Energy, Mines and Resources
Assessment and Abandoned Mines
Box 2703 - K-419
Whitehorse, YT Y1A 2C6

December 21, 2012

MEMORANDUM

Re: EBA Engineering Report "Ketza Shop Hydrocarbon Impacted Soil Delineation – Mount Nansen Site" (October 2012)

This memorandum is to preface the "Ketza Shop Hydrocarbon Impacted Soil Delineation – Mount Nansen Site" (October 2012) written by EBA Engineering (EBA) for Yukon Government Assessment and Abandoned Mines (AAM).

Introduction

EBA Engineering was retained in Spring 2012 to assess potential concerns associated with the suspect hydrocarbon contamination previously visually identified at the Ketza Shop location. Following a field assessment, EBA was to submit a draft report describing the extent of contamination, what contaminants are present, a description of any necessary permits, and recommendations including suggested methods and means of treating and disposing of contaminated soil.

This memo summarizes the recommendations outlined by EBA in the report.

Contractor Recommendations

The following is a summary of the recommendations provided by EBA. For more specific details on the recommendations, please see the full report.

Hydrocarbons:

- Excavation and off-site disposal of hydrocarbon contaminated soil from up to 1.5 m below surface, which is within the northern portion of the subject building.
- Excavation and off-site disposal of hydrocarbon contaminated soil up to 0.5 m below surface, within the central and southern portions of the subject building. The front wall from the 1.5 m excavation leading into the 0.5 m excavation should be sloped at a ratio of 1:1.
- Removal of hydrocarbon contaminated soil at the exterior AST to a depth of 0.5 m starting from the south west corner of the Ketza shop to 4.5 m north along the building and extending west for 6.5 m. Hydrocarbon contaminated soil within the area of EBA-AST-TP1 to be excavated to a depth of approximately 2 m.

- Remove soil from visibly stained areas to the north and south of the subject building to a depth of 0.5 m. Conduct confirmatory sampling to ensure that all hydrocarbon contaminated soil has been removed at the time of site remediation.

Metals:

- Further metal investigation should be conducted prior to proceeding with aforementioned hydrocarbon removal, as metal concentrations may impact treatment options and treatment facilities.
- Retention of a qualified environmental consultant to provide environmental services during remediation of contaminated soils.
- Excavate contaminated soil from the Mount Nansen site and transport to a certified land treatment facility in Fort Nelson, BC.
    - Permits required would include relocation permit and possibly special waste permit
    - Analytical certificates are required for transportation of contaminated soil
        - If metals analysis confirms exceedance beyond the YCSR-PL, the stockpile will be required to be treated as metal contaminated soil and disposed of as per applicable regulations
- Upon removal of the contaminated soil, the base of the excavation and the 4 walls will require analytical sampling to confirm that all contamination has been removed within each area identified as being hydrocarbon impacted.

Incomplete Item

The item below was not addressed in this report:

- An assessment and delineation was to be completed in the Ketza Shop and the surrounding yard, although yard was not sampled or assessed. Further, delineation was not provided for the east side of the shop exterior, where arsenic concentrations were high. EBA has identified in the figures in the report other areas in the yard that are likely contaminated, however the contaminants present, their depth and concentrations are unknown.

Sincerely,

Josée Perron
Senior Project Manager, Type II Mines
Assessment and Abandoned Mines

ASSESSMENT AND ABANDONED MINES BRANCH
DEPARTMENT OF ENERGY, MINES AND RESOURCES

KETZA SHOP HYDROCARBON IMPACTED SOIL DELINEATION – MOUNT NANSEN SITE

REPORT

OCTOBER 2012
ISSUED FOR USE
EBA FILE: W23101570

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EXECUTIVE SUMMARY

EBA Engineering Consultants Ltd., operating as EBA, A Tetra Tech Company (EBA), is pleased to provide this report to Assessment and Abandoned Mines (AAM) detailing contamination delineation activities. The delineation was for contaminated soil which had previously been visually identified by EBA as potentially hydrocarbon impacted at the Ketza Shop (subject building) located at the Mount Nansen Site, 60 km west of Carmacks, Yukon (subject site).

Suspect hydrocarbon staining at the subject site was documented in 2011 during an EBA assessment of the subject site. Please refer to EBA report entitled "*Hazardous Materials Classification, Mt. Nansen Mine Site, Yukon*" dated December 2011. Surficial contamination was visually identified within the following locations relevant to the subject building at the time of assessment:

- Overview of the area assessed by EBA with outline of surficial staining is included in Figure 1;
- Floor of the subject building was earth and staining was visually apparent throughout the floor totalling approximately 230 m^2 as outlined on Figure 2, 3 and 4;
- Staining to the south of the subject building where an overflowing waste oil container was located totaling approximately 3 m^2 as outlined on Figure 2 ;
- Staining at the southwest corner of the subject building under a raised above ground storage tank (AST) totaling approximately 15 m^2 as outlined on Figure 5; and
- Staining to the north of the subject building in two select locations in the storage yard where equipment was historically stored, totaling approximately 10 m^2 as outlined on Figure 1 and 6.

The objectives of this project were as follows:

- To assess potential concerns associated with the suspect hydrocarbon contamination in soil visually identified in and around the subject building;
- Attempt to delineate the extent of hydrocarbon impacted soils based on visual observations as analytical results were not available at the time when the field work was conducted; and
- To provide an estimated volume of suspected hydrocarbon contaminated soil based on the analytical data collected to date within the areas of concern.

The analytical results are provided in detail within the Tables section at the end of the report. All samples with the exception of those containing the prefixes AST and EXT were taken from the interior of the subject building. Samples labelled AST were collected to delineate staining resulting from releases likely originating from the AST at the southwest corner of the subject building. Samples labelled EXT were taken along the exterior at each of the four sides of the subject building to determine whether hydrocarbon contamination had spread beyond the boundaries. A summary of the results are provided below.

Ketza Shop; Metals

As shown on Figure 3, the following samples were analytically determined to contain metal concentrations greater than the Yukon Contaminated Sites Regulation – Park Land (YCSR-PL) standards:

- Sample EBA-TP7-000@0.0m contained antimony (81.6 ppm) in excess of YCSR-PL standard (20 ppm);
- The following samples were analytically determined to contain arsenic greater than the YCSR-PL standard (20 ppm);
  - EBA-TP6-000@0.0m (55.8 ppm); and
  - EBA-TP7-000@0.0m (602 ppm).
- Sample EBA-TP7-000@0.0m was found to contain cadmium (8.92 ppm) in excess of YCSR-PL standard (2 ppm).

Ketza Shop; Hydrocarbons

As shown on Figure 2, the following samples were found to contain either light extractable petroleum hydrocarbons (LEPHs) (YCSR-PL standard of 1000 ppm) or heavy extractable petroleum hydrocarbons (HEPHs) (YCSR-PL standard of 1000 ppm) in excess of YCSR-PL standards. Analytical results for all samples analyzed are included within Table 3 of the Tables section:

Hydrocarbon Exceedence within the Ketza Shop, Mount Nansen Site, Yukon

Test Pit Id and Sample Depth	LEPH	HEPH
EBA-TP1-001@0.5m	**1000**	**28000**
EBA-TP1-002@1.0m	-----	**1380**
EBA-TP3-001@0.5m	-----	**2300**
EBA-TP3-002@1.0m	-----	**1170**
EBA-TP4-001@0.5m	-----	**2670**
EBA-TP4-002@1.0m	-----	**3750**
EBA-TP6-000@0.0m	**4750**	**1810**
EBA-TP7-000@0.0m	**7460**	**51900***
EBA-CLASS01@0.0m	**1780**	**21000**
EBA-CLASS02@0.0m	**1710**	**16500**
EBA-CLASS03@0.0m	**2490**	**19500**

NOTE: LEPH – Light Extractable Petroleum Hydrocarbon
HEPH – Heavy Extractable Petroleum Hydrocarbon
----- Analytical value did not exceed YCSR-PL standard
*analytical value exceeds limit to be considered a special waste as per YCSR

AST to Southwest and Exterior

As shown on Figure 3 and Figure 5, the following samples were analytically determined to contain metal concentrations greater than the YCSR-PL standards:

- The following samples were analytically determined to contain arsenic greater than the YCSR-PL standard (20 ppm);
  - EBA-EAST EXT-001@0.5m (114 ppm); and
  - EBA-AST-TP1-003@1.0m (125 ppm).

As shown on Figure 5, the following sample was found to contain LEPHs (YCSR-PL standard of 1000 ppm) and volatile petroleum hydrocarbons (VPH) (YCSR-PL standard of 200 ppm) in excess of YCSR-PL standards:

- EBA-AST-TP1-003@1.0m: LEPH 8500 ppm, VPH 1690 ppm.

EBA notes that 100% of samples (interior, exterior, and AST) analyzed for arsenic were found to exceed YCSR-PL standards of 20 ppm.

EBA offers the following recommendations for the parameters sampled:

Hydrocarbons

EBA completed test pitting and soil sampling to a depth of 1.5 meters within sampling locations. Based on analytical confirmation for hydrocarbon contamination within the Ketza shop building and within the location of the exterior AST, EBA recommends the following remediation plan to address soil containing hydrocarbon concentration in excess of the YCSR-PL standards:

- Based on the soil analytical results, EBA concluded that EPH concentrations identified met the YCSR-PL standards in soil samples collected at a depth of 1.5 m below ground surface within 7 m of the northern end of the subject building, EBA recommends excavation and off-site disposal of hydrocarbon contaminated soil from up to 1.5 m below surface, and which is within the northern portion of the subject building. The anticipated volume of in-situ hydrocarbon contaminated soils is approximately 120 m^3.
- As soil containing EPH concentrations below the YCSR-PL standard was identified at a depth of 0.5 m below ground surface within the central and southern portion of the subject building, EBA recommends excavation and off-site disposal of hydrocarbon contaminated soil up to 0.5 m below surface, within the central and southern portions of the subject building. The anticipated volume of in-situ hydrocarbon contaminated soils is approximately 80 m^3. The front wall from the 1.5 m excavation leading into the 0.5 m excavation should be sloped at a ratio of 1:1.
- Removal of hydrocarbon contaminated soil at the exterior AST to a depth of 0.5 m starting from the south west corner of the Ketza shop to 4.5 m north along the building and extending west for 6.5 m. EBA recommends hydrocarbon contaminated soil within the area of EBA-AST-TP1 to be excavated to a depth of approximately 2 m. Due to constraints of the location being in between the Ketza Shop and the shed, EBA assessed the soil quality in the AST area with the use of hand auger to a depth of 1.0 m.

EBA anticipates the hydrocarbon contamination extends to a greater depth within this immediate area based on elevated EPH concentration in soil and high porosity in soil. EBA anticipates 20 m^3 of hydrocarbon contaminated soil may be required to be removed within this area.

- Visibly stained areas to the north and south of the subject building were caused by long term equipment storage and an overflowing waste oil container. EBA recommends that within the immediate areas of the staining, soil to a depth of 0.5 m is removed. Confirmatory sampling shall be conducted to ensure that all hydrocarbon contaminated soil has been removed at the time of site remediation. EBA anticipates the quantity of contaminated soil to be removed will total 10 m^3.

Metals

Metals contamination within EBA-TP7 was detected at 0.0 m. Concentrations of arsenic, antimony and cadmium exceeded the YCSR-PL standard.

Within test pit EBA-AST-TP1@1.0m, EBA-TP6-000@0.0m and EBA-EAST-EXT-001@0.5m, an exceedence for arsenic was analytically determined which exceeded the YCSR-PL standard.

For soil samples collected from the interior, exterior, and AST location, 4 of the 4 samples analyzed for metals exceeded the YCSR-PL standard for arsenic.

Unlike hydrocarbon contamination, the extent of metal contamination cannot be identified based on visual observation. Based on the data collected to date, the extent of metal contamination is not known to EBA. In order to determine whether or not the metal contamination is related to natural occurrence, additional investigation is warrant. EBA recommends that further metal investigation be conducted prior to proceeding with the aforementioned hydrocarbon remediation work plan as metals concentrations may impact treatment options and treatment facilities.

EBA also offers the following recommendations for the removal and remediation of the hydrocarbon contaminated soil:

- Retention of a qualified environmental consultant to provide environmental services during the remediation of the contaminated soils. Services would include but not be limited to contractor management, confirmatory soil sampling to ensure completion of remediation and associated reporting; and
- The construction of an on-site land farm treatment (LFT) may be feasible to address hydrocarbon contamination. However, due to the presence of metal contamination within the hydrocarbon impacted soil, EBA recommends to excavate the contaminated soil from the Mount Nansen site and transport to a certified land treatment facility in Fort Nelson, BC. Permits required for this option would be a relocation permit and possibly a special waste permit[1] which can be obtained through Environment Yukon. Analytical certificates are required for the transportation of the contaminated

[1] EBA sample number EBA-TP7-000 @0m is well above the guideline for HEPH and may be a special waste. Laboratory analysis would confirm this, however, as it is a small isolated location, EBA anticipates that treatment onsite would not warrant a special waste permit when this small area is mixed with the larger portion of the contaminated soil If analytical testing confirmed this soil was special waste and the soil was to be transported offsite a special waste permit would be required.

soil. To meet the requirements of the YCSR, metals and hydrocarbon analysis is required per each 50 m^3 transported. EBA is confident that the analytical results within this report meet the regulation for hydrocarbon analysis; however, each 50 m^3 of soil would require metals analysis to meet the YCSR standard. If metals analysis confirms exceedence beyond the YCSR-PL, the stockpile will be required to be treated as metal contaminated soil and disposed of as per applicable regulations. That disposal could involve out of territory transport as outlined above or construction of an on-site storage cell. Upon removal of the contaminated soil, the base of the excavation and the 4 walls will require analytical sampling to confirm that all contamination has been removed within each area identified as being hydrocarbon impacted.

TABLE OF CONTENTS

TABLES

FIGURES

PHOTOGRAPHS

APPENDICES

1.0 INTRODUCTION

EBA Engineering Consultants Ltd., operating as EBA, A Tetra Tech Company (EBA), is pleased to provide this report to Assessment and Abandoned Mines (AAM) detailing contamination delineation activities. The delineation was for contaminated soil which had previously been visually identified by EBA as hydrocarbon impacted at the Ketza Shop (subject building) located at the Mount Nansen Site, 60 km west of Carmacks, Yukon (subject site).

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- Overview of the area assessed by EBA with outline of surficial staining is included in Figure 1;
- Floor of the subject building was earth and staining was visually apparent throughout the floor totaling approximately 230 m^2 as outlined on Figure 2, 3 and 4;
- Staining to the south of the subject building where an overflowing waste oil container was located totaling approximately 3 m^2 as outlined on Figure 2;
- Staining at the southwest corner of the subject building under a raised above ground storage tank (AST) totaling approximately 15 m^2 as outlined on Figure 5; and
- Staining to the north of the subject building in two select locations in the storage yard where equipment was historically stored, totaling approximately 10 m^2 as outlined on Figures 1 and 6.

2.0 OBJECTIVE

The objectives of this project were as follows:

- To assess potential concerns associated with the suspect hydrocarbon contamination in soil visually identified in and around the subject building;
- Attempt to delineate the extent of the hydrocarbon impacted soils based on visual observations as analytical results were not available at the time when the field work was conducted; and
- To provide an estimated volume of suspected hydrocarbon contaminated soil based on the analytical data collected to date within the areas of concern.

3.0 SCOPE OF SERVICES

The scope of services was presented to Ms. Elsabe Kloppers, of AAM in a proposal titled *"Work Plan – Ketza Shop Hydrocarbon Impacted Soil Delineation"* dated May 7 2012, EBA File #W23101558. Ms. Kloppers of AAM reviewed and authorized to proceed with the work as per the work plan dated May 7, 2012. EBA's scope of services is limited to the following:

- Completion of a soil sampling program to determine depth and concentration of hydrocarbons for the subject area;

- Completion of a soil sampling program to attempt to delineate the area for other contaminants of concern, including: metals, glycols, and solvents;
- Submission of samples to an accredited laboratory for analysis of hydrocarbon concentrations and additional contaminants that are suspect to be present;
- A report detailing the work completed which includes an interpretation of the environmental analytical results obtained. The report also includes;
  - Figures outlining sampling locations with concentrations and cross sections outlining depth of contamination;
  - Recommendations based on the findings of the assessment including a description of any necessary permits required; and
  - Recommendations on options for the on-site treatment or removal and disposal of the potentially contaminated soils.

4.0 METHODOLOGY

4.1 Field Screening and Soil Sampling

Field screening was performed on soil samples by collecting soil vapour readings with a MiniRAE 2000™ photoionization detector (PID), which measures the ionisable components of organic vapours. Soil samples for headspace vapour screening were placed into plastic bags, sealed, and allowed to volatilize for approximately 5 minutes. Vapour concentrations were then measured in parts per million (ppm) and recorded in an EBA field log. The MiniRAE 2000™ is generally most responsive to volatile compounds (including lighter carbon compounds, C_6 to C_{10}, the BTEXS, and purgeable range). The instrument sensitivity decreases with increasing carbon number of the petroleum hydrocarbon molecule. Therefore, MiniRAE 2000™ vapour readings are not measurements of total hydrocarbon concentrations in soil. In general, soil samples with vapour readings of greater than 100 ppm are considered to be suspicious and would be selected for laboratory analysis to confirm the actual hydrocarbon concentration.

Soil samples for laboratory analysis were placed in sterile 120 mL glass jars with Teflon™ lined lids as supplied by the lab. Soil samples were packed tightly into the jars to help prevent loss of volatile organic compounds into the jar headspace. Nitrile gloves were worn during each sampling event and changed between samples to prevent cross contamination.

4.2 Submission of Samples to Analytical Laboratory

Sample jars were stored and shipped in a cooler with ice packs to maintain a temperature of approximately 4^0C. A total of 48 soil samples were labeled and documented on a "chain-of-custody" form and then delivered to ALS Laboratories in Whitehorse, Yukon for analysis.

Further information regarding laboratory testing methods is provided in the attached laboratory reports within Appendix B.

5.0 FIELD WORK

EBA personnel (Mr. Chris Harwood and Mr. Shane Dooley) completed soil sampling in test pits advanced by a rubber wheeled excavator. Based on visual observations made during our December 2011 site visit for hazardous materials classification, surficial hydrocarbon staining was observed at three distinct locations and adjacent to the subject building, a test pit program as presented in the May 7, 2012 proposal and was approved by AAM, this program was conducted within three distinct locations associated with staining visually identified within and adjacent to the subject building. Each test pit was advanced to a maximum depth of 1.5 meters. This program consisted of assessing the following locations:

- Interior of the subject building, in areas visually identified as being impacted by contaminants and measuring approximately 230 m^2;
- Exterior to the immediate west/ southwest of the subject building in an area visually identified as being impacted by a leaking AST and measuring approximately 15m^2; and
- Adjacent to the exterior of the four sides of the subject building approximately at the mid-point of the buildings dimension to determine whether contamination had spread beyond the boundaries of the subject building.

Stained areas to the north and south of the subject building appeared to have been caused by long term equipment storage and an overflowing waste oil container as shown on Figure 1 and Figure 6. It is our opinion that excavating these areas and collecting confirmatory soil samples are the most economical means to address these small hydrocarbon staining areas due to the followings:

- The stained areas are a relatively small area (i.e. maximum lateral distance of 3 m) and appears to be shallow as it was associated with storage of equipment and container;
- Visual delineation was adequate since the extent of hydrocarbon staining was visible on the ground surface;
- Minimize ground disturbance in these small areas; and
- Dealing with these small staining areas during site remediation is time and cost effective.

Areas within the Ketza Shop and the AST were identified for sampling based on visible surficial staining. Test pits were advanced until a depth determined by field screening techniques provided an indication to be within YCSR-PL standards. Test pits were sampled at 0.5 m intervals of depth. Each test pit was assigned a number and sampled in subsequent order. Each excavation was backfilled in layers representing initial placement of the material removed. Sample locations associated with the interior of the subject building are shown in Figure 2, 3 and 4 with Figure 7 showing cross sectional. Sample locations associated within the exterior of the subject building at the AST are shown in Figure 5 with Figure 8 showing cross sectional.

In addition to sub-surface sampling, EBA also collected 3 composite surface samples from within the subject building to act as classification samples for disposal purposes. The subject building was broken into three sections measuring 7 m x 11 m and within one section, 4 corners and the center were sampled and submitted as a single composite sample.

6.0 SOIL ASSESSMENT STANDARDS

Standards used in the assessment and remediation of contaminated sites are contained in the Yukon Contaminated Sites Regulation – Parkland standards (YCSR-PL) Protocol 3 and to address Yukon Environment reporting requirements. Parkland standards were applied to the subject site as the former mine site is to ultimately be remediated entirely and remitted to territorial ownership.

7.0 SOIL SAMPLING RESULTS AND DISSCUSSION

All soil samples with the exception of those containing the prefixes AST and EXT were taken from the interior of the subject building. Samples labelled AST were collected to delineate staining resulting from releases likely originating from the AST at the southwest corner of the subject building. Samples labelled EXT were taken along the exterior of each of the four sides of the subject building to determine whether contamination had spread beyond the boundaries. A summary of the results are provided below.

The soil analytical results are summarized in Table 4 of the table section and on Figures 2, 3, 4, 5, 7, and 8.

7.1 Ketza Shop; Metals

As shown on Figure 3, the following samples were analytically determined to contain metal concentrations greater than the YCSR-PL standards:

- Sample EBA-TP7-000@0.0m contained antimony (81.6 ppm) in excess of YCSR-PL standard (20 ppm);
- The following samples were analytically determined to contain arsenic greater than the YCSR-PL standard (20 ppm);
  - EBA-TP6-000@0.0m (55.8 ppm); and
  - EBA-TP7-000@0.0m (602 ppm).
- Sample EBA-TP7-000@0.0m was found to contain cadmium (8.92 ppm) in excess of YCSR-PL standard (2 ppm).

7.2 Ketza Shop; Hydrocarbons

As shown on Figure 2, the following samples were found to contain either light extractable petroleum hydrocarbons (LEPHs) (YCSR-PL standard of 1000 ppm) or heavy extractable petroleum hydrocarbons (HEPHs) (YCSR-PL standard of 1000 ppm) in excess of YCSR-PL standards. Analytical results for all soil samples analyzed are included within Table 3 of the Tables section.

Table 1: Hydrocarbon Exceedence within the Ketza Shop, Mount Nansen Site, Yukon

Test Pit Id and Sample Depth	LEPH	HEPH
EBA-TP1-001@0.5m	**1000**	**28000**
EBA-TP1-002@1.0m	-----	**1380**
EBA-TP3-001@0.5m	-----	**2300**
EBA-TP3-002@1.0m	-----	**1170**
EBA-TP4-001@0.5m	-----	**2670**

Table 1: Hydrocarbon Exceedence within the Ketza Shop, Mount Nansen Site, Yukon

Test Pit Id and Sample Depth	LEPH	HEPH
EBA-TP4-002@1.0m	-----	**3750**
EBA-TP6-000@0.0m	**4750**	**1810**
EBA-TP7-000@0.0m	**7460**	**51900***
EBA-CLASS01@0.0m	**1780**	**21000**
EBA-CLASS02@0.0m	**1710**	**16500**
EBA-CLASS03@0.0m	**2490**	**19500**

NOTE: LEPH – Light Extractable Petroleum Hydrocarbon
HEPH – Heavy Extractable Petroleum Hydrocarbon
----- Analytical value did not exceed YCSR-PL standard
*analytical value exceeds limit to be considered a special waste as per YCSR

7.3 AST to Southwest and Exterior

As shown on Figure 3 and Figure 5, the following samples were analytically determined to contain metal concentrations greater than the YCSR-PL standards:

- The following samples were analytically determined to contain arsenic greater than the YCSR-PL standard (20 ppm):
  - EBA-EAST EXT-001@0.5m (114 ppm); and
  - EBA-AST-TP1-003@1.0m (125 ppm).

As shown on Figure 5, the following sample was found to contain LEPHs (YCSR-PL standard of 1000 ppm) and volatile petroleum hydrocarbons (VPH) (YCSR-PL standard of 200 ppm) in excess of YCSR-PL standards:

- EBA-AST-TP1-003@1.0m: LEPH 8500 ppm, VPH 1690 ppm.

EBA notes that 100% of samples (interior, exterior, and AST) analyzed for arsenic were found to exceed YCSR-PL standards of 20 ppm.

