0.23	0.20	3769654
Acid Extractable Bismuth (Bi)	ug/g	<1.0	<1.0	<1.0	<1.0	1.0	3769654
Acid Extractable Boron (B)	ug/g	<5.0	<5.0	<5.0	<5.0	5.0	3769654
Acid Extractable Cadmium (Cd)	ug/g	<0.10	0.30	<0.10	<0.10	0.10	3769654
Acid Extractable Calcium (Ca)	ug/g	6500	6600	3300	7800	50	3769654
Acid Extractable Chromium (Cr)	ug/g	22	24	28	24	1.0	3769654
Acid Extractable Cobalt (Co)	ug/g	5.4	5.5	5.6	5.7	0.10	3769654
Acid Extractable Copper (Cu)	ug/g	9.8	21	13	11	0.50	3769654
Acid Extractable Iron (Fe)	ug/g	23000	26000	30000	26000	50	3769654
Acid Extractable Lead (Pb)	ug/g	4.0	48	6.2	23	1.0	3769654
Acid Extractable Magnesium (Mg)	ug/g	3200	3100	2800	3100	50	3769654
Acid Extractable Manganese (Mn)	ug/g	170	190	210	210	1.0	3769654
Acid Extractable Molybdenum (Mo)	ug/g	0.66	0.79	0.89	0.78	0.50	3769654
Acid Extractable Nickel (Ni)	ug/g	8.1	9.0	9.2	8.9	0.50	3769654
Acid Extractable Phosphorus (P)	ug/g	700	560	540	670	50	3769654
Acid Extractable Potassium (K)	ug/g	700	690	580	630	200	3769654
Acid Extractable Selenium (Se)	ug/g	<0.50	<0.50	<0.50	<0.50	0.50	3769654
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	<0.20	<0.20	0.20	3769654
Acid Extractable Sodium (Na)	ug/g	180	210	140	180	100	3769654
Acid Extractable Strontium (Sr)	ug/g	14	20	9.1	14	1.0	3769654
Acid Extractable Thallium (Tl)	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	3769654
Acid Extractable Tin (Sn)	ug/g	<5.0	<5.0	<5.0	<5.0	5.0	3769654
Acid Extractable Uranium (U)	ug/g	0.42	0.39	0.44	0.45	0.050	3769654
Acid Extractable Vanadium (V)	ug/g	43	53	63	52	5.0	3769654
Acid Extractable Zinc (Zn)	ug/g	31	110	37	38	5.0	3769654
Acid Extractable Mercury (Hg)	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	3769654

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Report Date: 2014/10/03

Franz Environmental Inc
Client Project #: 1584-1401
Site Location: TC IQUALUIT AIRPORT
Sampler Initials: JD

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		XT1902	XT1902	XT1903	XT1904	XT1905		
Sampling Date		2014/09/23	2014/09/23	2014/09/23	2014/09/23	2014/09/23		
COC Number		486472-02-01	486472-02-01	486472-02-01	486472-02-01	486472-02-01		
	Units	**TC-TP1-1**	**TC-TP1-1 Lab-Dup**	**TC-TP2-1**	**TC-TP3-1**	**TC-TP3-2**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons								
Benzene	ug/g	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	3765859
Toluene	ug/g	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	3765859
Ethylbenzene	ug/g	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	3765859
o-Xylene	ug/g	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	3765859
p+m-Xylene	ug/g	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	3765859
Total Xylenes	ug/g	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	3765859
F1 (C6-C10)	ug/g	<10	<10	<10	<10	<10	10	3765859
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	<10	<10	10	3765859
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	<10		<10	<10	<10	10	3765689
F3 (C16-C34 Hydrocarbons)	ug/g	<10		<10	<10	<10	10	3765689
F4 (C34-C50 Hydrocarbons)	ug/g	<10		<10	<10	<10	10	3765689
Reached Baseline at C50	ug/g	Yes		Yes	Yes	Yes		3765689
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	97	102	101	101	101		3765859
4-Bromofluorobenzene	%	89	95	93	96	96		3765859
D10-Ethylbenzene	%	89	91	88	87	89		3765859
D4-1,2-Dichloroethane	%	84	86	83	85	83		3765859
o-Terphenyl	%	87		88	88	88		3765689

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		XT1906	XT1907	XT1908	XT1909	XT1910		
Sampling Date		2014/09/23	2014/09/23	2014/09/23	2014/09/23	2014/09/23		
COC Number		486472-02-01	486472-02-01	486472-02-01	486472-02-01	486472-02-01		
	Units	**TC-TP4-1**	**TC-TP5-1**	**TC-TP5-2**	**TC-TP6-1**	**TC-TP7-1**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons								
Benzene	ug/g	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	3765859
Toluene	ug/g	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	3765859
Ethylbenzene	ug/g	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	3765859
o-Xylene	ug/g	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	3765859
p+m-Xylene	ug/g	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	3765859
Total Xylenes	ug/g	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	3765859
F1 (C6-C10)	ug/g	<10	<10	<10	<10	<10	10	3765859
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	<10	<10	10	3765859
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	<10	<10	<10	10	3765689
F3 (C16-C34 Hydrocarbons)	ug/g	<10	11	<10	<10	<10	10	3765689
F4 (C34-C50 Hydrocarbons)	ug/g	<10	11	<10	<10	<10	10	3765689
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes	Yes		3765689
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	98	100	101	102	100		3765859
4-Bromofluorobenzene	%	94	97	98	97	93		3765859
D10-Ethylbenzene	%	82	77	89	87	84		3765859
D4-1,2-Dichloroethane	%	84	82	84	85	85		3765859
o-Terphenyl	%	87	85	90	91	89		3765689

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		XT1911		XT1935	XT1935		XT1936		
Sampling Date		2014/09/23		2014/09/23	2014/09/23		2014/09/23		
COC Number		486472-02-01		486472-03-01	486472-03-01		486472-03-01		
	Units	**TC-TP8-1**	**QC Batch**	**TC-TP9-1**	**TC-TP9-1 Lab-Dup**	**RDL**	**TC-TP10-1**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons									
Benzene	ug/g	<0.005	3765859	<0.005		0.005	<0.05	0.05	3765859
Toluene	ug/g	<0.02	3765859	<0.02		0.02	<0.2	0.2	3765859
Ethylbenzene	ug/g	<0.01	3765859	<0.01		0.01	0.1	0.1	3765859
o-Xylene	ug/g	<0.02	3765859	<0.02		0.02	0.7	0.2	3765859
p+m-Xylene	ug/g	<0.04	3765859	<0.04		0.04	<0.4	0.4	3765859
Total Xylenes	ug/g	<0.04	3765859	<0.04		0.04	0.7	0.4	3765859
F1 (C6-C10)	ug/g	<10	3765859	<10		10	650	100	3765859
F1 (C6-C10) - BTEX	ug/g	<10	3765859	<10		10	650	100	3765859
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	<10	3765689	<10	<10	10	2300	10	3767080
F3 (C16-C34 Hydrocarbons)	ug/g	<10	3765689	<10	<10	10	2200	10	3767080
F4 (C34-C50 Hydrocarbons)	ug/g	<10	3765689	<10	<10	10	440	10	3767080
Reached Baseline at C50	ug/g	Yes	3765689	Yes	Yes		Yes		3767080
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	100	3765859	101			121		3765859
4-Bromofluorobenzene	%	91	3765859	90			96		3765859
D10-Ethylbenzene	%	88	3765859	93			111		3765859
D4-1,2-Dichloroethane	%	85	3765859	87			78		3765859
o-Terphenyl	%	87	3765689	81	82		88		3767080

RDL = Reportable Detection Limit
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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		XT1937	XT1938	XT1939	XT1941		XT1942		
Sampling Date		2014/09/23	2014/09/23	2014/09/23	2014/09/23		2014/09/23		
COC Number		486472-03-01	486472-03-01	486472-03-01	486472-03-01		486472-03-01		
	Units	**TC-TP10-2**	**TC-TP11-1**	**TC-TP11-2**	**TC-TP12-1**	**RDL**	**TC-TP12-2**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons									
Benzene	ug/g	<0.005	<0.005	<0.005	<0.005	0.005	<0.05	0.05	3765859
Toluene	ug/g	<0.02	<0.02	<0.02	<0.02	0.02	<0.2	0.2	3765859
Ethylbenzene	ug/g	<0.01	<0.01	<0.01	<0.01	0.01	<0.1	0.1	3765859
o-Xylene	ug/g	<0.02	<0.02	<0.02	<0.02	0.02	<0.2	0.2	3765859
p+m-Xylene	ug/g	<0.04	<0.04	<0.04	<0.04	0.04	<0.4	0.4	3765859
Total Xylenes	ug/g	<0.04	<0.04	<0.04	<0.04	0.04	<0.4	0.4	3765859
F1 (C6-C10)	ug/g	<10	<10	<10	<10	10	530	100	3765859
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	<10	10	530	100	3765859
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	<10	<10	10	4000	10	3767080
F3 (C16-C34 Hydrocarbons)	ug/g	20	40	<10	58	10	420	10	3767080
F4 (C34-C50 Hydrocarbons)	ug/g	<10	66	<10	12	10	<10	10	3767080
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes		Yes		3767080
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	99	99	103	107		122		3765859
4-Bromofluorobenzene	%	95	95	96	98		82		3765859
D10-Ethylbenzene	%	89	87	92	92		113		3765859
D4-1,2-Dichloroethane	%	86	83	83	89		76		3765859
o-Terphenyl	%	80	80	78	77		85		3767080

RDL = Reportable Detection Limit
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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		XT1943	XT1944		XT1950		XT1951		
Sampling Date		2014/09/23	2014/09/23		2014/09/24		2014/09/24		
COC Number		486472-03-01	486472-03-01		486472-04-01		486472-04-01		
	Units	**TC-TP13-1**	**TC-TP13-2**	**RDL**	**TC-TP14-1**	**QC Batch**	**TC-TP14-2**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons									
Benzene	ug/g	<0.005	<0.005	0.005	0.5	3765859	1.1	0.3	3765862
Toluene	ug/g	<0.02	<0.02	0.02	41	3765859	95	1	3765862
Ethylbenzene	ug/g	<0.01	<0.01	0.01	16	3765859	23	0.5	3765862
o-Xylene	ug/g	<0.02	<0.02	0.02	310	3765859	170	1	3765862
p+m-Xylene	ug/g	<0.04	<0.04	0.04	580	3765859	400	2	3765862
Total Xylenes	ug/g	<0.04	<0.04	0.04	890	3765859	570	2	3765862
F1 (C6-C10)	ug/g	<10	<10	10	5000	3765859	5600	500	3765862
F1 (C6-C10) - BTEX	ug/g	<10	<10	10	4000	3765859	4900	500	3765862
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	10	3400	3767080	3900	10	3767080
F3 (C16-C34 Hydrocarbons)	ug/g	160	<10	10	260	3767080	260	10	3767080
F4 (C34-C50 Hydrocarbons)	ug/g	180	<10	10	170	3767080	29	10	3767080
Reached Baseline at C50	ug/g	Yes	Yes		Yes	3767080	Yes		3767080
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	104	99		122	3765859	121		3765862
4-Bromofluorobenzene	%	99	95		99	3765859	101		3765862
D10-Ethylbenzene	%	89	80		119	3765859	122		3765862
D4-1,2-Dichloroethane	%	85	82		90	3765859	93		3765862
o-Terphenyl	%	76	78		77	3767080	92		3767080

RDL = Reportable Detection Limit
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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		XT1952	XT1953	XT1954	XT1955	XT1956		
Sampling Date		2014/09/24	2014/09/24	2014/09/24	2014/09/24	2014/09/24		
COC Number		486472-04-01	486472-04-01	486472-04-01	486472-04-01	486472-04-01		
	Units	**TC-TP15-1**	**TC-TP15-2**	**TC-TP16-1**	**TC-TP16-2**	**TC-TP17-1**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons								
Benzene	ug/g	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	3765862
Toluene	ug/g	<0.02	<0.02	0.12	<0.02	<0.02	0.02	3765862
Ethylbenzene	ug/g	<0.01	<0.01	0.01	<0.01	<0.01	0.01	3765862
o-Xylene	ug/g	<0.02	<0.02	0.08	<0.02	<0.02	0.02	3765862
p+m-Xylene	ug/g	<0.04	<0.04	0.19	<0.04	<0.04	0.04	3765862
Total Xylenes	ug/g	<0.04	<0.04	0.26	<0.04	<0.04	0.04	3765862
F1 (C6-C10)	ug/g	<10	<10	<10	<10	<10	10	3765862
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	<10	<10	10	3765862
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	<10	<10	88	10	3767080
F3 (C16-C34 Hydrocarbons)	ug/g	<10	<10	<10	<10	180	10	3767080
F4 (C34-C50 Hydrocarbons)	ug/g	<10	<10	<10	<10	<10	10	3767080
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes	Yes		3767080
Surrogate Recovery (%)								
1,4-Difluorobenzene	%	119	118	96	101	106		3765862
4-Bromofluorobenzene	%	103	111	109	98	97		3765862
D10-Ethylbenzene	%	93	117	102	91	101		3765862
D4-1,2-Dichloroethane	%	92	118	73	84	91		3765862
o-Terphenyl	%	76	73	76	80	90		3767080

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		XT1957	XT1958	XT1959	XT1963		XT1964		
Sampling Date		2014/09/24	2014/09/24	2014/09/24	2014/09/24		2014/09/24		
COC Number		486472-04-01	486472-04-01	486472-04-01	486472-05-01		486472-05-01		
	Units	**TC-TP17-2**	**TC-TP18-1**	**TC-TP18-2**	**TC-TP19-1**	**QC Batch**	**TC-TP19-2**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons									
Benzene	ug/g	<0.005	<0.005	<0.005	<0.005	3765862	<0.005	0.005	3765862
Toluene	ug/g	<0.02	<0.02	<0.02	<0.02	3765862	<0.02	0.02	3765862
Ethylbenzene	ug/g	<0.01	<0.01	<0.01	<0.01	3765862	<0.01	0.01	3765862
o-Xylene	ug/g	<0.02	<0.02	0.02	0.03	3765862	<0.02	0.02	3765862
p+m-Xylene	ug/g	<0.04	<0.04	0.07	0.07	3765862	<0.04	0.04	3765862
Total Xylenes	ug/g	<0.04	<0.04	0.09	0.11	3765862	<0.04	0.04	3765862
F1 (C6-C10)	ug/g	<10	<10	18	<10	3765862	<10	10	3765862
F1 (C6-C10) - BTEX	ug/g	<10	<10	18	<10	3765862	<10	10	3765862
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	<10	24	3767080	<10	10	3767084
F3 (C16-C34 Hydrocarbons)	ug/g	<10	36	<10	64	3767080	<10	10	3767084
F4 (C34-C50 Hydrocarbons)	ug/g	<10	31	<10	14	3767080	<10	10	3767084
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes	3767080	Yes		3767084
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	103	106	100	106	3765862	97		3765862
4-Bromofluorobenzene	%	98	101	100	99	3765862	96		3765862
D10-Ethylbenzene	%	88	92	91	97	3765862	88		3765862
D4-1,2-Dichloroethane	%	87	90	83	93	3765862	85		3765862
o-Terphenyl	%	79	74	74	77	3767080	86		3767084

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Report Date: 2014/10/03

Franz Environmental Inc
Client Project #: 1584-1401
Site Location: TC IQUALUIT AIRPORT
Sampler Initials: JD

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		XT1965	XT1965	XT1966	XT1967		XT1968		
Sampling Date		2014/09/24	2014/09/24	2014/09/24	2014/09/24		2014/09/24		
COC Number		486472-05-01	486472-05-01	486472-05-01	486472-05-01		486472-05-01		
	Units	**TC-TP20-1**	**TC-TP20-1 Lab-Dup**	**TC-TP20-2**	**TC-SOIL PILE**	**RDL**	**DUP1**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons									
Benzene	ug/g	<0.005		<0.005	<0.005	0.005	0.5	0.3	3765862
Toluene	ug/g	<0.02		<0.02	0.02	0.02	58	1	3765862
Ethylbenzene	ug/g	<0.01		<0.01	<0.01	0.01	26	0.5	3765862
o-Xylene	ug/g	0.03		<0.02	0.08	0.02	430	1	3765862
p+m-Xylene	ug/g	0.08		<0.04	0.15	0.04	800	2	3765862
Total Xylenes	ug/g	0.10		<0.04	0.22	0.04	1200	2	3765862
F1 (C6-C10)	ug/g	63		<10	<10	10	8100	500	3765862
F1 (C6-C10) - BTEX	ug/g	63		<10	<10	10	6800	500	3765862
F2-F4 Hydrocarbons									
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g				500	100			3770550
F2 (C10-C16 Hydrocarbons)	ug/g	510	450	<10	<10	10	2200	10	3767084
F3 (C16-C34 Hydrocarbons)	ug/g	220	210	<10	120	10	600	10	3767084
F4 (C34-C50 Hydrocarbons)	ug/g	230	230	<10	130	10	570	10	3767084
Reached Baseline at C50	ug/g	Yes	Yes	Yes	No		Yes		3767084
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	101		103	102		126		3765862
4-Bromofluorobenzene	%	101		96	99		104		3765862
D10-Ethylbenzene	%	98		92	94		108		3765862
D4-1,2-Dichloroethane	%	80		84	84		101		3765862
o-Terphenyl	%	86	84	91	84		94		3767084

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Report Date: 2014/10/03

Franz Environmental Inc
Client Project #: 1584-1401
Site Location: TC IQUALUIT AIRPORT
Sampler Initials: JD

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		XT1969	XT1969		
Sampling Date		2014/09/24	2014/09/24		
COC Number		486472-05-01	486472-05-01		
	Units	**DUP2**	**DUP2 Lab-Dup**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons					
Benzene	ug/g	<0.005	<0.005	0.005	3765862
Toluene	ug/g	<0.02	<0.02	0.02	3765862
Ethylbenzene	ug/g	<0.01	<0.01	0.01	3765862
o-Xylene	ug/g	<0.02	<0.02	0.02	3765862
p+m-Xylene	ug/g	<0.04	<0.04	0.04	3765862
Total Xylenes	ug/g	<0.04	<0.04	0.04	3765862
F1 (C6-C10)	ug/g	<10	<10	10	3765862
F1 (C6-C10) - BTEX	ug/g	<10	<10	10	3765862
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/g	<10		10	3767084
F3 (C16-C34 Hydrocarbons)	ug/g	<10		10	3767084
F4 (C34-C50 Hydrocarbons)	ug/g	<10		10	3767084
Reached Baseline at C50	ug/g	Yes			3767084
Surrogate Recovery (%)					
1,4-Difluorobenzene	%	118	113		3765862
4-Bromofluorobenzene	%	100	101		3765862
D10-Ethylbenzene	%	112	87		3765862
D4-1,2-Dichloroethane	%	89	94		3765862
o-Terphenyl	%	87			3767084

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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TEST SUMMARY

Maxxam ID: XT1902
Sample ID: TC-TP1-1
Matrix: Soil

Collected: 2014/09/23
Shipped:
Received: 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3765689	2014/09/29	2014/09/29	Arezoo Habibagahi
Strong Acid Leachable Metals by ICPMS	ICP/MS	3769654	2014/10/01	2014/10/02	Viviana Canzonieri
MOISTURE	BAL	3765687	N/A	2014/09/30	Arezoo Habibagahi
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/29	Darryl Tiller

Maxxam ID: XT1902 Dup
Sample ID: TC-TP1-1
Matrix: Soil

Collected: 2014/09/23
Shipped:
Received: 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/02	Liliana Gaburici

Maxxam ID: XT1903
Sample ID: TC-TP2-1
Matrix: Soil

Collected: 2014/09/23
Shipped:
Received: 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3765689	2014/09/29	2014/09/29	Arezoo Habibagahi
Strong Acid Leachable Metals by ICPMS	ICP/MS	3769654	2014/10/01	2014/10/02	Viviana Canzonieri
MOISTURE	BAL	3765687	N/A	2014/09/30	Arezoo Habibagahi
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/29	Darryl Tiller

Maxxam ID: XT1904
Sample ID: TC-TP3-1
Matrix: Soil

Collected: 2014/09/23
Shipped:
Received: 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3765689	2014/09/29	2014/09/29	Arezoo Habibagahi
Strong Acid Leachable Metals by ICPMS	ICP/MS	3769654	2014/10/01	2014/10/02	Viviana Canzonieri
MOISTURE	BAL	3765687	N/A	2014/09/30	Arezoo Habibagahi
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/29	Darryl Tiller

Maxxam ID: XT1905
Sample ID: TC-TP3-2
Matrix: Soil

Collected: 2014/09/23
Shipped:
Received: 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3765689	2014/09/29	2014/09/29	Arezoo Habibagahi

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TEST SUMMARY

Maxxam ID: XT1905 **Collected:** 2014/09/23
Sample ID: TC-TP3-2 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
MOISTURE	BAL	3765687	N/A	2014/09/30	Arezoo Habibagahi

Maxxam ID: XT1906 **Collected:** 2014/09/23
Sample ID: TC-TP4-1 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3765689	2014/09/29	2014/09/29	Arezoo Habibagahi
Strong Acid Leachable Metals by ICPMS	ICP/MS	3769654	2014/10/01	2014/10/02	Viviana Canzonieri
MOISTURE	BAL	3765687	N/A	2014/09/30	Arezoo Habibagahi
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/29	Darryl Tiller

Maxxam ID: XT1907 **Collected:** 2014/09/23
Sample ID: TC-TP5-1 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3765689	2014/09/29	2014/09/29	Arezoo Habibagahi
Strong Acid Leachable Metals by ICPMS	ICP/MS	3769654	2014/10/01	2014/10/02	Viviana Canzonieri
MOISTURE	BAL	3765687	N/A	2014/09/30	Arezoo Habibagahi
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/29	Darryl Tiller

Maxxam ID: XT1908 **Collected:** 2014/09/23
Sample ID: TC-TP5-2 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3765689	2014/09/29	2014/09/29	Arezoo Habibagahi
MOISTURE	BAL	3765687	N/A	2014/09/30	Arezoo Habibagahi

Maxxam ID: XT1909 **Collected:** 2014/09/23
Sample ID: TC-TP6-1 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/03	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3765689	2014/09/29	2014/09/29	Arezoo Habibagahi
Strong Acid Leachable Metals by ICPMS	ICP/MS	3769654	2014/10/01	2014/10/02	Viviana Canzonieri
MOISTURE	BAL	3765687	N/A	2014/09/30	Arezoo Habibagahi

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TEST SUMMARY

Maxxam ID: XT1909 **Collected:** 2014/09/23
Sample ID: TC-TP6-1 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/30	Darryl Tiller

Maxxam ID: XT1910 **Collected:** 2014/09/23
Sample ID: TC-TP7-1 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/03	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3765689	2014/09/29	2014/09/29	Arezoo Habibagahi
Strong Acid Leachable Metals by ICPMS	ICP/MS	3769654	2014/10/01	2014/10/02	Viviana Canzonieri
MOISTURE	BAL	3765687	N/A	2014/09/30	Arezoo Habibagahi
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/30	Darryl Tiller

Maxxam ID: XT1911 **Collected:** 2014/09/23
Sample ID: TC-TP8-1 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/03	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3765689	2014/09/29	2014/09/29	Arezoo Habibagahi
Strong Acid Leachable Metals by ICPMS	ICP/MS	3769654	2014/10/01	2014/10/02	Viviana Canzonieri
MOISTURE	BAL	3765687	N/A	2014/09/30	Arezoo Habibagahi
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/30	Darryl Tiller

Maxxam ID: XT1935 **Collected:** 2014/09/23
Sample ID: TC-TP9-1 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/03	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
Strong Acid Leachable Metals by ICPMS	ICP/MS	3769654	2014/10/01	2014/10/02	Viviana Canzonieri
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/30	Darryl Tiller

Maxxam ID: XT1935 Dup **Collected:** 2014/09/23
Sample ID: TC-TP9-1 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato

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TEST SUMMARY

Maxxam ID: XT1936
Sample ID: TC-TP10-1
Matrix: Soil

Collected: 2014/09/23
Shipped:
Received: 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/03	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
Strong Acid Leachable Metals by ICPMS	ICP/MS	3769654	2014/10/01	2014/10/02	Viviana Canzonieri
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/30	Darryl Tiller

Maxxam ID: XT1937
Sample ID: TC-TP10-2
Matrix: Soil

Collected: 2014/09/23
Shipped:
Received: 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/03	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato

Maxxam ID: XT1938
Sample ID: TC-TP11-1
Matrix: Soil

Collected: 2014/09/23
Shipped:
Received: 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/03	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
Strong Acid Leachable Metals by ICPMS	ICP/MS	3769654	2014/10/01	2014/10/02	Viviana Canzonieri
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato

Maxxam ID: XT1939
Sample ID: TC-TP11-2
Matrix: Soil

Collected: 2014/09/23
Shipped:
Received: 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/03	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/30	Darryl Tiller

Maxxam ID: XT1941
Sample ID: TC-TP12-1
Matrix: Soil

Collected: 2014/09/23
Shipped:
Received: 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/03	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi

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TEST SUMMARY

Maxxam ID: XT1941 **Collected:** 2014/09/23
Sample ID: TC-TP12-1 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	3769654	2014/10/01	2014/10/02	Viviana Canzonieri
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/30	Darryl Tiller

Maxxam ID: XT1942 **Collected:** 2014/09/23
Sample ID: TC-TP12-2 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/03	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato

Maxxam ID: XT1943 **Collected:** 2014/09/23
Sample ID: TC-TP13-1 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/03	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
Strong Acid Leachable Metals by ICPMS	ICP/MS	3769654	2014/10/01	2014/10/02	Viviana Canzonieri
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/30	Darryl Tiller

Maxxam ID: XT1944 **Collected:** 2014/09/23
Sample ID: TC-TP13-2 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/03	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato

Maxxam ID: XT1950 **Collected:** 2014/09/24
Sample ID: TC-TP14-1 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765859	2014/09/29	2014/10/03	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
Strong Acid Leachable Metals by ICPMS	ICP/MS	3769654	2014/10/01	2014/10/02	Viviana Canzonieri
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/30	Darryl Tiller

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Franz Environmental Inc
Client Project #: 1584-1401
Site Location: TC IQUALUIT AIRPORT
Sampler Initials: JD

TEST SUMMARY

Maxxam ID: XT1951
Sample ID: TC-TP14-2
Matrix: Soil

Collected: 2014/09/24
Shipped:
Received: 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765862	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato

Maxxam ID: XT1952
Sample ID: TC-TP15-1
Matrix: Soil

Collected: 2014/09/24
Shipped:
Received: 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765862	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
Strong Acid Leachable Metals by ICPMS	ICP/MS	3769654	2014/10/01	2014/10/02	Viviana Canzonieri
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/30	Darryl Tiller

Maxxam ID: XT1952 Dup
Sample ID: TC-TP15-1
Matrix: Soil

Collected: 2014/09/24
Shipped:
Received: 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	3769654	2014/10/01	2014/10/02	Viviana Canzonieri

Maxxam ID: XT1953
Sample ID: TC-TP15-2
Matrix: Soil

Collected: 2014/09/24
Shipped:
Received: 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765862	2014/09/29	2014/09/30	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato

Maxxam ID: XT1954
Sample ID: TC-TP16-1
Matrix: Soil

Collected: 2014/09/24
Shipped:
Received: 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765862	2014/09/29	2014/09/30	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
Strong Acid Leachable Metals by ICPMS	ICP/MS	3769654	2014/10/01	2014/10/02	Viviana Canzonieri
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/30	Darryl Tiller

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Maxxam Job #: B4H9280
Report Date: 2014/10/03

Franz Environmental Inc
Client Project #: 1584-1401
Site Location: TC IQUALUIT AIRPORT
Sampler Initials: JD

TEST SUMMARY

Maxxam ID: XT1955 **Collected:** 2014/09/24
Sample ID: TC-TP16-2 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765862	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato

Maxxam ID: XT1956 **Collected:** 2014/09/24
Sample ID: TC-TP17-1 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765862	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
Strong Acid Leachable Metals by ICPMS	ICP/MS	3769654	2014/10/01	2014/10/02	Viviana Canzonieri
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/30	Darryl Tiller

Maxxam ID: XT1957 **Collected:** 2014/09/24
Sample ID: TC-TP17-2 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765862	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato

Maxxam ID: XT1958 **Collected:** 2014/09/24
Sample ID: TC-TP18-1 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765862	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/30	Darryl Tiller

Maxxam ID: XT1959 **Collected:** 2014/09/24
Sample ID: TC-TP18-2 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765862	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato

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Sampler Initials: JD

TEST SUMMARY

Maxxam ID: XT1963 **Collected:** 2014/09/24
Sample ID: TC-TP19-1 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765862	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767080	2014/09/30	2014/10/01	Arezoo Habibagahi
MOISTURE	BAL	3766274	N/A	2014/10/01	Paul Rubinato
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/29	Darryl Tiller

Maxxam ID: XT1963 Dup **Collected:** 2014/09/24
Sample ID: TC-TP19-1 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/29	Darryl Tiller

Maxxam ID: XT1964 **Collected:** 2014/09/24
Sample ID: TC-TP19-2 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765862	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767084	2014/09/30	2014/09/30	Arezoo Habibagahi
MOISTURE	BAL	3767074	N/A	2014/10/01	Raigamage Perera

Maxxam ID: XT1965 **Collected:** 2014/09/24
Sample ID: TC-TP20-1 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765862	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767084	2014/09/30	2014/09/30	Arezoo Habibagahi
MOISTURE	BAL	3767074	N/A	2014/10/01	Raigamage Perera

Maxxam ID: XT1965 Dup **Collected:** 2014/09/24
Sample ID: TC-TP20-1 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767084	2014/09/30	2014/09/30	Arezoo Habibagahi
MOISTURE	BAL	3767074	N/A	2014/10/01	Raigamage Perera

Maxxam ID: XT1966 **Collected:** 2014/09/24
Sample ID: TC-TP20-2 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765862	2014/09/29	2014/10/02	Liliana Gaburici

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Sampler Initials: JD

TEST SUMMARY

Maxxam ID: XT1966 **Collected:** 2014/09/24
Sample ID: TC-TP20-2 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767084	2014/09/30	2014/09/30	Arezoo Habibagahi
MOISTURE	BAL	3767074	N/A	2014/10/01	Raigamage Perera

Maxxam ID: XT1967 **Collected:** 2014/09/24
Sample ID: TC-SOIL PILE **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765862	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767084	2014/09/30	2014/10/01	Arezoo Habibagahi
F4G (CCME Hydrocarbons Gravimetric)	BAL	3770550	2014/10/02	2014/10/02	Arezoo Habibagahi
MOISTURE	BAL	3767074	N/A	2014/10/01	Raigamage Perera

Maxxam ID: XT1968 **Collected:** 2014/09/24
Sample ID: DUP1 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3764146	N/A	2014/10/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765862	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767084	2014/09/30	2014/10/01	Arezoo Habibagahi
Strong Acid Leachable Metals by ICPMS	ICP/MS	3769654	2014/10/01	2014/10/02	Viviana Canzonieri
MOISTURE	BAL	3767074	N/A	2014/10/01	Raigamage Perera
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3765684	2014/09/29	2014/09/30	Darryl Tiller

Maxxam ID: XT1969 **Collected:** 2014/09/24
Sample ID: DUP2 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765862	2014/09/29	2014/10/02	Liliana Gaburici
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3767084	2014/09/30	2014/09/30	Arezoo Habibagahi
MOISTURE	BAL	3767074	N/A	2014/10/01	Raigamage Perera

Maxxam ID: XT1969 Dup **Collected:** 2014/09/24
Sample ID: DUP2 **Shipped:**
Matrix: Soil **Received:** 2014/09/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3765862	2014/09/29	2014/10/02	Liliana Gaburici

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Sampler Initials: JD

GENERAL COMMENTS

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

Package 1	5.0°C
Package 2	3.3°C

Cooler custody seal was present and intact.