8.0 CONCLUSIONS AND RECOMMENDATIONS

EBA offers the following recommendations for the parameters sampled:

Hydrocarbons

EBA completed test pitting and soil sampling to a depth of 1.5 meters within sampling locations. Based on analytical confirmation for hydrocarbon contamination within the Ketza shop building and within the location of the exterior AST, EBA recommends the following remediation plan to address soil containing hydrocarbon concentration in excess of the YCSR-PL standards:

- Based on the soil analytical results, EBA concluded that EPH concentrations were identified and met the YCSR-PL standards in soil sample collected at a depth of 1.5 m below ground surface within the 7 m of the northern portion of the subject building. EBA recommends that excavation and off-site

disposal of hydrocarbon contaminated soil up to 1.5 m in depth within the northern portion of the subject building. The anticipated volume of in-situ hydrocarbon contaminated soils is approximately 120 m^3.

- As soil samples contained EPH concentrations below the YCSR-PL standard identified at a depth of 0.5 m below ground surface within the central and southern portion of the subject building, EBA recommends that excavation and off-site disposal of hydrocarbon contaminated soil up to 0.5 m in depth within the central and southern portions of the subject building. The anticipated volume of in-situ hydrocarbon contaminated soils is approximately 80 m^3. The front wall from the 1.5 m excavation leading into the 0.5 m excavation should be sloped at a ratio of 1:1.
- Removal of hydrocarbon contaminated soil at the exterior AST to a depth of 0.5 m starting from the south west corner of the Ketza shop to 4.5 m north along the building and extending west for 6.5 m. EBA recommends hydrocarbon contaminated soil within the area of EBA-AST-TP1 be excavated to a depth of approximately 2 m. Due to constraints of the location being in between the Ketza Shop and the shed, EBA assessed the soil quality in the AST area with the use of hand auger to a depth of 1.0 m. EBA anticipates the hydrocarbon contamination extends to a greater depth within this immediate area based on elevated EPH concentrations in soil and high porosity in soil. EBA anticipates 20 m^3 of hydrocarbon contaminated soil may be required to be removed within this area; and
- Visibly stained areas to the north and south of the subject building were caused by long term equipment storage and an overflowing waste oil container. EBA recommends that within the immediate areas of the staining, soil to a depth of 0.5 m is removed. Confirmatory sampling shall be conducted to ensure that all hydrocarbon contaminated soil has been removed at the time of site remediation. EBA anticipates the quantity of contaminated soil to be removed will total 10 m^3.

Metals

Metals contamination within EBA-TP7 was detected at 0.0 m. Concentrations of arsenic, antimony and cadmium exceeded the YCSR-PL standard.

Within test pit EBA-AST-TP1@1.0m, EBA-TP6-000@0.0m and EBA-EAST-EXT-001@0.5m, an exceedence for arsenic was analytically determined which exceeded the YCSR-PL standard.

For soil samples collected from the interior, exterior, and AST location, 4 of the 4 samples analyzed for metals exceeded the YCSR-PL standard for arsenic.

Unlike hydrocarbon contamination, the extent of metal contamination cannot be identified based on visual observation. Based on the data collected to date, the extent of metal contamination is not known to EBA. In order to determine whether or not the metal contamination is related to natural occurrence, additional investigation is warranted. EBA recommends that further metal investigation be conducted prior to proceeding with the aforementioned hydrocarbon remediation work plan as metals concentrations may impact treatment options and treatment facilities.

EBA also offers the following recommendations for the removal and remediation of the hydrocarbon contaminated soil:

- Retention of a qualified environmental consultant to provide environmental services during the remediation of the contaminated soils. Services would include but not be limited to contractor management, confirmatory soil sampling to ensure completion of remediation and associated reporting; and,
- The construction of an on-site land farm treatment (LFT) may be feasible to address hydrocarbon contamination. However, due to the presence of metal contamination within the hydrocarbon impacted soil, EBA recommends to excavate the contaminated soil from the Mount Nansen site and transport to a certified land treatment facility in Fort Nelson, BC. Permits required for this option would be a relocation permit and possibly a special waste permit[2] which can be obtained through Environment Yukon. Analytical certificates are required for the transportation of the contaminated soil. To meet the requirements of the YCSR, metals and hydrocarbon analysis is required per each 50 m^3 transported. EBA is confident that the analytical results within this report meet the regulation for hydrocarbon analysis; however, each 50 m^3 of soil would require metals analysis to meet the YCSR standard. If metals analysis confirms exceedence beyond the YCSR-PL, the stockpile will be required to be treated as metal contaminated soil and disposed of as per applicable regulations. That disposal could involve out of territory transport as outlined above or construction of an onsite storage cell. Upon removal of the contaminated soil, the base of the excavation and the 4 walls will require analytical sampling to confirm that all contamination has been removed within each area identified as being hydrocarbon impacted.

[2] EBA sample number EBA-TP7-000 @0m is well above the guideline for HEPH and may be considered a special waste. Laboratory analysis would confirm this, however, as it is a small isolated location, EBA anticipates that treatment onsite would not warrant a special waste permit when this small area is mixed with the larger portion of the contaminated soil. If analytical testing confirmed this soil was special waste and the contaminated soil was to be transported offsite, a special waste permit would be required.

9.0 COST ESTIMATE

Based on the findings above, EBA offers the following cost projection to provide environmental services.

Cost projections for offsite treatment are based on current contractor rates for an estimated volume of approximately 230 m^3 of soil to be excavated and transported, as well as EBA professional rates and laboratory rates for initial excavation and confirmatory sampling.

Table 2: Estimated Offsite Disposal of Contaminated Soil

Service	Projected Cost
Professional Fees	$25,000 – $30,000
Analytical Fees	$6,000 - $8,000
Contractor Fees	$80,000 - $150,000
Contingency (10% rounded)	$11,000 – $19,000
Total	$122,000 - $207,000

Offsite transportation and disposal of contaminated soil would be completed within 2-3 weeks depending on analytical confirmation of samples.

The above noted option could be completed at final closure for the subject site.

At the request of AAM, EBA could provide a proposal to offer environmental monitoring services for site remediation.

10.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use Assessment and Abandoned Mines Branch and their agents. EBA Engineering Consultants Ltd., operating as EBA, A Tetra Tech Company, does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Assessment and Abandoned Mines Branch, or for any Project other than the proposed development at the site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in EBA's Services Agreement. EBA's General Conditions are provided in Appendix A of this report.

11.0 CLOSURE

We trust this report meets your present requirements. Should you have any questions or comments, please contact the undersigned at your convenience.

Sincerely,
EBA Engineering Consultants Ltd.

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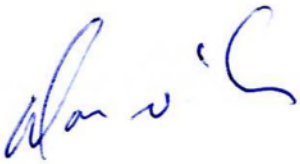

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TABLES

Table 3: Soil Sampling Analytical Results Summary for Ketza Shop, Mount Nansen Site, YT

Report To	Chris Harwood, EBA ENGINEERING CONSULTANTS LTD. ~WHITEHORSE
ALS File No.	L1172681
Date Received	04-Jul-12 14:00
Date	17-Jul-12

RESULTS OF ANALYSIS

Sample ID	EBA-TP1-001 @0.5M	EBA-TP1-002 @1.0M	EBA-TP1-003 @1.5M	EBA-TP2-004 @1.5M	EBA-TP3-001 @0.5M	EBA-TP3-002 @1.0M	EBA-TP3-003 @1.5M	EBA-TP4-001 @0.5M	EBA-TP4-002 @1.0M	EBA-TP4-003 @1.5M	EBA-TP5-001 @0.5M	EBA-TP6 - 000 @0.0M	EBA-TP6-001 @0.5M	EBA-TP7 - 000 @0.0M	EBA-TP7-001 @0.5M	EBA-TP8-001 @0.5M	EBA-TP9-001 @0.5M	EBA-TP10-002 @1.0M	EBA-TP11-001 @0.5M	SOUTH EXT 001 @0.5M	WEST EXT 001 @0.5M	NORTH EXT 001 @0.5M	EAST EXT 001 @0.5M	AST - TP1-003 @1.0M	AST - TP2-002 @1.0M	AST - TP3-002 @1.0M	CLASS 01 @0M	CLASS 02 @0M	CLASS 03 @0M	YCSR-PL Standards (unless otherwise noted)
Date Sampled	28-JUN-12	28-Jun-12	28-Jun-12	28-JUN-12	28-JUN-12	28-Jun-12	28-Jun-12	28-JUN-12	28-Jun-12	28-Jun-12	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12	27-JUN-12	28-JUN-12	28-JUN-12	27-JUN-12	27-JUN-12	27-JUN-12	
Time Sampled	00:00	0:00	0:00	00:00	00:00	0:00	0:00	00:00	0:00	0:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	
ALS Sample ID	L1172681-1	L1172681-2	L1172681-3	L1172681-6	L1172681-7	L1172681-8	L1172681-9	L1172681-10	L1172681-11	L1172681-12	L1172681-13	L1172681-35	L1172681-16	L1172681-36	L1172681-19	L1172681-22	L1172681-25	L1172681-28	L1172681-29	L1172681-31	L1172681-32	L1172681-33	L1172681-34	L1172681-39	L1172681-41	L1172681-43	L1172681-44	L1172681-45	L1172681-46	
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Physical Tests																														
Moisture	3.16			5.66	8.50	7.59	8.86	7.15	6.34	7.56	7.23	3.52	11.8	3.43	6.63	7.54	5.54	7.76	13.1	9.13	8.21	9.34	7.54	7.48	8.51	11.0	4.26	8.40	2.34	NS
pH (1:2 soil:water)	-			-	-	-	-	-	-	-	-	6.81	-	6.70	-	-	-	-	-	-	-	-	5.78	6.01	-	-	-	-	-	NS
Metals																														
Antimony (Sb)	-			-	-	-	-	-	-	-	-	7.21	-	81.6	-	-	-	-	-	-	-	-	4.67	2.97	-	-	-	-	-	20
Arsenic (As)	-			-	-	-	-	-	-	-	-	47.8	-	682	-	-	-	-	-	-	-	-	114	175	-	-	-	-	-	20*
Barium (Ba)	-			-	-	-	-	-	-	-	-	62.1	-	183	-	-	-	-	-	-	-	-	164	152	-	-	-	-	-	500
Beryllium (Be)	-			-	-	-	-	-	-	-	-	<0.20	-	0.38	-	-	-	-	-	-	-	-	0.52	0.33	-	-	-	-	-	4
Cadmium (Cd)	-			-	-	-	-	-	-	-	-	0.784	-	4.42	-	-	-	-	-	-	-	-	0.224	0.293	-	-	-	-	-	2
Chromium (Cr)	-			-	-	-	-	-	-	-	-	14.4	-	15.8	-	-	-	-	-	-	-	-	11.7	12.2	-	-	-	-	-	60
Cobalt (Co)	-			-	-	-	-	-	-	-	-	4.09	-	6.94	-	-	-	-	-	-	-	-	6.69	5.82	-	-	-	-	-	50
Copper (Cu)	-			-	-	-	-	-	-	-	-	28.9	-	123	-	-	-	-	-	-	-	-	16.6	10.8	-	-	-	-	-	200* (pH 5.5 < 6)
Lead (Pb)	-			-	-	-	-	-	-	-	-	48.7	-	509	-	-	-	-	-	-	-	-	15.2	12.1	-	-	-	-	-	250* (pH 5.5 < 6) 2,000* (pH 6 < 6.5) 40,000* (pH >6.5)
Mercury (Hg)	-			-	-	-	-	-	-	-	-	<0.050	-	0.104	-	-	-	-	-	-	-	-	<0.050	<0.050	-	-	-	-	-	100
Molybdenum (Mo)	-			-	-	-	-	-	-	-	-	2.64	-	8.40	-	-	-	-	-	-	-	-	<0.50	<0.50	-	-	-	-	-	10
Nickel (Ni)	-			-	-	-	-	-	-	-	-	12.6	-	12.3	-	-	-	-	-	-	-	-	10.5	7.91	-	-	-	-	-	100
Selenium (Se)	-			-	-	-	-	-	-	-	-	<0.20	-	0.20	-	-	-	-	-	-	-	-	<0.20	<0.20	-	-	-	-	-	3
Silver (Ag)	-			-	-	-	-	-	-	-	-	0.59	-	6.83	-	-	-	-	-	-	-	-	<0.10	<0.10	-	-	-	-	-	20
Thallium (Tl)	-			-	-	-	-	-	-	-	-	0.067	-	0.424	-	-	-	-	-	-	-	-	0.138	0.117	-	-	-	-	-	NS
Tin (Sn)	-			-	-	-	-	-	-	-	-	<2.0	-	3.4	-	-	-	-	-	-	-	-	<2.0	<2.0	-	-	-	-	-	50
Uranium (U)	-			-	-	-	-	-	-	-	-	0.461	-	0.670	-	-	-	-	-	-	-	-	0.401	0.442	-	-	-	-	-	NS
Vanadium (V)	-			-	-	-	-	-	-	-	-	24.6	-	33.2	-	-	-	-	-	-	-	-	38.9	33.5	-	-	-	-	-	200
Zinc (Zn)	-			-	-	-	-	-	-	-	-	187	-	888	-	-	-	-	-	-	-	-	46.5	62.7	-	-	-	-	-	150* (pH < 6) 300* (pH 6 < 6.5) 2,000* (pH 6.5 < 7)
Volatile Organic Compounds																														
Benzene	<0.040			<0.040	<0.040			<0.040			<0.040	<0.0050	<0.040	<0.0050	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	70
Bromodichloromethane	-			-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
Bromoform	-			-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
Carbon Tetrachloride	-			-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
Chlorobenzene	-			-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
Dibromochloromethane	-			-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
Chloroethane	-			-	-	-	-	-	-	-	-	<0.10	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
Chloroform	-			-	-	-	-	-	-	-	-	<0.10	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
Chloromethane	-			-	-	-	-	-	-	-	-	<0.10	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
1,2-Dichlorobenzene	-			-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
1,3-Dichlorobenzene	-			-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
1,4-Dichlorobenzene	-			-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
1,1-Dichloroethane	-			-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
1,2-Dichloroethane	-			-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
1,1-Dichloroethylene	-			-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
cis-1,2-Dichloroethylene	-			-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
trans-1,2-Dichloroethylene	-			-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
Dichloromethane	-			-	-	-	-	-	-	-	-	<0.30	-	<0.30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
1,2-Dichloropropane	-			-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
cis-1,3-Dichloropropylene	-			-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
trans-1,3-Dichloropropylene	-			-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
Ethylbenzene	<0.050			<0.050	<0.050			<0.050			<0.050	<0.015	<0.050	0.032	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	2.95	<0.050	<0.050	<0.050	<0.050	<0.050	7
Methyl t-butyl ether (MTBE)	<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	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	NS
Styrene	<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	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	NS
1,1,1,2-Tetrachloroethane	-	-		-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
1,1,2,2-Tetrachloroethane	-	-		-	-	-	-	-	-	-	-	<0.50	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
Tetrachloroethylene	-	-		-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
Toluene	0.110	-		<0.050	<0.050	-	-	<0.050	-	-	<0.050	<0.050	<0.050	0.478	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.243	<0.050	<0.050	<0.050	<0.050	<0.050	5
1,1,1-Trichloroethane	-	-		-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
1,1,2-Trichloroethane	-	-		-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
Trichloroethylene	-	-		-	-	-	-	-	-	-	-	<0.010	-	<0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
Trichlorofluoromethane	-	-		-	-	-	-	-	-	-	-	<0.10	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
Vinyl Chloride	-	-		-	-	-	-	-	-	-	-	<0.10	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
ortho-Xylene	<0.050	-		<0.050	<0.050	-	-	<0.050	-	-	<0.050	<0.050	<0.050	0.063	<0.050	<0.050	<0.050	<0.050	<0.050	0.540	<0.050	<0.050	<0.050	10.3	<0.050	<0.050	<0.050	<0.050	<0.050	NS
meta- & para-Xylene	<0.050	-		<0.050	<0.050	-	-	<0.050	-	-	<0.050	<0.050	<0.050	0.148	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	16.9	<0.050	<0.050	<0.050	<0.050	<0.050	NS
Xylenes	<0.075	-		<0.075	<0.075	-	-	<0.075	-	-	<0.075	<0.075	<0.075	0.211	<0.075	<0.075	<0.075	<0.075	<0.075	0.540	<0.075	<0.075	<0.075	27.2	<0.075	<0.075	<0.075	<0.075	<0.075	20
Surrogate: 4-Bromofluorobenzene (SS)	91.8	-		87.9	94.6	-	-	88.1	-	-	86.6	109.9	84.2	78.5	93.7	86.6	99.8	87.7	79.5	97.1	91.7	95.5	99.0	92.6	85.4	85.6	89.3	83.2	85.1	-
Surrogate: 1,4-Difluorobenzene (SS)	100.7	-		94.8	98.4	-	-	100.7	-	-	98.7	117.7	96.3	93.8	101.6	95.8	106.5	94.2	92.3	104.2	95.6	100.4	101.0	97.6	97.6	98.6	97.4	94.8	98.6	-
Hydrocarbons																														
EPH10-19	1000	<200	<200	<200	<200	240	<200	250	360	<200	<200	4750	<200	7460	<200	<200	<200	<200	<200	<200	<200	<200	<200	8500	<200	<200	1780	1710	2490	NS
EPH19-32	28000	1380	450	<200	2300	1170	<200	2670	3750	940	<200	1810	<200	51900	760	<200	<200	<200	<200	370	<200	<200	<200	890	<200	<200	21000	16500	19500	NS
LEPH	1000	<200	<200	<200	<200	240	<200	250	360	<200	<200	4750	<200	7460	<200	<200	<200	<200	<200	<200	<200	<200	<200	8500	<200	<200	1780	1710	2490	1,000
HEPH	28000	1380	450	<200	2300	1170	<200	2670	3750	940	<200	1810	<200	51900	760	<200	<200	<200	<200	370	<200	<200	<200	890	<200	<200	21000	16500	19500	1,000
Volatile Hydrocarbons (VH6-10)	<100	-		<100	<100			<100			<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	1720	<100	<100	<100	<100	<100	NS
VPH (C6-C10)	<100	-	-	<100	<100	-	-	<100	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	1690	<100	<100	<100	<100	<100	200
Surrogate: 3,4-Dichlorotoluene (SS)	69.2	-	-	93.6	83.7	-	-	88.9	-	-	86.8	Not Reportable	94.5	59.8	88.3	90.5	86.1	97.3	82.0	90.1	98.5	91.6	101.3	Not Reportable	95.9	76.6	81.7	61.2	54.7	-
Polycyclic Aromatic Hydrocarbons																														
Acenaphthene	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.20	<0.050	<0.30	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.35	<0.050	<0.050	<0.10	<0.070	<0.080	NS
Acenaphthylene	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.060	<0.050	<0.20	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.15	<0.050	<0.050	<0.050	<0.050	<0.050	NS
Anthracene	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.060	<0.050	<0.20	<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	<0.070	<0.050	NS
Benz(a)anthracene	<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	<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	<0.050	1
Benzo(a)pyrene	<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	<0.020	<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	<0.050	NS
Benzo(b)fluoranthene	<0.20	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.20	<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	<0.070	<0.050	1
Benzo(g,h,i)perylene	0.294	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.055	<0.049	<0.050	<0.050	<0.050	0.495	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.160	0.129	0.062	NS
Benzo(k)fluoranthene	<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	<0.20	<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	<0.050	1
Chrysene	<0.080	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.090	<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	<0.060	NS
Dibenz(a,h)anthracene	<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	<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	<0.050	1
Fluoranthene	<0.060	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.292	<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	<0.070	<0.080	NS
Fluorene	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.30	<0.050	<0.60	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.15	<0.050	<0.050	<0.20	<0.15	<0.15	NS
Indeno(1,2,3-c,d)pyrene	<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	0.087	<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	<0.050	1
2-Methylnaphthalene	0.065	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.10	<0.050	0.879	<0.050	<0.050	<0.050	<0.050	<0.050	0.088	<0.050	<0.050	<0.050	8.30	<0.050	<0.050	0.116	0.057	0.464	NS
Naphthalene	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.20	<0.050	0.352	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	3.02	<0.050	<0.050	<0.050	<0.070	<0.050	0.053	5
Phenanthrene	0.200	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.585	<0.050	1.49	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	1.68	<0.050	<0.050	0.774	0.536	0.455	5
Pyrene	0.539	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.057	0.094	<0.049	<0.050	1.46	<0.050	1.58	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.248	<0.050	<0.050	0.381	0.414	0.567	10
Surrogate: Acenaphthene d10	84.8	96.0	88.5	90.2	84.2	83.9	82.8	103.2	83.6	80.1	82.6	91.8	90.1	Not reportable	94.0	83.0	80.1	98.2	76.8	79.5	83.1	77.0	78.0	114.8	81.0	111.8	113.3	120.6	118.5	-
Surrogate: Chrysene d12	125.4	89.5	73.4	85.9	73.6	73.3	73.7	93.9	74.5	67.7	60.2	72.1	87.9	Not reportable	83.6	80.2	78.2	98.0	74.9	75.6	76.0	76.7	83.3	108.7	76.2	113.8	111.5	126.5	113.2	-
Surrogate: Naphthalene d8	74.0	86.1	87.3	87.2	82.9	82.2	81.4	69.3	72	79.2	69.0	83.8	86.6	79.2	90.1	80.3	78.6	94.9	73.8	75.9	82.0	75.9	76.7	108.6	78.8	106.8	105.1	110.0	120.8	-
Surrogate: Phenanthrene d10	92.5	101.1	87.1	94.1	77.6	83.4	87.4	106.9	86.2	78.9	69.6	76.3	95.4	98.4	88.8	88.8	86.4	104.0	80.8	81.2	87.7	81.5	85.6	102.6	85.0	117.7	102.8	101.7	110.9	-
Glycols																														
Diethylene Glycol	-			-	-	-	-	-	-	-	-	<10	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS
Ethylene Glycol	-			-	-	-	-	-	-	-	-	<10	-	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,500
1,2-Propylene Glycol	-			-	-	-	-	-	-	-	-	<10	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NS

Notes

NS - No Standard Currently Established

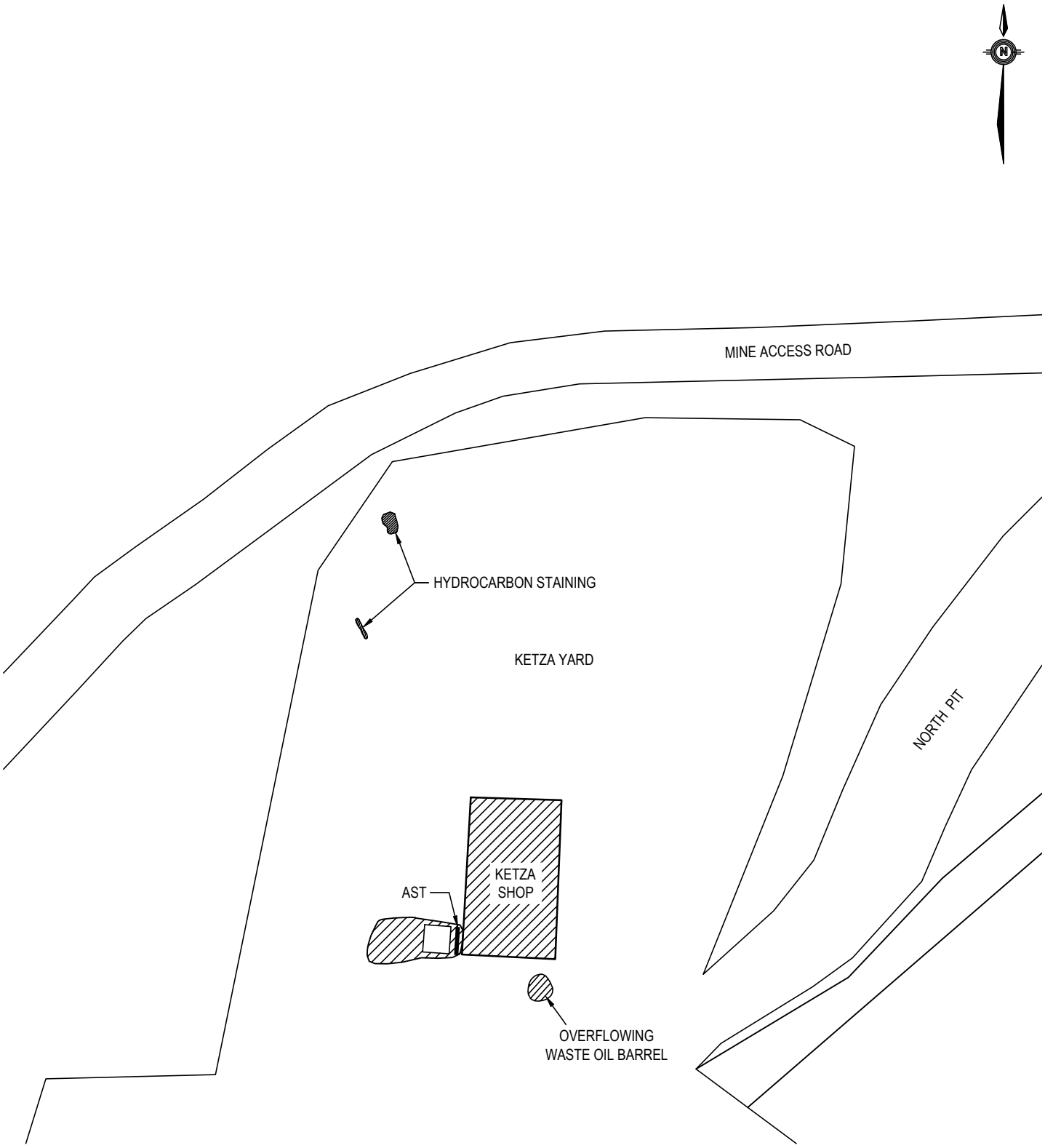
BOLD - Indicates an exceedance of standard