Sample XT1936-01 : PAH analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.
F1/BTEX analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample XT1942-01 : F1/BTEX analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample XT1943-01 : PAH analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample XT1950-01 : PAH analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.
F1/BTEX analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample XT1951-01 : F1/BTEX Analysis: Sample was diluted due to high concentration of target compounds. Reporting limits were adjusted accordingly.

Sample XT1968-01 : F1/BTEX Analysis: Sample was diluted due to high concentration of target compounds. Reporting limits were adjusted accordingly.

PETROLEUM HYDROCARBONS (CCME)

Petroleum Hydro. CCME F1 & BTEX in Soil: F1/BTEX Analysis: Matrix spiked recoveries were not calculated (NC) due to of high concentration of target compounds in the parent sample.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

Franz Environmental Inc
Client Project #: 1584-1401
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Sampler Initials: JD

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3765684	D10-Anthracene	2014/09/29	88	50 - 130	96	50 - 130	95	%		
3765684	D14-Terphenyl (FS)	2014/09/29	95	50 - 130	101	50 - 130	104	%		
3765684	D8-Acenaphthylene	2014/09/29	78	50 - 130	81	50 - 130	85	%		
3765689	o-Terphenyl	2014/09/29	75	30 - 130	86	30 - 130	85	%		
3765859	1,4-Difluorobenzene	2014/10/02	111	60 - 140	117	60 - 140	102	%		
3765859	4-Bromofluorobenzene	2014/10/02	104	60 - 140	120	60 - 140	94	%		
3765859	D10-Ethylbenzene	2014/10/02	104	30 - 130	115	30 - 130	91	%		
3765859	D4-1,2-Dichloroethane	2014/10/02	93	60 - 140	102	60 - 140	88	%		
3765862	1,4-Difluorobenzene	2014/09/30	NC (1)	60 - 140	121	60 - 140	100	%		
3765862	4-Bromofluorobenzene	2014/09/30	NC (1)	60 - 140	118	60 - 140	99	%		
3765862	D10-Ethylbenzene	2014/09/30	NC (1)	30 - 130	109	30 - 130	88	%		
3765862	D4-1,2-Dichloroethane	2014/09/30	NC (1)	60 - 140	103	60 - 140	85	%		
3767080	o-Terphenyl	2014/10/01	77	30 - 130	75	30 - 130	81	%		
3767084	o-Terphenyl	2014/09/30	85	30 - 130	87	30 - 130	86	%		
3765684	1-Methylnaphthalene	2014/09/29	86	50 - 130	86	50 - 130	<0.0050	ug/g	NC	40
3765684	2-Methylnaphthalene	2014/09/29	84	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40
3765684	Acenaphthene	2014/09/29	84	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40
3765684	Acenaphthylene	2014/09/29	77	50 - 130	78	50 - 130	<0.0050	ug/g	NC	40
3765684	Anthracene	2014/09/29	82	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
3765684	Benzo(a)anthracene	2014/09/29	90	50 - 130	87	50 - 130	<0.0050	ug/g	NC	40
3765684	Benzo(a)pyrene	2014/09/29	87	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
3765684	Benzo(b/j)fluoranthene	2014/09/29	83	50 - 130	86	50 - 130	<0.0050	ug/g	NC	40
3765684	Benzo(g,h,i)perylene	2014/09/29	91	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
3765684	Benzo(k)fluoranthene	2014/09/29	89	50 - 130	93	50 - 130	<0.0050	ug/g	NC	40
3765684	Chrysene	2014/09/29	87	50 - 130	87	50 - 130	<0.0050	ug/g	NC	40
3765684	Dibenz(a,h)anthracene	2014/09/29	90	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40
3765684	Fluoranthene	2014/09/29	90	50 - 130	90	50 - 130	<0.0050	ug/g	NC	40
3765684	Fluorene	2014/09/29	104	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40
3765684	Indeno(1,2,3-cd)pyrene	2014/09/29	93	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40
3765684	Naphthalene	2014/09/29	81	50 - 130	85	50 - 130	<0.0050	ug/g	NC	40
3765684	Phenanthrene	2014/09/29	79	50 - 130	81	50 - 130	<0.0050	ug/g	NC	40
3765684	Pyrene	2014/09/29	88	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40

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QUALITY ASSURANCE REPORT(CONT'D)

Franz Environmental Inc
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Sampler Initials: JD

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3765687	Moisture	2014/09/30							6.7	50
3765689	F2 (C10-C16 Hydrocarbons)	2014/09/30	96	50 - 130	90	80 - 120	<10	ug/g	NC	50
3765689	F3 (C16-C34 Hydrocarbons)	2014/09/30	96	50 - 130	90	80 - 120	<10	ug/g	NC	50
3765689	F4 (C34-C50 Hydrocarbons)	2014/09/30	96	50 - 130	90	80 - 120	<10	ug/g	NC	50
3765859	Benzene	2014/10/02	68	60 - 140	76	60 - 140	<0.005	ug/g	NC	50
3765859	Ethylbenzene	2014/10/02	68	60 - 140	78	60 - 140	<0.01	ug/g	NC	50
3765859	F1 (C6-C10) - BTEX	2014/10/02					<10	ug/g	NC	50
3765859	F1 (C6-C10)	2014/10/02	88	60 - 140	88	80 - 120	<10	ug/g	NC	50
3765859	o-Xylene	2014/10/02	77	60 - 140	89	60 - 140	<0.02	ug/g	NC	50
3765859	p+m-Xylene	2014/10/02	61	60 - 140	70	60 - 140	<0.04	ug/g	NC	50
3765859	Toluene	2014/10/02	68	60 - 140	77	60 - 140	<0.02	ug/g	NC	50
3765859	Total Xylenes	2014/10/02					<0.04	ug/g	NC	50
3765862	Benzene	2014/10/02	NC	60 - 140	81	60 - 140	<0.005	ug/g	NC	50
3765862	Ethylbenzene	2014/10/02	NC	60 - 140	77	60 - 140	<0.01	ug/g	NC	50
3765862	F1 (C6-C10) - BTEX	2014/10/02					<10	ug/g	NC	50
3765862	F1 (C6-C10)	2014/10/02	NC	60 - 140	87	80 - 120	<10	ug/g	NC	50
3765862	o-Xylene	2014/10/02	NC	60 - 140	83	60 - 140	<0.02	ug/g	NC	50
3765862	p+m-Xylene	2014/10/02	NC	60 - 140	70	60 - 140	<0.04	ug/g	NC	50
3765862	Toluene	2014/10/02	NC	60 - 140	77	60 - 140	<0.02	ug/g	NC	50
3765862	Total Xylenes	2014/10/02					<0.04	ug/g	NC	50
3766274	Moisture	2014/10/01							15	50
3767074	Moisture	2014/10/01							4.4	50
3767080	F2 (C10-C16 Hydrocarbons)	2014/10/01	86	50 - 130	87	80 - 120	<10	ug/g	NC	50
3767080	F3 (C16-C34 Hydrocarbons)	2014/10/01	86	50 - 130	87	80 - 120	<10	ug/g	NC	50
3767080	F4 (C34-C50 Hydrocarbons)	2014/10/01	86	50 - 130	87	80 - 120	<10	ug/g	NC	50
3767084	F2 (C10-C16 Hydrocarbons)	2014/09/30	92	50 - 130	92	80 - 120	<10	ug/g	12	50
3767084	F3 (C16-C34 Hydrocarbons)	2014/09/30	92	50 - 130	92	80 - 120	<10	ug/g	4.3	50
3767084	F4 (C34-C50 Hydrocarbons)	2014/09/30	92	50 - 130	92	80 - 120	<10	ug/g	2.9	50
3769654	Acid Extractable Aluminum (Al)	2014/10/02	NC	75 - 125	100	80 - 120	<50	ug/g	0.15	30
3769654	Acid Extractable Antimony (Sb)	2014/10/02	99	75 - 125	110	80 - 120	<0.20	ug/g	NC	30
3769654	Acid Extractable Arsenic (As)	2014/10/02	99	75 - 125	106	80 - 120	<1.0	ug/g	NC	30
3769654	Acid Extractable Barium (Ba)	2014/10/02	NC	75 - 125	102	80 - 120	<0.50	ug/g	3.5	30

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QUALITY ASSURANCE REPORT(CONT'D)

Franz Environmental Inc
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Site Location: TC IQUALUIT AIRPORT
Sampler Initials: JD

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3769654	Acid Extractable Beryllium (Be)	2014/10/02	109	75 - 125	107	80 - 120	<0.20	ug/g	NC	30
3769654	Acid Extractable Bismuth (Bi)	2014/10/02	100	75 - 125	100	80 - 120	<1.0	ug/g	NC	30
3769654	Acid Extractable Boron (B)	2014/10/02	105	75 - 125	106	80 - 120	<5.0	ug/g	NC	30
3769654	Acid Extractable Cadmium (Cd)	2014/10/02	102	75 - 125	104	80 - 120	<0.10	ug/g	NC	30
3769654	Acid Extractable Calcium (Ca)	2014/10/02	NC	75 - 125	108	80 - 120	<50	ug/g	0.19	30
3769654	Acid Extractable Chromium (Cr)	2014/10/02	NC	75 - 125	107	80 - 120	<1.0	ug/g	1.7	30
3769654	Acid Extractable Cobalt (Co)	2014/10/02	102	75 - 125	107	80 - 120	<0.10	ug/g	3.7	30
3769654	Acid Extractable Copper (Cu)	2014/10/02	104	75 - 125	103	80 - 120	0.94 , RDL=0.50 (2)	ug/g	0.11	30
3769654	Acid Extractable Iron (Fe)	2014/10/02	NC	75 - 125	106	80 - 120	<50	ug/g	0.59	30
3769654	Acid Extractable Lead (Pb)	2014/10/02	101	75 - 125	101	80 - 120	<1.0	ug/g	NC	30
3769654	Acid Extractable Magnesium (Mg)	2014/10/02	NC	75 - 125	105	80 - 120	<50	ug/g	1.0	30
3769654	Acid Extractable Manganese (Mn)	2014/10/02	NC	75 - 125	104	80 - 120	<1.0	ug/g	0.57	30
3769654	Acid Extractable Mercury (Hg)	2014/10/02	105	75 - 125	105	80 - 120	<0.050	ug/g	NC	30
3769654	Acid Extractable Molybdenum (Mo)	2014/10/02	104	75 - 125	106	80 - 120	<0.50	ug/g	NC	30
3769654	Acid Extractable Nickel (Ni)	2014/10/02	101	75 - 125	104	80 - 120	<0.50	ug/g	5.3	30
3769654	Acid Extractable Phosphorus (P)	2014/10/02	NC	75 - 125	103	80 - 120	<50	ug/g	4.1	30
3769654	Acid Extractable Potassium (K)	2014/10/02	NC	75 - 125	114	80 - 120	<200	ug/g	NC	30
3769654	Acid Extractable Selenium (Se)	2014/10/02	102	75 - 125	101	80 - 120	<0.50	ug/g	NC	30
3769654	Acid Extractable Silver (Ag)	2014/10/02	106	75 - 125	108	80 - 120	<0.20	ug/g	NC	30
3769654	Acid Extractable Sodium (Na)	2014/10/02	NC	75 - 125	108	80 - 120	<100	ug/g	NC	30
3769654	Acid Extractable Strontium (Sr)	2014/10/02	NC	75 - 125	105	80 - 120	<1.0	ug/g	1.3	30
3769654	Acid Extractable Thallium (Tl)	2014/10/02	100	75 - 125	97	80 - 120	<0.050	ug/g	NC	30
3769654	Acid Extractable Tin (Sn)	2014/10/02	100	75 - 125	103	80 - 120	<5.0	ug/g	NC	30
3769654	Acid Extractable Uranium (U)	2014/10/02	101	75 - 125	98	80 - 120	<0.050	ug/g	28	30
3769654	Acid Extractable Vanadium (V)	2014/10/02	NC	75 - 125	106	80 - 120	<5.0	ug/g	1.3	30
3769654	Acid Extractable Zinc (Zn)	2014/10/02	NC	75 - 125	102	80 - 120	<5.0	ug/g	0.36	30
3770550	F4G-sg (Grav. Heavy Hydrocarbons)	2014/10/02				50	<100	ug/g		

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.

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Maxxam Job #: B4H9280
Report Date: 2014/10/03

QUALITY ASSURANCE REPORT(CONT'D)

Franz Environmental Inc
Client Project #: 1584-1401
Site Location: TC IQUALUIT AIRPORT
Sampler Initials: JD

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits

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).

(1) F1/BTEX Analysis: The extraction surrogate recovery is not calculated due to Matrix interferences.

(2) Analyte was detected in the method blank at a level marginally above the detection limit. Sample results have not been blank corrected. Those results at or near the detection limit may be biased high..

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Maxxam Job #: B4H9280
Report Date: 2014/10/03

Franz Environmental Inc
Client Project #: 1584-1401
Site Location: TC IQUALUIT AIRPORT
Sampler Initials: JD

VALIDATION SIGNATURE PAGE

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

Cristina Carriere, Scientific Services

Paul Rubinato, Analyst, Maxxam Analytics

Steve Roberts, Lab Supervisor, Ottawa

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.

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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

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#10988 Franz Environmental Inc	Company Name:		Quotation #:	B31973	Maxxam Job #:	Bottle Order #: 486472
Attention:	Invoices, Lillian & Andrew	Attention:	Andrew Henderson	P.O. #:			
Address:	329 Churchill Ave N Suite 200 Ottawa ON K1Z 5B8	Address:		Project:	1584-1401		
				Project Name:	TC Iqaluit Airport	COC #: C#486472-02-01	Project Manager: Parnian Baber
Tel:	(613) 721-0555 Fax: (613) 721-0029	Tel:	(613) 721-0555 x226 Fax:	Site #:			
Email:	ahenderson@franzenvironmental.com;lellis@franzenvir	Email:	ahenderson@franzenvironmental.com, mmadrid@franz	Sampled By:	JD		

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

Regulation 153 (2011): ☐ Table 1 ☐ Res/Park ☐ Medium/Fine; ☐ Table 2 ☐ Ind/Comm ☐ Coarse; ☐ Table 3 ☐ Agri/Other ☐ For RSC; ☐ Table ___

Other Regulations: ☒ CCME ☐ Sanitary Sewer Bylaw; ☐ Reg 558. ☐ Storm Sewer Bylaw; ☐ MISA Municipality ___; ☐ PWQO; ☐ Other ___

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ___

Turnaround Time (TAT) Required:
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 #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	CCME Petroleum Hydrocarbons	PAH Compounds in Soil by GC/MS (SIM)	Strong Acid Leachable Metals by ICPMS	# of Bottles	Comments
1		TC-TP1-1	Sept 23, 2014	AM	SOIL	N/A	X	X	X	4	Non Maxxam bottles used for TP1 through TP13, please proceed as is.
2		TC-TP2-1			SOIL		X	X	X	4	
3		TC-TP3-1			SOIL		X	X	X	4	
4		TC-TP3-2			SOIL		X			2	
5		TC-TP4-1			SOIL		X	X	X	4	
6		TC-TP5-1			SOIL		X	X	X	4	
7		TC-TP5-2			SOIL		X			2	
8		TC-TP6-1			SOIL		X	X	X	4	REC'D IN OTTAWA
9		TC-TP7-1		↓	SOIL		X	X	X	4	
10		TC-TP8-1	↓	PM	SOIL	↓	X	X	X	4	On ice

26-Sep-14 14:50
Parnian Baber
B4H9280

* 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: Time Sensitive	Temperature (°C) on Receipt	Custody Seal: Present / Intact	Yes	No
J. Dilbourne / J. [illegible]	14/09/24	5:00pm	Kelsey Pilon Kelsey Pilon	14/09/26	14:50			3/4/3 5/5/5		✓	

* 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

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CHAIN OF CUSTODY RECORD

INVOICE TO:
Company Name: #10988 Franz Environmental Inc
Attention: Invoices, Lillian & Andrew
Address: 329 Churchill Ave N Suite 200, Ottawa ON K1Z 5B8
Tel: (613) 721-0555 Fax: (613) 721-0029
Email: ahenderson@franzenvironmental.com;lellis@franzenvir

REPORT TO:
Company Name:
Attention: Andrew Henderson
Address:
Tel: (613) 721-0555 x226 Fax:
Email: ahenderson@franzenvironmental.com, mmadrid@franz

PROJECT INFORMATION:
Quotation #: B31973
P.O. #:
Project: 1584-149
Project Name: TC Iqaluit Airport
Site #:
Sampled By: JD

Laboratory Use Only:
Maxxam Job #:
Bottle Order #: 486472
COC #: C#486472-03-01
Project Manager: Parnian Baber

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

Regulation 153 (2011): ☐ Table 1 ☐ Res/Park ☐ Medium/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ For RSC ☐ Table ___

Other Regulations: ☒ CCME ☐ Sanitary Sewer Bylaw ☐ Reg 558. ☐ Storm Sewer Bylaw ☐ MISA Municipality ☐ PWQO ☐ Other

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ___

Turnaround Time (TAT) Required:
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 #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	CCME Petroleum Hydrocarbons	PAH Compounds in Soil by GC/MS (SIM)	Strong Acid Leachable Metals by ICPMS	# of Bottles	Comments
1		TC-TP9-1	Sept 23, 2014	PM	SOIL	N/A	X	X	X	4	
2		TC-TP10-1			SOIL		X	X	X	4	
3		TC-TP10-2			SOIL		X			2	
4		TC-TP11-1			SOIL		X		X	3	
5		TC-TP11-2			SOIL		X	X		3	
6		TC-TP11-3			SOIL		X			2	HOLD ANALYSIS
7		TC-TP12-1			SOIL		X	X	X	4	
8		TC-TP12-2			SOIL		X			2	
9		TC-TP13-1			SOIL		X	X	X	4	REC'D IN OTTAWA
10		TC-TP13-2	↓	↓	SOIL	↓	X			2	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
J. Dittburner J. D	14/09/24	5:00pm	Kelsey Pilon Kelsey Pilon	14/09/26	14:50	

Laboratory Use Only
Time Sensitive
Temperature (°C) on Receipt: 3/4/3 5,5,5
Custody Seal: Present ☐ Intact ☐ — 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

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CHAIN OF CUSTODY RECORD

INVOICE TO:
Company Name: #10988 Franz Environmental Inc
Attention: Invoices, Lillian & Andrew
Address: 329 Churchill Ave N Suite 200, Ottawa ON K1Z 5B8
Tel: (613) 721-0555 Fax: (613) 721-0029
Email: ahenderson@franzenvironmental.com;lellis@franzenvir

REPORT TO:
Company Name:
Attention: Andrew Henderson
Address:
Tel: (613) 721-0555 x226 Fax:
Email: ahenderson@franzenvironmental.com, ~~mmadrid@franz~~

PROJECT INFORMATION:
Quotation #: B31973
P.O. #:
Project: 1584-1401
Project Name: TC Iqaluit Airport
Site #:
Sampled By: JD

Laboratory Use Only:
Maxxam Job #:
Bottle Order #: 486472
COC #: C#486472-04-01
Project Manager: Parnian Baber

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

Regulation 153 (2011): ☐ Table 1 ☐ Res/Park ☐ Medium/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ For RSC ☐ Table ___

Other Regulations: ☒ CCME ☐ Sanitary Sewer Bylaw ☐ Reg 558. ☐ Storm Sewer Bylaw ☐ MISA Municipality ☐ PWQO ☐ Other

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ____

Turnaround Time (TAT) Required:
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 #)*

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	CCME Petroleum Hydrocarbons	PAH Compounds in Soil by GC/MS (SIM)	Strong Acid Leachable Metals by ICPMS	# of Bottles	Comments
1		TC-TP14-1	Sept 24 2014	AM	SOIL	N/A	X	X	X	4	
2		TC-TP14-2			SOIL		X			2	
3		TC-TP15-1			SOIL		X	X	X	4	
4		TC-TP15-2			SOIL		X			2	
5		TC-TP16-1			SOIL		X	X	X	4	
6		TC-TP16-2			SOIL		X			2	
7		TC-TP17-1			SOIL		X	X	X	4	
8		TC-TP17-2			SOIL		X			2	
9		TC-TP18-1			SOIL		X	X		3	REC'D IN OTTAWA
10		TC-TP18-2	↓	↓	SOIL	↓	X			2	onice

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
J. Dittburner JD	14/09/24	5:00pm	Kelsey Pilon Kelsey Pilon	14/09/26	14:50	

Laboratory Use Only
Time Sensitive
Temperature (°C) on Receipt: 3/4/3 5/5/5
Custody Seal: Present ☐ Intact ☐ 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

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CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#10988 Franz Environmental Inc	Company Name:		Quotation #:	B31973	Maxxam Job #:	Bottle Order #: 486472
Attention:	Invoices, Lillian & Andrew	Attention:	Andrew Henderson	P.O. #:			
Address:	329 Churchill Ave N Suite 200 Ottawa ON K1Z 5B8	Address:		Project:	1584-1401		
				Project Name:	TC Iqaluit Airport	COC #:	Project Manager:
Tel:	(613) 721-0555 Fax: (613) 721-0029	Tel:	(613) 721-0555 x226 Fax:	Site #:		C#486472-05-01	Parnian Baber
Email:	ahenderson@franzenvironmental.com;lellis@franzenvir	Email:	ahenderson@franzenvironmental.com, ~~mmadrid@franz~~	Sampled By:	JD		

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

Regulation 153 (2011)
- ☐ Table 1 ☐ Res/Park ☐ Medium/Fine
- ☐ Table 2 ☐ Ind/Comm ☐ Coarse
- ☐ Table 3 ☐ Agri/Other ☐ For RSC
- ☐ Table ___

Other Regulations
- ☒ CCME ☐ Sanitary Sewer Bylaw
- ☐ Reg 558. ☐ Storm Sewer Bylaw
- ☐ MISA Municipality _____
- ☐ PWQO
- ☐ Other _____

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? _____

Turnaround Time (TAT) Required:
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 #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	CCME Petroleum Hydrocarbons	PAH Compounds in Soil by GC/MS (SIM)	Strong Acid Leachable Metals by ICPMS	# of Bottles	Comments
1		TC-TP19-1	Sept ~~24~~ 2014	AM	SOIL	N/A	X	X		3	
2		TC-TP19-2	↓	↓	SOIL	↓	X			2	
3		TC-TP20-1			SOIL		X			2	
4		TC-TP20-2			SOIL		X			2	
5		~~Soil~~ TC-Soil Pile			SOIL		X			2	
6		DUP 1			SOIL		X	X	X	4	
7		DUP 2			SOIL		X			2	
8					SOIL						
9					SOIL						REC'D IN OTTAWA
10					SOIL						onic

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
J. Dittburner / J. Dittburner	14/09/24	5:00pm	Kelsey Pilon Kelsey Pilon	14/09/26	14:50	

Laboratory Use Only
Time Sensitive
Temperature (°C) on Receipt 3/4/3 5/5/5
Custody Seal: Present ✓ Intact — 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

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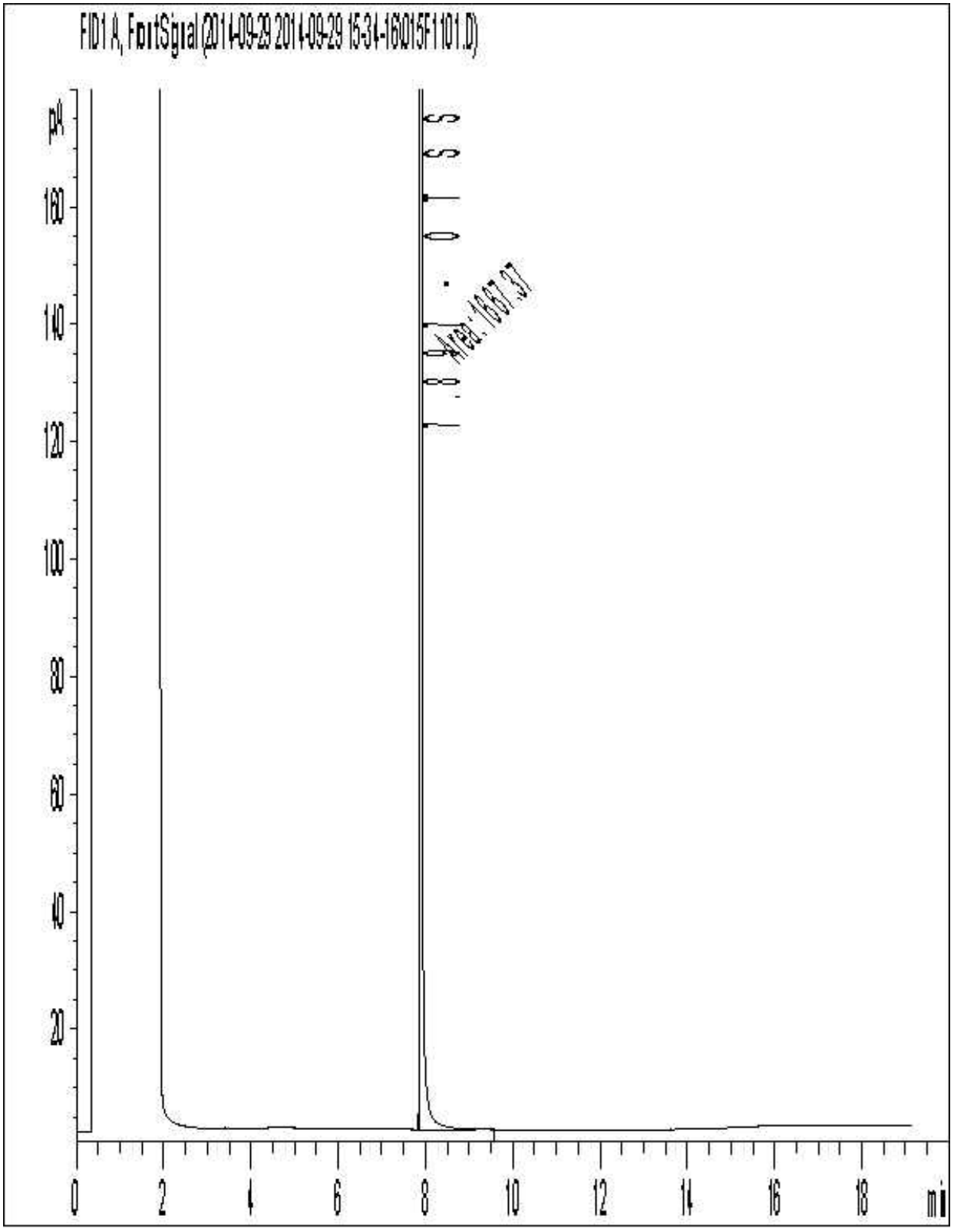
Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1902

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP1-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

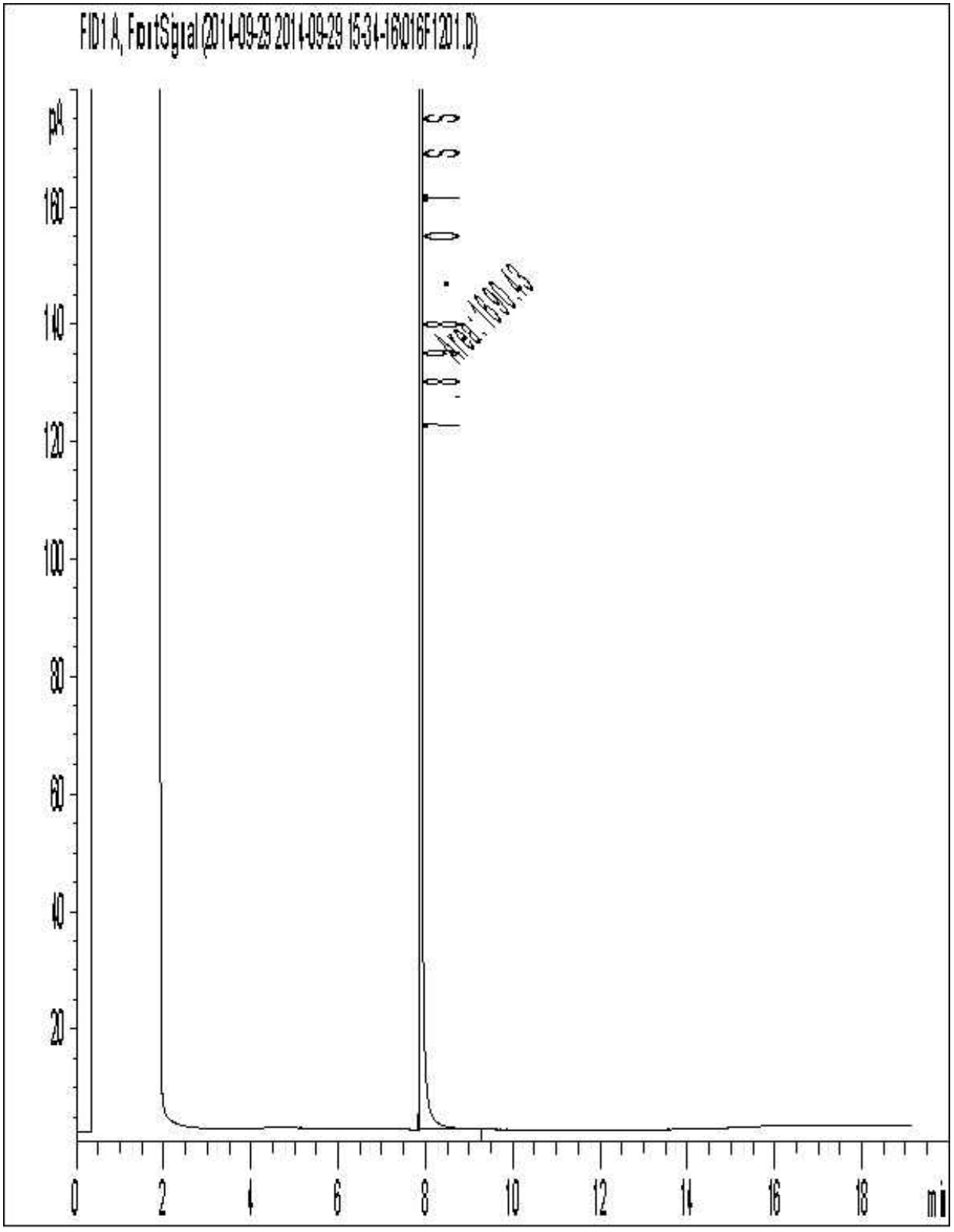


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1903

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP2-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

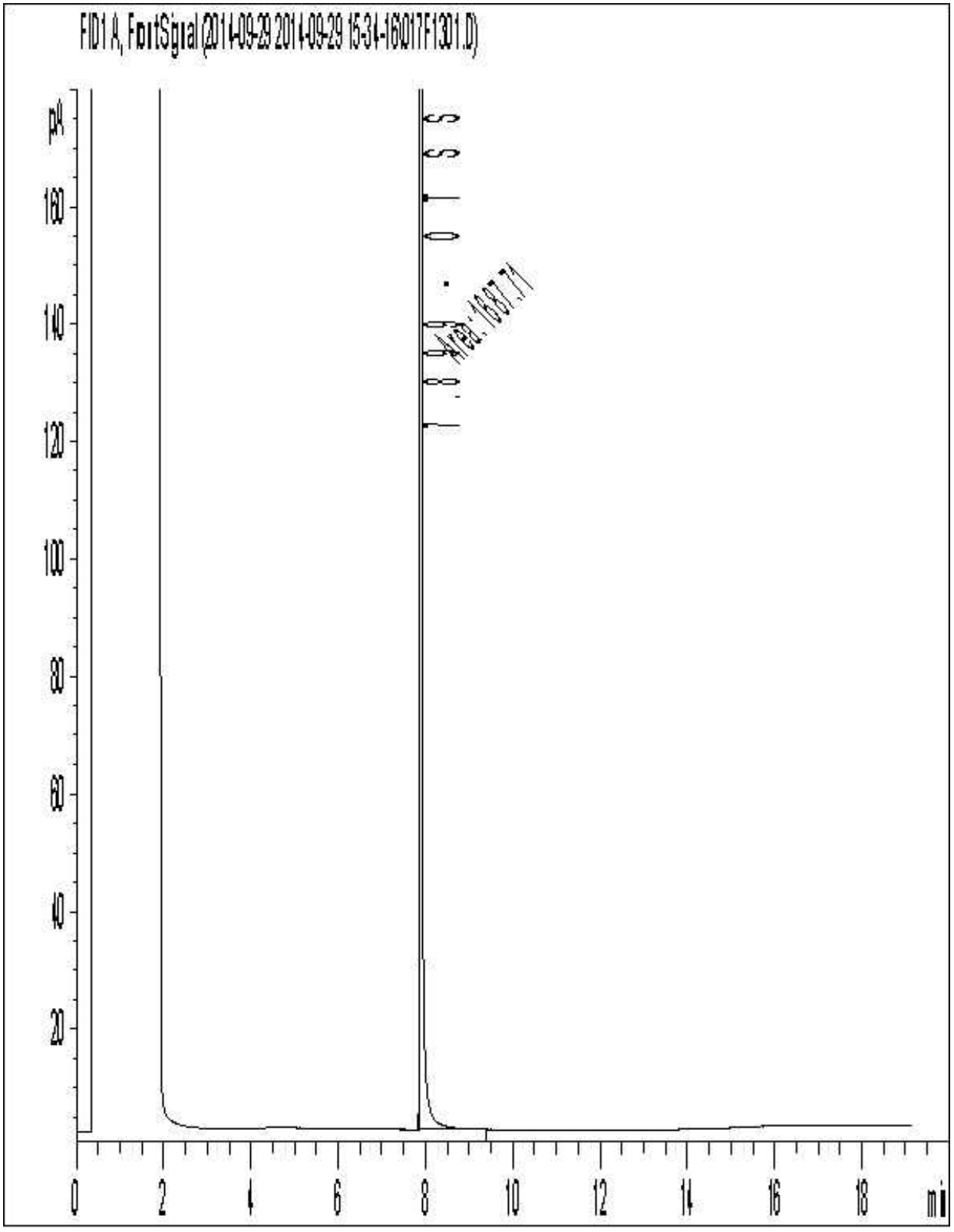


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1904

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP3-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

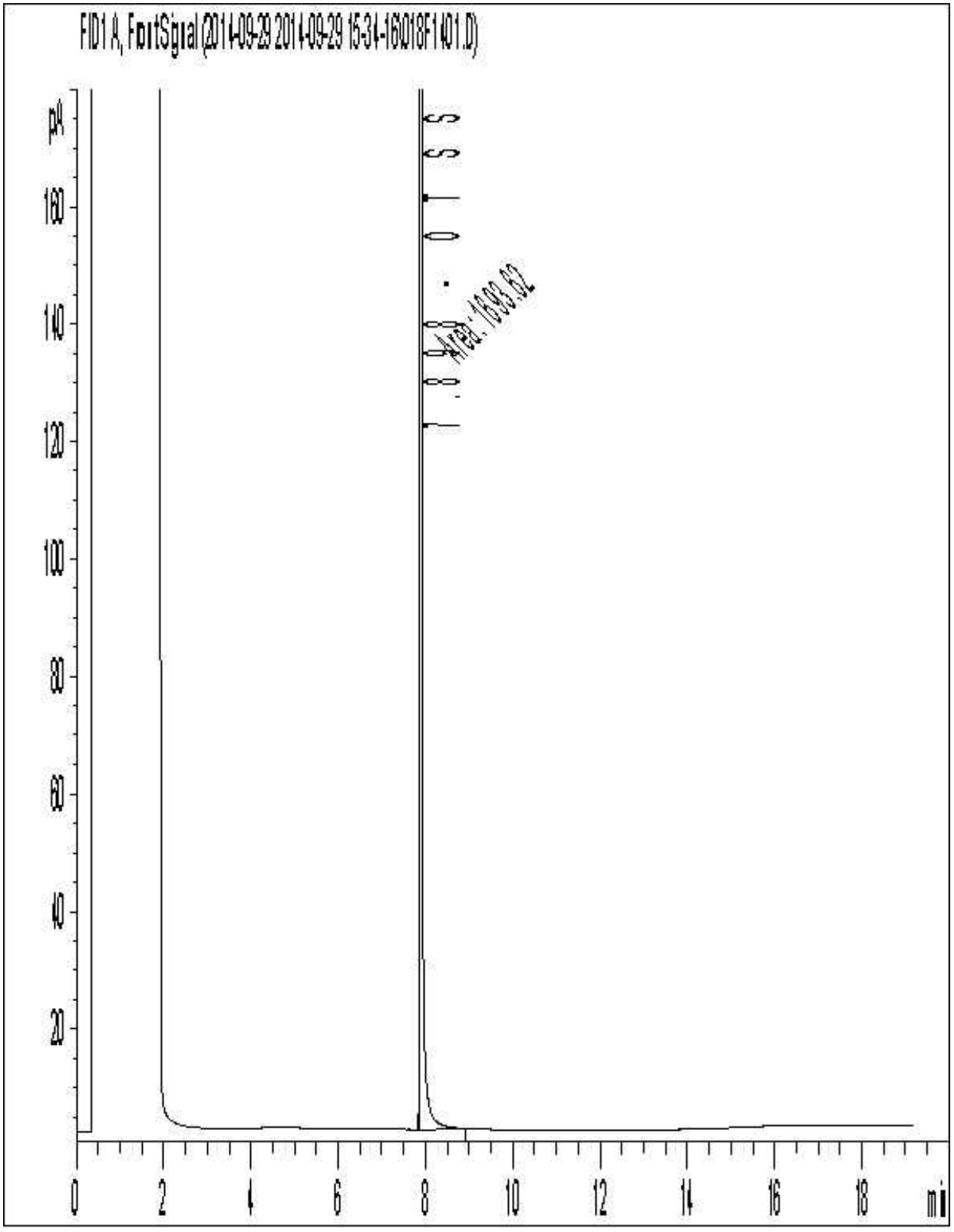


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1905

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP3-2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

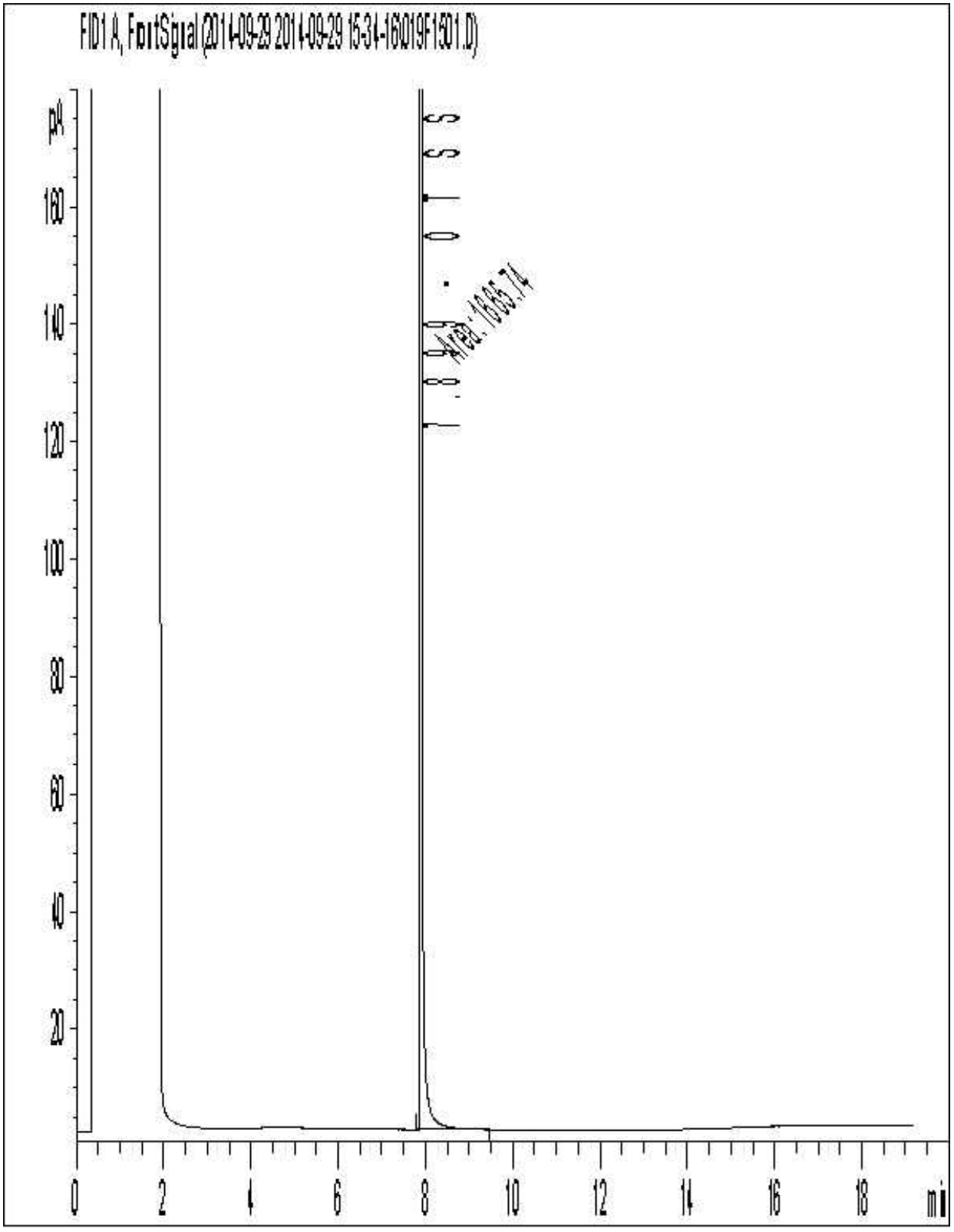


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1906

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP4-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

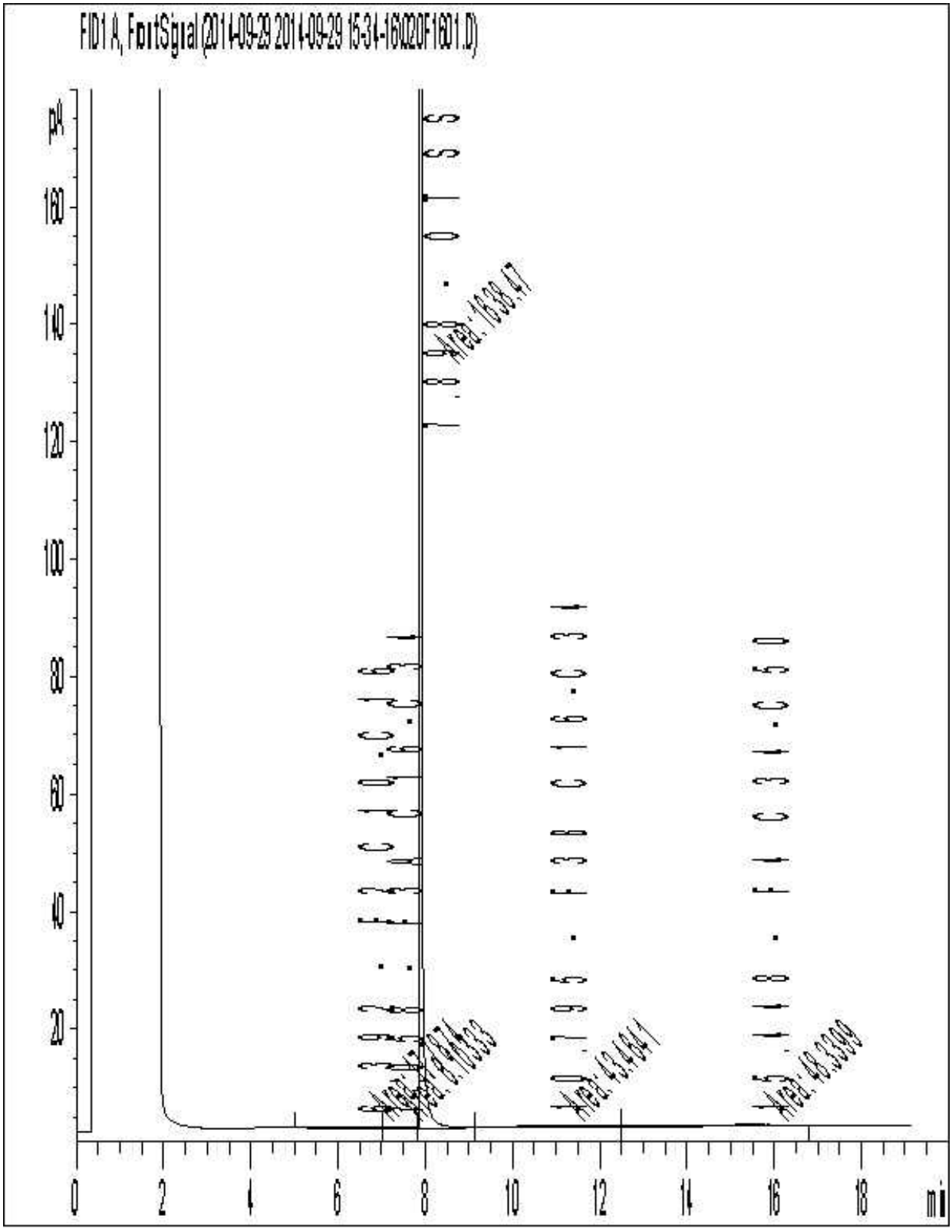


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1907

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP5-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

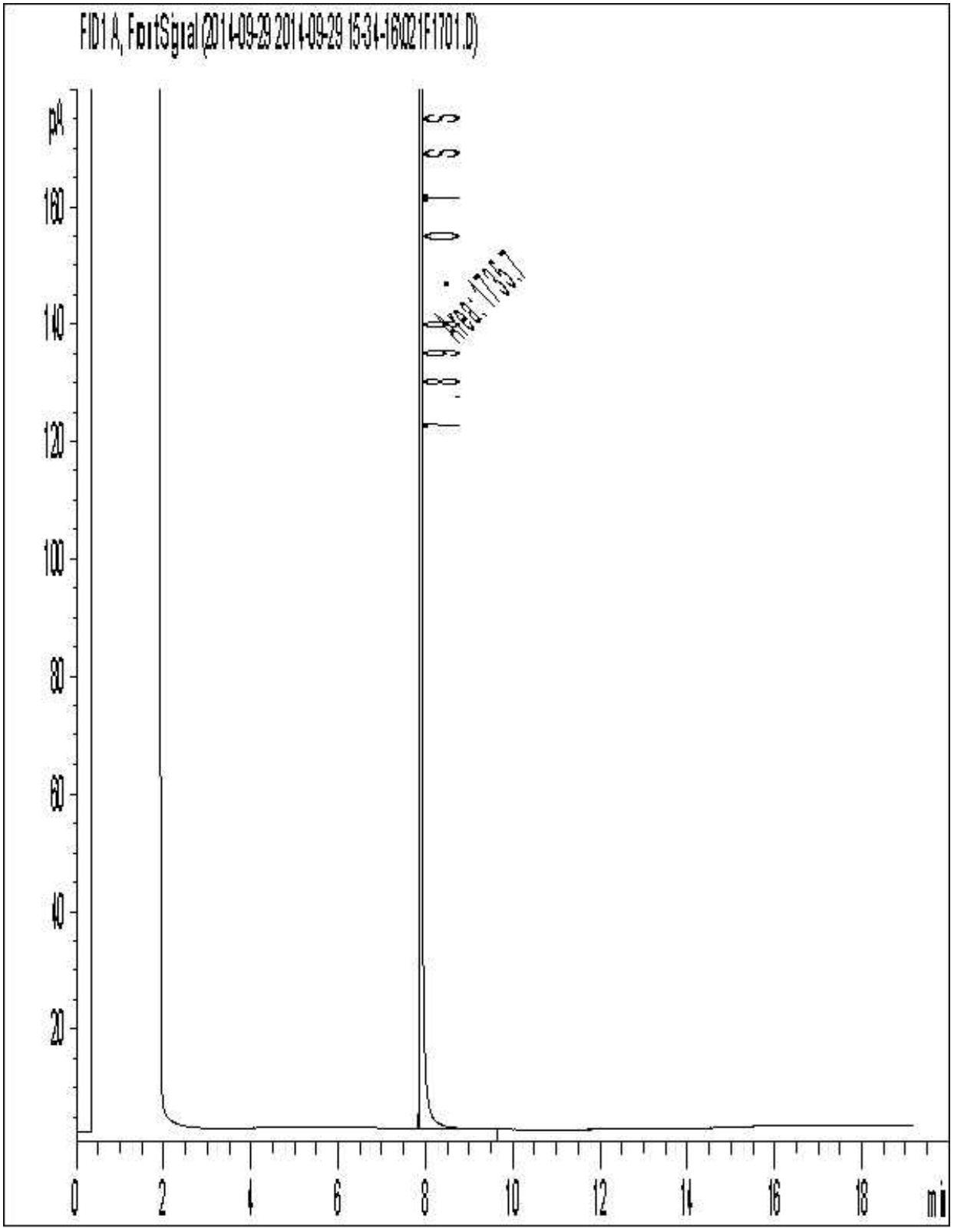


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1908

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP5-2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

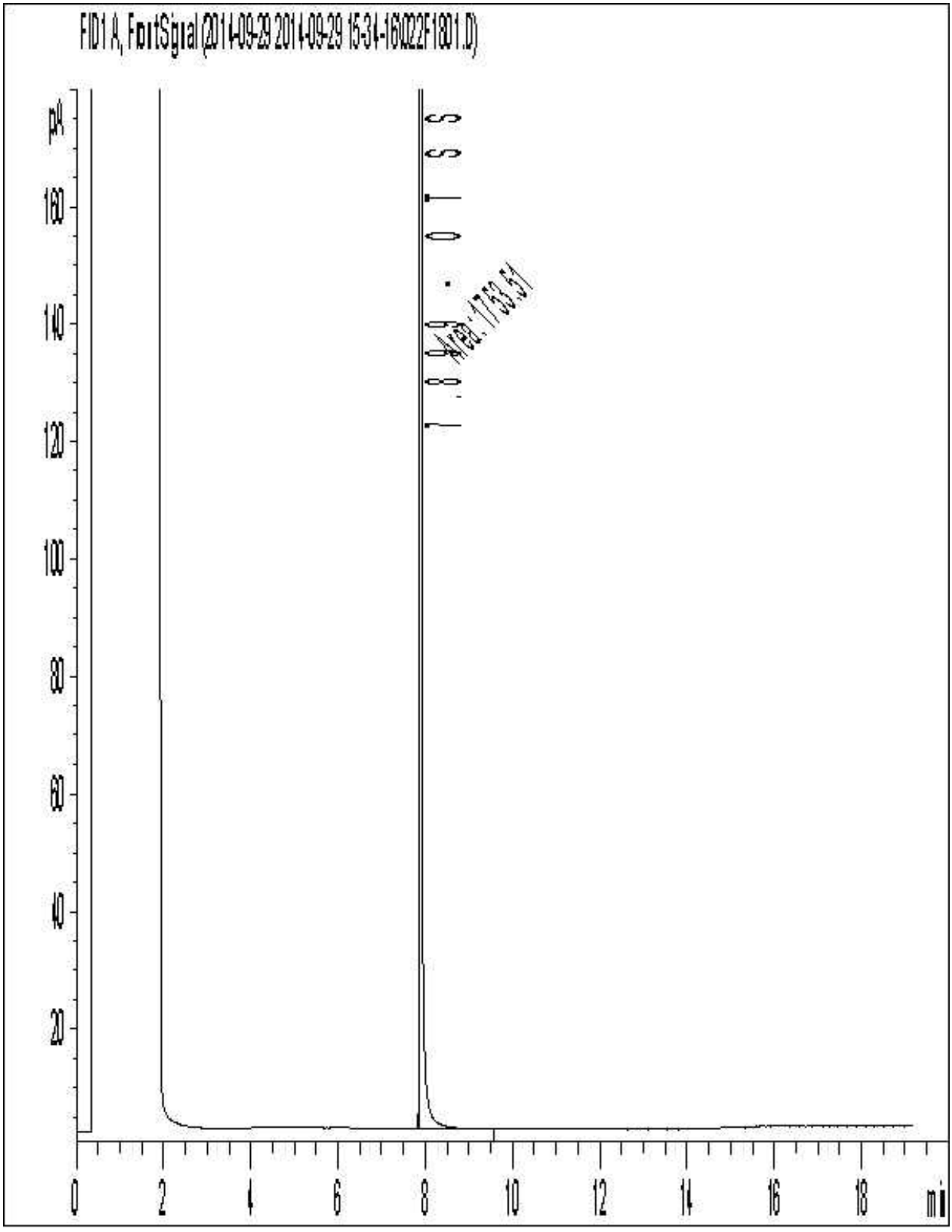


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1909

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP6-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

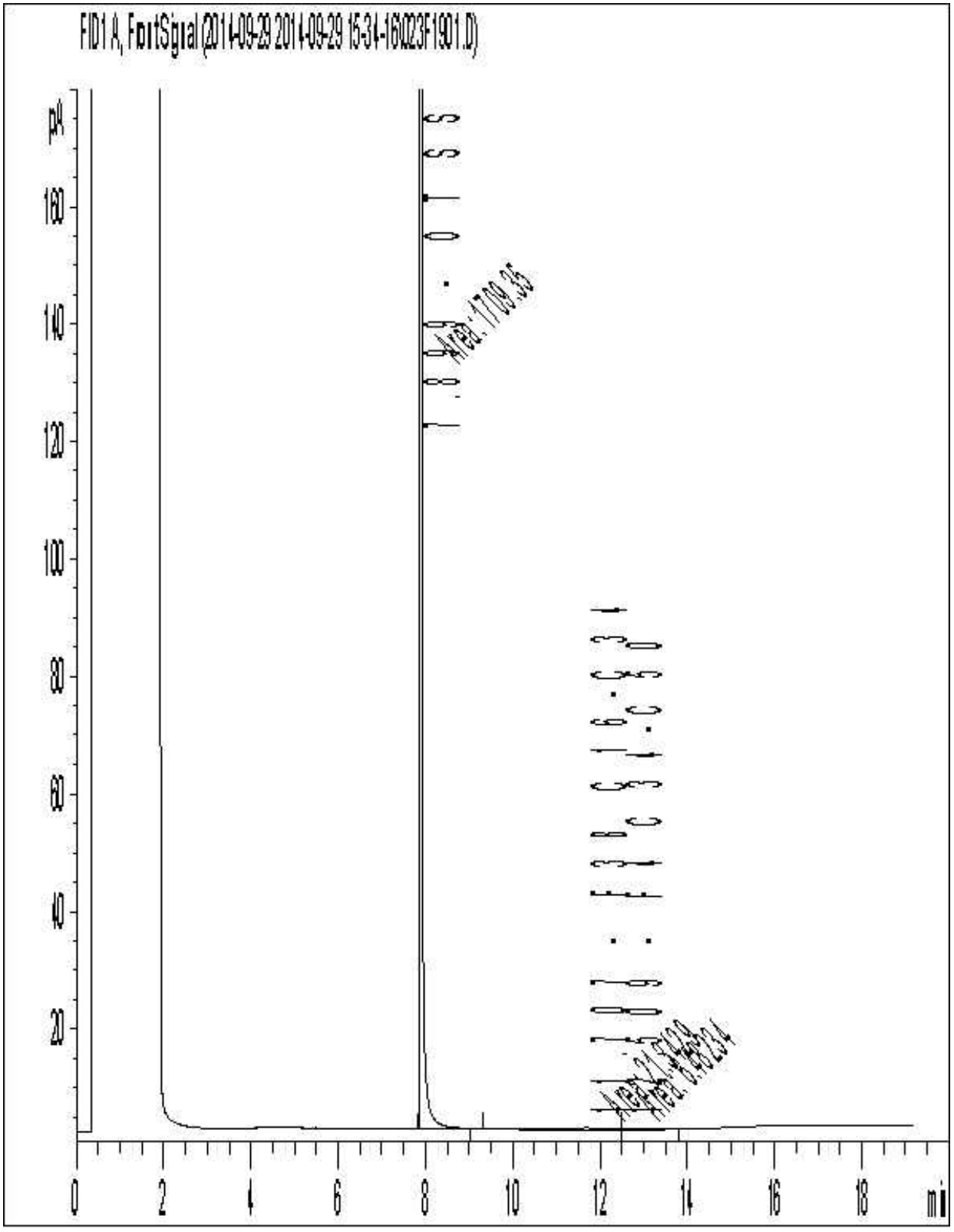


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1910

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP7-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