All units are in µg/g unless otherwise stated

[1] Contaminated Sites Regulation. 2002. Yukon Territorial Government - Department of Environment (Commercial Land Use Standards)

*Indicates groundwater flow to surface water used by aquatic life

FIGURES



LEGEND:

AST - ABOVE GROUND STORAGE TANK

- HYDROCARBON STAINING

0 5

Scale: 1: 125 (metres)

CLIENT

Yukon Government

eba A TETRA TECH COMPANY

HYDROCARBON CONTAMINATION ASSESSMENT
KETZA WORK SHOP - MOUNT NANSEN SITE, YUKON

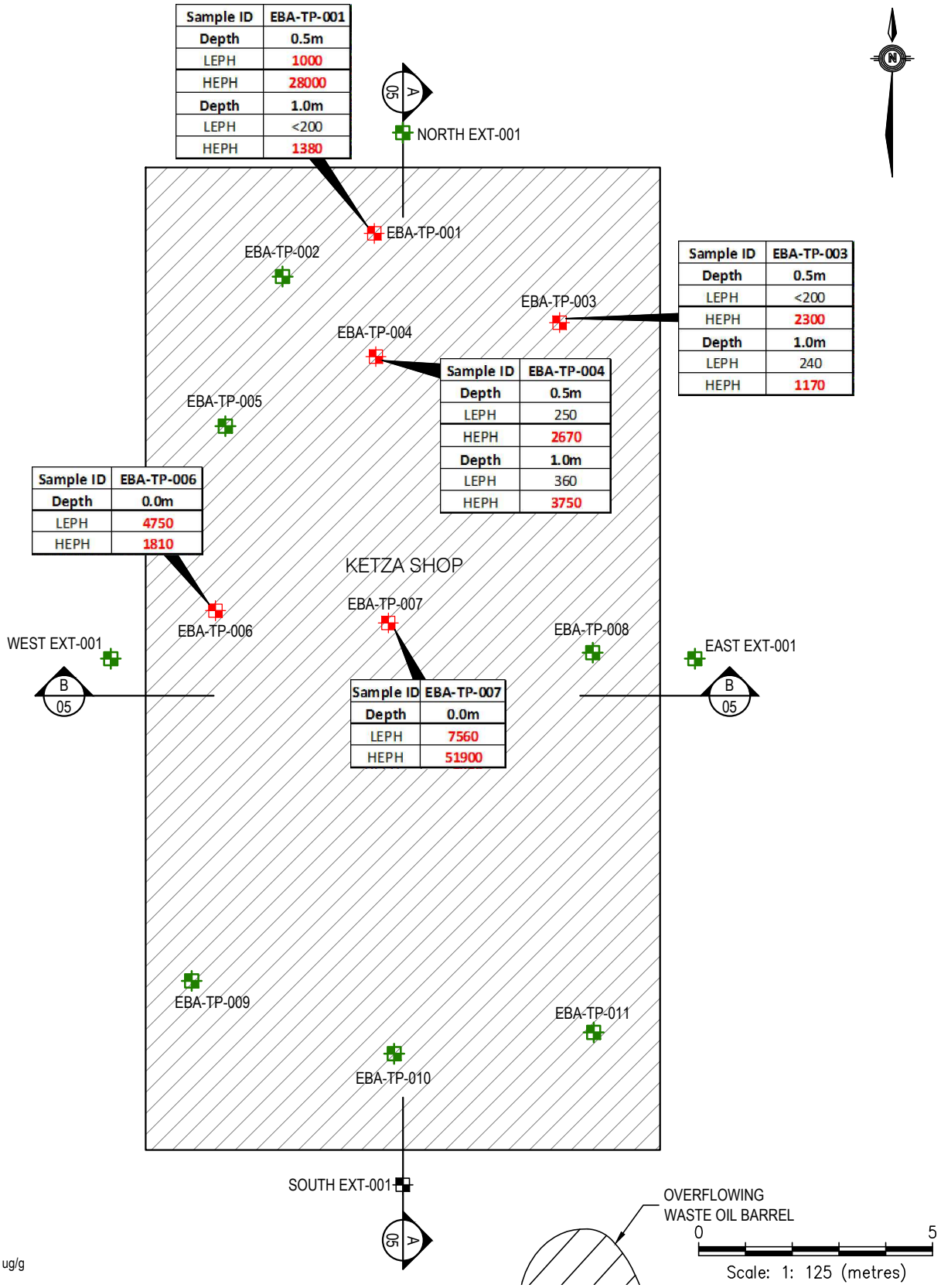
AREAS OF HYDROCARBON STAINING

PROJECT NO.	DWN	CKD	REV
W23101570	CB	CDH	0

OFFICE	DATE
EBA-WHSE	July 20, 2012

Figure 1

Q:\Whitehorse\Data\0201drawings\Mt Nansen\W23101570 Ketza Shop Soil Sampling\W23101570 Fig.1-7_R0.dwg [FIGURE 1] October 26, 2012 - 12:06:49 pm (BY: BUCHAN, CAMERON)



NOTE : ALL RESULTS ARE IN ug/g

LEGEND :

- APPROXIMATE LOCATION OF HYDROCARBON STAINING
- INDICATES SOIL SAMPLE RESULT GREATER THAN THE YCSR-PL STANDARD FOR PARAMETER INDICATED OF LEPH, HEPH, VPH OR METALS
- INDICATES SOIL SAMPLE RESULT LESS THAN THE YCSR-PL STANDARD FOR PARAMETER INDICATED OF BTEX, EPH, LEPH, HEPH, VPH, PAH, GLYCOL OR METALS

LEPH - LIGHT EXTRACTABLE PETROLEUM HYDROCARBONS

HEPH - HEAVY EXTRACTABLE PETROLEUM HYDROCARBONS

0.0 m - SAMPLE DEPTH

CLIENT

Yukon Government

eba A TETRA TECH COMPANY

HYDROCARBON CONTAMINATION ASSESSMENT
KETZA WORK SHOP - MOUNT NANSEN SITE, YUKON

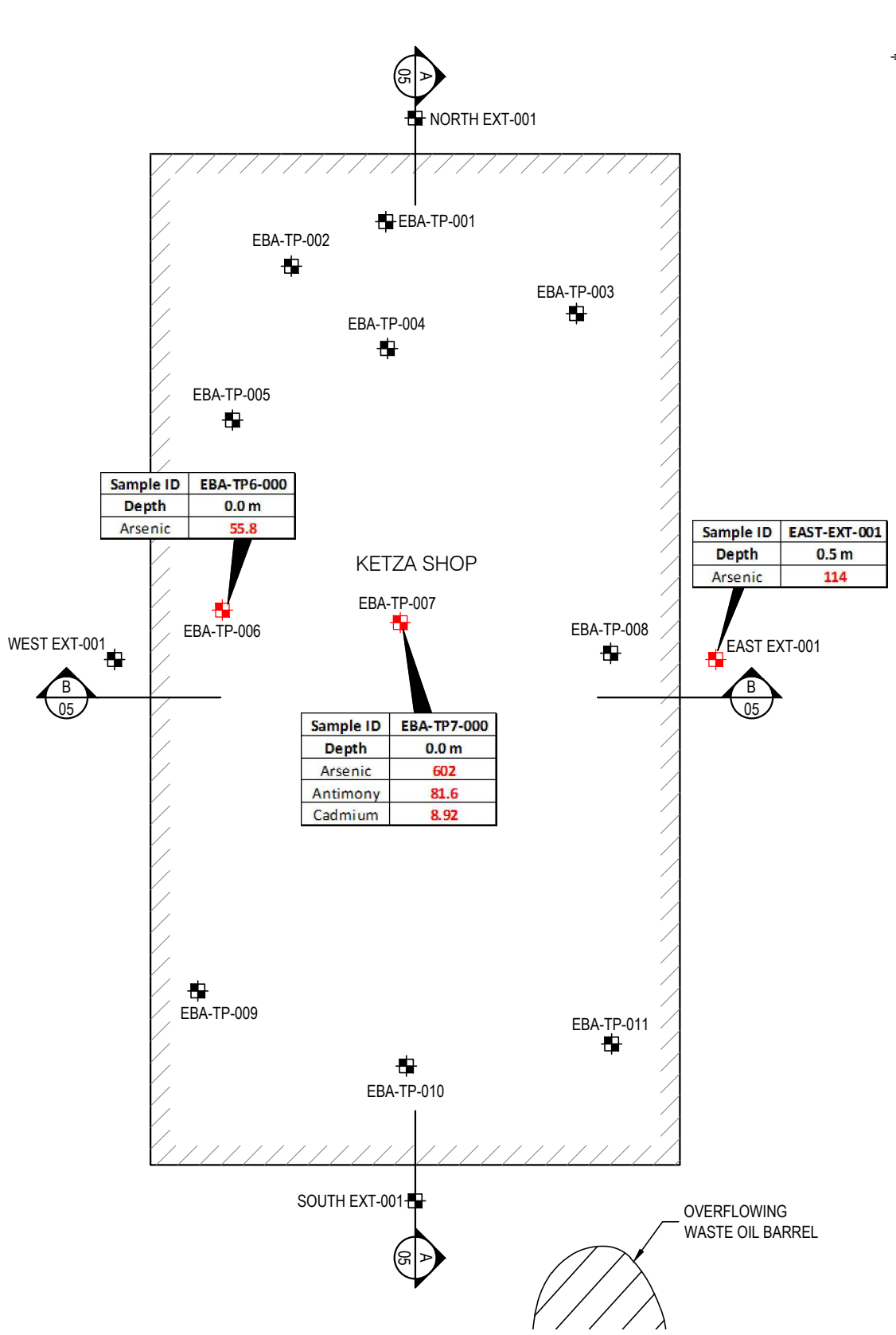
SITE PLAN SHOWING SAMPLE LOCATIONS AND HYDROCARBON EXCEEDANCE

PROJECT NO.	DWN	CKD	REV
W23101570	CB	CDH	0

OFFICE	DATE
EBA-WHSE	July 20, 2012

Figure 2

Q:\Whitehorse\Data\0201drawings\Mt Nansen\W23101570 Ketza Shop Soil Sampling\W23101570 Fig.1-7_R0.dwg [FIGURE 2] October 26, 2012 - 12:07:27 pm (BY: BUCHAN, CAMERON)



LEGEND:

- TESTPIT LOCATION WITH NO METAL ANALYSIS CONDUCTED
- INDICATES SOIL SAMPLE RESULT GREATER THAN THE YCSR-PL STANDARD FOR METALS

0.0 m - SAMPLE DEPTH

0 5

Scale: 1: 125 (metres)

CLIENT

Yukon Government

eba A TETRA TECH COMPANY

HYDROCARBON CONTAMINATION ASSESSMENT
KETZA WORK SHOP - MOUNT NANSEN SITE, YUKON

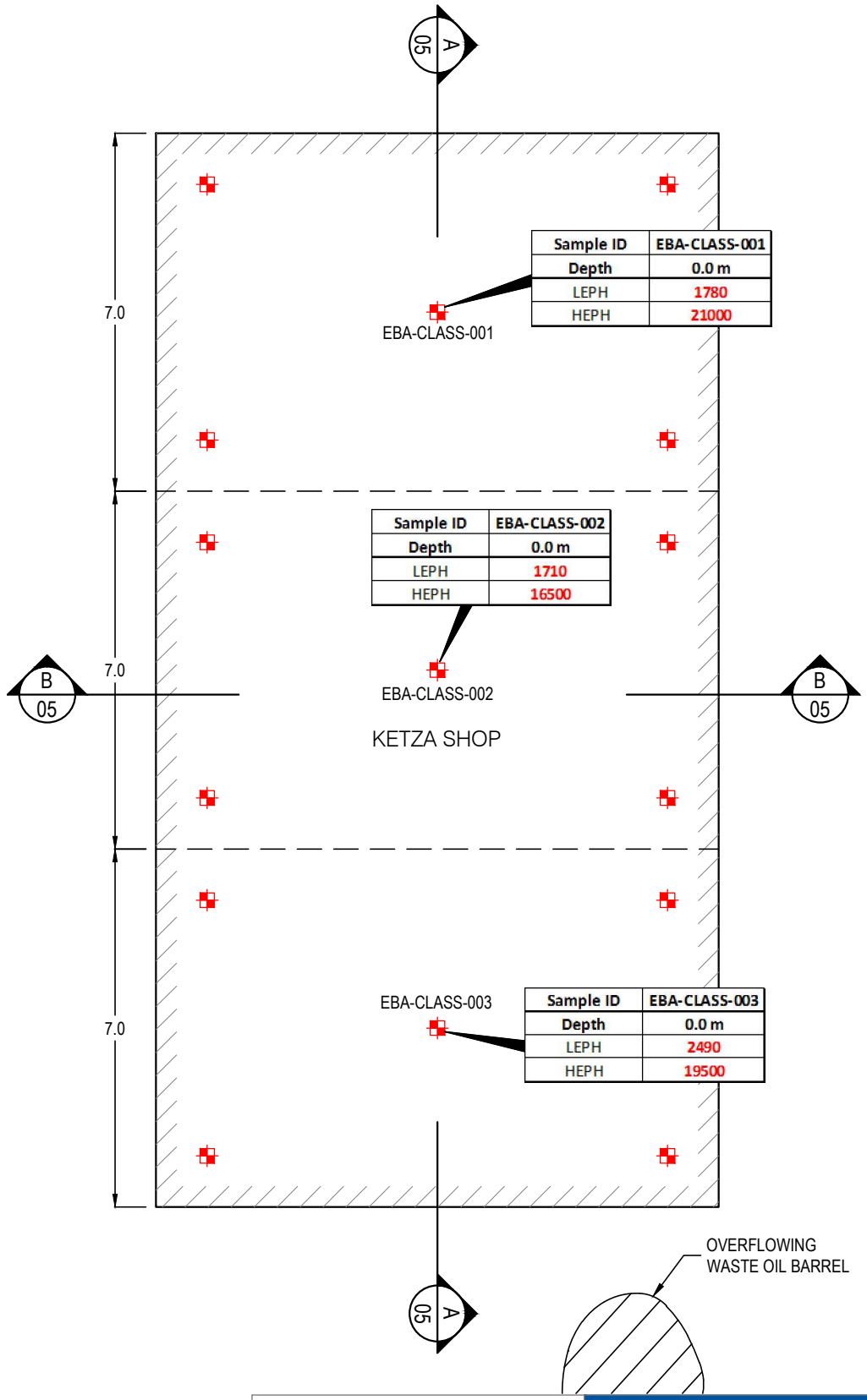
SITE PLAN SHOWING SAMPLE LOCATIONS AND METAL EXCEEDANCE

PROJECT NO.	DWN	CKD	REV
W23101570	CB	CDH	0

OFFICE	DATE
EBA-WHSE	July 20, 2012

Figure 3

Q:\Whitehorse\Data\0201drawings\Mt Nansen\W23101570 Ketza Shop Soil Sampling\W23101570 Fig.1-7_R0.dwg [FIGURE 3] October 26, 2012 - 12:08:02 pm (BY: BUCHAN, CAMERON)



LEGEND:

- GRAB COMPOSITE SOIL SAMPLE LOCATION WITH HYDROCARBONS GREATER THAN THE YCSR-PL STANDARDS

LEPH - LIGHT EXTRACTABLE PETROLEUM HYDROCARBONS

HEPH - HEAVY EXTRACTABLE PETROLEUM HYDROCARBONS

0.0 m - SAMPLE DEPTH

0 5

Scale: 1: 125 (metres)

CLIENT

Yukon Government

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HYDROCARBON CONTAMINATION ASSESSMENT
KETZA WORK SHOP - MOUNT NANSEN SITE, YUKON

SITE PLAN SHOWING COMPOSITE SAMPLE LOCATIONS

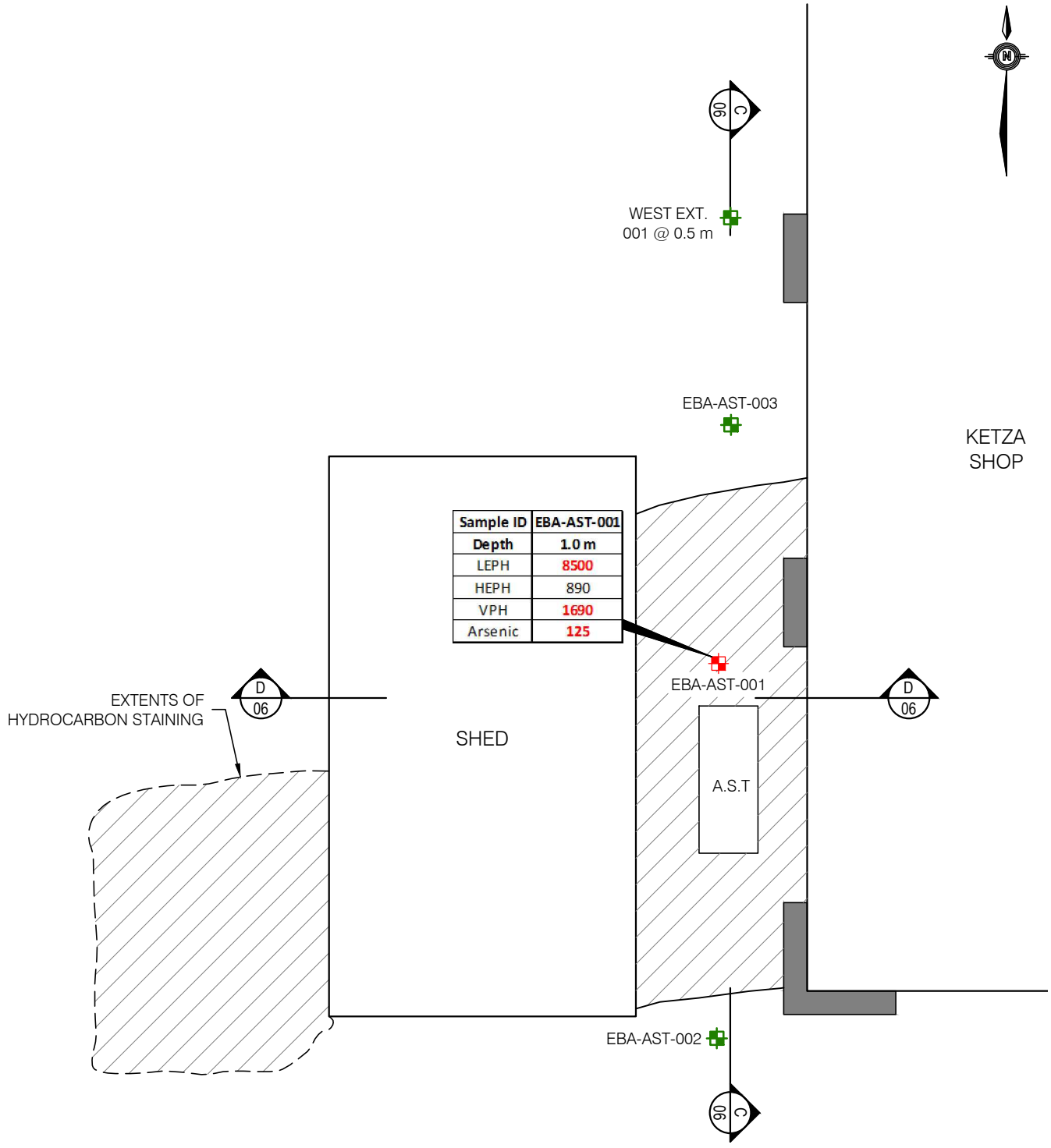
PROJECT NO.	DWN	CKD	REV
W23101570	CB	CDH	0

OFFICE: EBA-WHSE

DATE: July 20, 2012

Figure 4

Q:\Whitehorse\Data\0201drawings\Mt Nansen\W23101570 Ketza Shop Soil Sampling\W23101570 Fig.1-7_R0.dwg [FIGURE 4] October 26, 2012 - 12:08:33 pm (BY: BUCHAN, CAMERON)



LEGEND:

- APPROXIMATE LOCATION OF HYDROCARBON STAINING
- INDICATES SOIL SAMPLE RESULT GREATER THAN THE YCSR-PL STANDARD FOR PARAMETER INDICATED OF LEPH, HEPH, VPH OR METALS
- INDICATES SOIL SAMPLE RESULT LESS THAN THE YCSR-PL STANDARD FOR PARAMETER INDICATED OF BTEX, EPH, LEPH, HEPH, VPH, PAH, GLYCOL OR METALS
- CONCRETE FOOTING

LEPH - LIGHT EXTRACTABLE PETROLEUM HYDROCARBONS
HEPH - HEAVY EXTRACTABLE PETROLEUM HYDROCARBONS
VPH - VOLATILE PETROLEUM HYDROCARBONS
AS - ARSENIC
0.0 m - SAMPLE DEPTH

0 2.5
Scale: 1: 50 (metres)

CLIENT
Yukon Government

HYDROCARBON CONTAMINATION ASSESSMENT
KETZA WORK SHOP - MOUNT NANSEN SITE, YUKON

SITE PLAN SHOWING SAMPLE LOCATIONS AND HYDROCARBON / METAL EXCEEDANCES

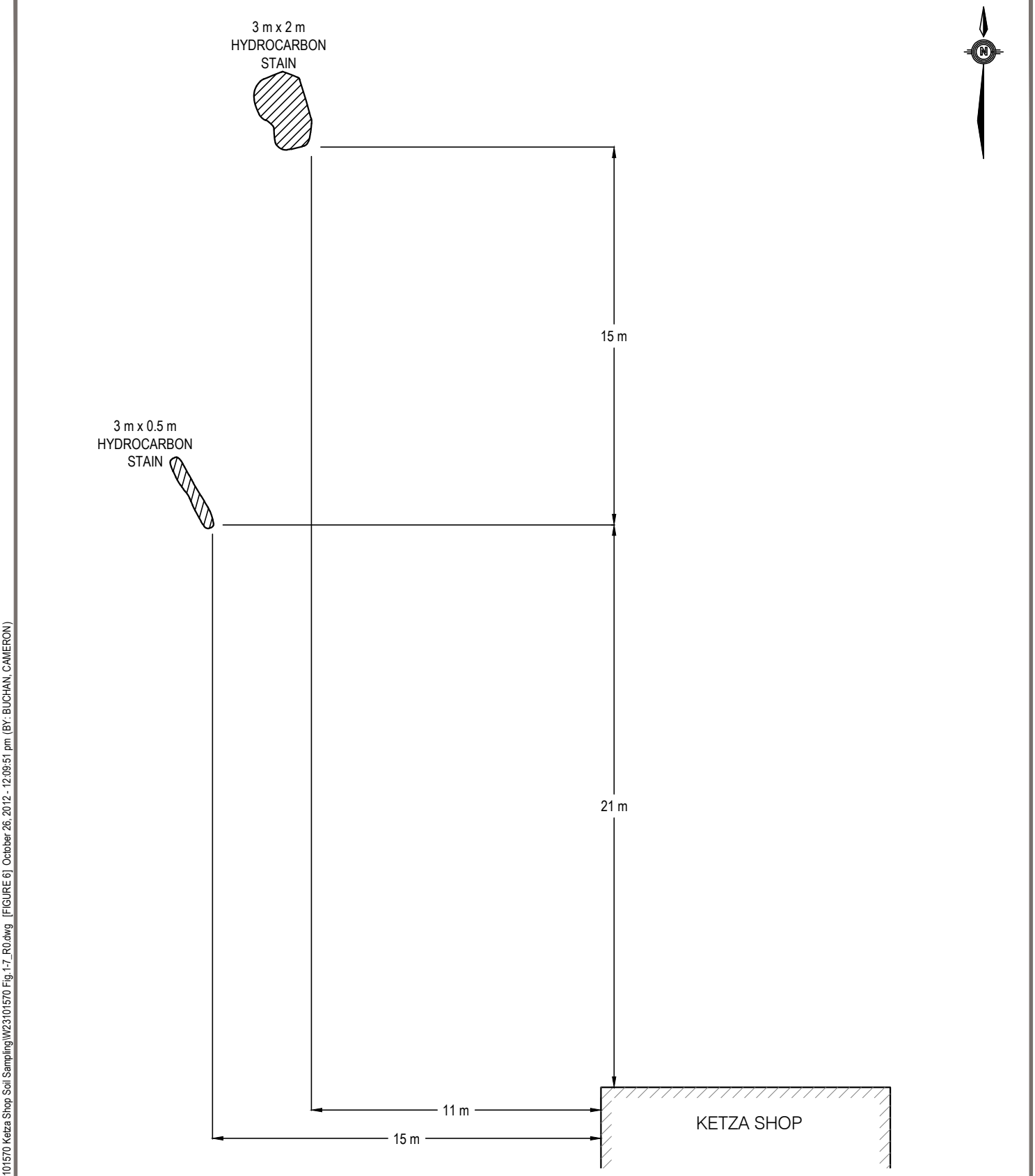
eba A TETRA TECH COMPANY

PROJECT NO.	DWN	CKD	REV
W23101570	CB	CDH	0

OFFICE: EBA-WHSE
DATE: August 15, 2012

Figure 5

Q:\Whitehorse\Data\0201drawings\Mt Nansen\W23101570 Ketza Shop Soil Sampling\W23101570 Fig.1-7_R0.dwg [FIGURE 5] October 30, 2012 - 1:45:43 pm (BY: BUCHAN, CAMERON)



CLIENT

Yukon Government

eba A TETRA TECH COMPANY

HYDROCARBON CONTAMINATION ASSESSMENT
KETZA WORK SHOP - MOUNT NANSEN SITE, YUKON

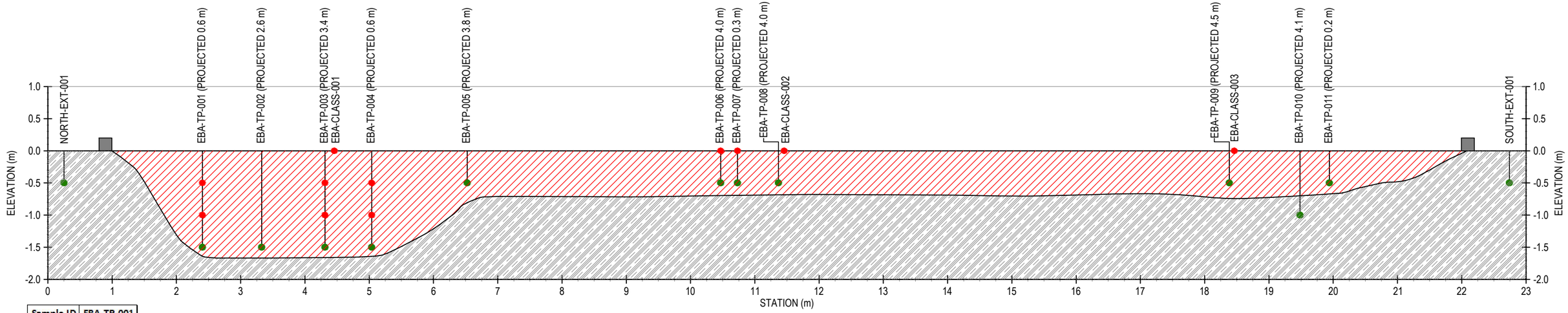
AREAS OF HYDROCARBON STAINING LOCATIONS

PROJECT NO.	DWN	CKD	REV
W23101570	CB	CDH	0

OFFICE	DATE
EBA-WHSE	August 15, 2012

Figure 6

Q:\Whitehorse\Data\0201drawings\Mt Nansen\W23101570 Ketza Shop Soil Sampling\W23101570 Fig.1-7_R0.dwg [FIGURE 6] October 26, 2012 - 12:09:51 pm (BY: BUCHAN, CAMERON)



A SECTION A - A'
SCALE 1 : 60

Sample ID	EBA-TP-001
Depth	0.5m
LEPH	1000
HEPH	28000
Depth	1.0m
HEPH	1380

Sample ID	EBA-TP-003
Depth	0.5 m
HEPH	2300
Depth	1.0 m
HEPH	1170

Sample ID	EBA-TP-004
Depth	0.5 m
HEPH	2670
Depth	1.0 m
HEPH	3750

Sample ID	EBA-TP-006
Depth	0.0m
LEPH	4750
HEPH	1810
Arsenic	55.8

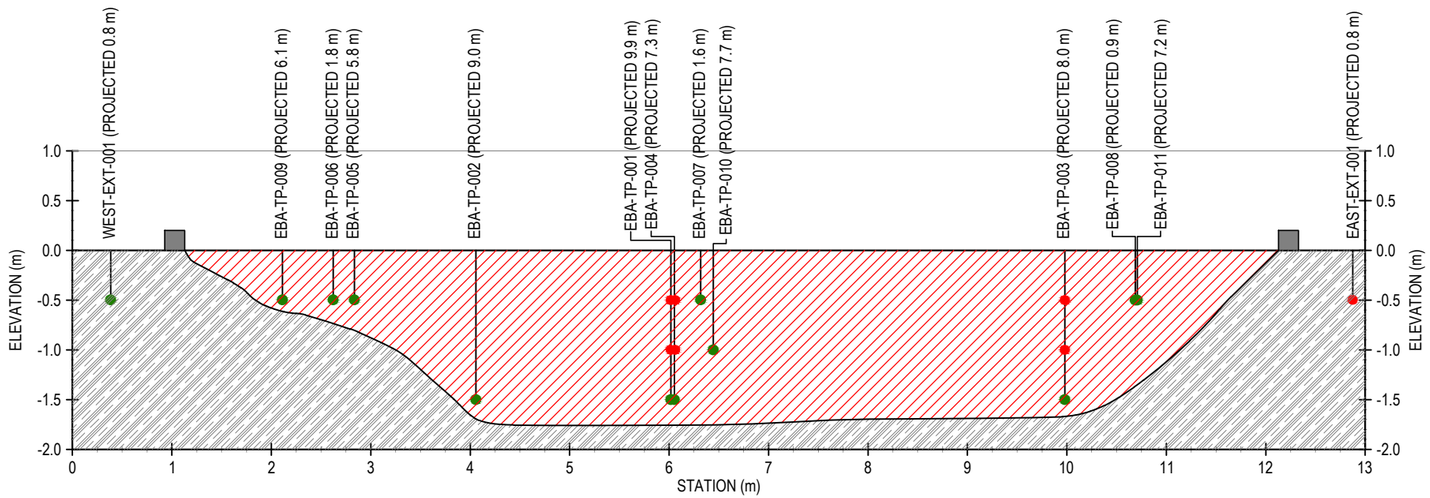
Sample ID	EBA-TP-007
Depth	0.0 m
LEPH	7460
HEPH	51900
Arsenic	602
Antimony	81.6
Cadmium	8.92

Sample ID	East-Ext-001
Depth	0.5 m
Arsenic	114

Sample ID	EBA-Class-001
Depth	0.0 m
LEPH	1780
HEPH	21000

Sample ID	EBA-Class-002
Depth	0.0 m
LEPH	1710
HEPH	16500

Sample ID	EBA-Class-003
Depth	0.0 m
LEPH	2490
HEPH	19500



B SECTION B - B'
SCALE 1 : 60

LEGEND:

- ● - INDICATES SOIL SAMPLE RESULT GREATER THAN THE YCSR-PL STANDARD FOR PARAMETER INDICATED OF LEPH, HEPH, VPH OR METALS
- ● - INDICATES SOIL SAMPLE RESULT LESS THAN THE YCSR-PL STANDARD FOR PARAMETER INDICATED OF BTEX, EPH, LEPH, HEPH, VPH, PAH, GLYCOL OR METALS
- 0.0 m - SAMPLE DEPTH
- ▨ - INDICATES CLAY
- ▨ - INDICATES INFERRED ZONES IN CROSS-SECTIONS WHERE SOILS CONTAIN HYDROCARBON CONCENTRATIONS IN EXCESS OF THE YCSR-PL STANDARDS
- ■ - BUILDING CONCRETE FOUNDATION

0 2.5
Scale: 1: 60 (metres)

CLIENT
Yukon Government

HYDROCARBON CONTAMINATION ASSESSMENT KETZA WORK SHOP - MOUNT NANSEN SITE, YUKON

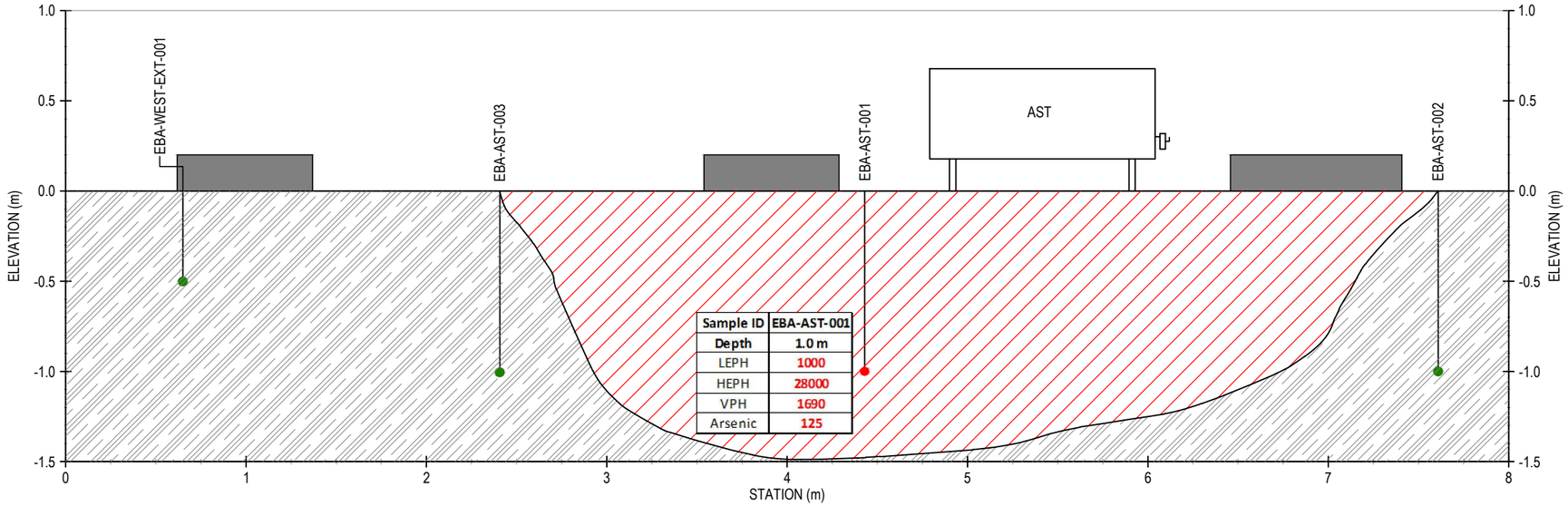
CROSS-SECTIONS A -A' AND B - B'

eba A TETRATECH COMPANY

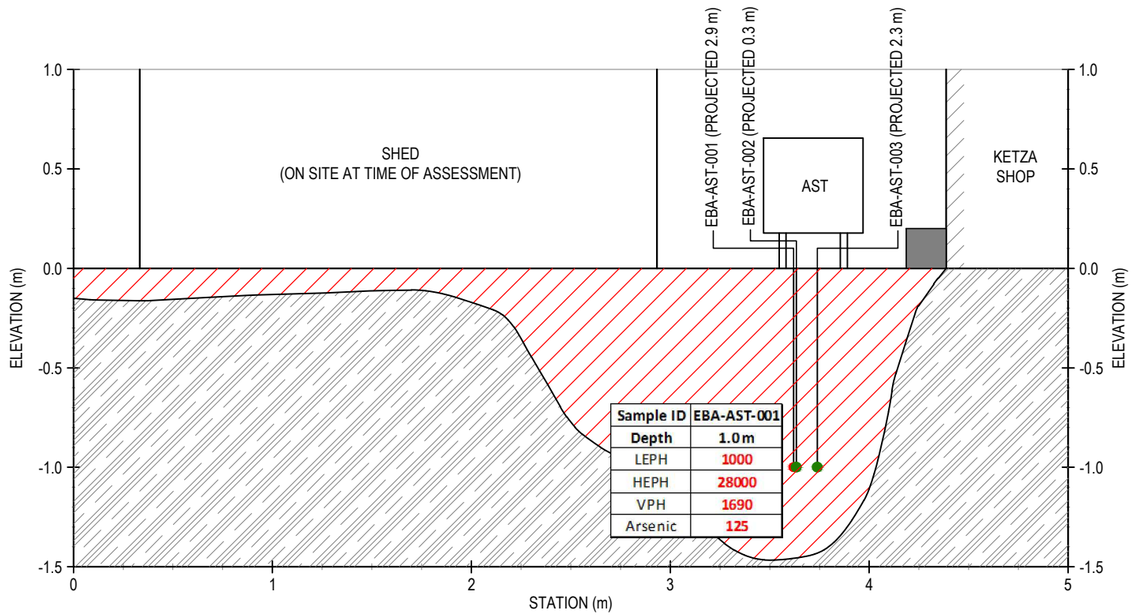
PROJECT NO.	DWN	CKD	REV
W23101570	CB	SGD	0

OFFICE	DATE
EBA-WHSE	October 18, 2012

Figure 7



C -- SECTION C - C'
SCALE 1 : 30



D -- SECTION D - D'
SCALE 1 : 30

LEGEND:

- - INDICATES SOIL SAMPLE RESULT GREATER THAN THE YCSR-PL STANDARD FOR PARAMETER INDICATED OF LEPH, HEPH, VPH OR METALS
- - INDICATES SOIL SAMPLE RESULT LESS THAN THE YCSR-PL STANDARD FOR PARAMETER INDICATED OF BTEX, EPH, LEPH, HEPH, VPH, PAH, GLYCOL OR METALS

0.0 m - SAMPLE DEPTH

- INDICATES CLAY

- INDICATES INFERRED ZONES IN CROSS-SECTIONS WHERE SOILS CONTAIN HYDROCARBON CONCENTRATIONS IN EXCESS OF THE YCSR-PL STANDARDS

- BUILDING CONCRETE FOUNDATION

AST - ABOVE GROUND STORAGE TANK (ON-SITE AT TIME OF ASSESSMENT)

0 1
Scale: 1: 30 (metres)

CLIENT
Yukon Government

HYDROCARBON CONTAMINATION ASSESSMENT
KETZA WORK SHOP - MOUNT NANSEN SITE, YUKON

CROSS-SECTIONS C - C' AND D - D'

eba A TETRA TECH COMPANY

PROJECT NO.	DWN	CKD	REV
W23101570	CB	SGD	0

OFFICE: EBA-WHSE
DATE: October 18, 2012

Figure 8

PHOTOGRAPHS

Photo 1	Rubber wheeled back hoe test pitting on the south-west corner
Photo 2	Rubber wheeled back hoe test pitting within the north-west corner of the interior

Photo 1: Rubber wheeled back hoe, testpitting on the south-west corner

Photo 2: Rubber wheeled back hoe testpitting within the north-west corner of the interior

APPENDIX A
EBA'S GENERAL CONDITIONS

GENERAL CONDITIONS

GEO-ENVIRONMENTAL REPORT

This report incorporates and is subject to these “General Conditions”.

1.0 USE OF REPORT AND OWNERSHIP

This report pertains to a specific site, a specific development, and a specific scope of work. It is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site or proposed development would necessitate a supplementary investigation and assessment.

This report and the assessments and recommendations contained in it are intended for the sole use of EBA’s client. EBA does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than EBA’s Client unless otherwise authorized in writing by EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of EBA. Additional copies of the report, if required, may be obtained upon request.

2.0 ALTERNATE REPORT FORMAT

Where EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed EBA’s instruments of professional service), only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by EBA shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of EBA’s instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except EBA. The Client warrants that EBA’s instruments of professional service will be used only and exactly as submitted by EBA.

Electronic files submitted by EBA have been prepared and submitted using specific software and hardware systems. EBA makes no representation about the compatibility of these files with the Client’s current or future software and hardware systems.

3.0 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by EBA in its reasonably exercised discretion.

4.0 INFORMATION PROVIDED TO EBA BY OTHERS

During the performance of the work and the preparation of the report, EBA may rely on information provided by persons other than the Client. While EBA endeavours to verify the accuracy of such information when instructed to do so by the Client, EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.

APPENDIX B
LABORATORY ANALYTICAL CERTIFICATES

EBA ENGINEERING CONSULTANTS LTD.
ATTN: Chris Harwood
Calcite Business Centre
Unit 6 - 151 Industrial Road
Whitehorse YT Y1A 2V3

Date Received: 04-JUL-12
Report Date: 17-JUL-12 16:48 (MT)
Version: FINAL

Client Phone: 867-668-3068

Certificate of Analysis

Lab Work Order #: L1172681

Project P.O. #: NOT SUBMITTED
Job Reference: W23101570
C of C Numbers: 10-173890, 10-173894, 10-173895, 10-173896, 10-173897
Legal Site Desc:

Comments: Please note that the Glycol results for the sample identified as 'TP7-000@0.0m' may be slightly low due to a low sample surrogate recovery (63%) that was outside of ALS' acceptable range (70-130%) for this analysis.