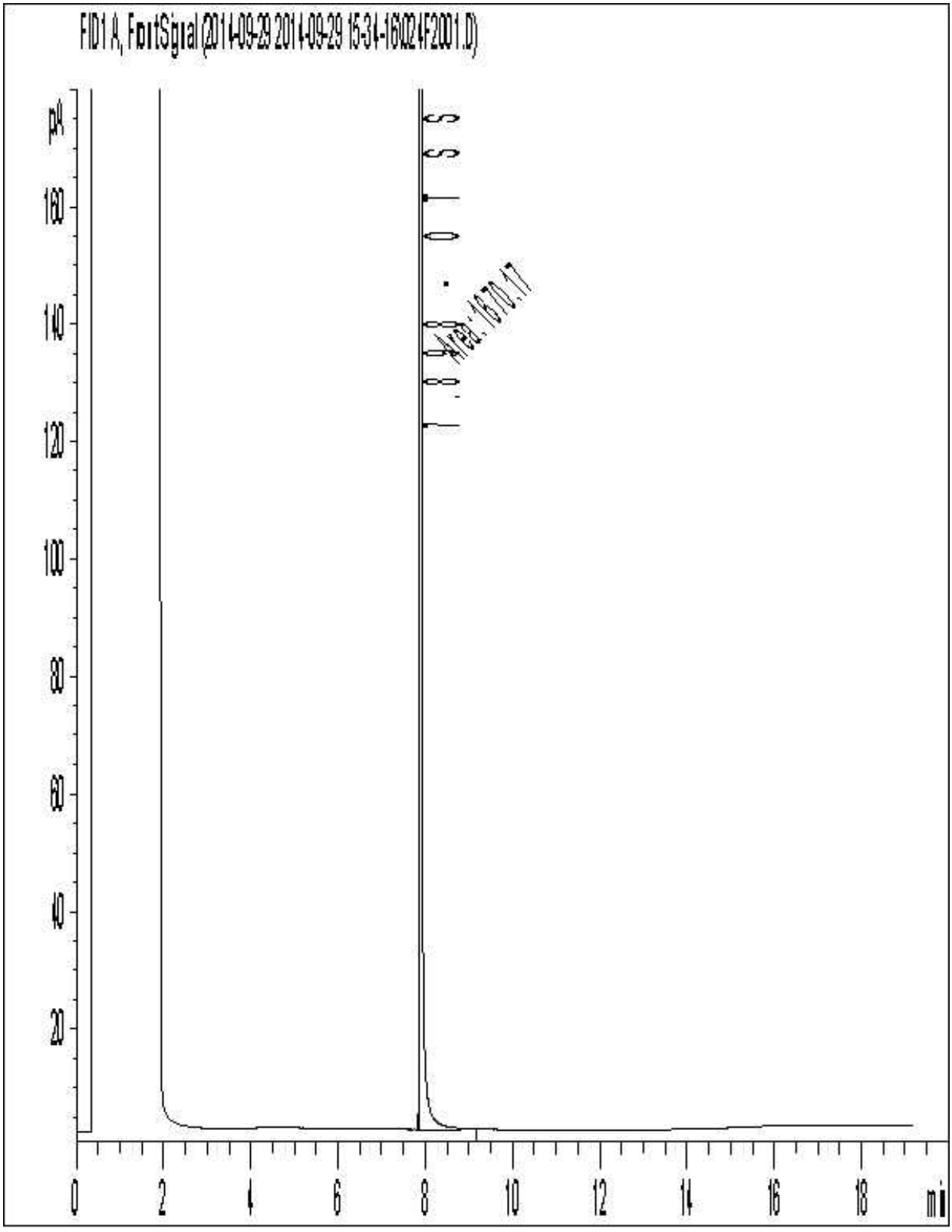


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1911

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP8-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

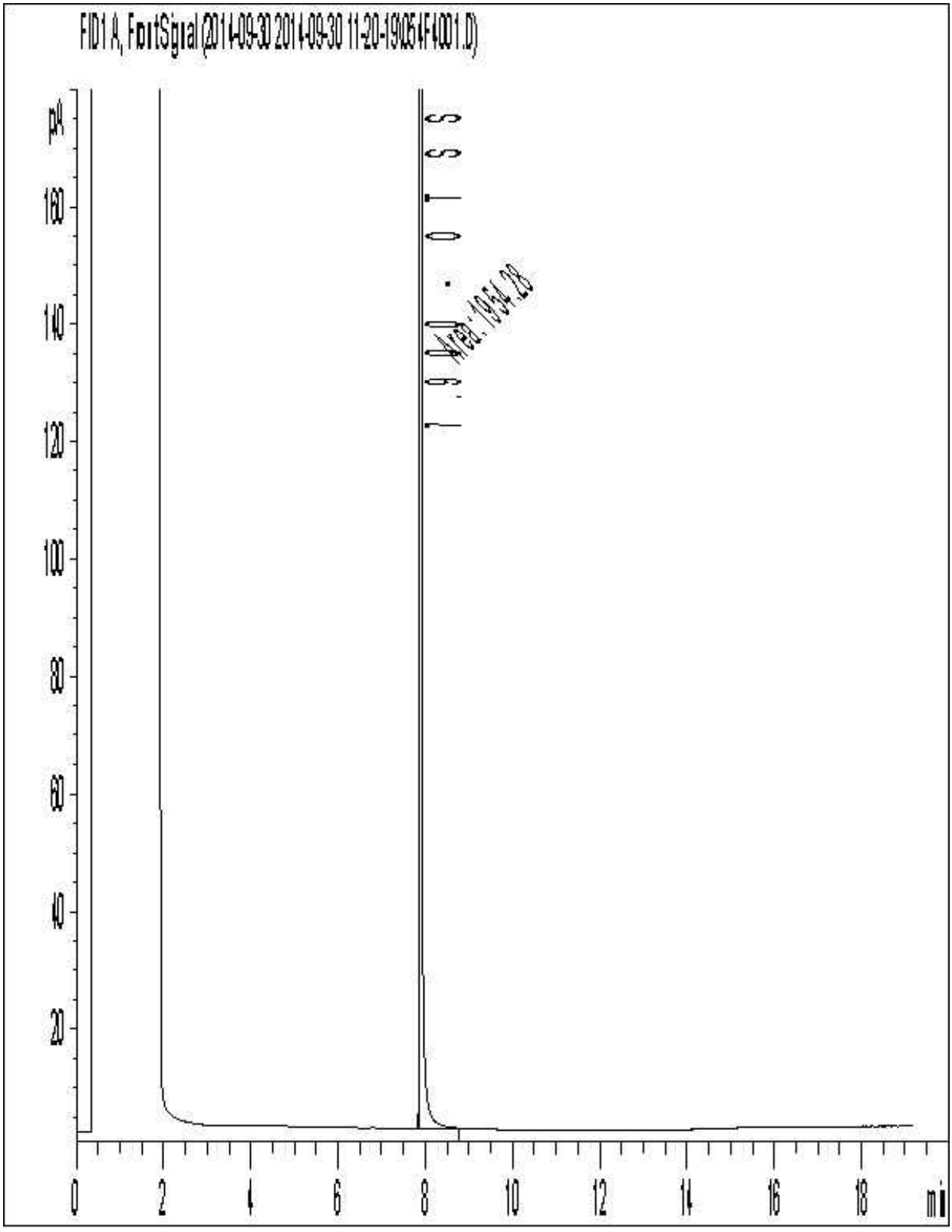


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1935

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP9-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

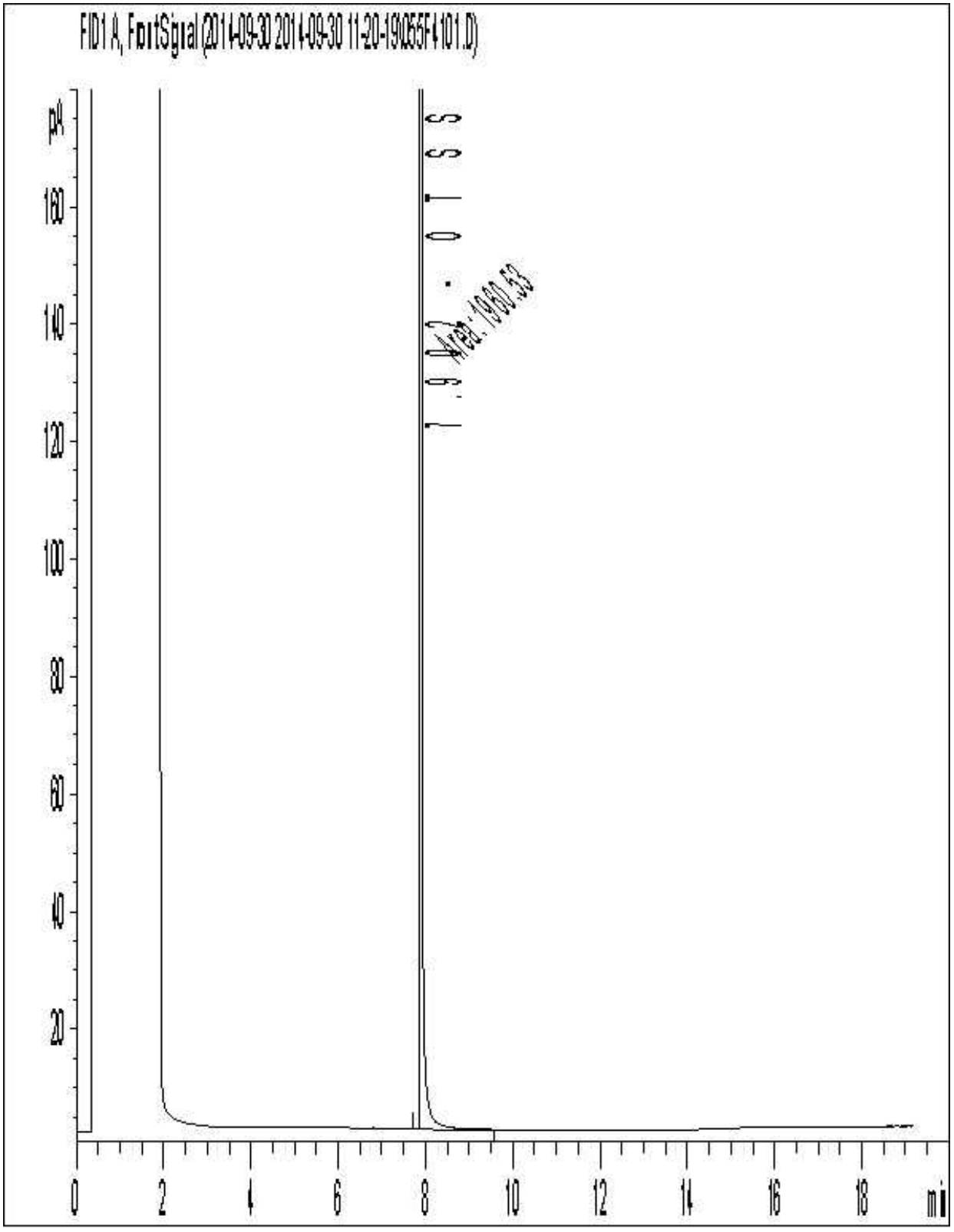


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1935 Lab-Dup

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP9-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

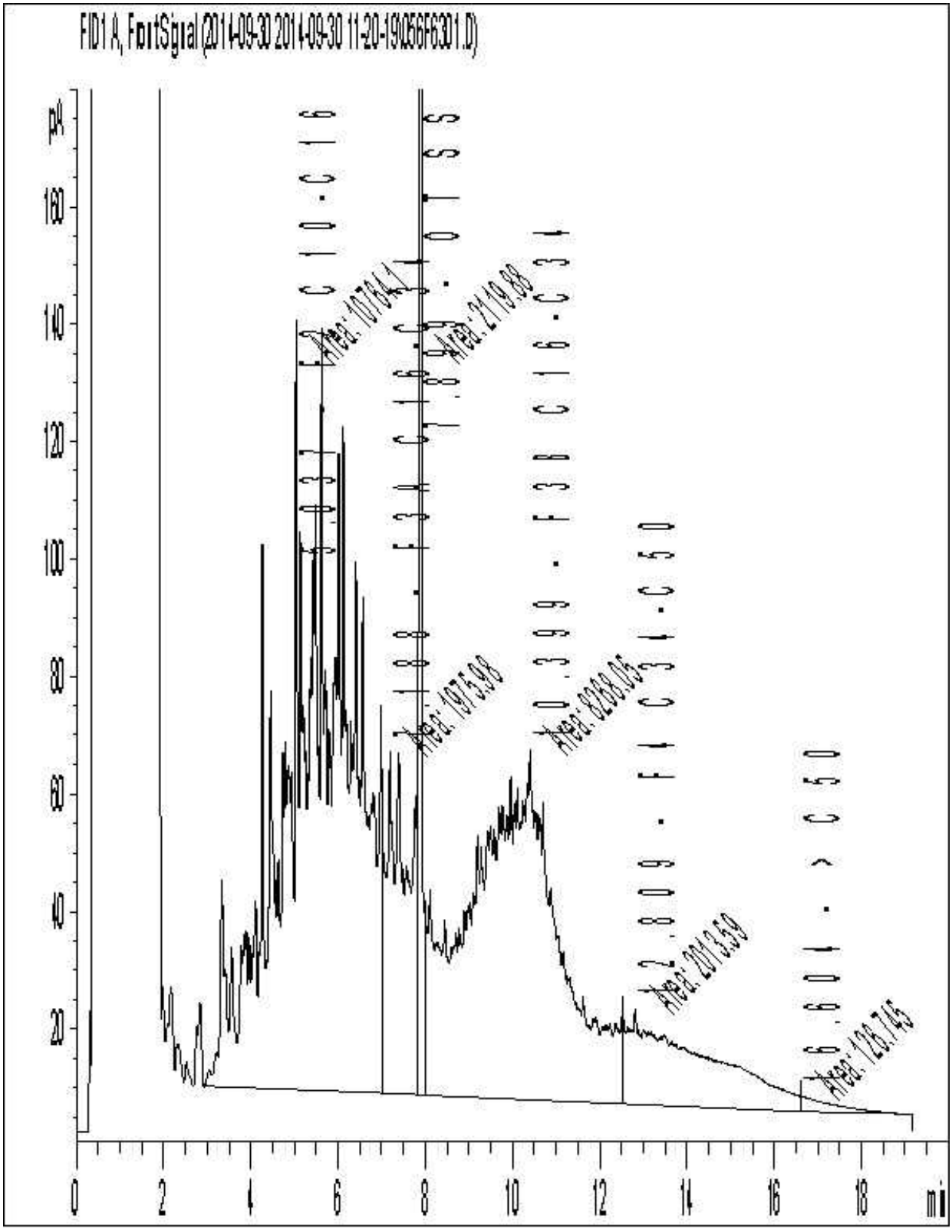


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1936

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP10-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

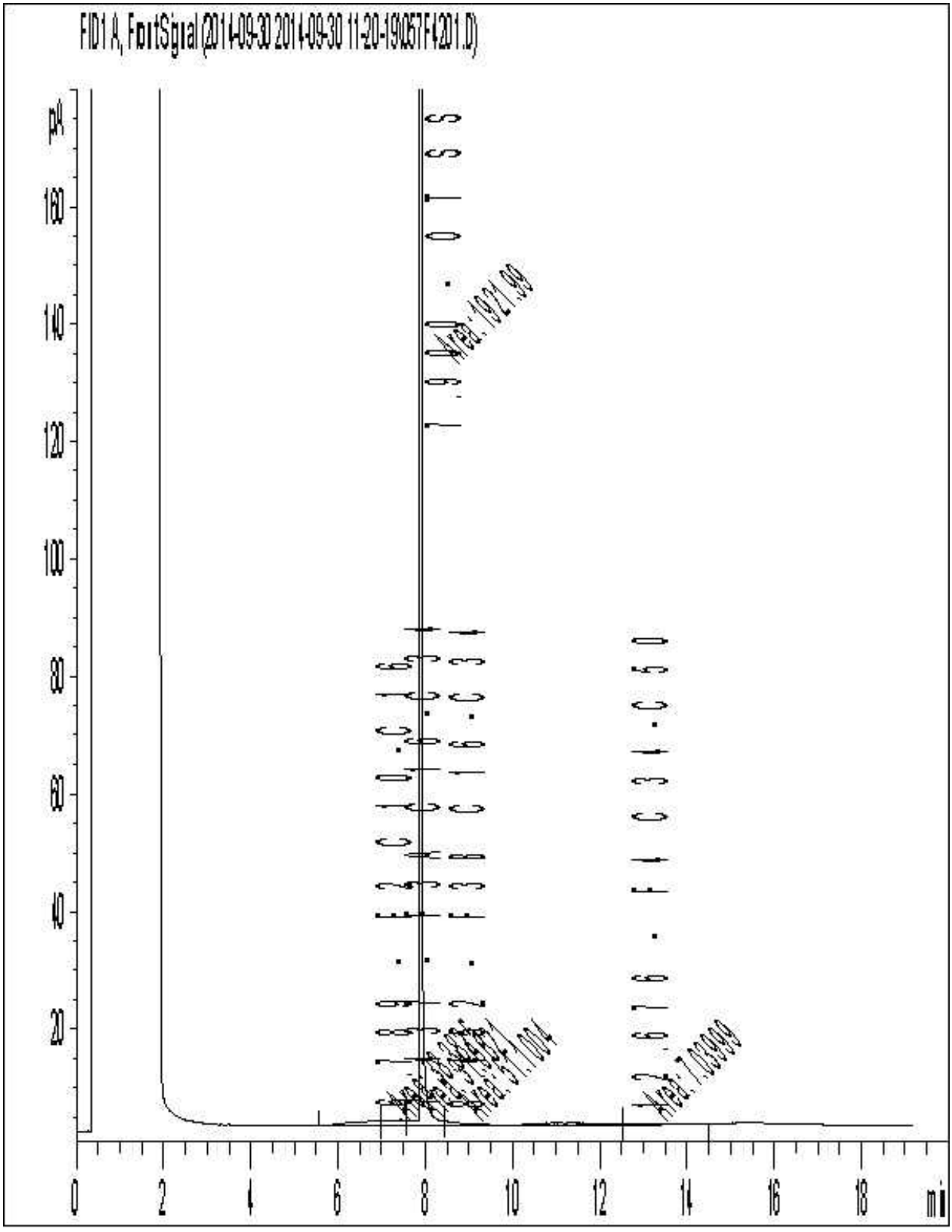


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1937

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP10-2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

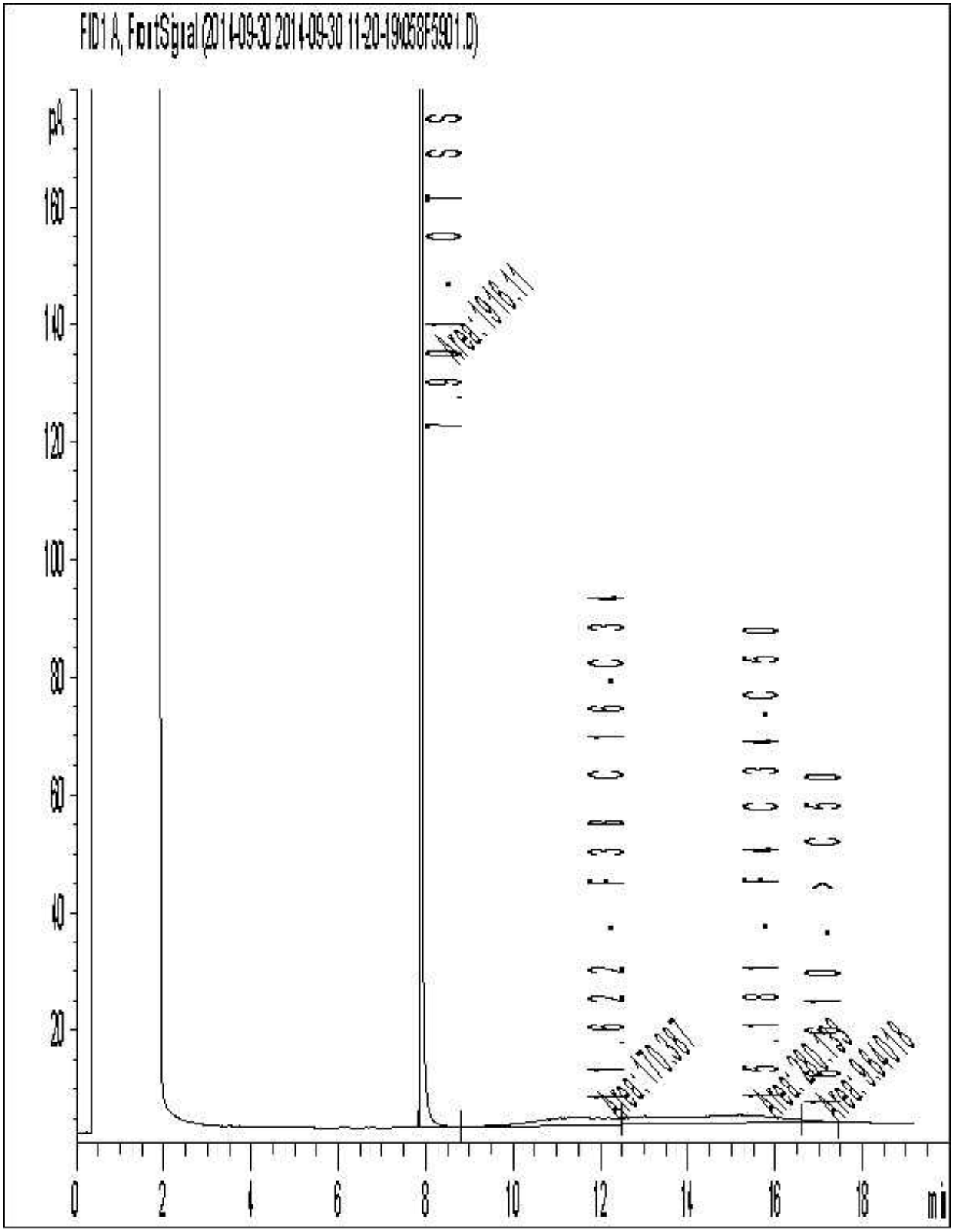


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1938

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP11-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

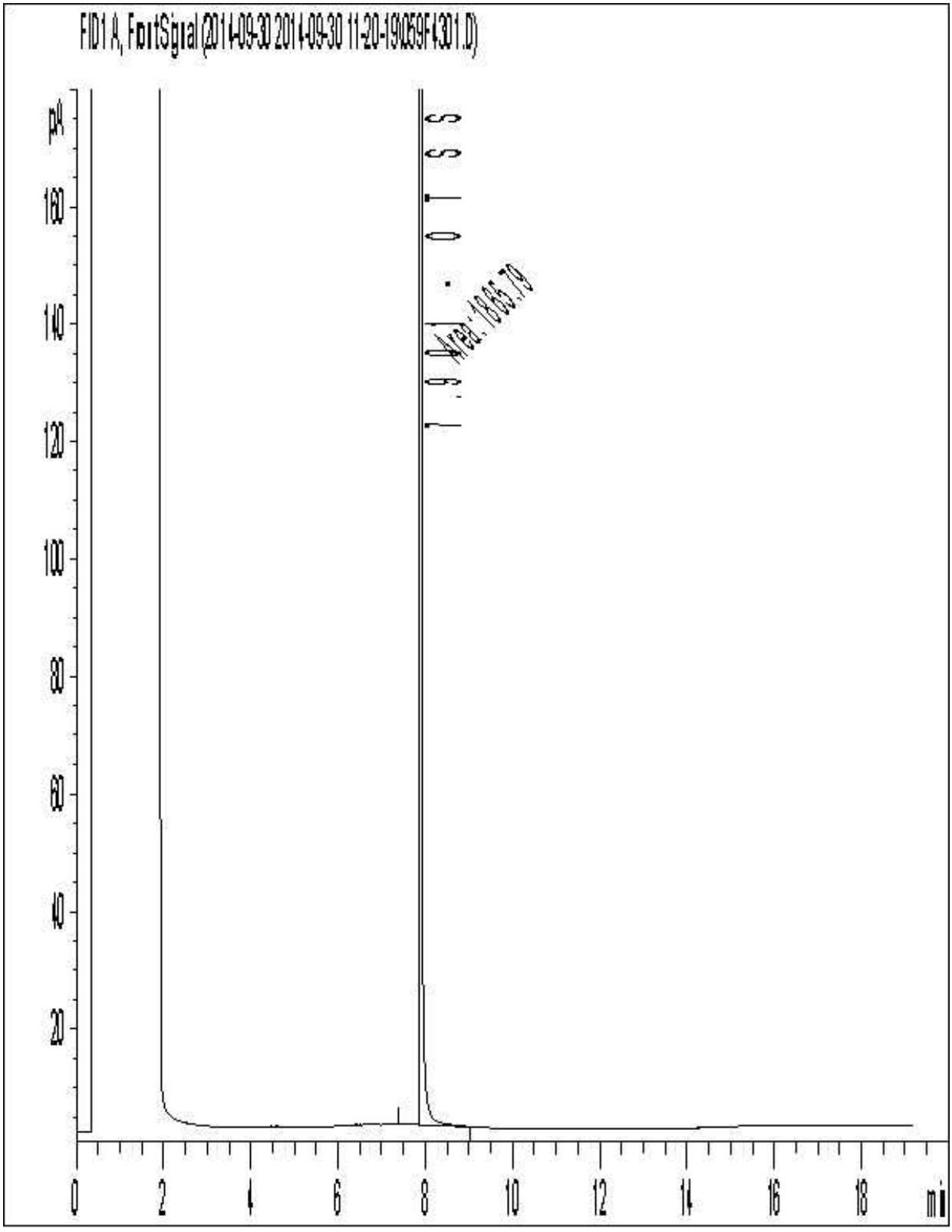


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1939

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP11-2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

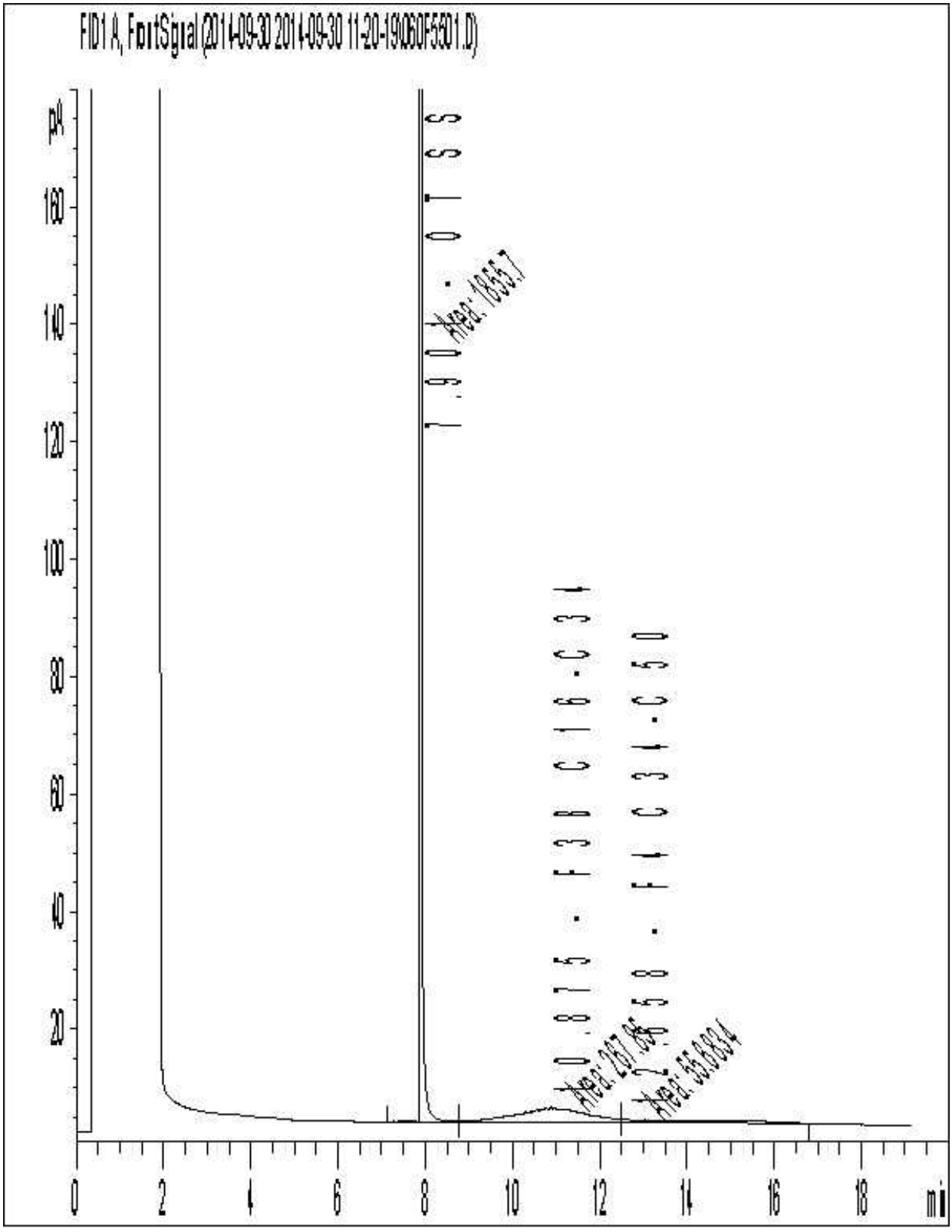


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1941

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP12-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