Brent Mack
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID: L1172681-1 Description: GRAB-SOIL Sampled Date: 28-JUN-12 Sampled Time: Client ID: EBA-TP1-001 @0.5M	L1172681-6 GRAB-SOIL 28-JUN-12 EBA-TP2-004 @1.5M	L1172681-7 GRAB-SOIL 28-JUN-12 EBA-TP3-001 @0.5M	L1172681-10 GRAB-SOIL 28-JUN-12 EBA-TP4-001 @0.5M	L1172681-13 GRAB-SOIL 28-JUN-12 TP5-001 @0.5M
SOIL						
Physical Tests	Moisture (%)	3.16	5.66	8.50	7.15	7.23
	pH (1:2 soil:water) (pH)					
Metals	Antimony (Sb) (mg/kg)					
	Arsenic (As) (mg/kg)					
	Barium (Ba) (mg/kg)					
	Beryllium (Be) (mg/kg)					
	Cadmium (Cd) (mg/kg)					
	Chromium (Cr) (mg/kg)					
	Cobalt (Co) (mg/kg)					
	Copper (Cu) (mg/kg)					
	Lead (Pb) (mg/kg)					
	Mercury (Hg) (mg/kg)					
	Molybdenum (Mo) (mg/kg)					
	Nickel (Ni) (mg/kg)					
	Selenium (Se) (mg/kg)					
	Silver (Ag) (mg/kg)					
	Thallium (Tl) (mg/kg)					
	Tin (Sn) (mg/kg)					
	Uranium (U) (mg/kg)					
	Vanadium (V) (mg/kg)					
	Zinc (Zn) (mg/kg)					
Volatile Organic Compounds	Benzene (mg/kg)	<0.040	<0.040	<0.040	<0.040	<0.040
	Bromodichloromethane (mg/kg)					
	Bromoform (mg/kg)					
	Carbon Tetrachloride (mg/kg)					
	Chlorobenzene (mg/kg)					
	Dibromochloromethane (mg/kg)					
	Chloroethane (mg/kg)					
	Chloroform (mg/kg)					
	Chloromethane (mg/kg)					
	1,2-Dichlorobenzene (mg/kg)					
	1,3-Dichlorobenzene (mg/kg)					
	1,4-Dichlorobenzene (mg/kg)					
	1,1-Dichloroethane (mg/kg)					
	1,2-Dichloroethane (mg/kg)					
	1,1-Dichloroethylene (mg/kg)					
	cis-1,2-Dichloroethylene (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1172681-16	L1172681-19	L1172681-22	L1172681-25	L1172681-28
Description	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL
Sampled Date	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12
Sampled Time					
Client ID	TP6-001 @0.5M	TP7-001 @0.5M	TP8-001 @0.5M	TP9 @0.5M	TP10 @1.0M
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)	11.8	6.63	7.54	5.54	7.76
pH (1:2 soil:water) (pH)					
Metals Antimony (Sb) (mg/kg)					
Arsenic (As) (mg/kg)					
Barium (Ba) (mg/kg)					
Beryllium (Be) (mg/kg)					
Cadmium (Cd) (mg/kg)					
Chromium (Cr) (mg/kg)					
Cobalt (Co) (mg/kg)					
Copper (Cu) (mg/kg)					
Lead (Pb) (mg/kg)					
Mercury (Hg) (mg/kg)					
Molybdenum (Mo) (mg/kg)					
Nickel (Ni) (mg/kg)					
Selenium (Se) (mg/kg)					
Silver (Ag) (mg/kg)					
Thallium (Tl) (mg/kg)					
Tin (Sn) (mg/kg)					
Uranium (U) (mg/kg)					
Vanadium (V) (mg/kg)					
Zinc (Zn) (mg/kg)					
Volatile Organic Compounds Benzene (mg/kg)	<0.040	<0.040	<0.040	<0.040	<0.040
Bromodichloromethane (mg/kg)					
Bromoform (mg/kg)					
Carbon Tetrachloride (mg/kg)					
Chlorobenzene (mg/kg)					
Dibromochloromethane (mg/kg)					
Chloroethane (mg/kg)					
Chloroform (mg/kg)					
Chloromethane (mg/kg)					
1,2-Dichlorobenzene (mg/kg)					
1,3-Dichlorobenzene (mg/kg)					
1,4-Dichlorobenzene (mg/kg)					
1,1-Dichloroethane (mg/kg)					
1,2-Dichloroethane (mg/kg)					
1,1-Dichloroethylene (mg/kg)					
cis-1,2-Dichloroethylene (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1172681-29 GRAB-SOIL 28-JUN-12 TP11 @0.5M	L1172681-31 GRAB-SOIL 28-JUN-12 SOUTH EXT 001 @0.5M	L1172681-32 GRAB-SOIL 28-JUN-12 WEST EXT 001 @0.5M	L1172681-33 GRAB-SOIL 28-JUN-12 NORTH EXT 001 @0.5M	L1172681-34 GRAB-SOIL 28-JUN-12 EAST EXT 001 @0.5M
SOIL						
Physical Tests	Moisture (%)	13.1	9.13	8.21	9.34	7.54
	pH (1:2 soil:water) (pH)					5.78
Metals	Antimony (Sb) (mg/kg)					4.67
	Arsenic (As) (mg/kg)					114
	Barium (Ba) (mg/kg)					164
	Beryllium (Be) (mg/kg)					0.52
	Cadmium (Cd) (mg/kg)					0.224
	Chromium (Cr) (mg/kg)					11.7
	Cobalt (Co) (mg/kg)					6.69
	Copper (Cu) (mg/kg)					16.6
	Lead (Pb) (mg/kg)					15.2
	Mercury (Hg) (mg/kg)					<0.050
	Molybdenum (Mo) (mg/kg)					<0.50
	Nickel (Ni) (mg/kg)					10.5
	Selenium (Se) (mg/kg)					<0.20
	Silver (Ag) (mg/kg)					<0.10
	Thallium (Tl) (mg/kg)					0.138
	Tin (Sn) (mg/kg)					<2.0
	Uranium (U) (mg/kg)					0.401
	Vanadium (V) (mg/kg)					38.9
	Zinc (Zn) (mg/kg)					46.5
Volatile Organic Compounds	Benzene (mg/kg)	<0.040	<0.040	<0.040	<0.040	<0.040
	Bromodichloromethane (mg/kg)					
	Bromoform (mg/kg)					
	Carbon Tetrachloride (mg/kg)					
	Chlorobenzene (mg/kg)					
	Dibromochloromethane (mg/kg)					
	Chloroethane (mg/kg)					
	Chloroform (mg/kg)					
	Chloromethane (mg/kg)					
	1,2-Dichlorobenzene (mg/kg)					
	1,3-Dichlorobenzene (mg/kg)					
	1,4-Dichlorobenzene (mg/kg)					
	1,1-Dichloroethane (mg/kg)					
	1,2-Dichloroethane (mg/kg)					
	1,1-Dichloroethylene (mg/kg)					
	cis-1,2-Dichloroethylene (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1172681-35 GRAB-SOIL 28-JUN-12 TP6 - 000 @0.0M	L1172681-36 GRAB-SOIL 28-JUN-12 TP7 - 000 @0.0M	L1172681-39 GRAB-SOIL 27-JUN-12 AST -TP1-003 @1.0M	L1172681-41 GRAB-SOIL 28-JUN-12 AST -TP2-002 @1.0M	L1172681-43 GRAB-SOIL 28-JUN-12 AST -TP3-002 @1.0M
SOIL						
Physical Tests	Moisture (%)	3.52	3.43	7.48	8.51	11.0
	pH (1:2 soil:water) (pH)	6.81	6.70	6.01		
Metals	Antimony (Sb) (mg/kg)	7.21	81.6	2.97		
	Arsenic (As) (mg/kg)	55.8	602	125		
	Barium (Ba) (mg/kg)	62.1	183	152		
	Beryllium (Be) (mg/kg)	<0.20	0.38	0.33		
	Cadmium (Cd) (mg/kg)	0.784	8.92	0.293		
	Chromium (Cr) (mg/kg)	14.4	15.8	12.2		
	Cobalt (Co) (mg/kg)	4.09	6.94	5.82		
	Copper (Cu) (mg/kg)	28.9	123	10.8		
	Lead (Pb) (mg/kg)	48.7	509	12.1		
	Mercury (Hg) (mg/kg)	<0.050	0.104	<0.050		
	Molybdenum (Mo) (mg/kg)	2.64	8.40	<0.50		
	Nickel (Ni) (mg/kg)	12.6	12.3	7.91		
	Selenium (Se) (mg/kg)	<0.20	0.20	<0.20		
	Silver (Ag) (mg/kg)	0.59	6.83	<0.10		
	Thallium (Tl) (mg/kg)	0.067	0.424	0.117		
	Tin (Sn) (mg/kg)	<2.0	3.4	<2.0		
	Uranium (U) (mg/kg)	0.461	0.670	0.442		
	Vanadium (V) (mg/kg)	24.6	33.2	33.5		
	Zinc (Zn) (mg/kg)	187	888	62.7		
Volatile Organic Compounds	Benzene (mg/kg)	<0.0050	<0.0050	<0.040	<0.040	<0.040
	Bromodichloromethane (mg/kg)	<0.050	<0.050			
	Bromoform (mg/kg)	<0.050	<0.050			
	Carbon Tetrachloride (mg/kg)	<0.050	<0.050			
	Chlorobenzene (mg/kg)	<0.050	<0.050			
	Dibromochloromethane (mg/kg)	<0.050	<0.050			
	Chloroethane (mg/kg)	<0.10	<0.10			
	Chloroform (mg/kg)	<0.10	<0.10			
	Chloromethane (mg/kg)	<0.10	<0.10			
	1,2-Dichlorobenzene (mg/kg)	<0.050	<0.050			
	1,3-Dichlorobenzene (mg/kg)	<0.050	<0.050			
	1,4-Dichlorobenzene (mg/kg)	<0.050	<0.050			
	1,1-Dichloroethane (mg/kg)	<0.050	<0.050			
	1,2-Dichloroethane (mg/kg)	<0.050	<0.050			
	1,1-Dichloroethylene (mg/kg)	<0.050	<0.050			
	cis-1,2-Dichloroethylene (mg/kg)	<0.050	<0.050			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1172681-44	L1172681-45	L1172681-46		
	Description	COMP-SOIL	COMP-SOIL	COMP-SOIL		
	Sampled Date	27-JUN-12	27-JUN-12	27-JUN-12		
	Sampled Time					
	Client ID	CLASS 01 @0M	CLASS 02 @0M	CLASS 03 @0M		
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)	4.26	8.40	2.34		
	pH (1:2 soil:water) (pH)					
Metals	Antimony (Sb) (mg/kg)					
	Arsenic (As) (mg/kg)					
	Barium (Ba) (mg/kg)					
	Beryllium (Be) (mg/kg)					
	Cadmium (Cd) (mg/kg)					
	Chromium (Cr) (mg/kg)					
	Cobalt (Co) (mg/kg)					
	Copper (Cu) (mg/kg)					
	Lead (Pb) (mg/kg)					
	Mercury (Hg) (mg/kg)					
	Molybdenum (Mo) (mg/kg)					
	Nickel (Ni) (mg/kg)					
	Selenium (Se) (mg/kg)					
	Silver (Ag) (mg/kg)					
	Thallium (Tl) (mg/kg)					
	Tin (Sn) (mg/kg)					
	Uranium (U) (mg/kg)					
	Vanadium (V) (mg/kg)					
	Zinc (Zn) (mg/kg)					
Volatile Organic Compounds	Benzene (mg/kg)	<0.040	<0.040	<0.040		
	Bromodichloromethane (mg/kg)					
	Bromoform (mg/kg)					
	Carbon Tetrachloride (mg/kg)					
	Chlorobenzene (mg/kg)					
	Dibromochloromethane (mg/kg)					
	Chloroethane (mg/kg)					
	Chloroform (mg/kg)					
	Chloromethane (mg/kg)					
	1,2-Dichlorobenzene (mg/kg)					
	1,3-Dichlorobenzene (mg/kg)					
	1,4-Dichlorobenzene (mg/kg)					
	1,1-Dichloroethane (mg/kg)					
	1,2-Dichloroethane (mg/kg)					
	1,1-Dichloroethylene (mg/kg)					
	cis-1,2-Dichloroethylene (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1172681-1 GRAB-SOIL 28-JUN-12 EBA-TP1-001 @0.5M	L1172681-6 GRAB-SOIL 28-JUN-12 EBA-TP2-004 @1.5M	L1172681-7 GRAB-SOIL 28-JUN-12 EBA-TP3-001 @0.5M	L1172681-10 GRAB-SOIL 28-JUN-12 EBA-TP4-001 @0.5M	L1172681-13 GRAB-SOIL 28-JUN-12 TP5-001 @0.5M
SOIL						
Volatile Organic Compounds	trans-1,2-Dichloroethylene (mg/kg)					
	Dichloromethane (mg/kg)					
	1,2-Dichloropropane (mg/kg)					
	cis-1,3-Dichloropropylene (mg/kg)					
	trans-1,3-Dichloropropylene (mg/kg)					
	Ethylbenzene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Methyl t-butyl ether (MTBE) (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Styrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	1,1,1,2-Tetrachloroethane (mg/kg)					
	1,1,2,2-Tetrachloroethane (mg/kg)					
	Tetrachloroethylene (mg/kg)					
	Toluene (mg/kg)	0.110	<0.050	<0.050	<0.050	<0.050
	1,1,1-Trichloroethane (mg/kg)					
	1,1,2-Trichloroethane (mg/kg)					
	Trichloroethylene (mg/kg)					
	Trichlorofluoromethane (mg/kg)					
	Vinyl Chloride (mg/kg)					
	ortho-Xylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	meta- & para-Xylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Xylenes (mg/kg)	<0.075	<0.075	<0.075	<0.075	<0.075
	Surrogate: 4-Bromofluorobenzene (SS) (%)	91.8	87.9	94.6	88.1	86.6
	Surrogate: 1,4-Difluorobenzene (SS) (%)	100.7	94.8	98.4	100.7	98.7
Hydrocarbons	EPH10-19 (mg/kg)	1000	<200	<200	250	<200
	EPH19-32 (mg/kg)	28000	<200	2300	2670	<200
	LEPH (mg/kg)	1000	<200	<200	250	<200
	HEPH (mg/kg)	28000	<200	2300	2670	<200
	Volatile Hydrocarbons (VH6-10) (mg/kg)	<100	<100	<100	<100	<100
	VPH (C6-C10) (mg/kg)	<100	<100	<100	<100	<100
	Surrogate: 3,4-Dichlorotoluene (SS) (%)	69.2 SURR-ND	93.6	83.7	88.9	86.8
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Acenaphthylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Benz(a)anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Benzo(a)pyrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Benzo(b)fluoranthene (mg/kg)	<0.20 DLM	<0.050	<0.050	<0.050	<0.050

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1172681-16	L1172681-19	L1172681-22	L1172681-25	L1172681-28
Description	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL
Sampled Date	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12
Sampled Time					
Client ID	TP6-001 @0.5M	TP7-001 @0.5M	TP8-001 @0.5M	TP9 @0.5M	TP10 @1.0M
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds					
trans-1,2-Dichloroethylene (mg/kg)					
Dichloromethane (mg/kg)					
1,2-Dichloropropane (mg/kg)					
cis-1,3-Dichloropropylene (mg/kg)					
trans-1,3-Dichloropropylene (mg/kg)					
Ethylbenzene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl t-butyl ether (MTBE) (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
Styrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,1,2-Tetrachloroethane (mg/kg)					
1,1,2,2-Tetrachloroethane (mg/kg)					
Tetrachloroethylene (mg/kg)					
Toluene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,1-Trichloroethane (mg/kg)					
1,1,2-Trichloroethane (mg/kg)					
Trichloroethylene (mg/kg)					
Trichlorofluoromethane (mg/kg)					
Vinyl Chloride (mg/kg)					
ortho-Xylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
meta- & para-Xylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Xylenes (mg/kg)	<0.075	<0.075	<0.075	<0.075	<0.075
Surrogate: 4-Bromofluorobenzene (SS) (%)	84.2	93.7	86.6	99.8	87.7
Surrogate: 1,4-Difluorobenzene (SS) (%)	96.3	101.6	95.8	106.5	94.2
Hydrocarbons					
EPH10-19 (mg/kg)	<200	<200	<200	<200	<200
EPH19-32 (mg/kg)	<200	760	<200	<200	<200
LEPH (mg/kg)	<200	<200	<200	<200	<200
HEPH (mg/kg)	<200	760	<200	<200	<200
Volatile Hydrocarbons (VH6-10) (mg/kg)	<100	<100	<100	<100	<100
VPH (C6-C10) (mg/kg)	<100	<100	<100	<100	<100
Surrogate: 3,4-Dichlorotoluene (SS) (%)	94.5	88.3	90.5	86.1	97.3
Polycyclic Aromatic Hydrocarbons					
Acenaphthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Acenaphthylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Benz(a)anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(b)fluoranthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1172681-29	L1172681-31	L1172681-32	L1172681-33	L1172681-34
Description	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL
Sampled Date	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12
Sampled Time					
Client ID	TP11 @0.5M	SOUTH EXT 001 @0.5M	WEST EXT 001 @0.5M	NORTH EXT 001 @0.5M	EAST EXT 001 @0.5M
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds / trans-1,2-Dichloroethylene (mg/kg)					
Dichloromethane (mg/kg)					
1,2-Dichloropropane (mg/kg)					
cis-1,3-Dichloropropylene (mg/kg)					
trans-1,3-Dichloropropylene (mg/kg)					
Ethylbenzene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl t-butyl ether (MTBE) (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
Styrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,1,2-Tetrachloroethane (mg/kg)					
1,1,2,2-Tetrachloroethane (mg/kg)					
Tetrachloroethylene (mg/kg)					
Toluene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,1-Trichloroethane (mg/kg)					
1,1,2-Trichloroethane (mg/kg)					
Trichloroethylene (mg/kg)					
Trichlorofluoromethane (mg/kg)					
Vinyl Chloride (mg/kg)					
ortho-Xylene (mg/kg)	<0.050	0.540	<0.050	<0.050	<0.050
meta- & para-Xylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Xylenes (mg/kg)	<0.075	0.540	<0.075	<0.075	<0.075
Surrogate: 4-Bromofluorobenzene (SS) (%)	79.5	97.1	91.7	95.5	99.0
Surrogate: 1,4-Difluorobenzene (SS) (%)	92.3	104.2	95.6	100.4	101.0
Hydrocarbons / EPH10-19 (mg/kg)	<200	<200	<200	<200	<200
EPH19-32 (mg/kg)	<200	370	<200	<200	<200
LEPH (mg/kg)	<200	<200	<200	<200	<200
HEPH (mg/kg)	<200	370	<200	<200	<200
Volatile Hydrocarbons (VH6-10) (mg/kg)	<100	<100	<100	<100	<100
VPH (C6-C10) (mg/kg)	<100	<100	<100	<100	<100
Surrogate: 3,4-Dichlorotoluene (SS) (%)	82.0	90.1	98.5	91.6	101.3
Polycyclic Aromatic Hydrocarbons / Acenaphthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Acenaphthylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Benz(a)anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(b)fluoranthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1172681-35	L1172681-36	L1172681-39	L1172681-41	L1172681-43
Description	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL
Sampled Date	28-JUN-12	28-JUN-12	27-JUN-12	28-JUN-12	28-JUN-12
Sampled Time					
Client ID	TP6 - 000 @0.0M	TP7 - 000 @0.0M	AST -TP1-003 @1.0M	AST -TP2-002 @1.0M	AST -TP3-002 @1.0M
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds					
trans-1,2-Dichloroethylene (mg/kg)	<0.050	<0.050			
Dichloromethane (mg/kg)	<0.30	<0.30			
1,2-Dichloropropane (mg/kg)	<0.050	<0.050			
cis-1,3-Dichloropropylene (mg/kg)	<0.050	<0.050			
trans-1,3-Dichloropropylene (mg/kg)	<0.050	<0.050			
Ethylbenzene (mg/kg)	<0.015	0.032	2.95	<0.050	<0.050
Methyl t-butyl ether (MTBE) (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
Styrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,1,2-Tetrachloroethane (mg/kg)	<0.050	<0.050			
1,1,2,2-Tetrachloroethane (mg/kg)	<0.90 DLM	<0.050			
Tetrachloroethylene (mg/kg)	<0.050	<0.050			
Toluene (mg/kg)	<0.050	0.478	0.243	<0.050	<0.050
1,1,1-Trichloroethane (mg/kg)	<0.050	<0.050			
1,1,2-Trichloroethane (mg/kg)	<0.050	<0.050			
Trichloroethylene (mg/kg)	<0.010	<0.010			
Trichlorofluoromethane (mg/kg)	<0.10	<0.10			
Vinyl Chloride (mg/kg)	<0.10	<0.10			
ortho-Xylene (mg/kg)	<0.050	0.063	10.3	<0.050	<0.050
meta- & para-Xylene (mg/kg)	<0.050	0.148	16.9	<0.050	<0.050
Xylenes (mg/kg)	<0.075	0.211	27.2	<0.075	<0.075
Surrogate: 4-Bromofluorobenzene (SS) (%)	109.9	78.5	92.6	85.4	85.6
Surrogate: 1,4-Difluorobenzene (SS) (%)	117.7	93.8	97.6	97.6	98.6
Hydrocarbons					
EPH10-19 (mg/kg)	4750	7460	8500	<200	<200
EPH19-32 (mg/kg)	1810	51900	890	<200	<200
LEPH (mg/kg)	4750	7460	8500	<200	<200
HEPH (mg/kg)	1810	51900	890	<200	<200
Volatile Hydrocarbons (VH6-10) (mg/kg)	<100	<100	1720	<100	<100
VPH (C6-C10) (mg/kg)	<100	<100	1690	<100	<100
Surrogate: 3,4-Dichlorotoluene (SS) (%)	SMI Not Reportable	SURR-ND 59.8	SMI Not Reportable	95.9	76.6
Polycyclic Aromatic Hydrocarbons					
Acenaphthene (mg/kg)	DLM <0.20	DLM <0.30	DLM <0.35	<0.050	<0.050
Acenaphthylene (mg/kg)	DLM <0.060	DLM <0.20	DLM <0.15	<0.050	<0.050
Anthracene (mg/kg)	DLM <0.060	DLM <0.20	<0.050	<0.050	<0.050
Benz(a)anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene (mg/kg)	<0.050	DLM <0.20	<0.050	<0.050	<0.050
Benzo(b)fluoranthene (mg/kg)	<0.050	DLM <0.20	<0.050	<0.050	<0.050

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1172681-44	L1172681-45	L1172681-46		
	Description	COMP-SOIL	COMP-SOIL	COMP-SOIL		
	Sampled Date	27-JUN-12	27-JUN-12	27-JUN-12		
	Sampled Time					
	Client ID	CLASS 01 @0M	CLASS 02 @0M	CLASS 03 @0M		
Grouping	**Analyte**					
SOIL						
Volatile Organic Compounds	trans-1,2-Dichloroethylene (mg/kg)					
	Dichloromethane (mg/kg)					
	1,2-Dichloropropane (mg/kg)					
	cis-1,3-Dichloropropylene (mg/kg)					
	trans-1,3-Dichloropropylene (mg/kg)					
	Ethylbenzene (mg/kg)	<0.050	<0.050	<0.050		
	Methyl t-butyl ether (MTBE) (mg/kg)	<0.20	<0.20	<0.20		
	Styrene (mg/kg)	<0.050	<0.050	<0.050		
	1,1,1,2-Tetrachloroethane (mg/kg)					
	1,1,2,2-Tetrachloroethane (mg/kg)					
	Tetrachloroethylene (mg/kg)					
	Toluene (mg/kg)	<0.050	<0.050	<0.050		
	1,1,1-Trichloroethane (mg/kg)					
	1,1,2-Trichloroethane (mg/kg)					
	Trichloroethylene (mg/kg)					
	Trichlorofluoromethane (mg/kg)					
	Vinyl Chloride (mg/kg)					
	ortho-Xylene (mg/kg)	<0.050	<0.050	<0.050		
	meta- & para-Xylene (mg/kg)	<0.050	<0.050	<0.050		
	Xylenes (mg/kg)	<0.075	<0.075	<0.075		
	Surrogate: 4-Bromofluorobenzene (SS) (%)	89.3	83.2	85.1		
	Surrogate: 1,4-Difluorobenzene (SS) (%)	97.4	94.8	98.6		
Hydrocarbons	EPH10-19 (mg/kg)	1780	1710	2490		
	EPH19-32 (mg/kg)	21000	16500	19500		
	LEPH (mg/kg)	1780	1710	2490		
	HEPH (mg/kg)	21000	16500	19500		
	Volatile Hydrocarbons (VH6-10) (mg/kg)	<100	<100	<100		
	VPH (C6-C10) (mg/kg)	<100	<100	<100		
	Surrogate: 3,4-Dichlorotoluene (SS) (%)	81.7	61.2 SURR-ND	54.7 SURR-ND		
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	<0.10 DLM	<0.070 DLM	<0.080 DLM		
	Acenaphthylene (mg/kg)	<0.050	<0.050	<0.050		
	Anthracene (mg/kg)	<0.050	<0.070 DLM	<0.050		
	Benz(a)anthracene (mg/kg)	<0.050	<0.050	<0.050		
	Benzo(a)pyrene (mg/kg)	<0.050	<0.050	<0.050		
	Benzo(b)fluoranthene (mg/kg)	<0.070 DLM	<0.050	<0.050		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1172681-1	L1172681-6	L1172681-7	L1172681-10	L1172681-13
	Description	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL
	Sampled Date	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12
	Sampled Time					
	Client ID	EBA-TP1-001 @0.5M	EBA-TP2-004 @1.5M	EBA-TP3-001 @0.5M	EBA-TP4-001 @0.5M	TP5-001 @0.5M
Grouping	**Analyte**					
SOIL						
Polycyclic Aromatic Hydrocarbons	Benzo(g,h,i)perylene (mg/kg)	0.294	<0.050	<0.050	<0.050	<0.050
	Benzo(k)fluoranthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chrysene (mg/kg)	<0.080 DLM	<0.050	<0.050	<0.050	<0.050
	Dibenz(a,h)anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Fluoranthene (mg/kg)	<0.060 DLM	<0.050	<0.050	<0.050	<0.050
	Fluorene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	2-Methylnaphthalene (mg/kg)	0.065	<0.050	<0.050	<0.050	<0.050
	Naphthalene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Phenanthrene (mg/kg)	0.200	<0.050	<0.050	<0.050	<0.050
	Pyrene (mg/kg)	0.539	<0.050	<0.050	0.057	<0.050
	Surrogate: Acenaphthene d10 (%)	84.8	90.2	84.2	103.2	82.6
	Surrogate: Chrysene d12 (%)	125.4	85.9	73.6	93.9	60.2
	Surrogate: Naphthalene d8 (%)	74.0	87.2	82.9	69.3	69.0
	Surrogate: Phenanthrene d10 (%)	92.5	94.1	77.6	106.9	69.6
Glycols	Diethylene Glycol (mg/kg)					
	Ethylene Glycol (mg/kg)					
	1,2-Propylene Glycol (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1172681-16	L1172681-19	L1172681-22	L1172681-25	L1172681-28
	Description	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL
	Sampled Date	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12
	Sampled Time					
	Client ID	TP6-001 @0.5M	TP7-001 @0.5M	TP8-001 @0.5M	TP9 @0.5M	TP10 @1.0M
Grouping	**Analyte**					
SOIL						
Polycyclic Aromatic Hydrocarbons	Benzo(g,h,i)perylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Benzo(k)fluoranthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chrysene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Dibenz(a,h)anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Fluoranthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Fluorene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	2-Methylnaphthalene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Naphthalene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Phenanthrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Pyrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Surrogate: Acenaphthene d10 (%)	90.1	94.0	83.0	80.1	98.2
	Surrogate: Chrysene d12 (%)	87.9	83.6	80.2	78.2	98.0
	Surrogate: Naphthalene d8 (%)	86.6	90.1	80.3	78.6	94.9
	Surrogate: Phenanthrene d10 (%)	95.4	88.8	88.8	86.4	104.0
Glycols	Diethylene Glycol (mg/kg)					
	Ethylene Glycol (mg/kg)					
	1,2-Propylene Glycol (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1172681-29	L1172681-31	L1172681-32	L1172681-33	L1172681-34
	Description	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL	GRAB-SOIL
	Sampled Date	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12	28-JUN-12
	Sampled Time					
	Client ID	TP11 @0.5M	SOUTH EXT 001 @0.5M	WEST EXT 001 @0.5M	NORTH EXT 001 @0.5M	EAST EXT 001 @0.5M
Grouping	**Analyte**					
SOIL						
Polycyclic Aromatic Hydrocarbons	Benzo(g,h,i)perylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Benzo(k)fluoranthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chrysene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Dibenz(a,h)anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Fluoranthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Fluorene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	2-Methylnaphthalene (mg/kg)	<0.050	0.088	<0.050	<0.050	<0.050
	Naphthalene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Phenanthrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Pyrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Surrogate: Acenaphthene d10 (%)	76.8	79.5	83.1	77.0	78.0
	Surrogate: Chrysene d12 (%)	74.9	75.6	76.0	76.7	83.3
	Surrogate: Naphthalene d8 (%)	73.8	75.9	82.0	75.9	76.7
	Surrogate: Phenanthrene d10 (%)	80.8	81.2	87.7	81.5	85.6
Glycols	Diethylene Glycol (mg/kg)					
	Ethylene Glycol (mg/kg)					
	1,2-Propylene Glycol (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1172681-35 GRAB-SOIL 28-JUN-12 TP6 - 000 @0.0M	L1172681-36 GRAB-SOIL 28-JUN-12 TP7 - 000 @0.0M	L1172681-39 GRAB-SOIL 27-JUN-12 AST -TP1-003 @1.0M	L1172681-41 GRAB-SOIL 28-JUN-12 AST -TP2-002 @1.0M	L1172681-43 GRAB-SOIL 28-JUN-12 AST -TP3-002 @1.0M
SOIL						
Polycyclic Aromatic Hydrocarbons	Benzo(g,h,i)perylene (mg/kg)	<0.050	0.495	<0.050	<0.050	<0.050
	Benzo(k)fluoranthene (mg/kg)	<0.050	<0.20 DLM	<0.050	<0.050	<0.050
	Chrysene (mg/kg)	<0.050	<0.090 DLM	<0.050	<0.050	<0.050
	Dibenz(a,h)anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Fluoranthene (mg/kg)	<0.050	0.292	<0.050	<0.050	<0.050
	Fluorene (mg/kg)	<0.30 DLM	<0.60 DLM	<0.15 DLM	<0.050	<0.050
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.050	0.087	<0.050	<0.050	<0.050
	2-Methylnaphthalene (mg/kg)	<0.10 DLM	0.879	8.30	<0.050	<0.050
	Naphthalene (mg/kg)	<0.20 DLM	0.352	3.02	<0.050	<0.050
	Phenanthrene (mg/kg)	0.585	1.49	1.68	<0.050	<0.050
	Pyrene (mg/kg)	1.46	1.58	0.248	<0.050	<0.050
	Surrogate: Acenaphthene d10 (%)	91.8	Not reportable SMI	114.8	81.0	111.8
	Surrogate: Chrysene d12 (%)	72.1	Not reportable SMI	108.7	76.2	113.8
	Surrogate: Naphthalene d8 (%)	83.8	79.2	108.6	78.8	106.8
	Surrogate: Phenanthrene d10 (%)	76.3	98.4	102.6	85.0	117.7
Glycols	Diethylene Glycol (mg/kg)	<10	<10			
	Ethylene Glycol (mg/kg)	<10	68			
	1,2-Propylene Glycol (mg/kg)	<10	<10			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1172681-44	L1172681-45	L1172681-46		
	Description	COMP-SOIL	COMP-SOIL	COMP-SOIL		
	Sampled Date	27-JUN-12	27-JUN-12	27-JUN-12		
	Sampled Time					
	Client ID	CLASS 01 @0M	CLASS 02 @0M	CLASS 03 @0M		
Grouping	**Analyte**					
SOIL						
Polycyclic Aromatic Hydrocarbons	Benzo(g,h,i)perylene (mg/kg)	0.160	0.129	0.062		
	Benzo(k)fluoranthene (mg/kg)	<0.050	<0.050	<0.050		
	Chrysene (mg/kg)	<0.050	<0.050	<0.060 DLM		
	Dibenz(a,h)anthracene (mg/kg)	<0.050	<0.050	<0.050		
	Fluoranthene (mg/kg)	<0.070 DLM	<0.070 DLM	<0.080 DLM		
	Fluorene (mg/kg)	<0.20 DLM	<0.15 DLM	<0.15 DLM		
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.050	<0.050	<0.050		
	2-Methylnaphthalene (mg/kg)	0.116	0.057	0.464		
	Naphthalene (mg/kg)	<0.070 DLM	<0.050	0.053		
	Phenanthrene (mg/kg)	0.774	0.536	0.455		
	Pyrene (mg/kg)	0.381	0.414	0.567		
	Surrogate: Acenaphthene d10 (%)	113.3	120.6	118.5		
	Surrogate: Chrysene d12 (%)	111.5	126.5	113.2		
	Surrogate: Naphthalene d8 (%)	105.1	110.0	120.8		
	Surrogate: Phenanthrene d10 (%)	102.8	101.7	110.9		
Glycols	Diethylene Glycol (mg/kg)					
	Ethylene Glycol (mg/kg)					
	1,2-Propylene Glycol (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Silver (Ag)	DUP-H	L1172681-34, -35, -36
Duplicate	Chromium (Cr)	DUP-H	L1172681-39
Duplicate	Nickel (Ni)	DUP-H	L1172681-39
Duplicate	Barium (Ba)	DUP-H	L1172681-39
Duplicate	Tin (Sn)	DUP-H	L1172681-39
Duplicate	Zinc (Zn)	DUP-H	L1172681-39
Laboratory Control Sample	1,2-Propylene Glycol	LCS-ND	L1172681-35

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLM	Detection Limit Adjusted For Sample Matrix Effects
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
LCS-ND	Lab Control Sample recovery was slightly outside ALS DQO. Reported non-detect results for associated samples were unaffected.
SMI	Surrogate recovery could not be measured due to sample matrix interference.
SURR-ND	Surrogate recovery was slightly outside ALS DQO. Reported non-detect results for associated samples were unaffected.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
EPH-TUMB-FID-VA	Soil	EPH in Solids by Tumbler and GCFID	BCMELP CSR

Extractable Hydrocarbons in Sediment/Soil
This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Solids by GC/FID, Version 2.1 July 1999". The procedure, based on EPA 3570, uses a rotary extraction technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene or kept in hexane/acetone and analyzed by capillary column gas chromatography with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

Accuracy target values for Reference Materials used in this method are derived from averages of long-term method performance, as certified values do not exist for the reported parameters.

GLY-EXT-FID-VA	Soil	Glycols in Soil by Wrist Shaker GCFID	SW-846, METHOD 8015B, EPA

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 8015B, published by the United States Environmental Protection Agency (EPA). The procedure involves extraction of a subsample of the sediment/soil with deionized water, followed by treatment of the extract with a strong base (NaOH) and benzoyl chloride to form the corresponding benzoate esters. The benzoate esters are then extracted with iso-octane and the extract is analyzed by capillary column gas chromatography with flame ionization detection (FID).

HG-200.2-CVAF-VA	Soil	Mercury in Soil by CVAFS	EPA 200.2/245.7

This analysis is carried out using procedures from CSR Analytical Method: "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, 26 June 2009, and procedures adapted from EPA Method 200.2. The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve (this sieve step is omitted for international soil samples), and a representative subsample of the dry material is weighed. The sample is then digested at 95 degrees Celsius for 2 hours by block digester using concentrated nitric and hydrochloric acids. Instrumental analysis is by atomic fluorescence spectrophotometry (EPA Method 245.7).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

LEPH/HEPH-CALC-VA	Soil	LEPHs and HEPHs	BC MOE LABORATORY MANUAL (2005)

Light and Heavy Extractable Petroleum Hydrocarbons in Solids. These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Light and Heavy Extractable Petroleum Hydrocarbons in Solids or Water". According to this method, LEPH and HEPH are calculated
by subtracting selected Polycyclic Aromatic Hydrocarbon results from Extractable Petroleum Hydrocarbon results. To calculate LEPH, the individual results for Naphthalene and Phenanthrene are subtracted from EPH(C10-19). To calculate HEPH, the individual results for Benz(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Dibenz(a,h)anthracene, Indeno(1,2,3-c,d)pyrene, and Pyrene
are subtracted from EPH(C19-32). Analysis of Extractable Petroleum Hydrocarbons adheres to all prescribed elements of the BCMELP method "Extractable Petroleum Hydrocarbons in Solids by GC/FID" (Version 2.1, July 20, 1999).

MET-200.2-CCMS-VA	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A

This analysis is carried out using procedures from CSR Analytical Method: "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, 26 June 2009, and procedures adapted from EPA Method 200.2. The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve (this sieve step is omitted for international soil samples), and a representative subsample of the dry material is weighed. The sample is then digested at 95 degrees Celsius for 2 hours by block digester using concentrated nitric and hydrochloric acids. Instrumental analysis of the digested extract is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A).

Reference Information

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

MOISTURE-VA	Soil	Moisture content	ASTM D2974-00 Method A

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

PAH-TMB-H/A-MS-VA	Soil	PAH - Rotary Extraction (Hexane/Acetone)	EPA 3570/8270

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3545 & 8270, published by the United States Environmental Protection Agency (EPA). The procedure uses a mechanical shaking technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene. The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PH-1:2-VA	Soil	pH in Soil (1:2 Soil:Water Extraction)	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL

This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.

VH-HSFID-VA	Soil	VH in soil by Headspace GCFID	EPA8260B, 5021, 5035, BC MOE

This analysis involves the extraction of a subsample of the sediment/soil with methanol. Aliquots of the methanol extract are then added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is analyzed for Volatile Hydrocarbons (VH) by capillary column gas chromatography with flame-ionization detection (GC/FID). The methanol extraction and VH analysis are carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Volatile Hydrocarbons in Solids by GC/FID" (Version 2.1 July 1999).

VH-SURR-FID-VA	Soil	VH Surrogates for Soils	BCMELP CSR ANALYTICAL METHOD 2
VOC-HSMS-VA	Soil	VOCs in soil by Headspace GCMS	EPA8260B, 5021, 5035, BC MOE

The soil methanol extract is added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7-L-HSMS-VA	Soil	VOCs in soil by Headspace GCMS	EPA8260B, 5021, 5035, BC MOE

The soil methanol extract is added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7/VOC-SURR-MS-VA	Soil	VOC7 and/or VOC Surrogates for Soils	EPA METHODS 8260B & 524.2
VPH-CALC-VA	Soil	VPH is VH minus select aromatics	BC MOE LABORATORY MANUAL (2005)

These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Volatile Petroleum Hydrocarbons in Solids or Water" (Version 2.1, July 20, 1999). According to this method, the concentrations of specific Monocyclic Aromatic Hydrocarbons (Benzene, Toluene, Ethylbenzene, Xylenes and Styrene) are subtracted from the collective concentration of Volatile Hydrocarbons (VH) that elute between n-hexane (nC6) and n-decane (nC10). Analysis of Volatile Hydrocarbons adheres to all prescribed elements of BCMELP method "Volatile Hydrocarbons in Solids by GC/FID" (Version 2.1, July 20, 1999).

XYLENES-CALC-VA	Soil	Sum of Xylene Isomer Concentrations	EPA 8260B & 524.2

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

10-173890	10-173894	10-173895	10-173896	10-173897

Reference Information

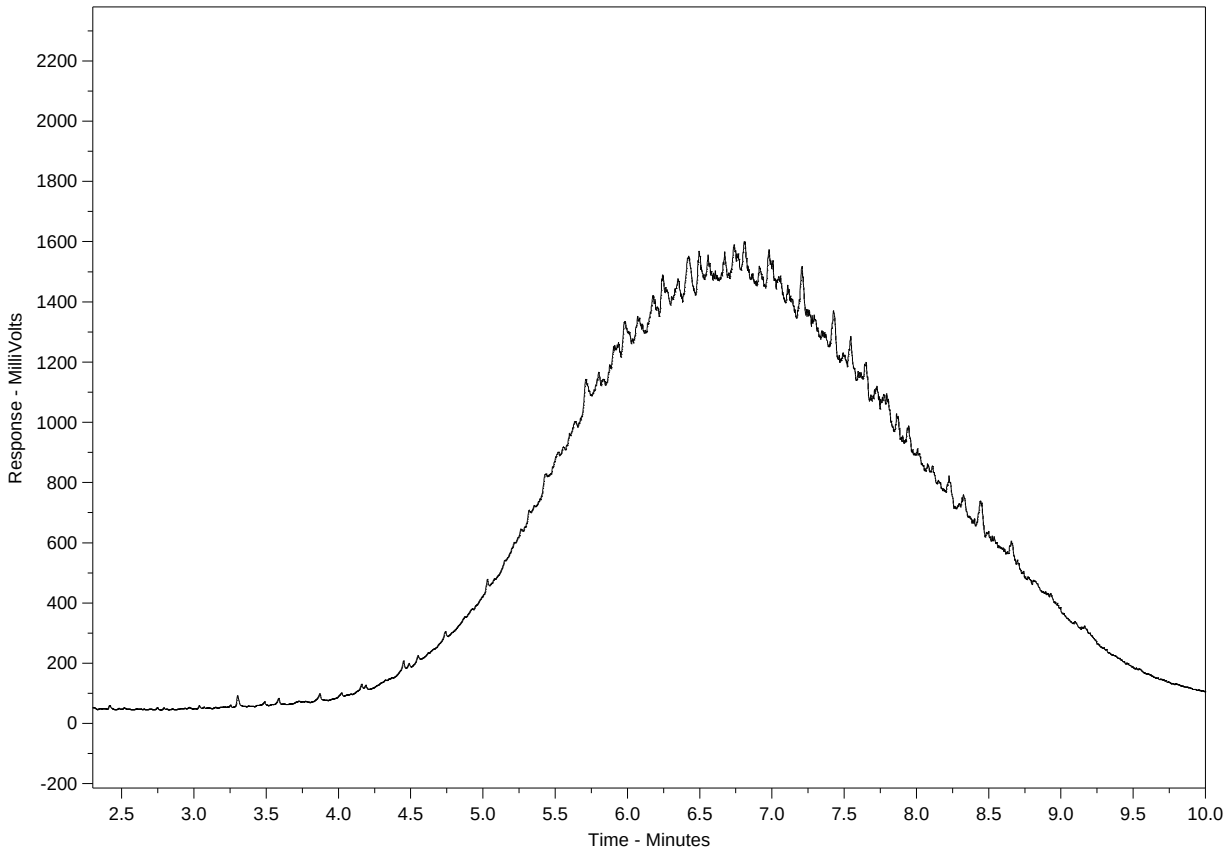
GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-1
Client Sample ID: EBA-TP1-001 @0.5M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

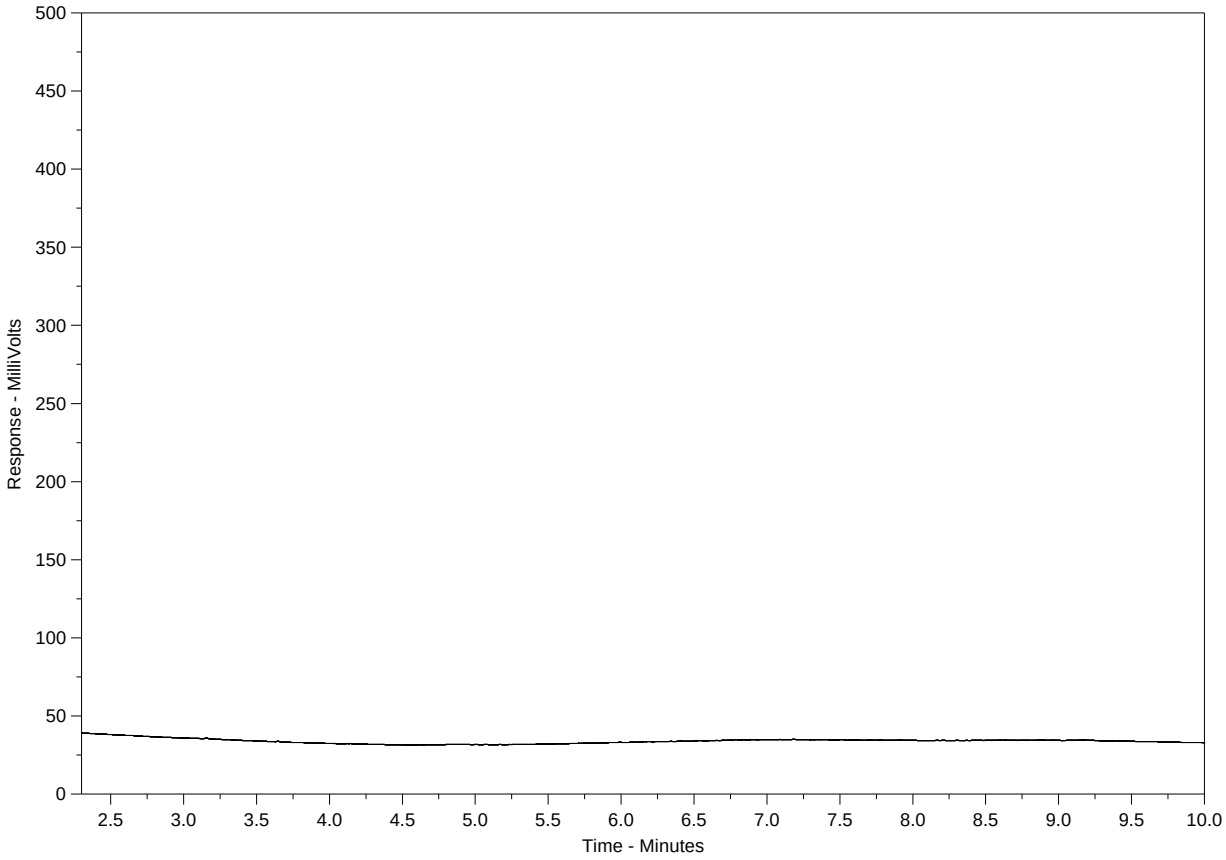
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-6
Client Sample ID: EBA-TP2-004 @1.5M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

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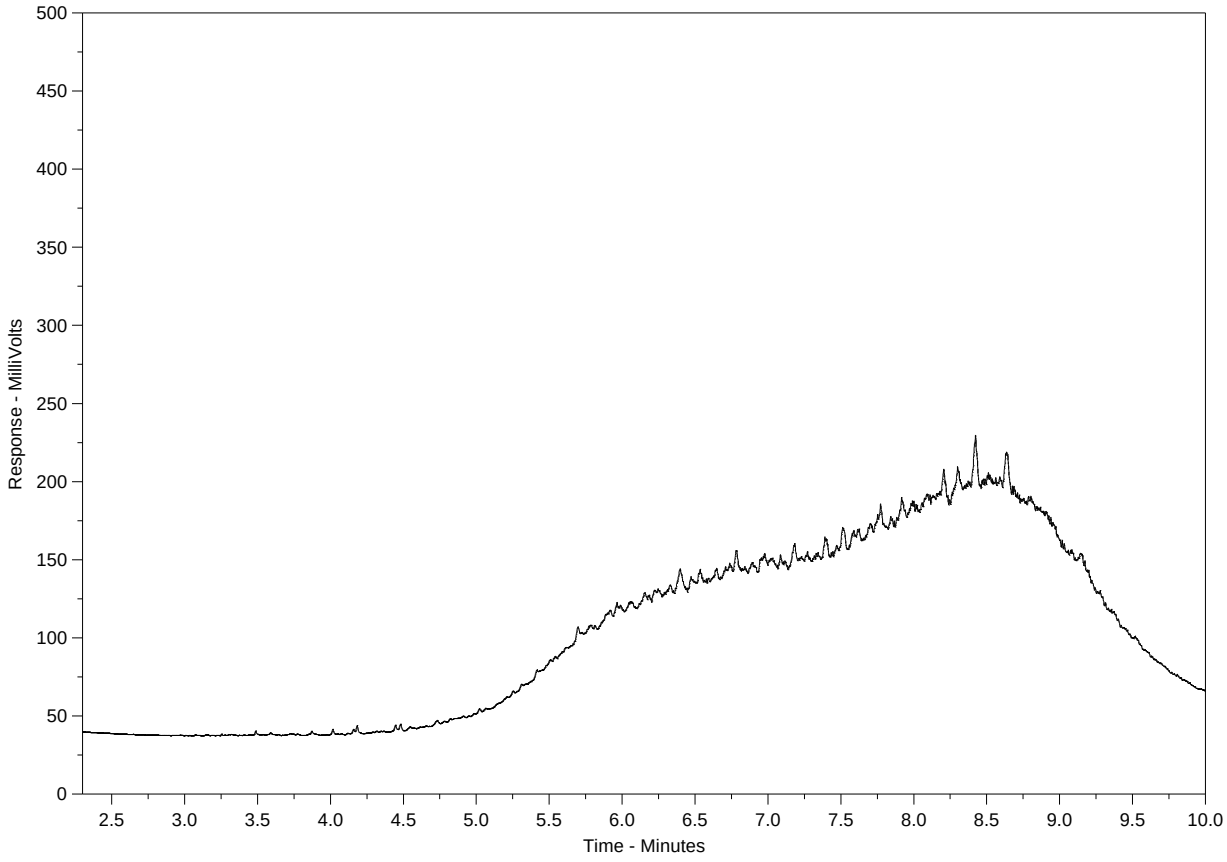
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-7
Client Sample ID: EBA-TP3-001 @0.5M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

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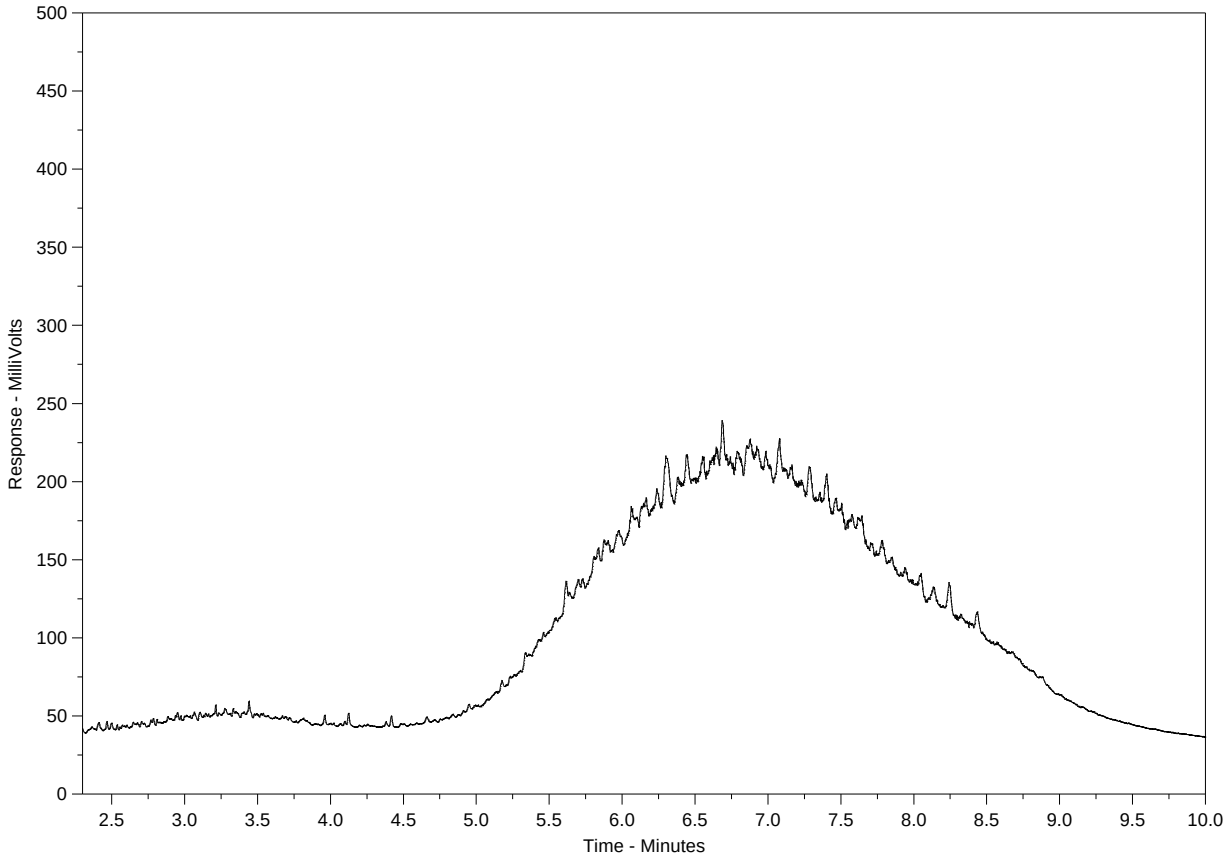
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-10
Client Sample ID: EBA-TP4-001 @0.5M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

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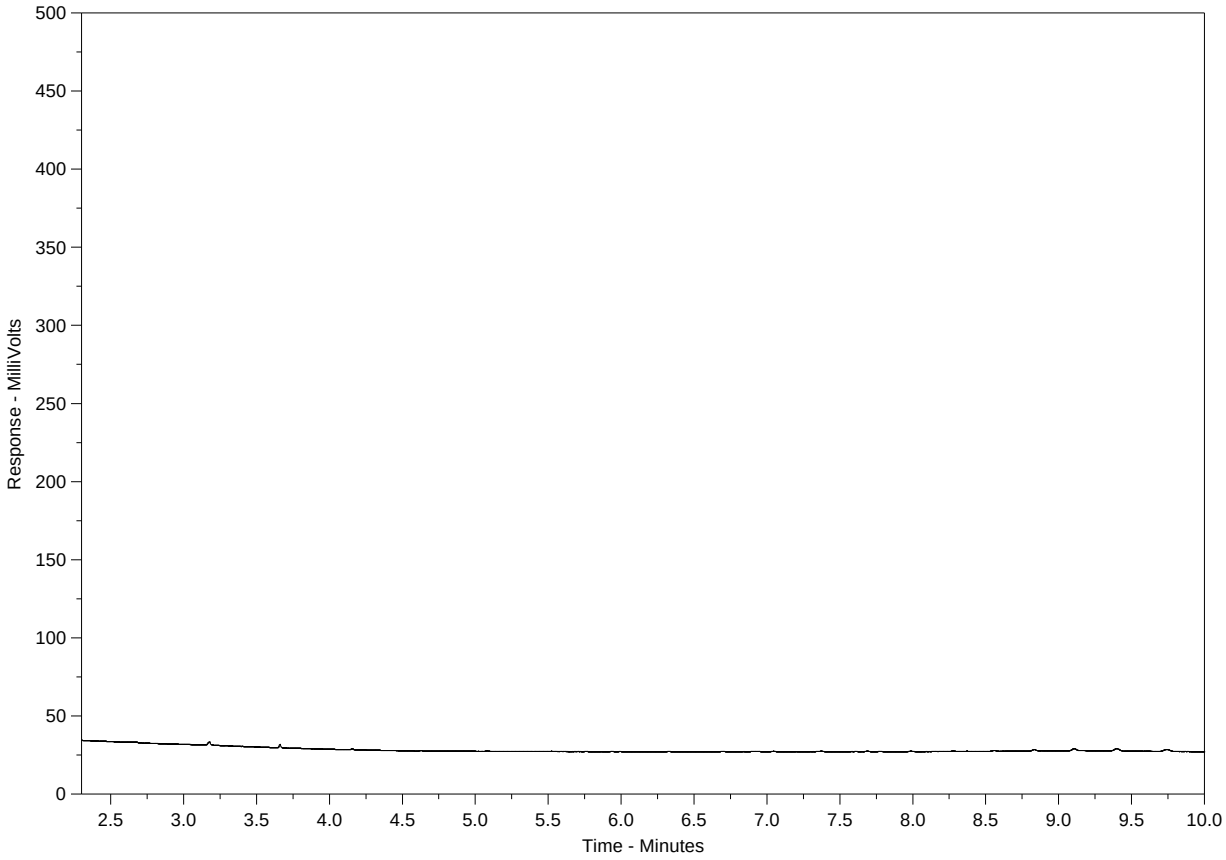
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-13
Client Sample ID: TP5-001 @0.5M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