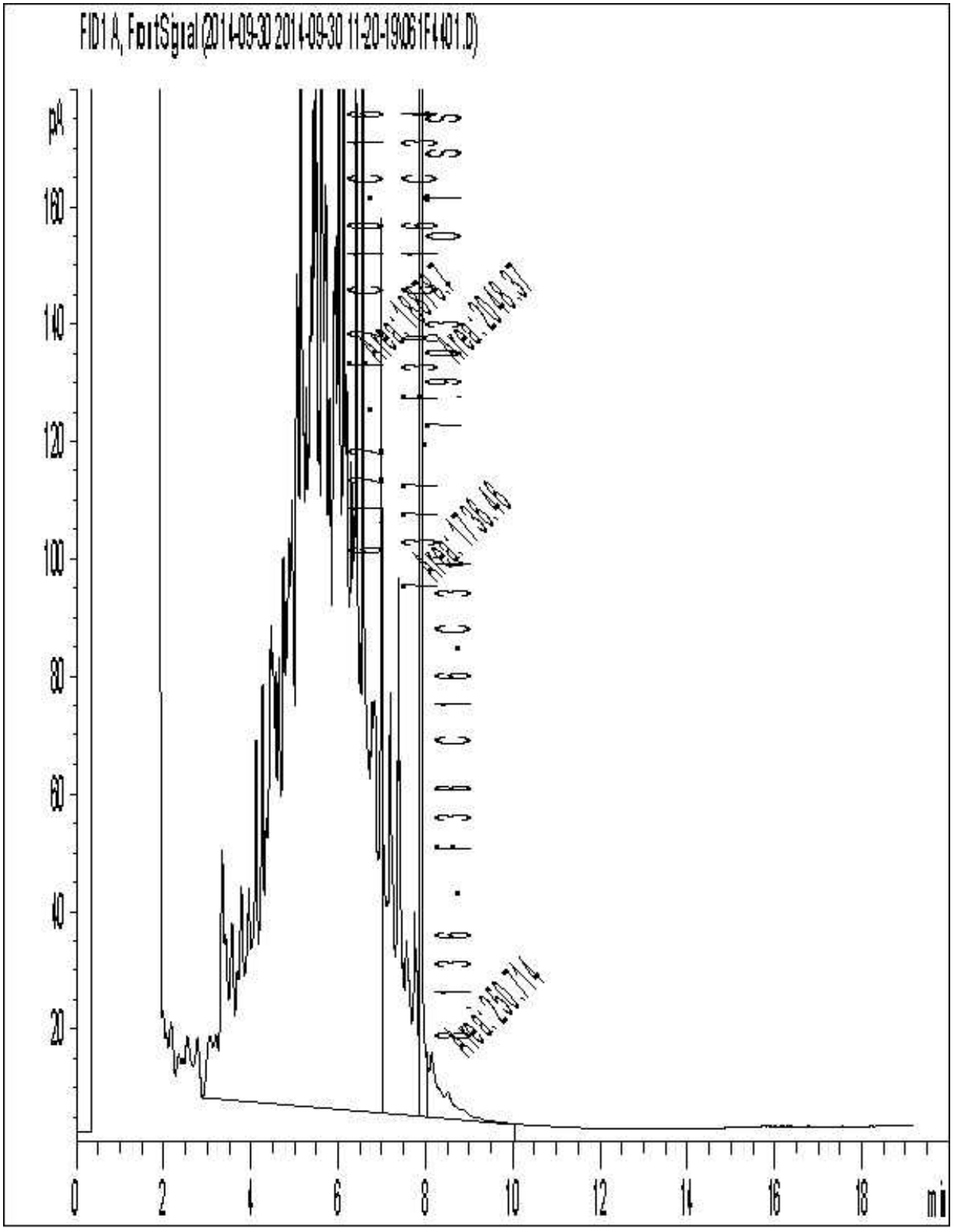


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1942

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP12-2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

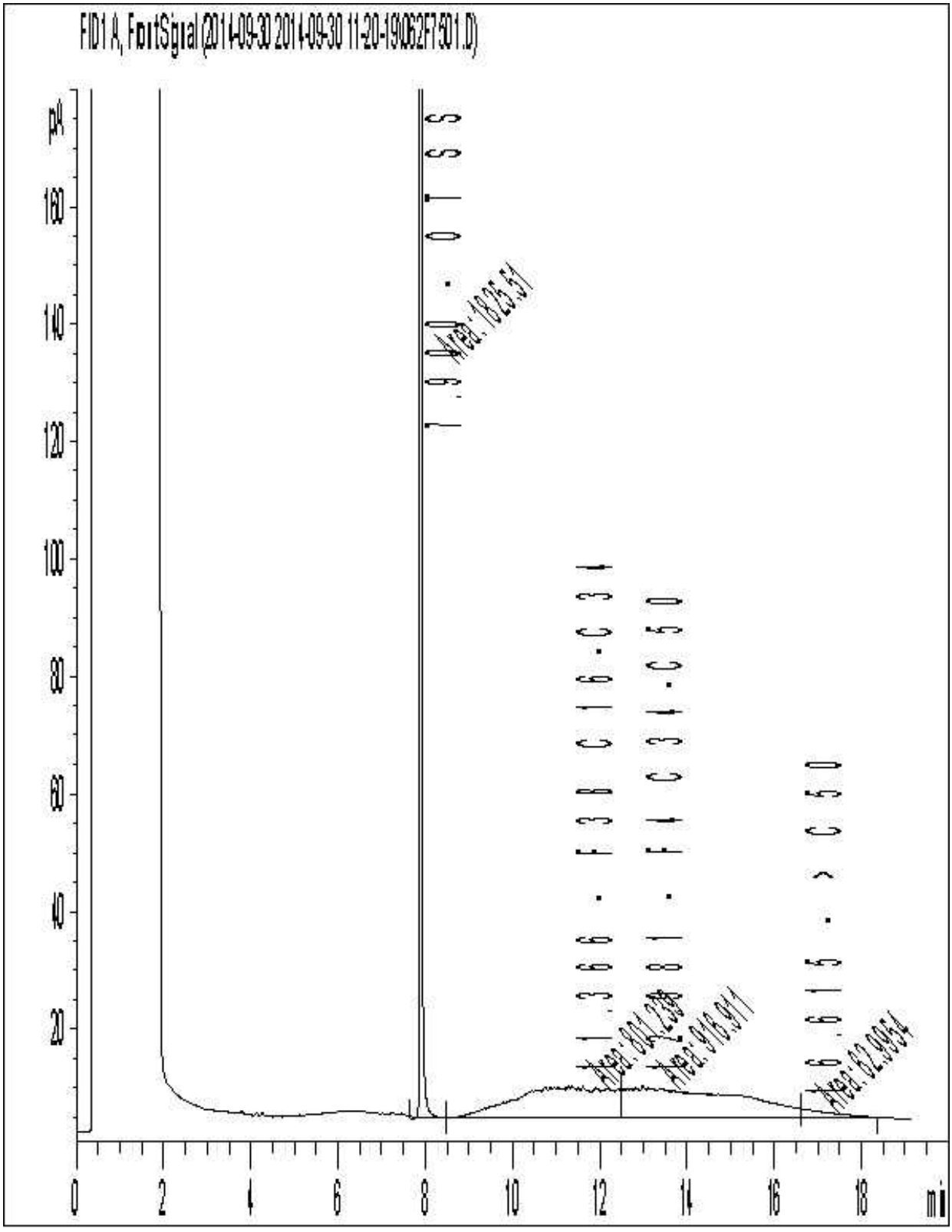


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1943

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP13-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

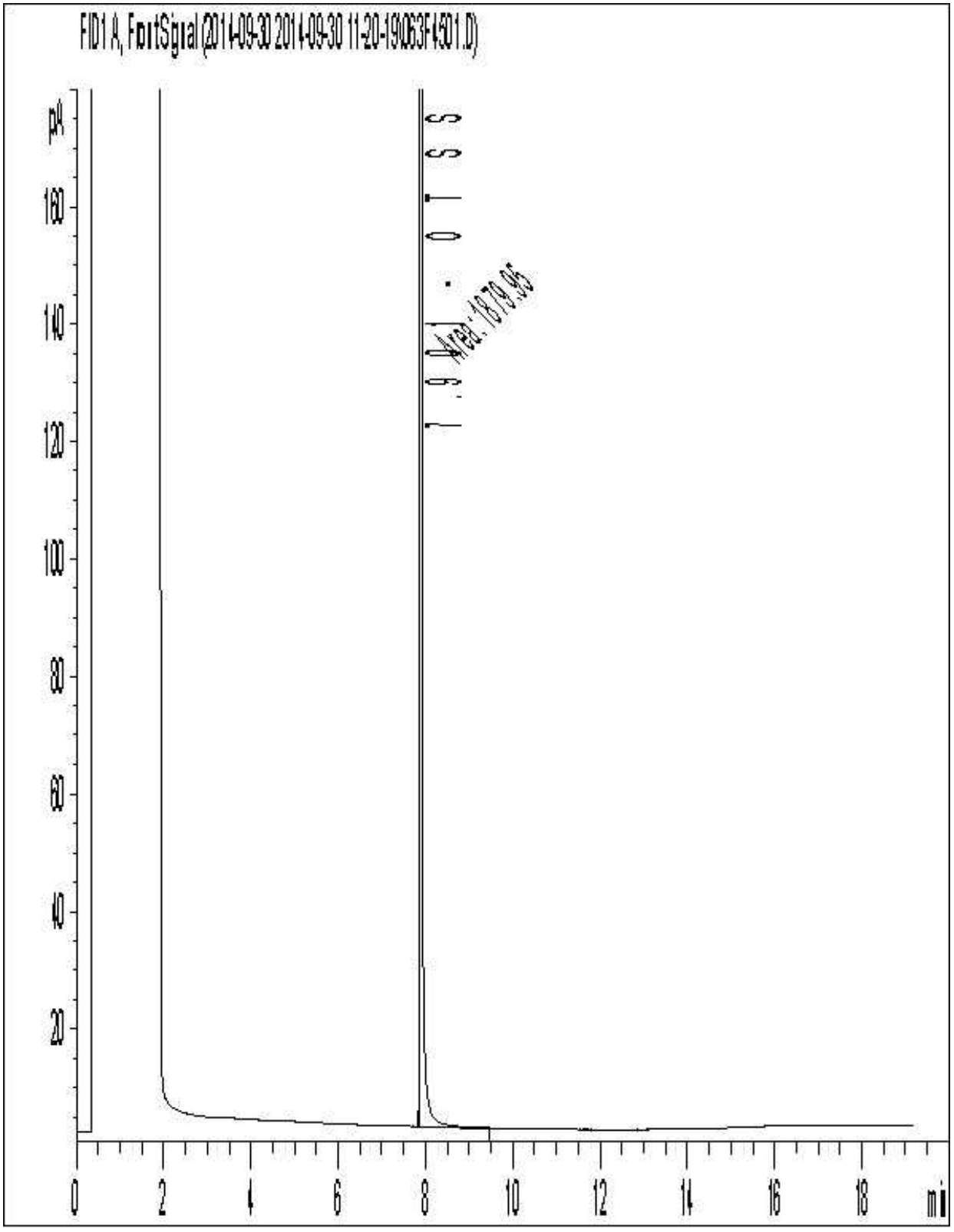


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1944

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP13-2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

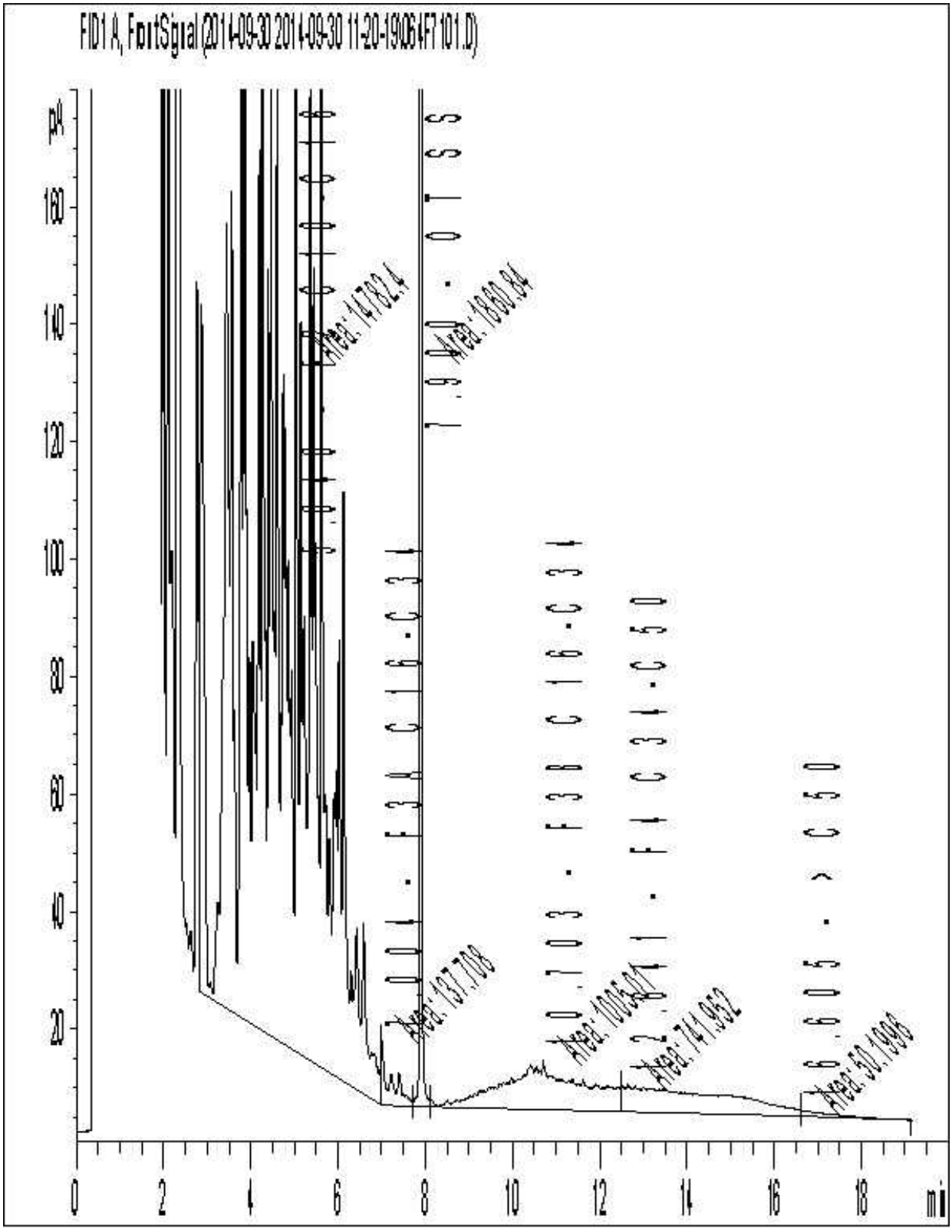


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1950

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP14-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

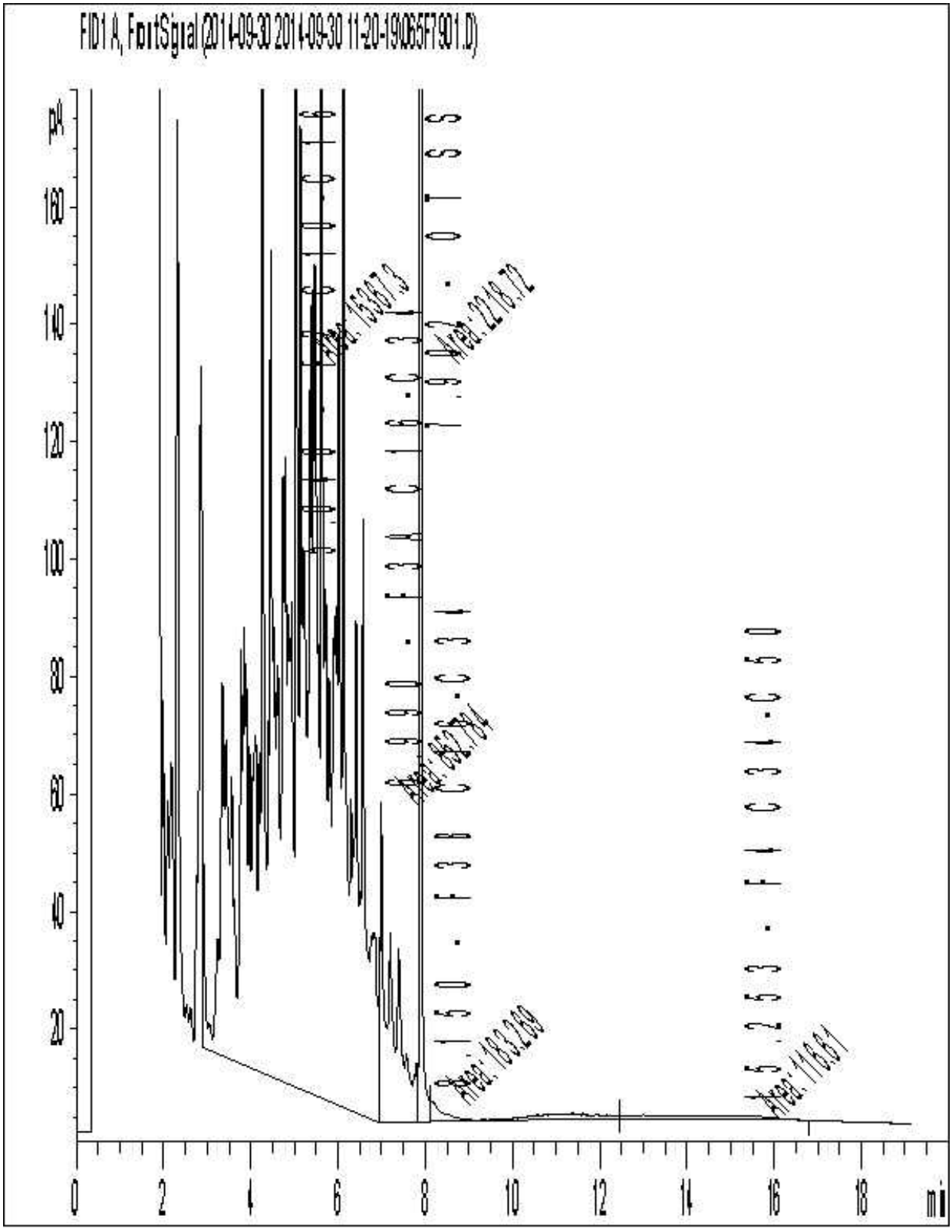


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1951

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP14-2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

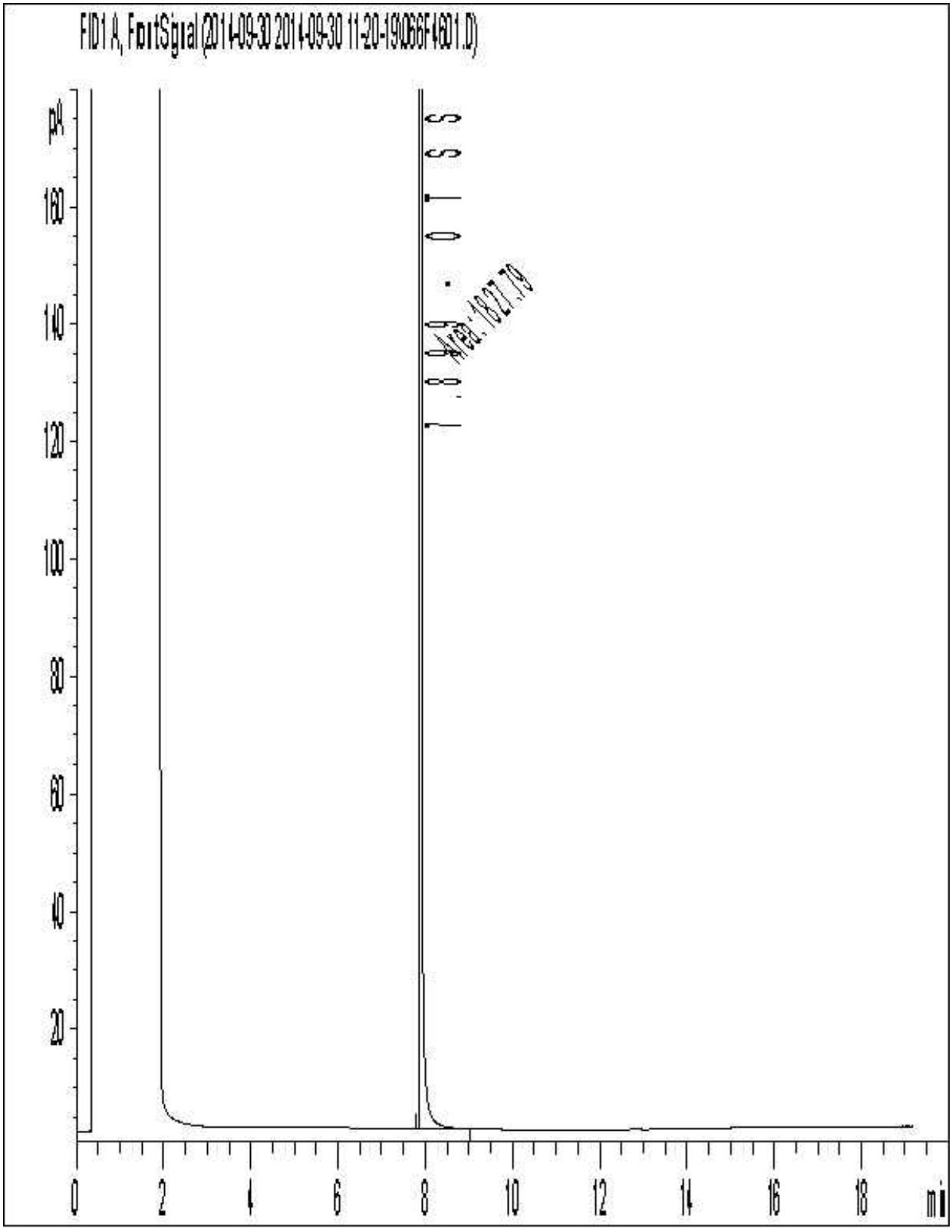


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1952

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP15-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

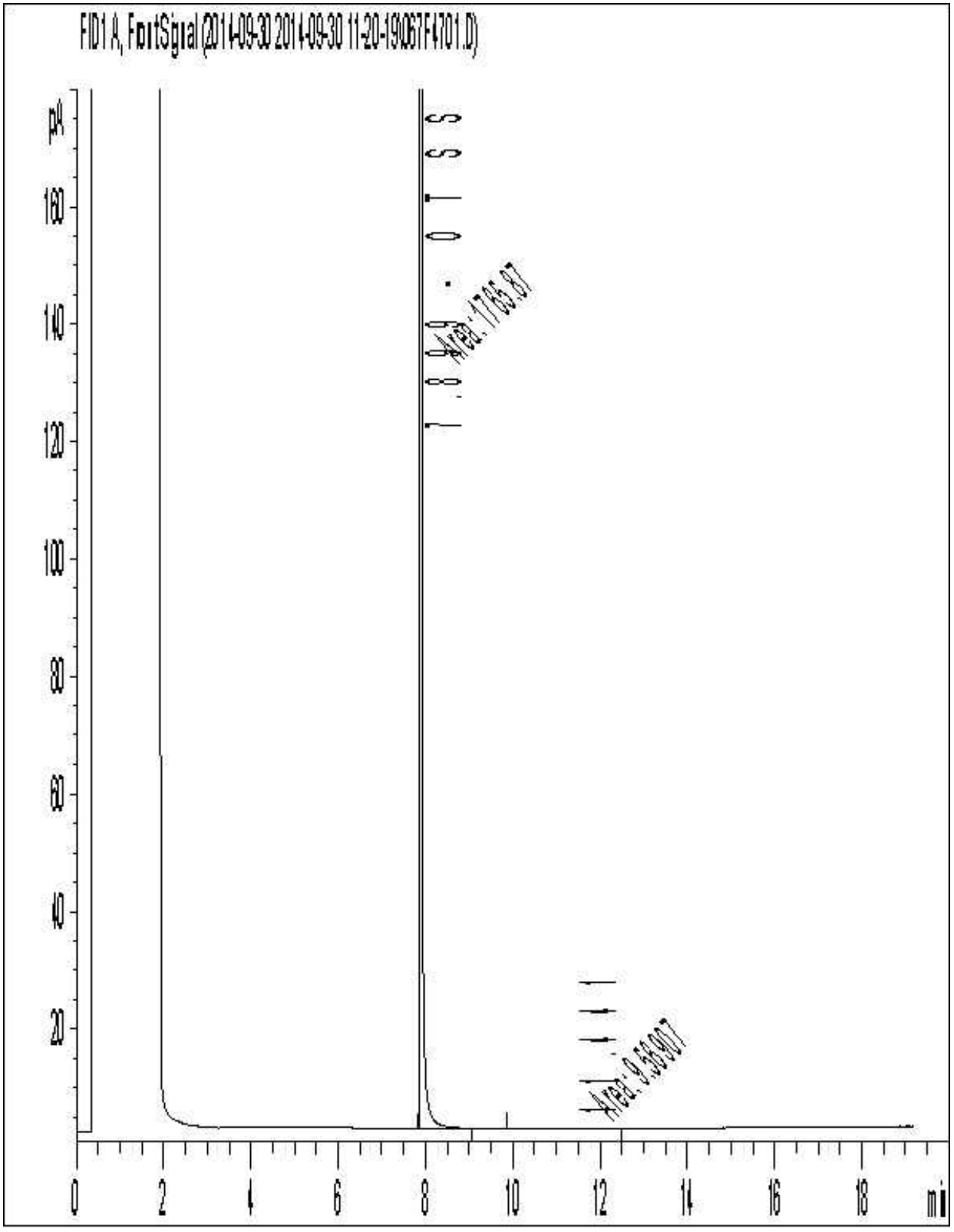


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1953

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP15-2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

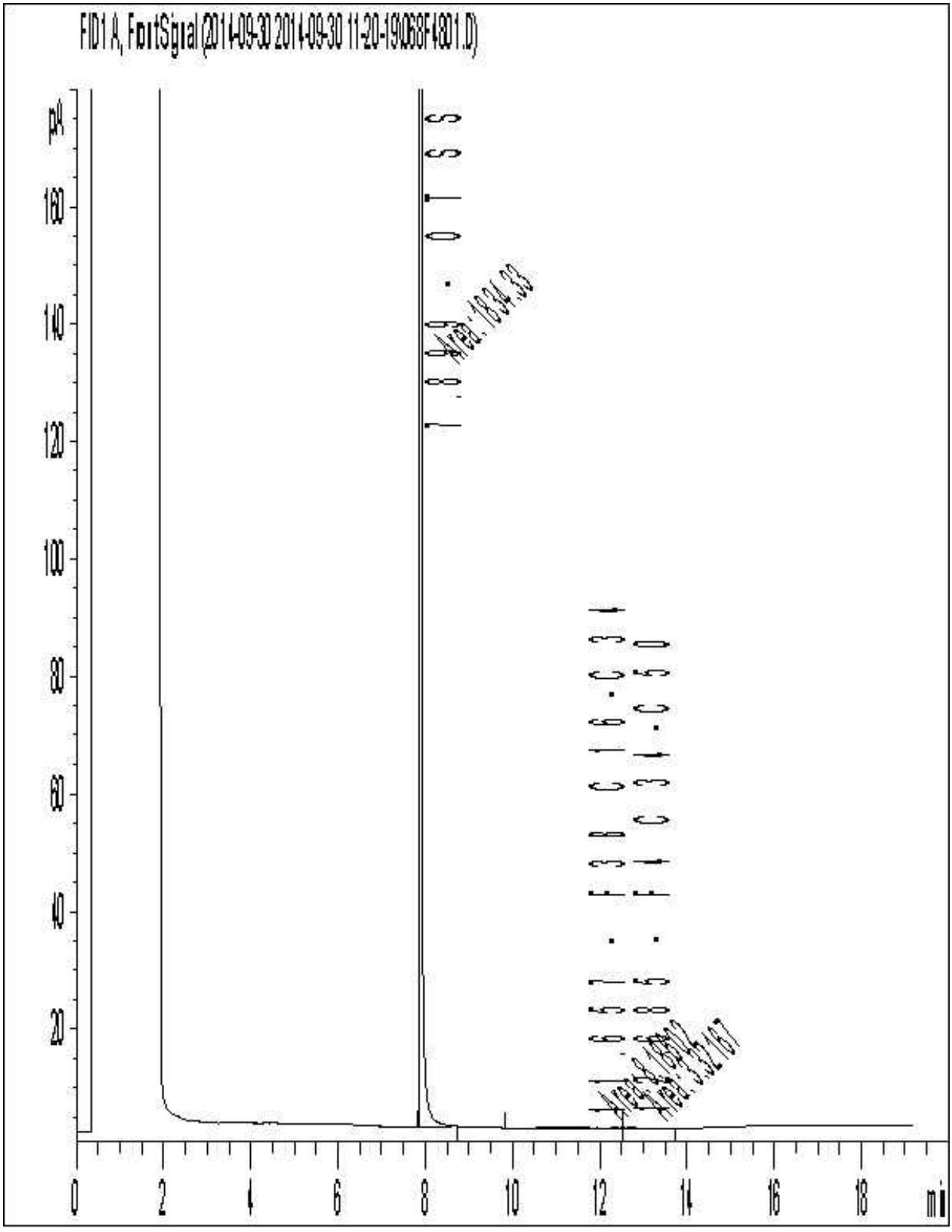


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1954

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP16-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