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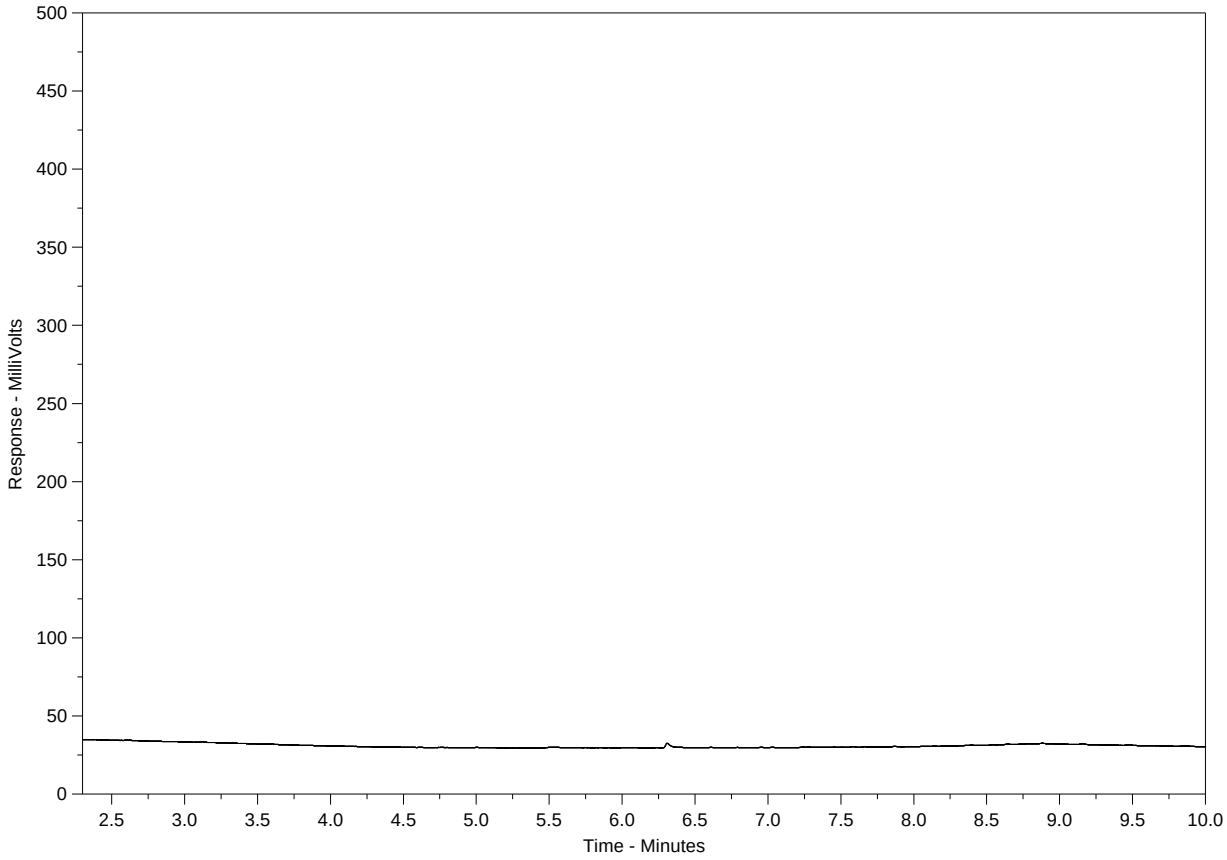
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-16
Client Sample ID: TP6-001 @0.5M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

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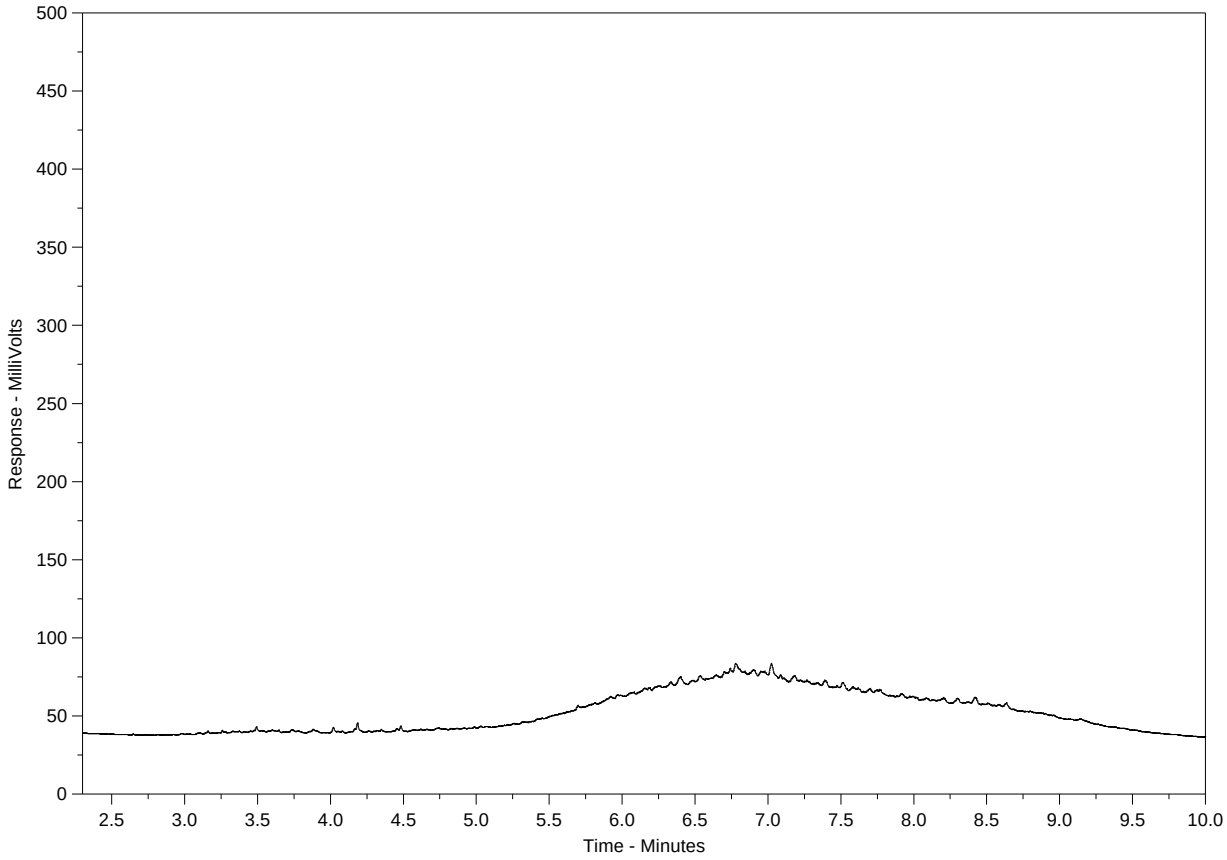
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-19
Client Sample ID: TP7-001 @0.5M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

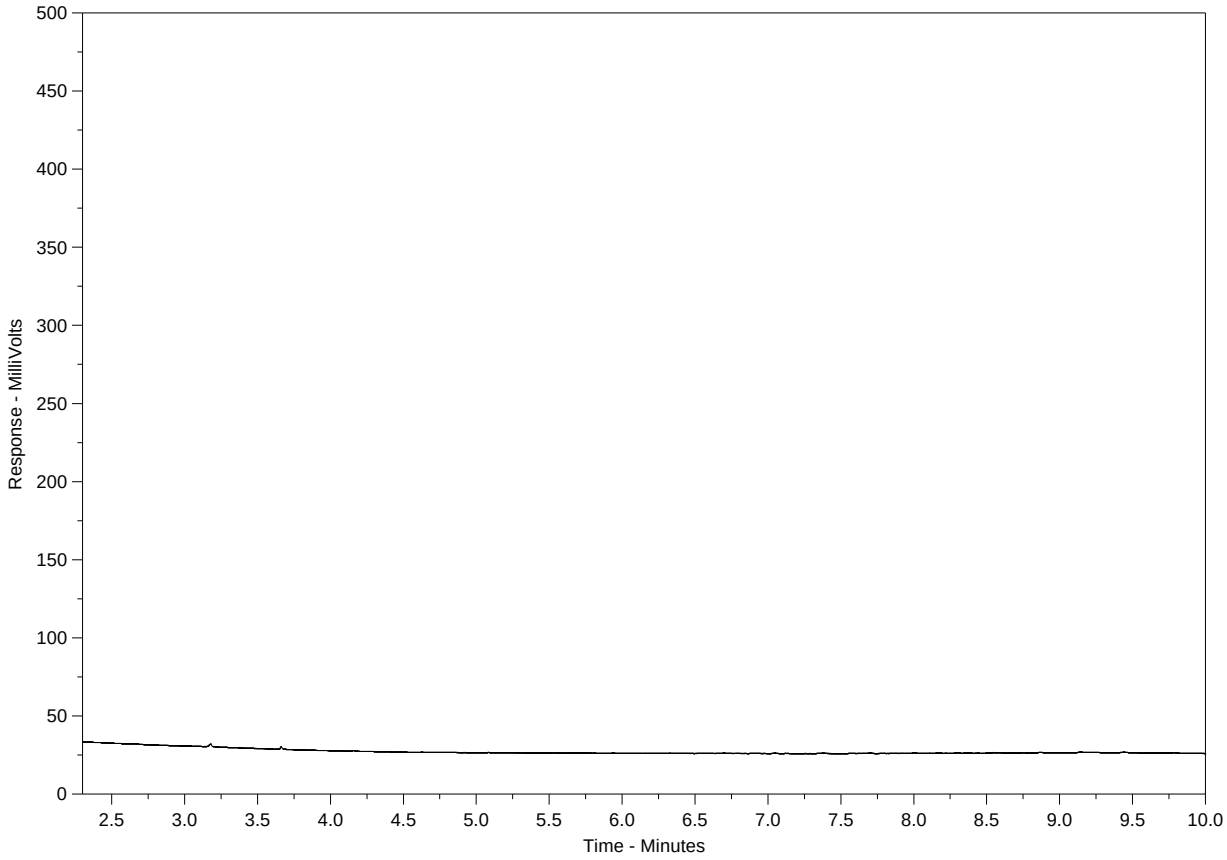
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-22
Client Sample ID: TP8-001 @0.5M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

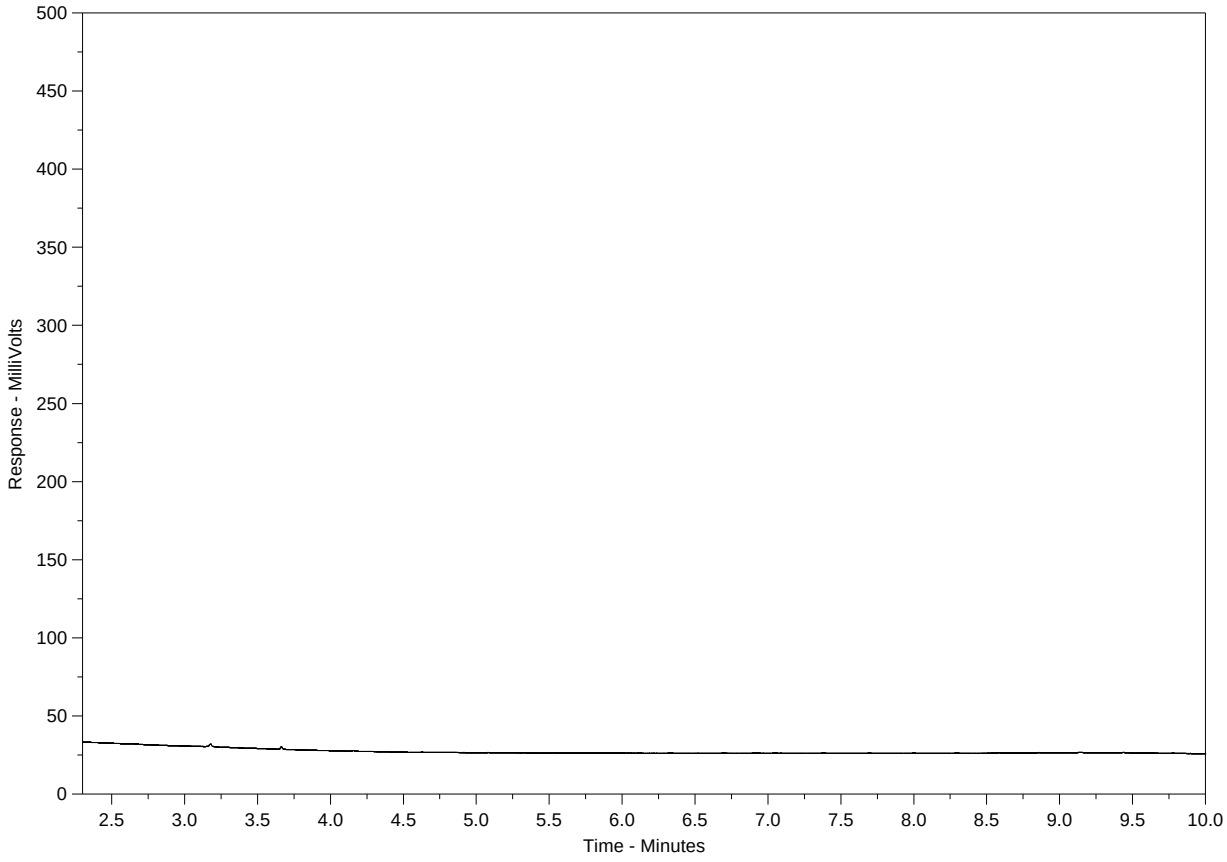
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-25
Client Sample ID: TP9 @0.5M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

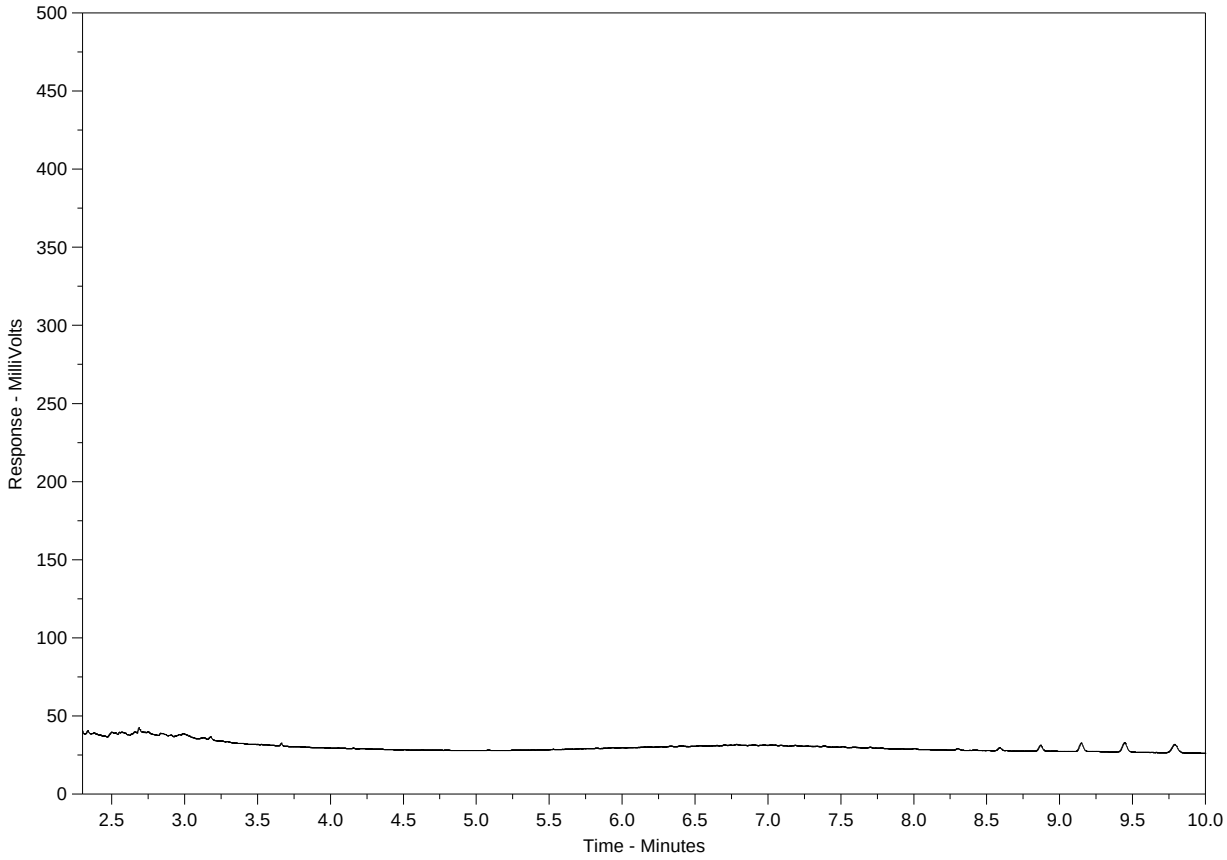
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-28
Client Sample ID: TP10 @1.0M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

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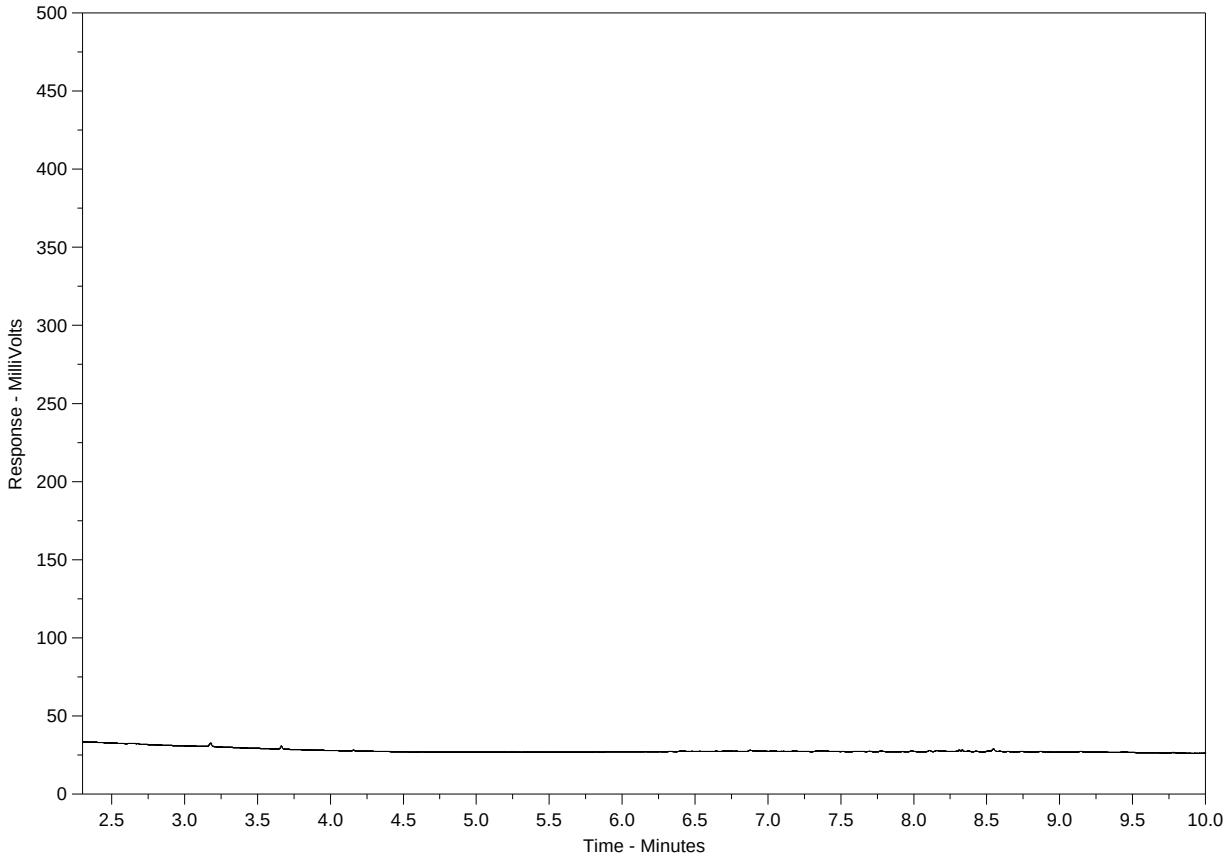
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-29
Client Sample ID: TP11 @0.5M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

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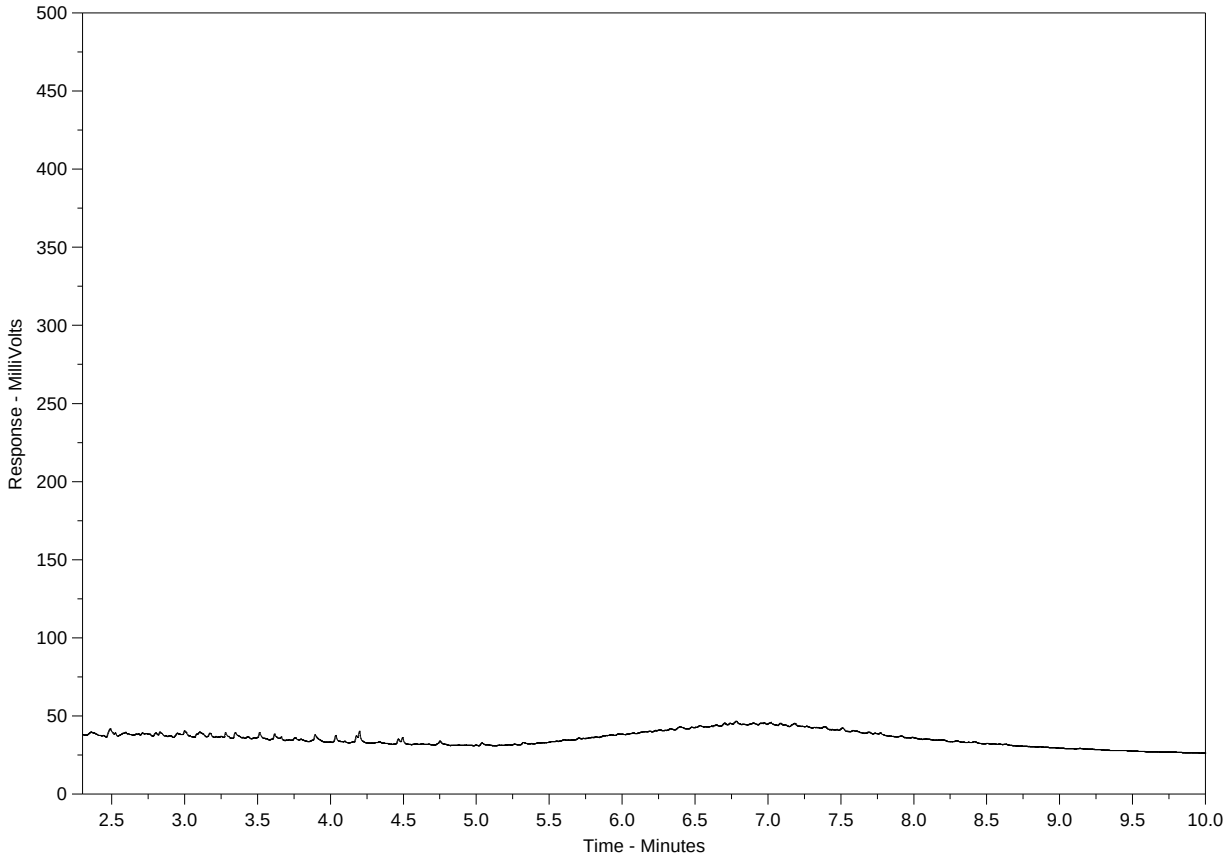
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-31
Client Sample ID: SOUTH EXT 001 @0.5M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