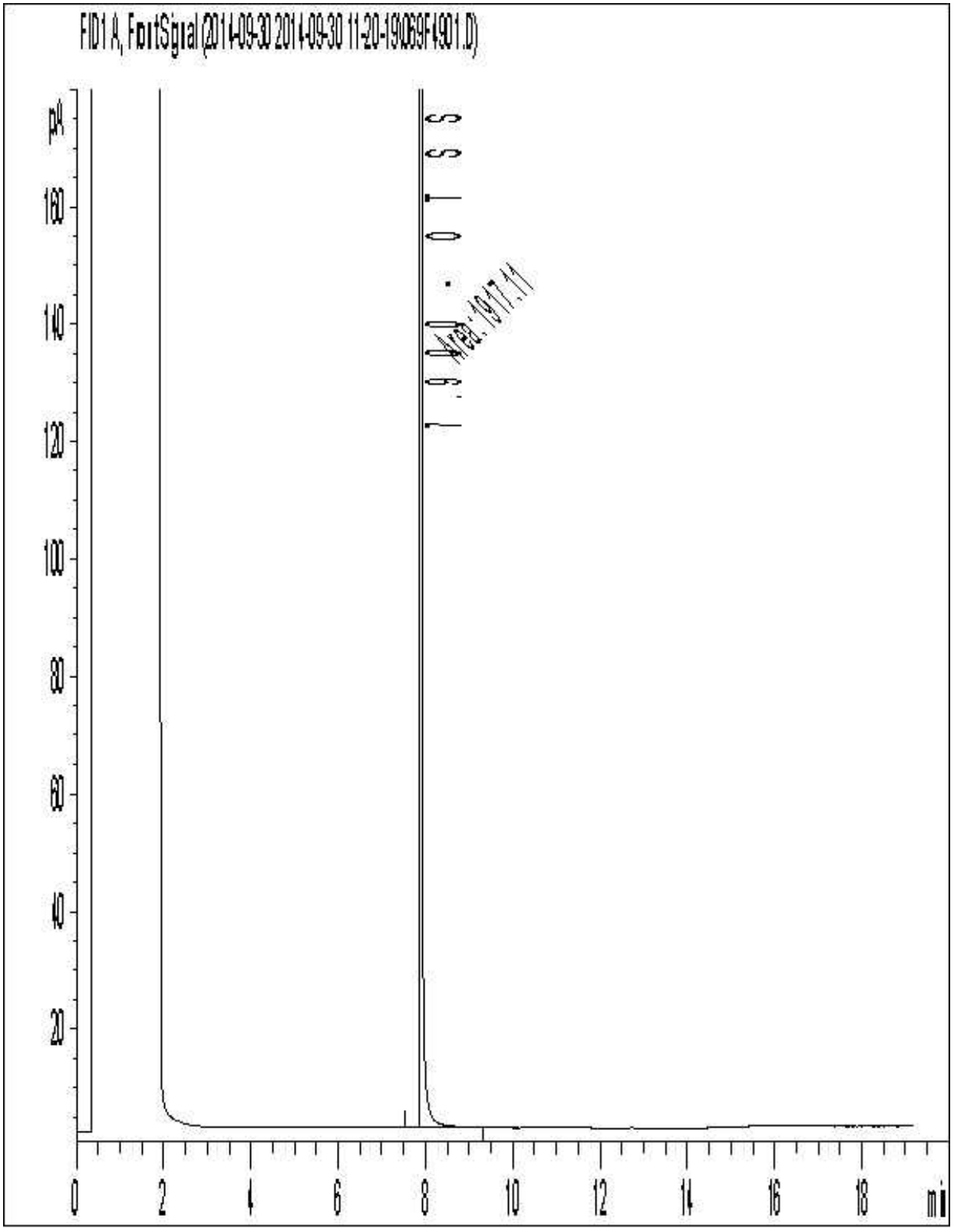


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1955

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP16-2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

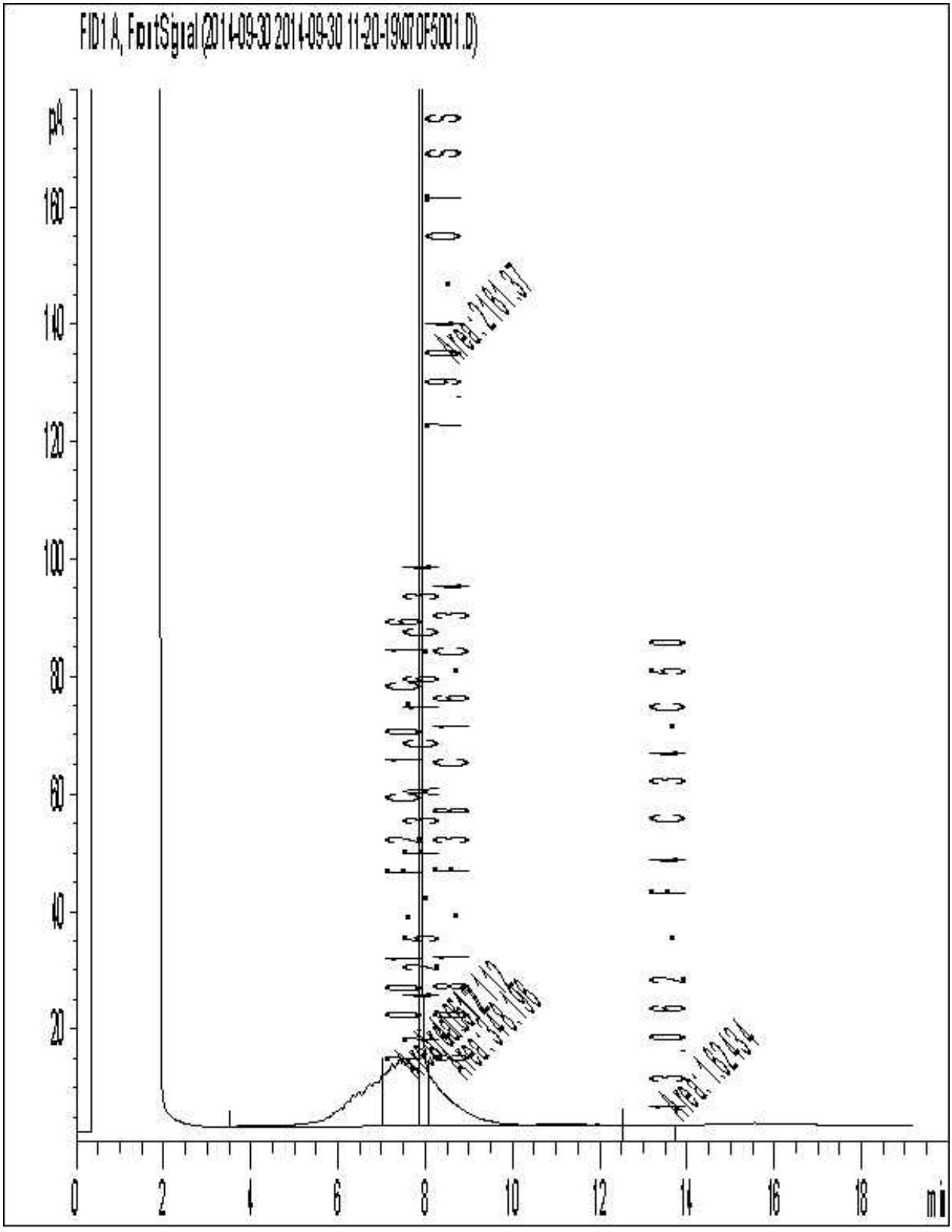


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1956

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP17-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

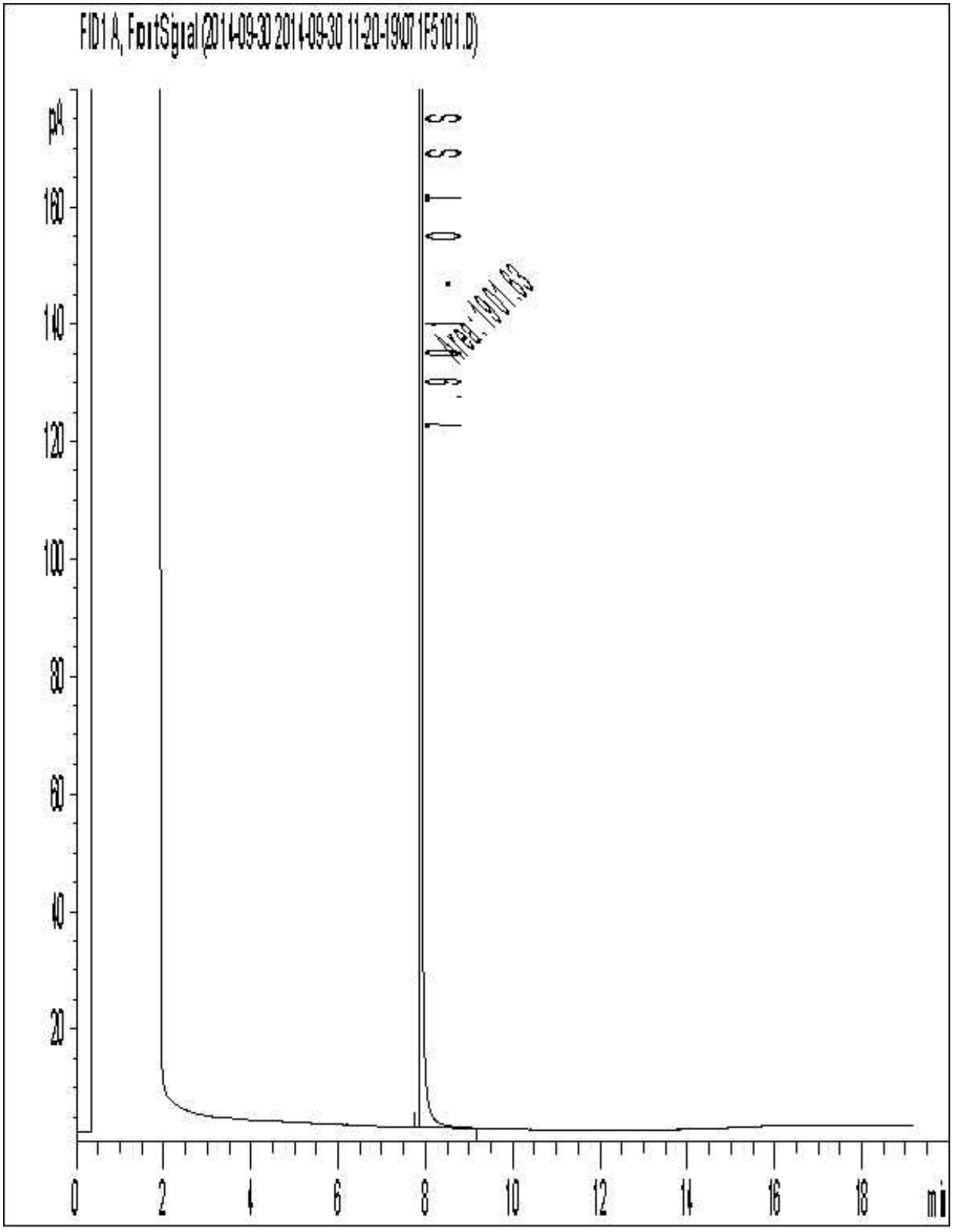


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1957

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP17-2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

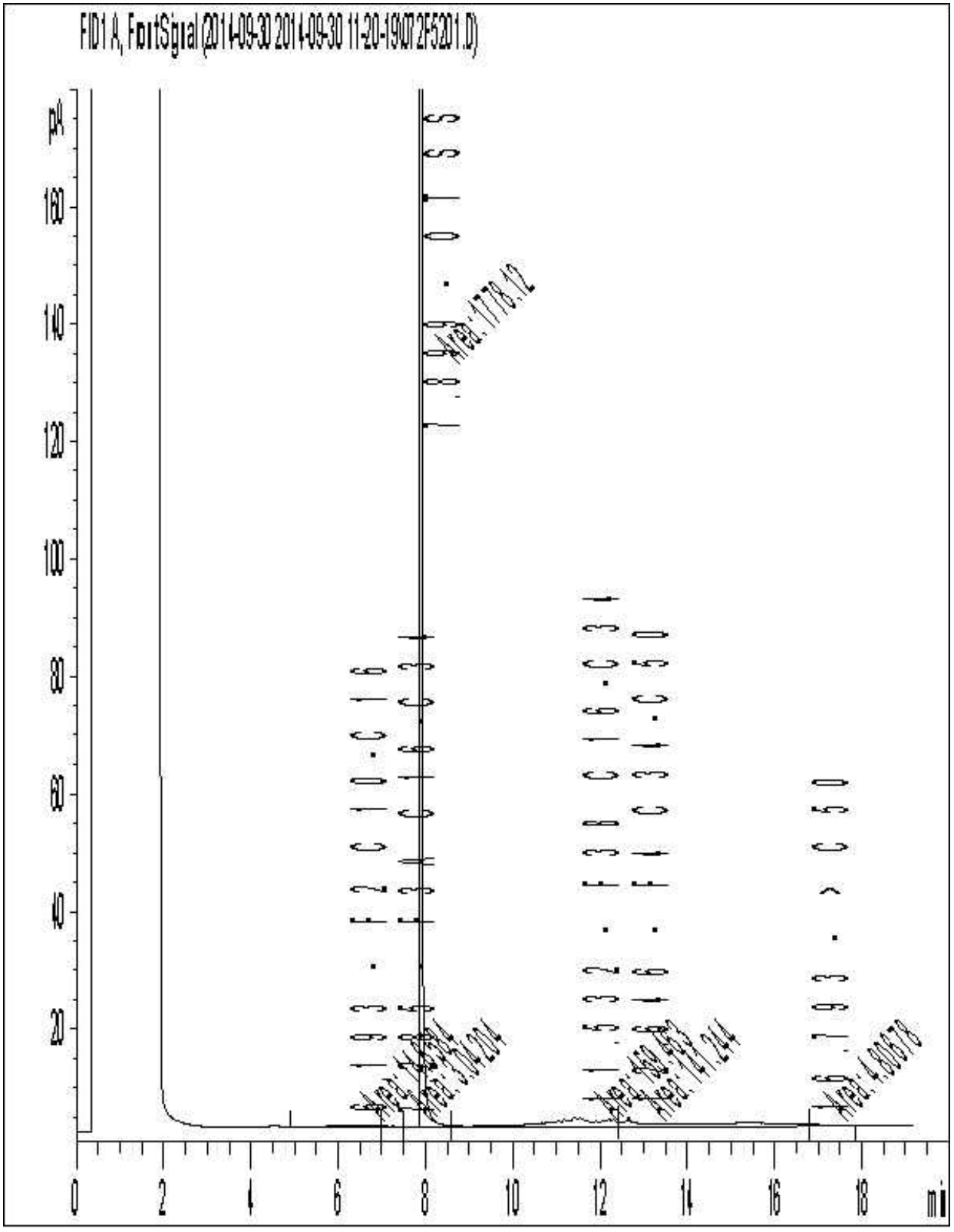


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1958

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP18-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

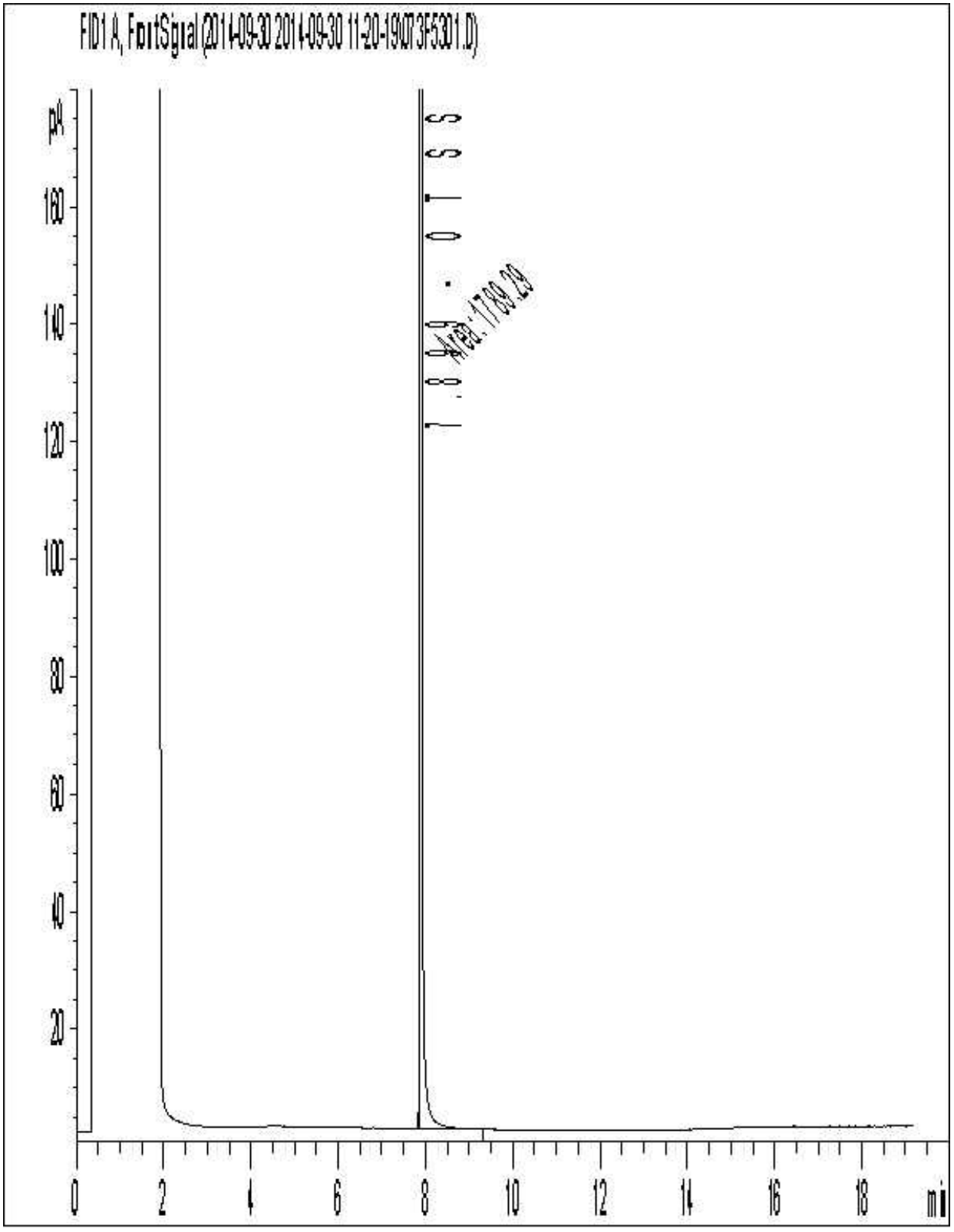


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1959

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP18-2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

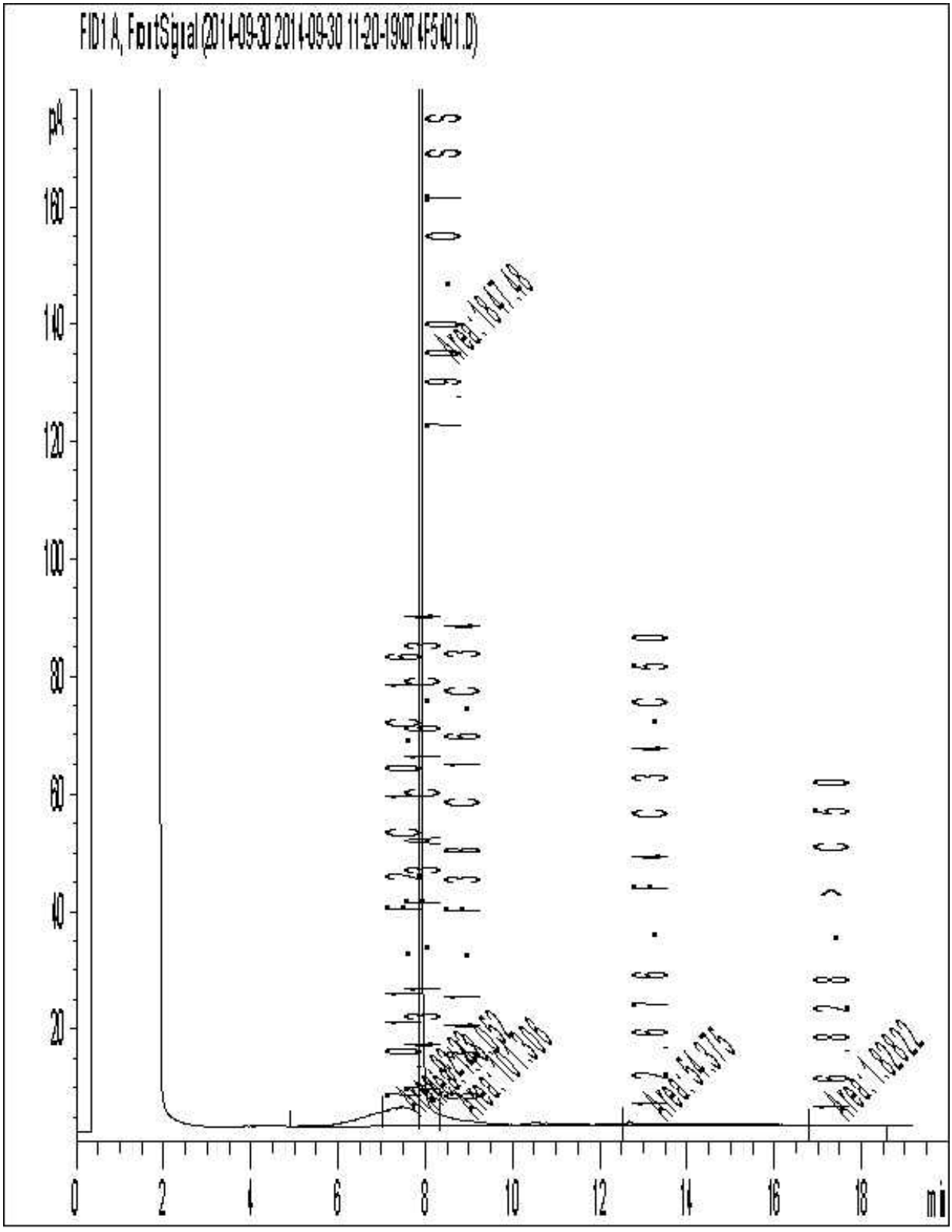


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1963

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP19-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

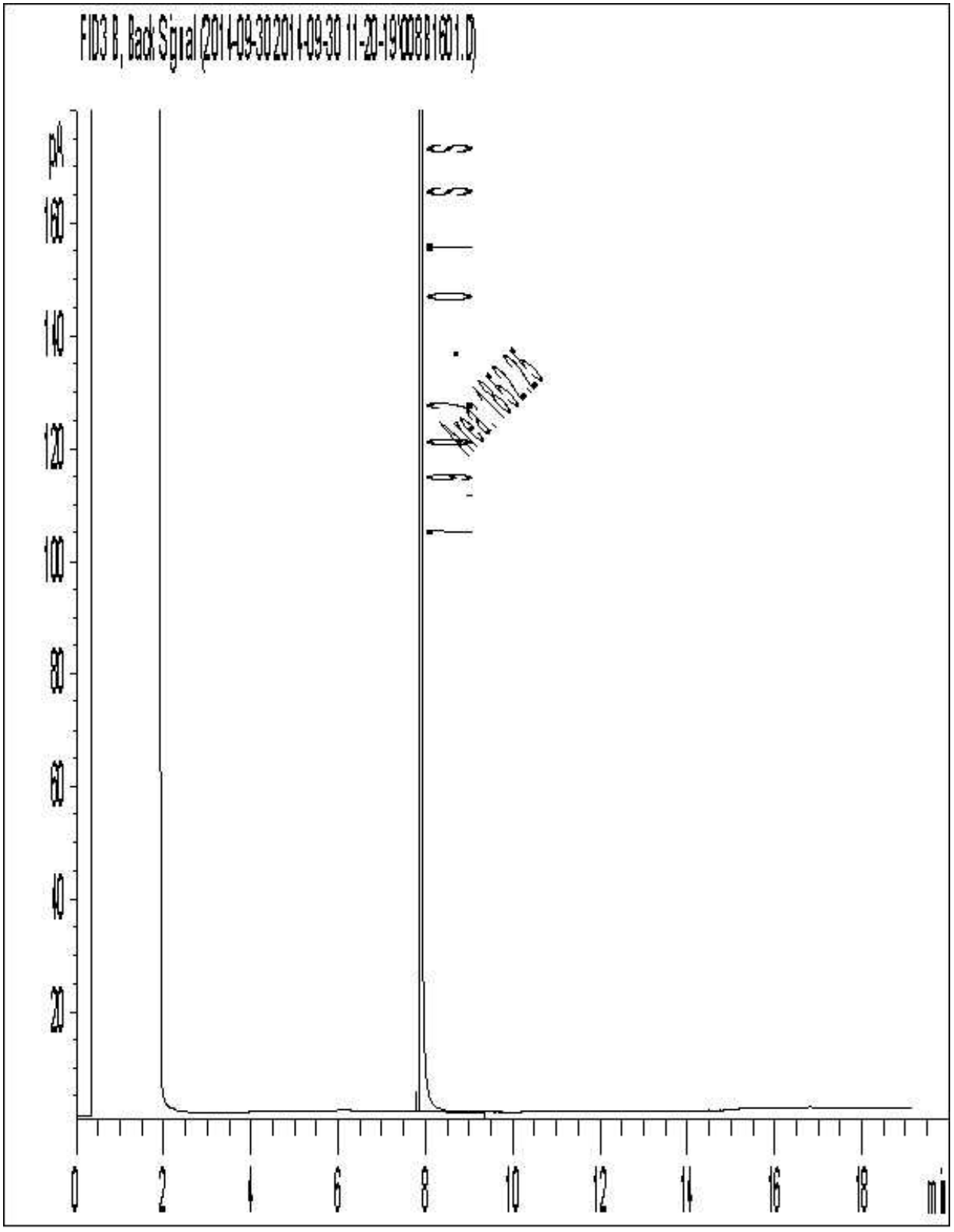


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1964

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP19-2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

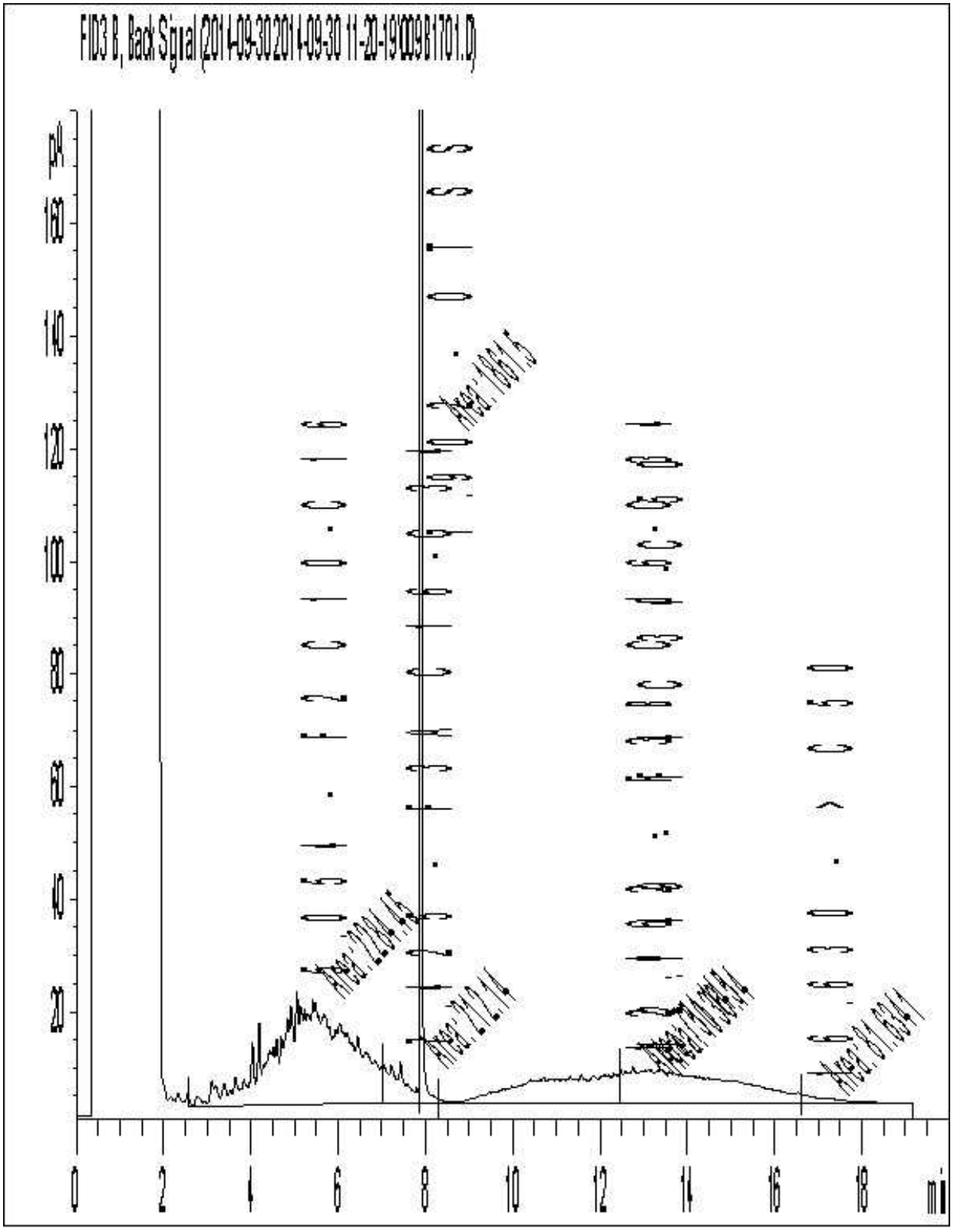


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1965

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP20-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

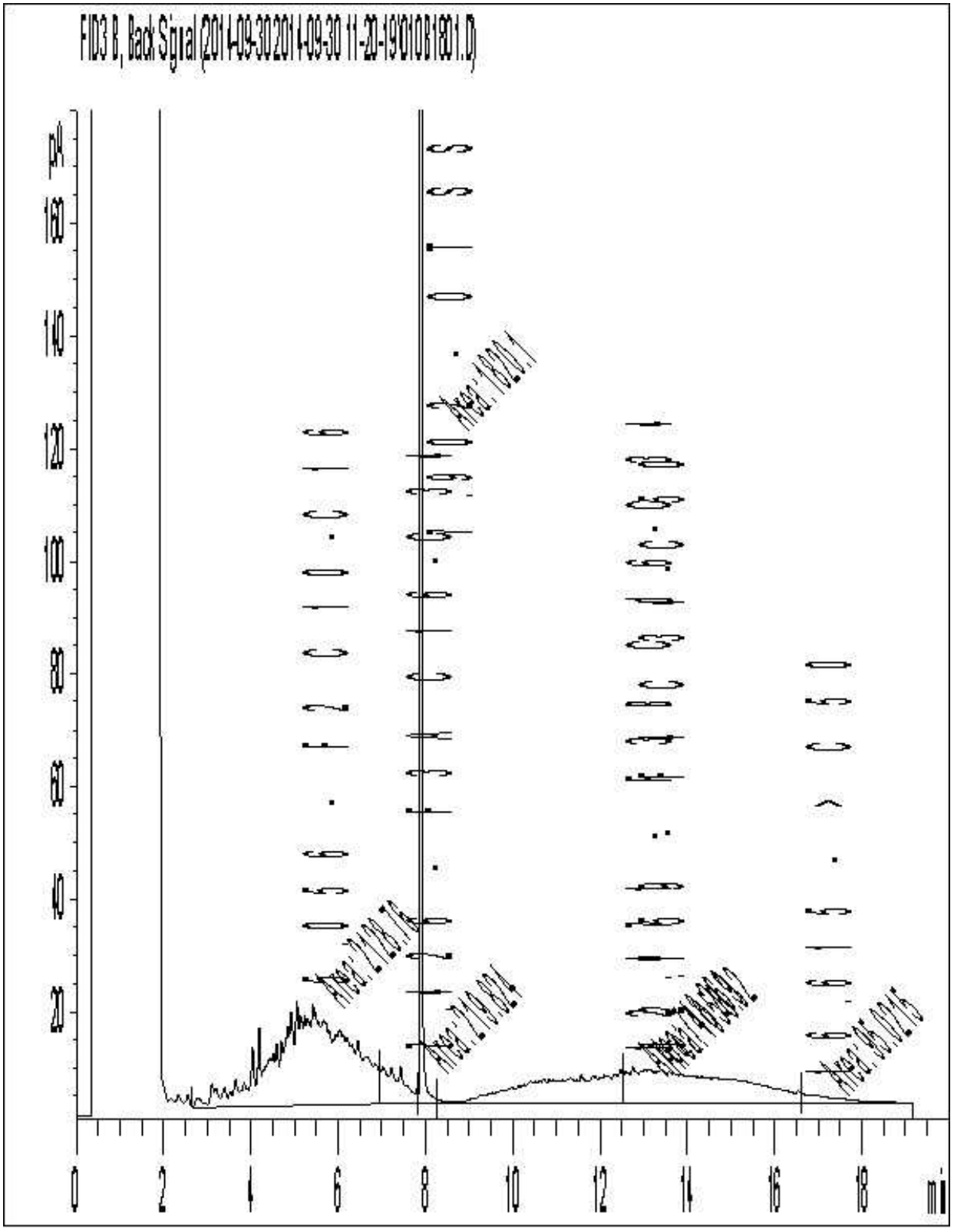


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1965 Lab-Dup

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP20-1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

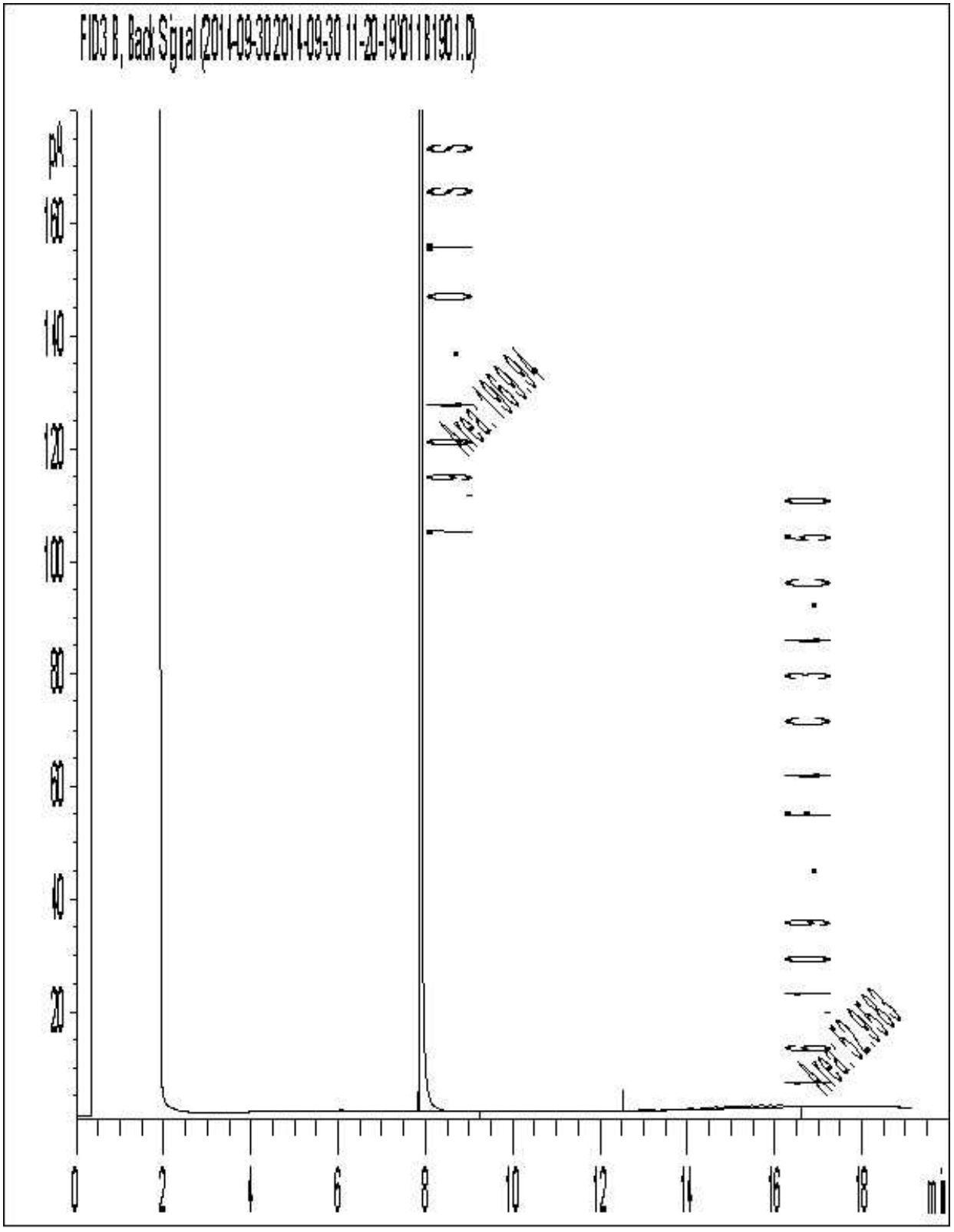


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1966

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-TP20-2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

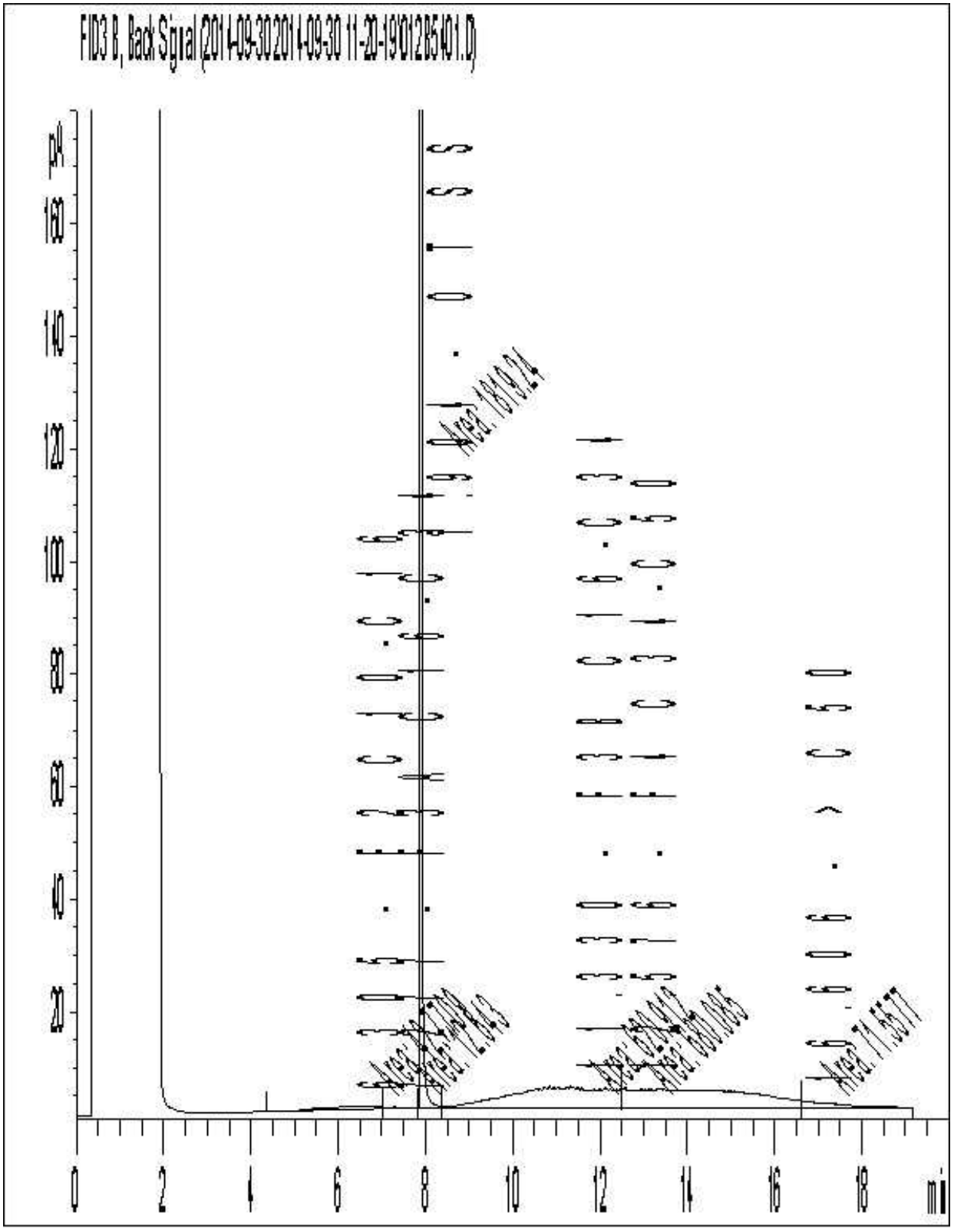


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1967

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: TC-SOIL PILE

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

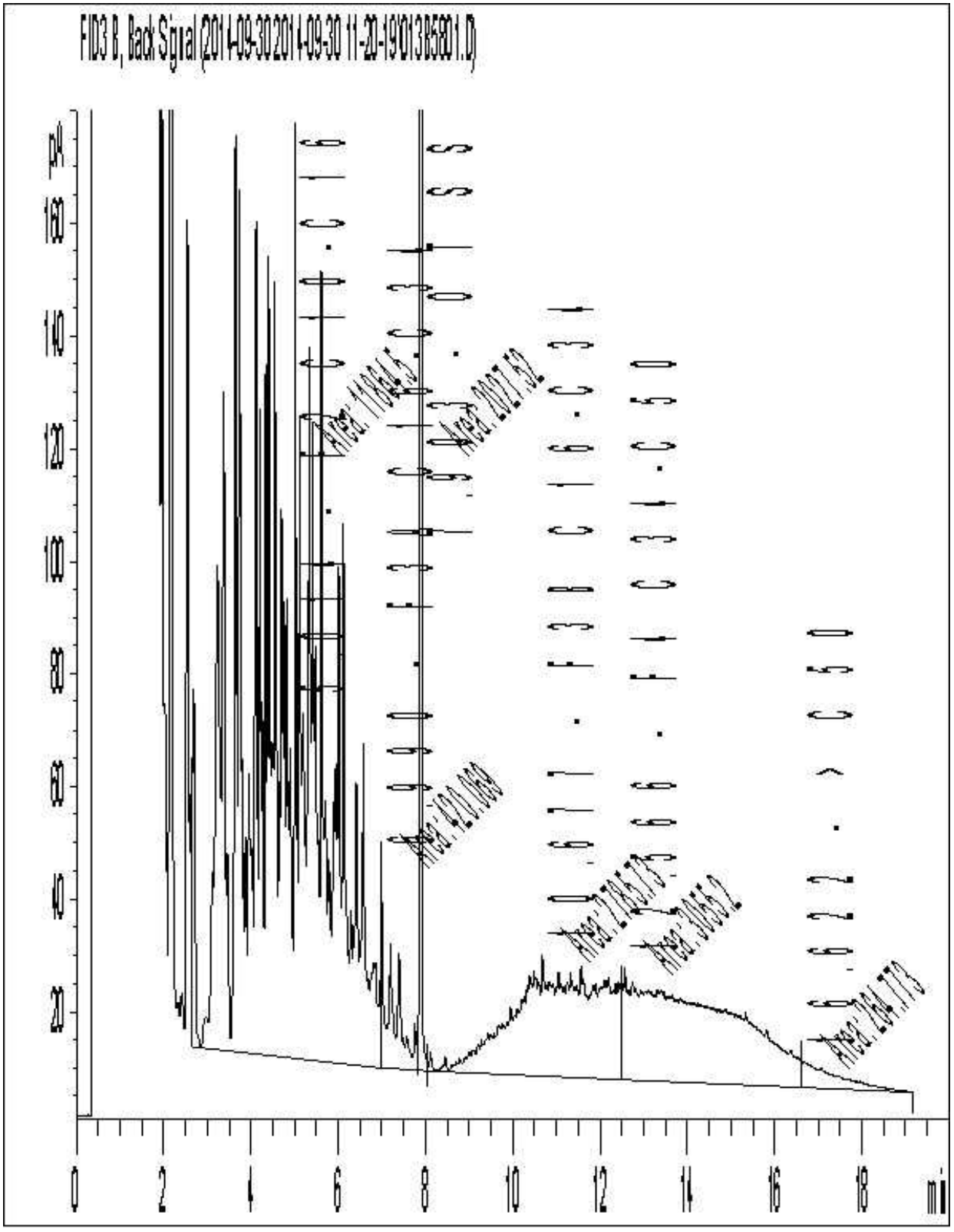


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1968

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: DUP1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

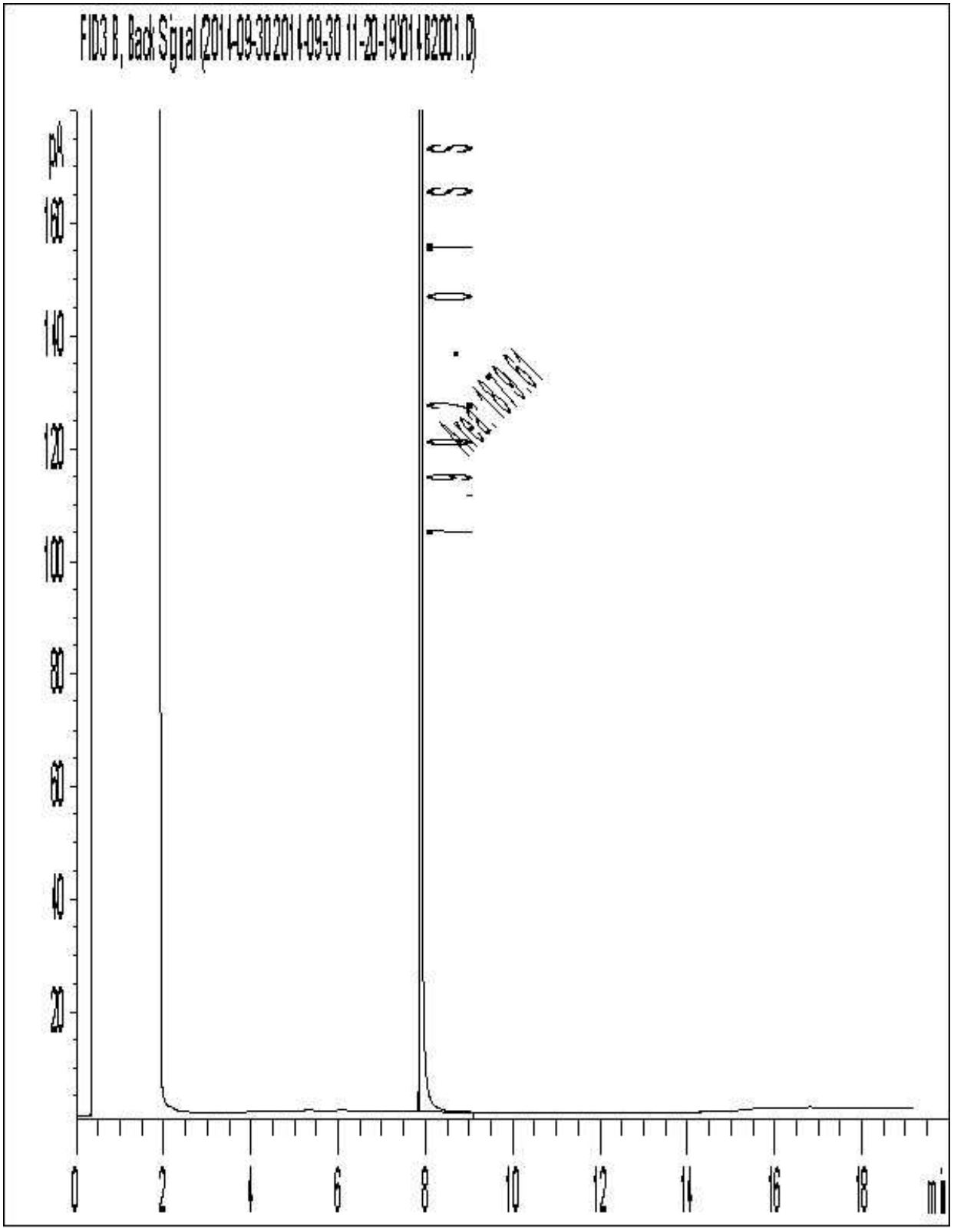


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B4H9280
Report Date: 2014/10/03
Maxxam Sample: XT1969

Franz Environmental Inc
Client Project #: 1584-1401
Project name: TC IQUALUIT AIRPORT
Client ID: DUP2

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 B

Site Visit Photographs

PHOTO 1	
Date: September 23, 2014	
Direction: E	
Description: Cell D area	

PHOTO 2	
Date: September 23, 2014	
Direction: SE	
Description: Test pit with Cell D monitoring well in background, indicating previous grade	

PHOTO 3	
Date: September 23, 2014	
Direction: SE	
Description: Cell D area	

PHOTO 4	
Date: September 23, 2014	
Direction: NW	
Description: Drainage ditch and culvert	

PHOTO 5	
Date: September 23, 2014	
Direction: S	
Description: Cell A berm	

PHOTO 6	
Date: September 23, 2014	
Direction: NA	
Description: Cell A berm with impacted Cell A soils on top and liner and berm materials below.	

PHOTO 7	
Date: September 23, 2014	
Direction: SE	
Description: Drainage ditch along Cell A berm.	

PHOTO 8	
Date: September 24, 2014	
Direction: SE	
Description: Cell C area	

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Certificate of Analysis

Nunatta Environmental Services Inc.

P.O. Box 267
Iqaluit, NU X0A 0H0
Attn: Jim Wilson

Phone: (867) 979-1488
Fax: (867) 979-1478

Client PO:
Project: T.C. Airport
Custody:

Report Date: 23-Oct-2014
Order Date: 17-Oct-2014
Order #: 1443032

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1443032-01	F1
1443032-02	W1
1443032-03	F2
1443032-04	W2
1443032-05	F3
1443032-06	F4
1443032-07	W4
1443032-08	F5
1443032-09	W5
1443032-10	F6
1443032-11	W6
1443032-12	F7
1443032-13	W7
1443032-14	F8
1443032-15	W8
1443032-16	F9
1443032-17	W3

Approved By: 

Mark Foto, M.Sc. For Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO: Project Description: T.C. Airport

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS, low level	EPA 8260 - P&T GC-MS, low level	22-Oct-14	22-Oct-14
Metals by ICP-OES, soil	based on MOE E3470, ICP-OES	22-Oct-14	22-Oct-14
PAHs by GC-MS	EPA 8270 - GC-MS, extraction	20-Oct-14	21-Oct-14
PHC F1	CWS Tier 1 - P&T GC-FID	21-Oct-14	22-Oct-14
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	21-Oct-14	22-Oct-14
Solids, %	Gravimetric, calculation	22-Oct-14	22-Oct-14
TPH (diesel)	based on E3398/EPA3546 - GC-FID, extraction	21-Oct-14	22-Oct-14
TPH (gasoline)	E3398 - P&T GC-FID, extraction	21-Oct-14	22-Oct-14
TPH (heavy oil)	MOE E3398/EPA3546 - Gravimetric	23-Oct-14	23-Oct-14

PARACEL LABORATORIES LTD.

Order #: 1443032

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO:

Project Description: T.C. Airport

	Client ID:	F1	W1	F2	W2
	Sample Date:	16-Oct-14	16-Oct-14	16-Oct-14	16-Oct-14
	Sample ID:	1443032-01	1443032-02	1443032-03	1443032-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	82.1	89.9	86.6	90.0
Metals					
Aluminum	1.0 ug/g dry	4860	4850	4860	5150
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	<1.0	<1.0	<1.0	2.3
Barium	1.0 ug/g dry	39.0	35.6	47.2	43.1
Beryllium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Boron	1.0 ug/g dry	1.8	1.8	1.7	2.4
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Calcium	5.0 ug/g dry	8640	7620	6110	8650
Chromium	1.0 ug/g dry	20.3	21.9	24.9	22.2
Cobalt	1.0 ug/g dry	5.3	5.4	6.7	6.4
Copper	0.5 ug/g dry	11.1	11.4	11.4	14.2
Iron	10.0 ug/g dry	21500	22200	24300	23000
Lead	1.0 ug/g dry	10.3	11.0	13.4	24.5
Magnesium	1.0 ug/g dry	3530	3430	3920	3900
Manganese	0.5 ug/g dry	217	185	230	225
Molybdenum	0.5 ug/g dry	<0.5	0.8	0.5	<0.5
Nickel	1.0 ug/g dry	7.6	8.1	9.2	8.8
Potassium	5.0 ug/g dry	971	946	928	1040
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Sodium	10.0 ug/g dry	225	242	211	235
Strontium	0.5 ug/g dry	15.6	16.0	13.5	16.6
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Tin	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Titanium	0.5 ug/g dry	400	386	394	412
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	0.5 ug/g dry	39.2	42.8	52.6	46.6
Zinc	1.0 ug/g dry	36.3	36.4	40.7	44.4
Volatiles					
Benzene	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO:

Project Description: T.C. Airport

	Client ID:	F1	W1	F2	W2
	Sample Date:	16-Oct-14	16-Oct-14	16-Oct-14	16-Oct-14
	Sample ID:	1443032-01	1443032-02	1443032-03	1443032-04
	MDL/Units	Soil	Soil	Soil	Soil
Toluene	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
m,p-Xylenes	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
o-Xylene	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
Xylenes, total	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
Toluene-d8	Surrogate	98.9%	105%	102%	105%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	20	135	70	158
F3 PHCs (C16-C34)	8 ug/g dry	234	483	276	723
F4 PHCs (C34-C50)	6 ug/g dry	195	404	260	529
TPH (gasoline)	10 ug/g dry	<10	<10	<10	<10
TPH (diesel)	10 ug/g dry	93	307	169	429
TPH (heavy oil)	50 ug/g dry	353	489	312	956
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	<0.02	0.03	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	<0.02	0.02	<0.02	0.03
Benzo [a] pyrene	0.02 ug/g dry	<0.02	0.06	<0.02	0.06
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	0.09	<0.02	0.11
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	0.04	<0.02	0.06
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	0.04	<0.02	0.04
Biphenyl	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Chrysene	0.02 ug/g dry	<0.02	0.08	<0.02	0.06
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.04
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	0.03	<0.02	0.03
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	<0.04
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	0.01
Phenanthrene	0.02 ug/g dry	<0.02	0.02	<0.02	0.02
Pyrene	0.02 ug/g dry	<0.02	0.03	<0.02	0.14

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO: Project Description: T.C. Airport

	Client ID:	F1	W1	F2	W2
	Sample Date:	16-Oct-14	16-Oct-14	16-Oct-14	16-Oct-14
	Sample ID:	1443032-01	1443032-02	1443032-03	1443032-04
	MDL/Units	Soil	Soil	Soil	Soil
Quinoline	0.10 ug/g dry	<0.10	<0.10	<0.10	<0.10
2-Fluorobiphenyl	Surrogate	60.5%	73.2%	57.9%	78.6%
Terphenyl-d14	Surrogate	83.6%	89.2%	96.1%	84.7%

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Order #: 1443032

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO:

Project Description: T.C. Airport

	Client ID:	F3	F4	W4	F5
	Sample Date:	16-Oct-14	16-Oct-14	16-Oct-14	16-Oct-14
	Sample ID:	1443032-05	1443032-06	1443032-07	1443032-08
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	95.9	85.8	92.6	92.2
Metals					
Aluminum	1.0 ug/g dry	3400	2850	4810	5700
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Barium	1.0 ug/g dry	21.4	20.2	36.5	34.8
Beryllium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Boron	1.0 ug/g dry	3.0	1.7	2.1	2.0
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Calcium	5.0 ug/g dry	42900	24900	9700	6900
Chromium	1.0 ug/g dry	28.3	19.2	21.6	22.3
Cobalt	1.0 ug/g dry	6.8	5.3	6.1	6.0
Copper	0.5 ug/g dry	17.1	13.7	12.4	12.8
Iron	10.0 ug/g dry	31300	22200	22900	22900
Lead	1.0 ug/g dry	7.0	6.0	19.8	14.7
Magnesium	1.0 ug/g dry	4390	2390	3540	3460
Manganese	0.5 ug/g dry	217	240	209	255
Molybdenum	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Nickel	1.0 ug/g dry	9.7	5.8	8.3	8.8
Potassium	5.0 ug/g dry	676	601	817	875
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Sodium	10.0 ug/g dry	173	184	223	324
Strontium	0.5 ug/g dry	44.5	30.6	17.9	15.2
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Tin	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Titanium	0.5 ug/g dry	301	259	354	354
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	0.5 ug/g dry	61.7	38.2	47.3	44.9
Zinc	1.0 ug/g dry	28.7	23.6	43.8	41.9
Volatiles					
Benzene	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO:

Project Description: T.C. Airport

	Client ID:	F3	F4	W4	F5
	Sample Date:	16-Oct-14	16-Oct-14	16-Oct-14	16-Oct-14
	Sample ID:	1443032-05	1443032-06	1443032-07	1443032-08
	MDL/Units	Soil	Soil	Soil	Soil
Toluene	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
m,p-Xylenes	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
o-Xylene	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
Xylenes, total	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
Toluene-d8	Surrogate	105%	103%	105%	104%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	198	149	61
F3 PHCs (C16-C34)	8 ug/g dry	<8	216	717	386
F4 PHCs (C34-C50)	6 ug/g dry	<6	90	350	286
TPH (gasoline)	10 ug/g dry	<10	<10	<10	<10
TPH (diesel)	10 ug/g dry	<10	317	462	213
TPH (heavy oil)	50 ug/g dry	<50	93	1070	520
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	0.03	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	0.07	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	0.03	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	0.03	<0.02
Biphenyl	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Chrysene	0.02 ug/g dry	<0.02	<0.02	0.03	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
1-Methylnaphthalene	0.02 ug/g dry	<0.02	0.06	<0.02	0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	0.07	<0.04	0.04
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	<0.01
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO:

Project Description: T.C. Airport

	Client ID:	F3	F4	W4	F5
	Sample Date:	16-Oct-14	16-Oct-14	16-Oct-14	16-Oct-14
	Sample ID:	1443032-05	1443032-06	1443032-07	1443032-08
	MDL/Units	Soil	Soil	Soil	Soil
Pyrene	0.02 ug/g dry	<0.02	<0.02	0.09	<0.02
Quinoline	0.10 ug/g dry	<0.10	<0.10	<0.10	<0.10
2-Fluorobiphenyl	Surrogate	65.8%	63.5%	111%	60.1%
Terphenyl-d14	Surrogate	89.0%	87.5%	97.0%	74.9%

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO:

Project Description: T.C. Airport

	Client ID:	W5	F6	W6	F7
	Sample Date:	16-Oct-14	16-Oct-14	16-Oct-14	16-Oct-14
	Sample ID:	1443032-09	1443032-10	1443032-11	1443032-12
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	91.6	92.8	91.0	97.0
Metals					
Aluminum	1.0 ug/g dry	4360	4670	4430	2990
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	<1.0	<1.0	7.0	3.4
Barium	1.0 ug/g dry	33.3	36.8	40.0	19.3
Beryllium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Boron	1.0 ug/g dry	2.1	1.9	1.7	2.3
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Calcium	5.0 ug/g dry	8870	11500	6140	20500
Chromium	1.0 ug/g dry	21.7	25.0	20.1	20.7
Cobalt	1.0 ug/g dry	5.5	7.0	5.6	5.3
Copper	0.5 ug/g dry	12.2	17.1	10.8	14.4
Iron	10.0 ug/g dry	21300	26700	21700	23100
Lead	1.0 ug/g dry	16.5	15.7	11.1	6.7
Magnesium	1.0 ug/g dry	3180	3560	2720	2890
Manganese	0.5 ug/g dry	197	289	187	193
Molybdenum	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Nickel	1.0 ug/g dry	7.8	9.5	7.5	7.0
Potassium	5.0 ug/g dry	730	886	736	547
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Sodium	10.0 ug/g dry	207	236	214	146
Strontium	0.5 ug/g dry	17.5	19.9	13.0	25.2
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Tin	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Titanium	0.5 ug/g dry	333	359	313	239
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	0.5 ug/g dry	44.4	57.5	42.1	44.6
Zinc	1.0 ug/g dry	38.7	42.7	38.4	27.8
Volatiles					
Benzene	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO:

Project Description: T.C. Airport

	Client ID:	W5	F6	W6	F7
	Sample Date:	16-Oct-14	16-Oct-14	16-Oct-14	16-Oct-14
	Sample ID:	1443032-09	1443032-10	1443032-11	1443032-12
	MDL/Units	Soil	Soil	Soil	Soil
Toluene	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
m,p-Xylenes	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
o-Xylene	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
Xylenes, total	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
Toluene-d8	Surrogate	103%	105%	102%	98.7%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	37	47	14	<4
F3 PHCs (C16-C34)	8 ug/g dry	472	340	82	<8
F4 PHCs (C34-C50)	6 ug/g dry	544	338	136	<6
TPH (gasoline)	10 ug/g dry	<10	<10	<10	<10
TPH (diesel)	10 ug/g dry	203	157	46	<10
TPH (heavy oil)	50 ug/g dry	884	539	231	<50
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	0.02	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	0.02	0.02	0.02	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	0.04	<0.02	<0.02	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Biphenyl	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Chrysene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	<0.02	0.03	<0.02	<0.02
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
1-Methylnaphthalene	0.02 ug/g dry	<0.02	0.09	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	0.03	<0.02	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	0.11	<0.04	<0.04
Naphthalene	0.01 ug/g dry	0.01	<0.01	<0.01	<0.01
Phenanthrene	0.02 ug/g dry	<0.02	0.03	<0.02	<0.02
Pyrene	0.02 ug/g dry	0.02	0.03	0.04	<0.02

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO: Project Description: T.C. Airport

	Client ID:	W5	F6	W6	F7
	Sample Date:	16-Oct-14	16-Oct-14	16-Oct-14	16-Oct-14
	Sample ID:	1443032-09	1443032-10	1443032-11	1443032-12
	MDL/Units	Soil	Soil	Soil	Soil
Quinoline	0.10 ug/g dry	<0.10	<0.10	<0.10	<0.10
2-Fluorobiphenyl	Surrogate	69.6%	66.2%	65.0%	60.0%
Terphenyl-d14	Surrogate	88.0%	76.0%	74.0%	86.5%

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO:

Project Description: T.C. Airport

	Client ID:	W7	F8	W8	F9
	Sample Date:	16-Oct-14	16-Oct-14	16-Oct-14	16-Oct-14
	Sample ID:	1443032-13	1443032-14	1443032-15	1443032-16
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	90.0	96.3	90.4	94.0
Metals					
Aluminum	1.0 ug/g dry	4190	2740	4610	4760
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Barium	1.0 ug/g dry	31.8	16.7	32.6	69.2
Beryllium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Boron	1.0 ug/g dry	1.7	1.9	1.7	1.7
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Calcium	5.0 ug/g dry	7900	20100	5950	6290
Chromium	1.0 ug/g dry	21.9	24.4	21.0	19.2
Cobalt	1.0 ug/g dry	5.4	5.2	5.4	6.6
Copper	0.5 ug/g dry	10.7	11.2	10.2	11.2
Iron	10.0 ug/g dry	22500	24600	20900	22600
Lead	1.0 ug/g dry	10.1	5.5	14.8	11.3
Magnesium	1.0 ug/g dry	3250	2530	3220	3800
Manganese	0.5 ug/g dry	213	208	175	234
Molybdenum	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Nickel	1.0 ug/g dry	7.6	6.6	7.5	8.7
Potassium	5.0 ug/g dry	745	430	807	1050
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Sodium	10.0 ug/g dry	196	142	201	207
Strontium	0.5 ug/g dry	15.2	27.7	14.4	15.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Tin	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Titanium	0.5 ug/g dry	324	242	355	400
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	0.5 ug/g dry	45.2	52.5	41.8	44.6
Zinc	1.0 ug/g dry	34.6	24.3	34.8	39.8
Volatiles					
Benzene	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO:

Project Description: T.C. Airport

	Client ID:	W7	F8	W8	F9
	Sample Date:	16-Oct-14	16-Oct-14	16-Oct-14	16-Oct-14
	Sample ID:	1443032-13	1443032-14	1443032-15	1443032-16
	MDL/Units	Soil	Soil	Soil	Soil
Toluene	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
m,p-Xylenes	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
o-Xylene	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
Xylenes, total	0.002 ug/g dry	<0.002	<0.002	<0.002	<0.002
Toluene-d8	Surrogate	98.8%	98.4%	97.9%	98.1%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	45	<4	54	13
F3 PHCs (C16-C34)	8 ug/g dry	195	<8	499	196
F4 PHCs (C34-C50)	6 ug/g dry	168	<6	426	140
TPH (gasoline)	10 ug/g dry	<10	<10	<10	<10
TPH (diesel)	10 ug/g dry	136	<10	226	68
TPH (heavy oil)	50 ug/g dry	400	<50	808	330
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	0.03	<0.02	<0.02	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Biphenyl	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Chrysene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	<0.04
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	<0.01
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO:

Project Description: T.C. Airport

	Client ID:	W7	F8	W8	F9
	Sample Date:	16-Oct-14	16-Oct-14	16-Oct-14	16-Oct-14
	Sample ID:	1443032-13	1443032-14	1443032-15	1443032-16
	MDL/Units	Soil	Soil	Soil	Soil
Pyrene	0.02 ug/g dry	0.02	<0.02	<0.02	<0.02
Quinoline	0.10 ug/g dry	<0.10	<0.10	<0.10	<0.10
2-Fluorobiphenyl	Surrogate	59.5%	84.5%	71.7%	69.1%
Terphenyl-d14	Surrogate	76.8%	92.2%	72.5%	77.3%

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO: Project Description: T.C. Airport

	Client ID:	W3	-	-	-
	Sample Date:	16-Oct-14	-	-	-
	Sample ID:	1443032-17	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	90.3	-	-	-
Metals					
Aluminum	1.0 ug/g dry	4780	-	-	-
Antimony	1.0 ug/g dry	<1.0	-	-	-
Arsenic	1.0 ug/g dry	<1.0	-	-	-
Barium	1.0 ug/g dry	34.7	-	-	-
Beryllium	1.0 ug/g dry	<1.0	-	-	-
Boron	1.0 ug/g dry	2.1	-	-	-
Cadmium	0.5 ug/g dry	<0.5	-	-	-
Calcium	5.0 ug/g dry	5070	-	-	-
Chromium	1.0 ug/g dry	21.8	-	-	-
Cobalt	1.0 ug/g dry	6.1	-	-	-
Copper	0.5 ug/g dry	12.5	-	-	-
Iron	10.0 ug/g dry	24300	-	-	-
Lead	1.0 ug/g dry	14.0	-	-	-
Magnesium	1.0 ug/g dry	3460	-	-	-
Manganese	0.5 ug/g dry	232	-	-	-
Molybdenum	0.5 ug/g dry	<0.5	-	-	-
Nickel	1.0 ug/g dry	7.8	-	-	-
Potassium	5.0 ug/g dry	774	-	-	-
Selenium	1.0 ug/g dry	<1.0	-	-	-
Silver	0.5 ug/g dry	<0.5	-	-	-
Sodium	10.0 ug/g dry	197	-	-	-
Strontium	0.5 ug/g dry	12.4	-	-	-
Thallium	1.0 ug/g dry	<1.0	-	-	-
Tin	1.0 ug/g dry	<1.0	-	-	-
Titanium	0.5 ug/g dry	335	-	-	-
Uranium	1.0 ug/g dry	<1.0	-	-	-
Vanadium	0.5 ug/g dry	44.9	-	-	-
Zinc	1.0 ug/g dry	40.2	-	-	-
Volatiles					
Benzene	0.002 ug/g dry	<0.002	-	-	-
Ethylbenzene	0.002 ug/g dry	<0.002	-	-	-

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO: Project Description: T.C. Airport

	Client ID:	W3	-	-	-
	Sample Date:	16-Oct-14	-	-	-
	Sample ID:	1443032-17	-	-	-
	MDL/Units	Soil	-	-	-
Toluene	0.002 ug/g dry	<0.002	-	-	-
m,p-Xylenes	0.002 ug/g dry	<0.002	-	-	-
o-Xylene	0.002 ug/g dry	<0.002	-	-	-
Xylenes, total	0.002 ug/g dry	<0.002	-	-	-
Toluene-d8	Surrogate	100%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	-	-	-
F2 PHCs (C10-C16)	4 ug/g dry	44	-	-	-
F3 PHCs (C16-C34)	8 ug/g dry	458	-	-	-
F4 PHCs (C34-C50)	6 ug/g dry	449	-	-	-
TPH (gasoline)	10 ug/g dry	<10	-	-	-
TPH (diesel)	10 ug/g dry	206	-	-	-
TPH (heavy oil)	50 ug/g dry	897	-	-	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	-	-	-
Acenaphthylene	0.02 ug/g dry	<0.02	-	-	-
Anthracene	0.02 ug/g dry	<0.02	-	-	-
Benzo [a] anthracene	0.02 ug/g dry	<0.02	-	-	-
Benzo [a] pyrene	0.02 ug/g dry	<0.02	-	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	0.03	-	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	0.03	-	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Biphenyl	0.02 ug/g dry	<0.02	-	-	-
Chrysene	0.02 ug/g dry	<0.02	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	-	-	-
Fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Fluorene	0.02 ug/g dry	<0.02	-	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	-	-	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	-	-	-
Naphthalene	0.01 ug/g dry	<0.01	-	-	-
Phenanthrene	0.02 ug/g dry	<0.02	-	-	-

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO:

Project Description: T.C. Airport

	Client ID:	W3	-	-	-
	Sample Date:	16-Oct-14	-	-	-
	Sample ID:	1443032-17	-	-	-
	MDL/Units	Soil	-	-	-
Pyrene	0.02 ug/g dry	0.02	-	-	-
Quinoline	0.10 ug/g dry	<0.10	-	-	-
2-Fluorobiphenyl	Surrogate	75.0%	-	-	-
Terphenyl-d14	Surrogate	68.2%	-	-	-

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO: Project Description: T.C. Airport

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
TPH (gasoline)	ND	10	ug/g						
TPH (diesel)	ND	10	ug/g						
TPH (heavy oil)	ND	50	ug/g						
Metals									
Aluminum	ND	1.0	ug/g						
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	1.0	ug/g						
Boron	ND	1.0	ug/g						
Cadmium	ND	0.5	ug/g						
Calcium	ND	5.0	ug/g						
Chromium	ND	1.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	0.5	ug/g						
Iron	ND	10.0	ug/g						
Lead	ND	1.0	ug/g						
Magnesium	ND	1.0	ug/g						
Manganese	ND	0.5	ug/g						
Molybdenum	ND	0.5	ug/g						
Nickel	ND	1.0	ug/g						
Potassium	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.5	ug/g						
Sodium	ND	10.0	ug/g						
Strontium	ND	0.5	ug/g						
Thallium	ND	1.0	ug/g						
Tin	ND	1.0	ug/g						
Titanium	ND	0.5	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	0.5	ug/g						
Zinc	ND	1.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Biphenyl	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO: Project Description: T.C. Airport

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Quinoline	ND	0.10	ug/g						
Surrogate: 2-Fluorobiphenyl	*0.771*		*ug/g*		*57.8*	*50-140*			
Surrogate: Terphenyl-d14	*1.38*		*ug/g*		*104*	*50-140*			
Volatiles									
Benzene	ND	0.002	ug/g						
Ethylbenzene	ND	0.002	ug/g						
Toluene	ND	0.002	ug/g						
m,p-Xylenes	ND	0.002	ug/g						
o-Xylene	ND	0.002	ug/g						
Xylenes, total	ND	0.002	ug/g						
Surrogate: Toluene-d8	*0.135*		*ug/g*		*99.2*	*76-118*			

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO: Project Description: T.C. Airport

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	87	4	ug/g dry	135			43.4	30	QR-04
F3 PHCs (C16-C34)	317	8	ug/g dry	483			41.4	30	QR-04
F4 PHCs (C34-C50)	268	6	ug/g dry	404			40.5	30	QR-04
TPH (gasoline)	ND	10	ug/g dry	ND				40	
TPH (diesel)	200	10	ug/g dry	307			42.1	50	
TPH (heavy oil)	534	50	ug/g dry	489			8.7	34	
Metals									
Aluminum	4510	100	ug/g dry	4860			7.4	30	
Antimony	ND	1.0	ug/g dry	ND			0.0	30	
Arsenic	ND	1.0	ug/g dry	ND				30	
Barium	38.7	1.0	ug/g dry	39.0			0.9	30	
Beryllium	ND	1.0	ug/g dry	ND			0.0	30	
Boron	1.65	1.0	ug/g dry	1.79			8.6	30	
Cadmium	ND	0.5	ug/g dry	ND			0.0	30	
Calcium	8460	50.0	ug/g dry	8640			2.2	30	
Chromium	18.8	1.0	ug/g dry	20.3			7.7	30	
Cobalt	5.25	1.0	ug/g dry	5.28			0.7	30	
Copper	10.9	0.5	ug/g dry	11.1			1.5	30	
Iron	20300	100	ug/g dry	21500			6.1	30	
Lead	10.3	1.0	ug/g dry	10.3			0.1	30	
Magnesium	3400	10.0	ug/g dry	3530			3.8	30	
Manganese	208	5.0	ug/g dry	217			3.9	30	
Molybdenum	ND	0.5	ug/g dry	ND			0.0	30	
Nickel	7.52	1.0	ug/g dry	7.64			1.6	30	
Potassium	973	5.0	ug/g dry	971			0.3	30	
Selenium	ND	1.0	ug/g dry	ND			0.0	30	
Silver	ND	0.5	ug/g dry	ND			0.0	30	
Sodium	201	10.0	ug/g dry	225			11.2	30	
Strontium	15.2	0.5	ug/g dry	15.6			2.9	30	
Thallium	ND	1.0	ug/g dry	ND			0.0	30	
Tin	ND	1.0	ug/g dry	ND			0.0	30	
Titanium	368	50.0	ug/g dry	400			8.2	30	
Uranium	1.19	1.0	ug/g dry	ND			0.0	30	
Vanadium	35.6	0.5	ug/g dry	39.2			9.7	30	
Zinc	36.0	1.0	ug/g dry	36.3			0.9	30	
Physical Characteristics									
% Solids	82.6	0.1	% by Wt.	82.1			0.6	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND				40	
Acenaphthylene	ND	0.02	ug/g dry	ND				40	
Anthracene	ND	0.02	ug/g dry	0.032			0.0	40	
Benzo [a] anthracene	ND	0.02	ug/g dry	0.024			0.0	40	
Benzo [a] pyrene	ND	0.02	ug/g dry	0.055			0.0	40	
Benzo [b] fluoranthene	ND	0.02	ug/g dry	0.085			0.0	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g dry	0.036			0.0	40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	0.041			0.0	40	
Biphenyl	ND	0.02	ug/g dry	ND				40	
Chrysene	ND	0.02	ug/g dry	0.085			0.0	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND				40	
Fluoranthene	ND	0.02	ug/g dry	ND				40	
Fluorene	ND	0.02	ug/g dry	ND				40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	0.029			0.0	40	
1-Methylnaphthalene	ND	0.02	ug/g dry	ND				40	

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO: Project Description: T.C. Airport

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
2-Methylnaphthalene	ND	0.02	ug/g dry	ND				40	
Naphthalene	ND	0.01	ug/g dry	ND				40	
Phenanthrene	ND	0.02	ug/g dry	0.023			0.0	40	
Pyrene	0.025	0.02	ug/g dry	0.033			27.5	40	
Quinoline	ND	0.10	ug/g dry	ND				40	
Surrogate: 2-Fluorobiphenyl	*1.13*		*ug/g dry*	*ND*	*76.0*	*50-140*			
Surrogate: Terphenyl-d14	*1.29*		*ug/g dry*	*ND*	*86.7*	*50-140*			
Volatiles									
Benzene	ND	0.002	ug/g dry	ND				50	
Ethylbenzene	ND	0.002	ug/g dry	ND				34	
Toluene	ND	0.002	ug/g dry	ND				32	
m,p-Xylenes	ND	0.002	ug/g dry	ND				35	
o-Xylene	ND	0.002	ug/g dry	ND				50	
Surrogate: Toluene-d8	*0.176*		*ug/g dry*	*ND*	*107*	*76-118*			

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO: Project Description: T.C. Airport

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	199	7	ug/g	ND	99.3	80-120			
F2 PHCs (C10-C16)	166	4	ug/g	135	30.8	60-140			QM-06
F3 PHCs (C16-C34)	564	8	ug/g	483	39.6	60-140			QM-06
F4 PHCs (C34-C50)	437	6	ug/g	404	24.0	60-140			QM-06
TPH (gasoline)	199	10	ug/g	ND	99.3	68-117			
TPH (diesel)	416	10	ug/g	307	49.0	0-200			
TPH (heavy oil)	1860	50	ug/g	489	123	69-125			
Metals									
Aluminum	248		ug/L	ND	99.3	70-130			
Antimony	255		ug/L	ND	102	70-130			
Arsenic	295		ug/L	ND	118	70-130			
Barium	262		ug/L	ND	105	70-130			
Beryllium	226		ug/L	ND	91.4	70-130			
Boron	285		ug/L	35.8	99.7	70-130			
Cadmium	229		ug/L	0.005	91.5	70-130			
Calcium	5380		ug/L	ND	108	70-130			
Chromium	654		ug/L	406	99.2	70-130			
Cobalt	344		ug/L	106	95.3	70-130			
Copper	496		ug/L	221	110	70-130			
Iron	4530		ug/L	ND	90.5	70-130			
Lead	489		ug/L	205	114	70-130			
Magnesium	4990		ug/L	ND	99.8	70-130			
Manganese	234		ug/L	ND	93.5	70-130			
Molybdenum	250		ug/L	ND	100	70-130			
Nickel	384		ug/L	153	92.3	70-130			
Potassium	4600		ug/L	ND	92.0	70-130			
Selenium	232		ug/L	ND	96.1	70-130			
Silver	226		ug/L	ND	90.3	70-130			
Sodium	8670		ug/L	4500	83.4	70-130			
Strontium	492		ug/L	312	72.1	70-130			
Thallium	197		ug/L	8.82	75.1	70-130			
Tin	260		ug/L	19.0	96.5	70-130			
Titanium	245		ug/L	ND	98.0	70-130			
Uranium	269		ug/L	18.3	100	70-130			
Vanadium	229		ug/L	ND	91.6	70-130			
Zinc	999		ug/L	726	109	70-130			
Semi-Volatiles									
Acenaphthene	0.179	0.02	ug/g	ND	96.7	50-140			
Acenaphthylene	0.172	0.02	ug/g	ND	92.8	50-140			
Anthracene	0.153	0.02	ug/g	0.032	65.0	50-140			
Benzo [a] anthracene	0.150	0.02	ug/g	0.024	67.7	50-140			
Benzo [a] pyrene	0.169	0.02	ug/g	0.055	61.3	50-140			
Benzo [b] fluoranthene	0.255	0.02	ug/g	0.085	91.4	50-140			
Benzo [g,h,i] perylene	0.174	0.02	ug/g	0.036	74.9	50-140			
Benzo [k] fluoranthene	0.250	0.02	ug/g	0.041	113	50-140			
Biphenyl	0.139	0.02	ug/g	ND	74.9	50-140			
Chrysene	0.141	0.02	ug/g	0.085	30.4	50-140			QM-06
Dibenzo [a,h] anthracene	0.160	0.02	ug/g	ND	86.1	50-140			

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO: Project Description: T.C. Airport

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Fluoranthene	0.119	0.02	ug/g	ND	64.1	50-140			
Fluorene	0.110	0.02	ug/g	ND	59.5	50-140			
Indeno [1,2,3-cd] pyrene	0.179	0.02	ug/g	0.029	80.7	50-140			
1-Methylnaphthalene	0.186	0.02	ug/g	ND	100	50-140			
2-Methylnaphthalene	0.197	0.02	ug/g	ND	106	50-140			
Naphthalene	0.136	0.01	ug/g	ND	73.3	50-140			
Phenanthrene	0.175	0.02	ug/g	0.023	82.1	50-140			
Pyrene	0.144	0.02	ug/g	0.033	59.8	50-140			
Quinoline	0.143	0.10	ug/g	ND	77.2	50-140			
Surrogate: 2-Fluorobiphenyl	*1.36*		*ug/g*		*91.4*	*50-140*			
Volatiles									
Benzene	0.0829	0.002	ug/g	ND	122	55-141			
Ethylbenzene	0.0690	0.002	ug/g	ND	101	61-139			
Toluene	0.0614	0.002	ug/g	ND	90.4	54-136			
m,p-Xylenes	0.133	0.002	ug/g	ND	98.1	61-139			
o-Xylene	0.0718	0.002	ug/g	ND	106	60-142			

Certificate of Analysis

Report Date: 23-Oct-2014
Order Date:17-Oct-2014

Client: **Nunatta Environmental Services Inc.**
Client PO: Project Description: T.C. Airport

Qualifier Notes:

Login Qualifiers :

Container(s) - Broken/cracked cap -
Applies to samples: W2

QC Qualifiers :

QM-06 : Due to noted non-homogeneity of the QC sample matrix, the spike recoveries were out side the accepted range. Batch data accepted based on other QC.

QR-04 : Duplicate results exceeds RPD limits due to non-homogeneous matrix.

QS-01 : Spike Level is less than the reporting MDL, however, recovery was acceptable.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

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Chain of Custody
(Lab Use Only)

Page 1 of 2

Client Name: Nunatta Environmental
Contact Name: Jim Wilson
Address: 1575 Federal Rd Iqaluit
Telephone: 867-979-1488

Project Reference: T.C. Airport
Quote #
PO #
Email Address: nunatta@northwestel.net

TAT: ☑ Regular ☐ 3 Day ☐ 2 Day ☐ 1 Day
Date Required:

Criteria: ☐ O. Reg. 153 (As Amended) Table __ ☐ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☑ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: _____ ☐ Other: _____

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Required Analyses

Paracel Order Number: 1443032

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	T.P.H	PB	PC 13	(not required per Jim)			
1	F1	S		1	Oct 16	5:00pm	☑							☑	☑	☑				
2	W1	S		1			☑							☑	☑	☑				
3	F2	S		1			☑							☑	☑	☑				
4	W2 (Frozen first Broke)	S		1			☑							☑	☑	☑				
5	F3	S		1			☑							☑	☑	☑				
6	W3	S		1			☑							☑	☑	☑				
7	F4	S		1			☑							☑	☑	☑				
8	W4	S		1			☑							☑	☑	☑				
9	F5	S		1			☑							☑	☑	☑				
10	W5	S		1			☑							☑	☑	☑				

72 cm

Comments: Do low level CCME Test. This is for Transport Canada
Sample W2 was frozen glass broke was taped to Seal

Method of Delivery: First Air

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
James Wilson	Flouse	SUNDEEP DOK MM	M/C
Relinquished By (Print): James Wilson	Date/Time: 20/10/14 11:07 AM	Date/Time: Oct 20, 2014 11:40	Date/Time: Oct 20/14 2:18
Date/Time: Oct 17 14:00	Temperature: ___ °C	Temperature: -6.3 °C	pH Verified [ ] By: N/A

* See attached list for required parameters (per Jim). - M/C

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e: paracel@paracellabs.com
www.paracellabs.com

Chain of Custody
(Lab Use Only)

Client Name: Nunatta Environmental
Contact Name: Jim Wilson
Address: 1575 Federal Rd Iqaluit NU
Telephone: 867-979-1488
Project Reference: TC. AirPort
Quote #
PO #
Email Address: nunatta@northwestel.net.

TAT: ☑ Regular ☐ 3 Day ☐ 2 Day ☐ 1 Day
Date Required: _____

Criteria: ☐ O. Reg. 153 (As Amended) Table __ ☐ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☑ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: _____ ☐ Other: _____

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Paracel Order Number: 1443032

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	TPH	Pb	PCB				
1	F6	S	0	1	Oct	5:30pm	☑							☑	☑	☑				
2	W6	S	0	1	↓		☑							☑	☑	☑				
3	F7	S	0	1			☑							☑	☑	☑				
4	W7	S	0	1			☑							☑	☑	☑				
5	F8	S	0	1			☑							☑	☑	☑				
6	W8	S	0	1			☑							☑	☑	☑				
7	F9	S	0	1			☑							☑	☑	☑				
8							☐							☐	☐	☐				
9							☐							☐	☐	☐				
10						↓	☐							☐	☐	☐				

180mL ↓

Comments: Do low level CCME Test

Method of Delivery: First Air

Relinquished By (Sign): James Wilson	Received by Driver/Depot: M. Scouse	Received at Lab: SUNEEPORN DOKMAI	Verified By:
Relinquished By (Print): James Wilson	Date/Time: 20/10/14 11:07AM	Date/Time: OCT 20 2014 11:40	Date/Time: Oct 20/14 12:18
Date/Time: Oct 17 4:00	Temperature: ___ °C	Temperature: -6.3 °C	pH Verified [ ] By: N/A


F9
F8
F6
F5
F4
F3
F2
F1
Image © 2014 DigitalGlobe
© 2014 Google
Google earth
2003
Imagery Date: 7/31/2011 19 V 522203.48 m E 7070023.72 m N elev .44 m eye alt 163 m


F9
F8
F6
F5
F4
F3
F2
F1
Image © 2014 DigitalGlobe
© 2014 Google
Google earth
2003
Imagery Date: 7/31/2011 19 V 522167.00 m E 7070049.94 m N elev 47 m eye alt 393 m