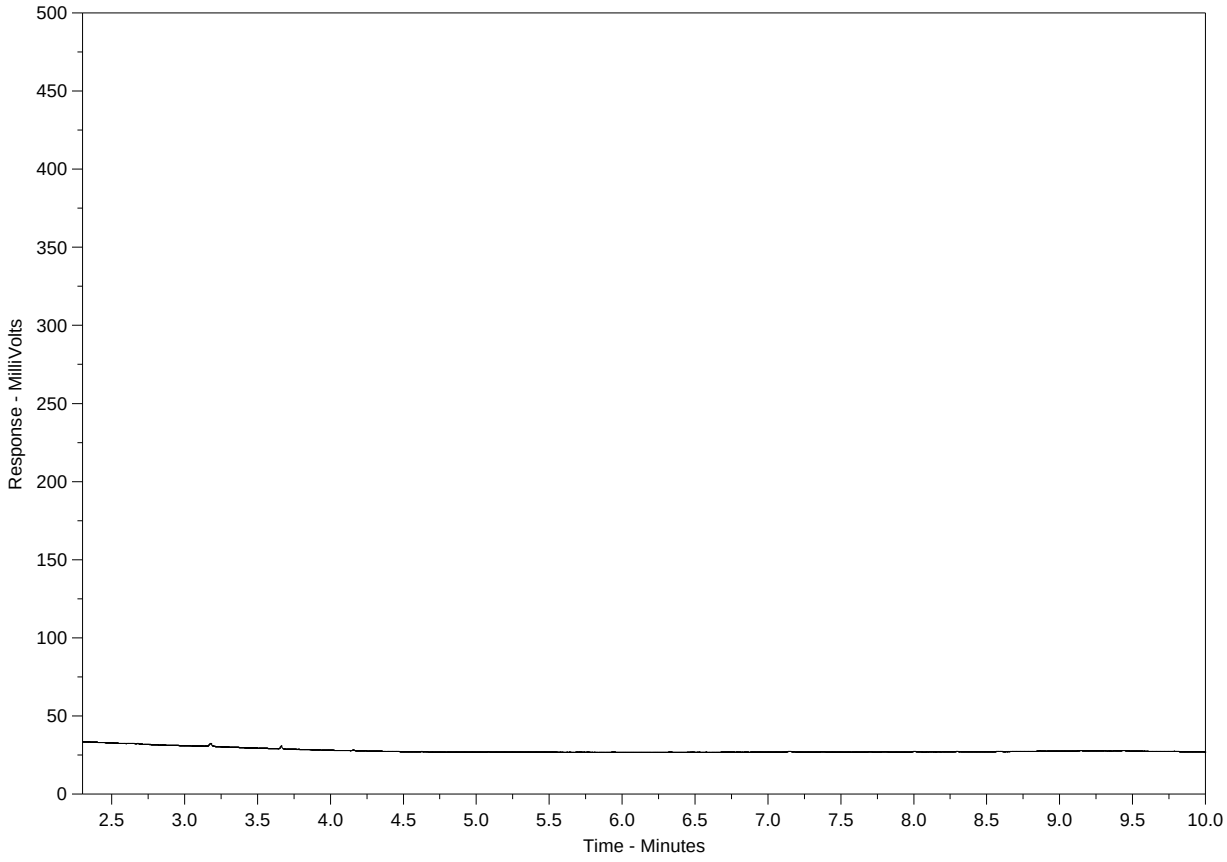
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-32
Client Sample ID: WEST EXT 001 @0.5M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

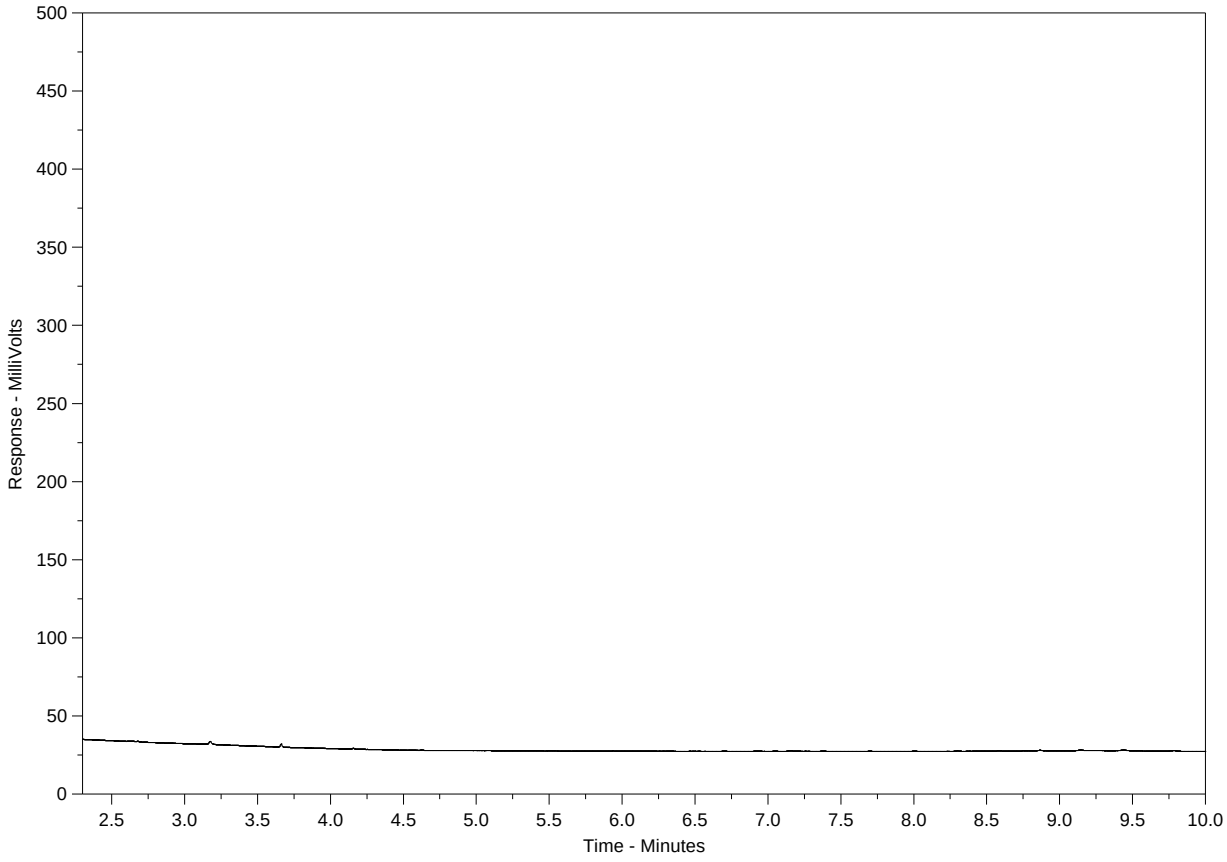
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-33
Client Sample ID: NORTH EXT 001 @0.5M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

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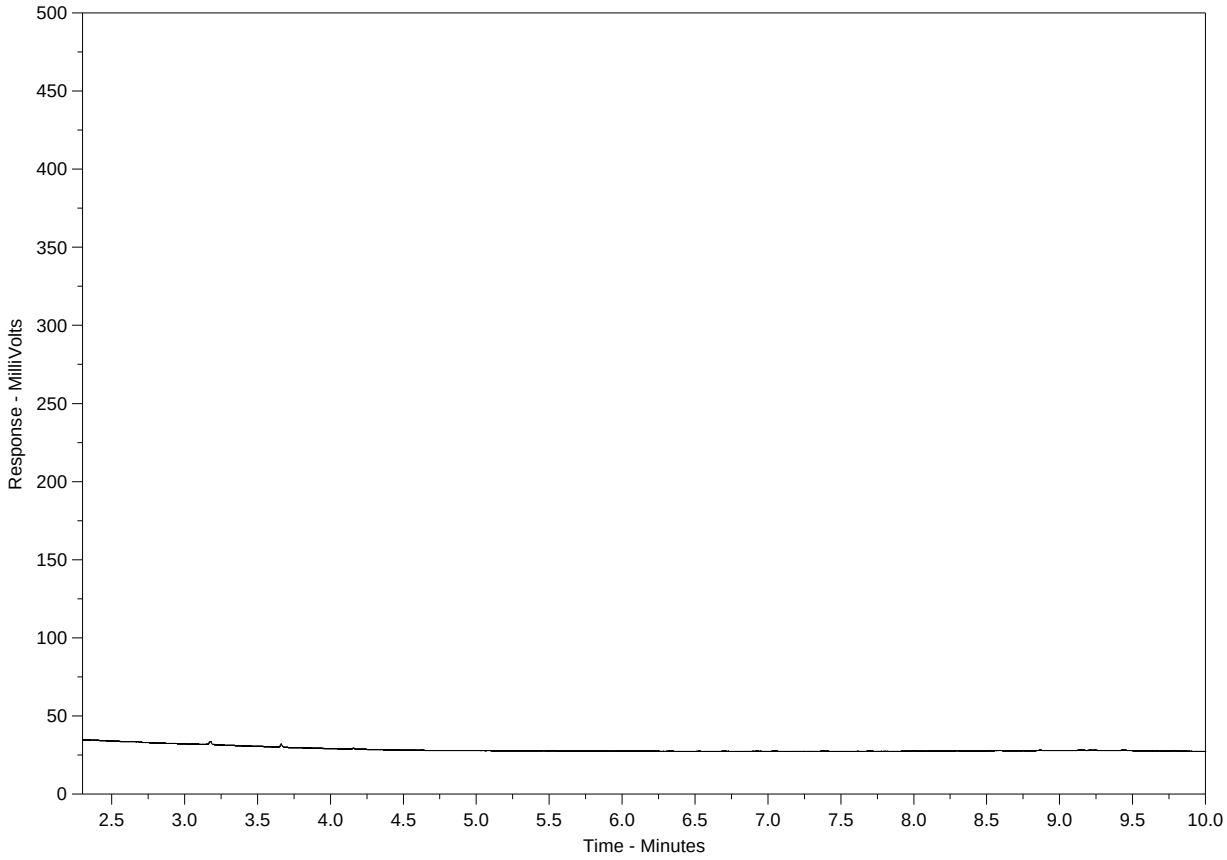
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-34
Client Sample ID: EAST EXT 001 @0.5M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

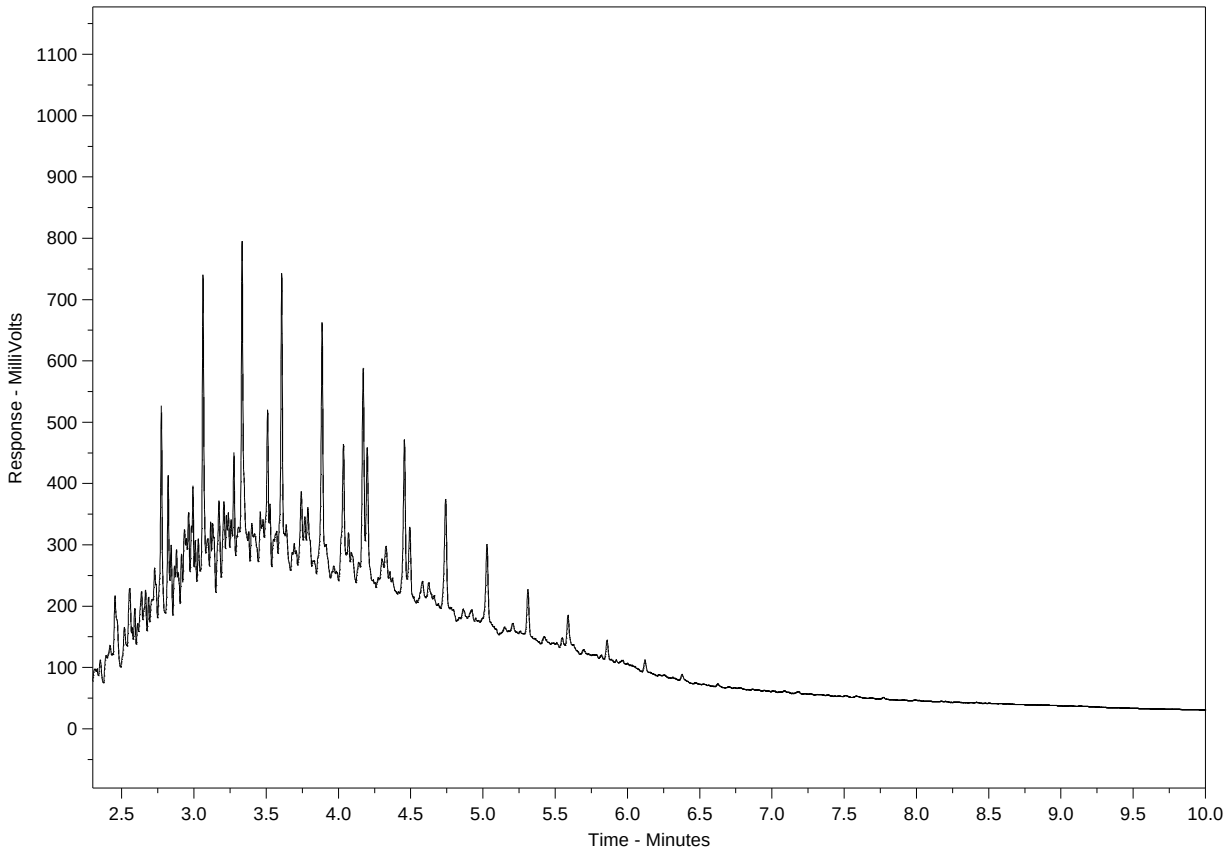
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-35
Client Sample ID: TP6 - 000 @0.0M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

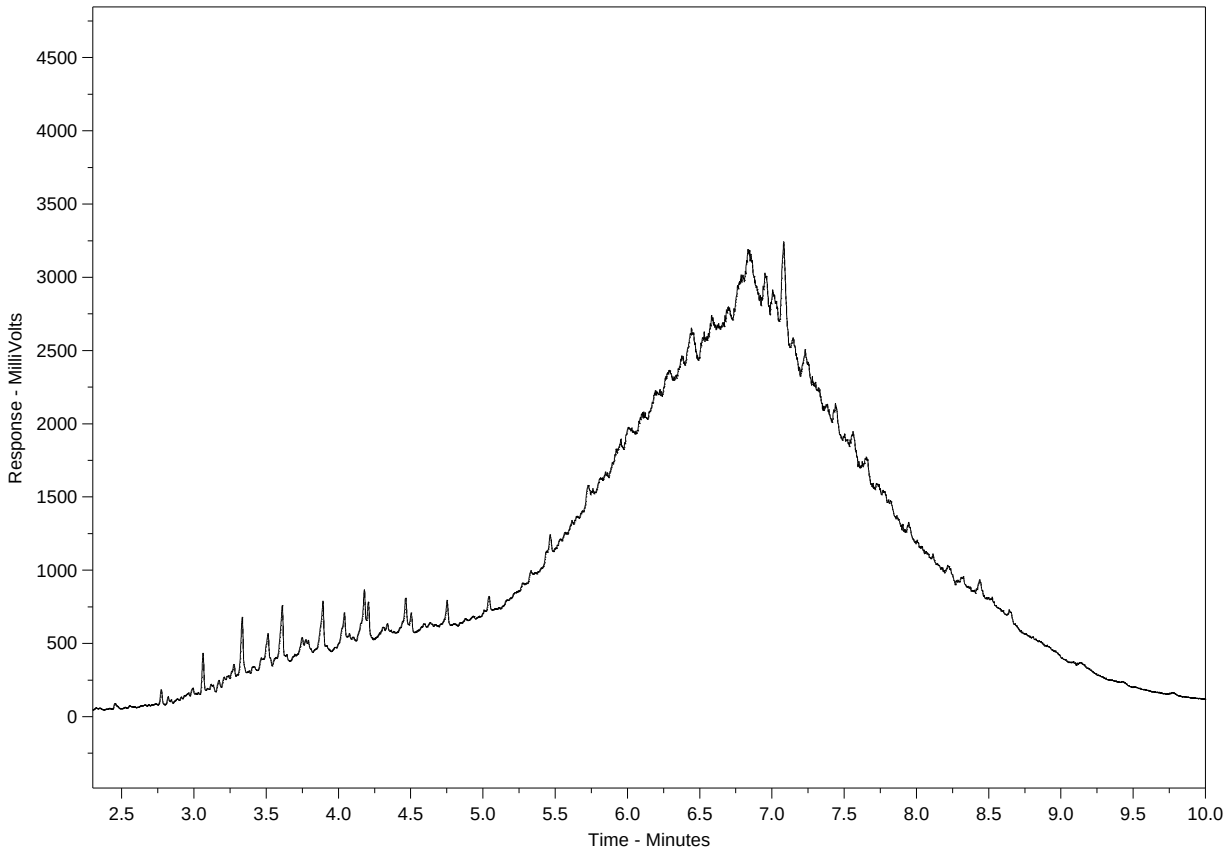
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-36
Client Sample ID: TP7 - 000 @0.0M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

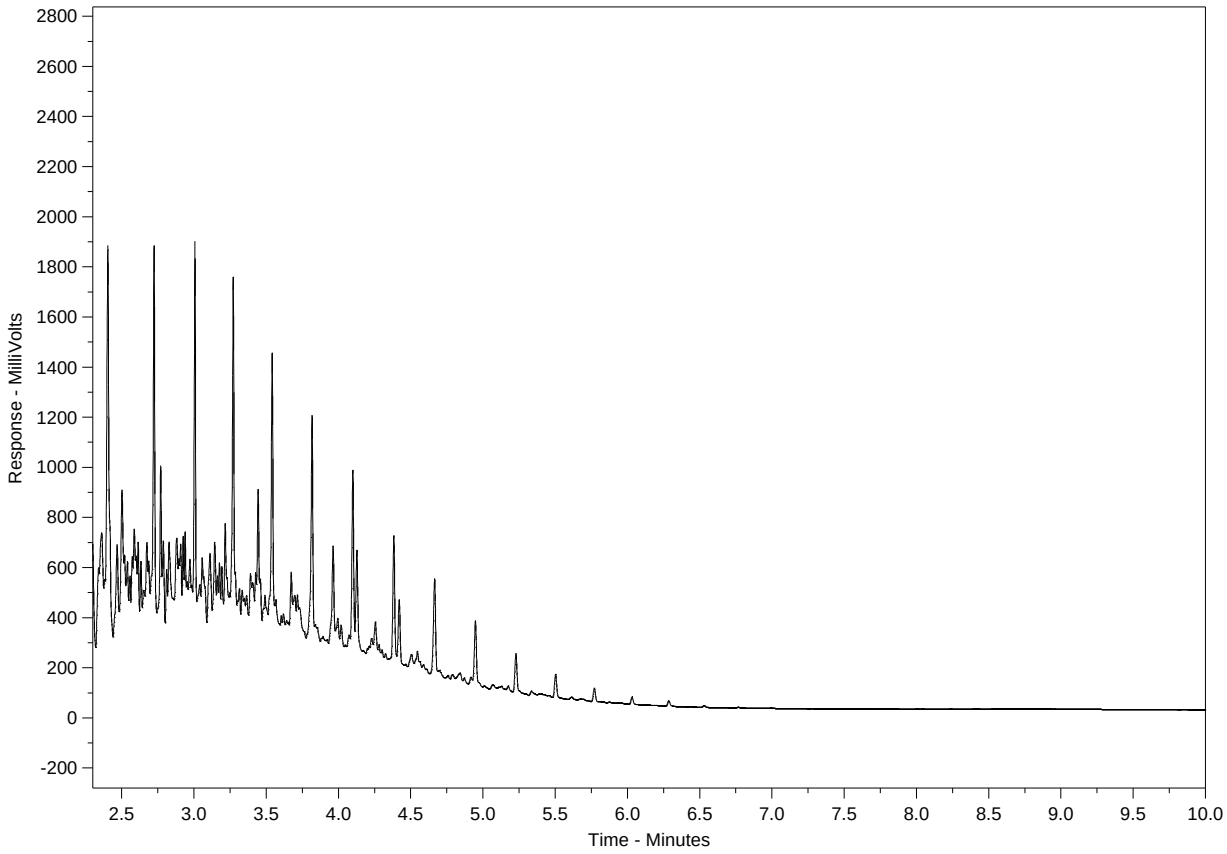
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-39
Client Sample ID: AST -TP1-003 @1.0M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

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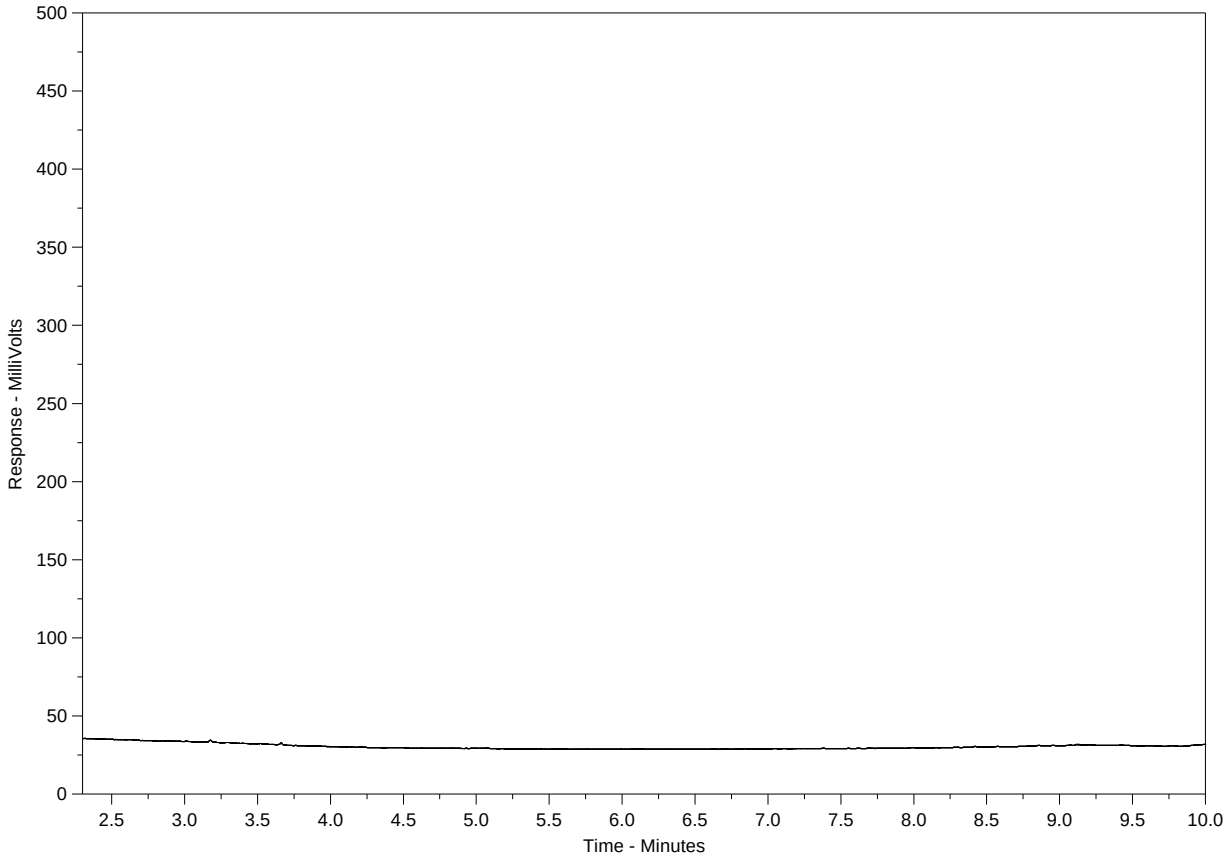
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-41
Client Sample ID: AST -TP2-002 @1.0M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

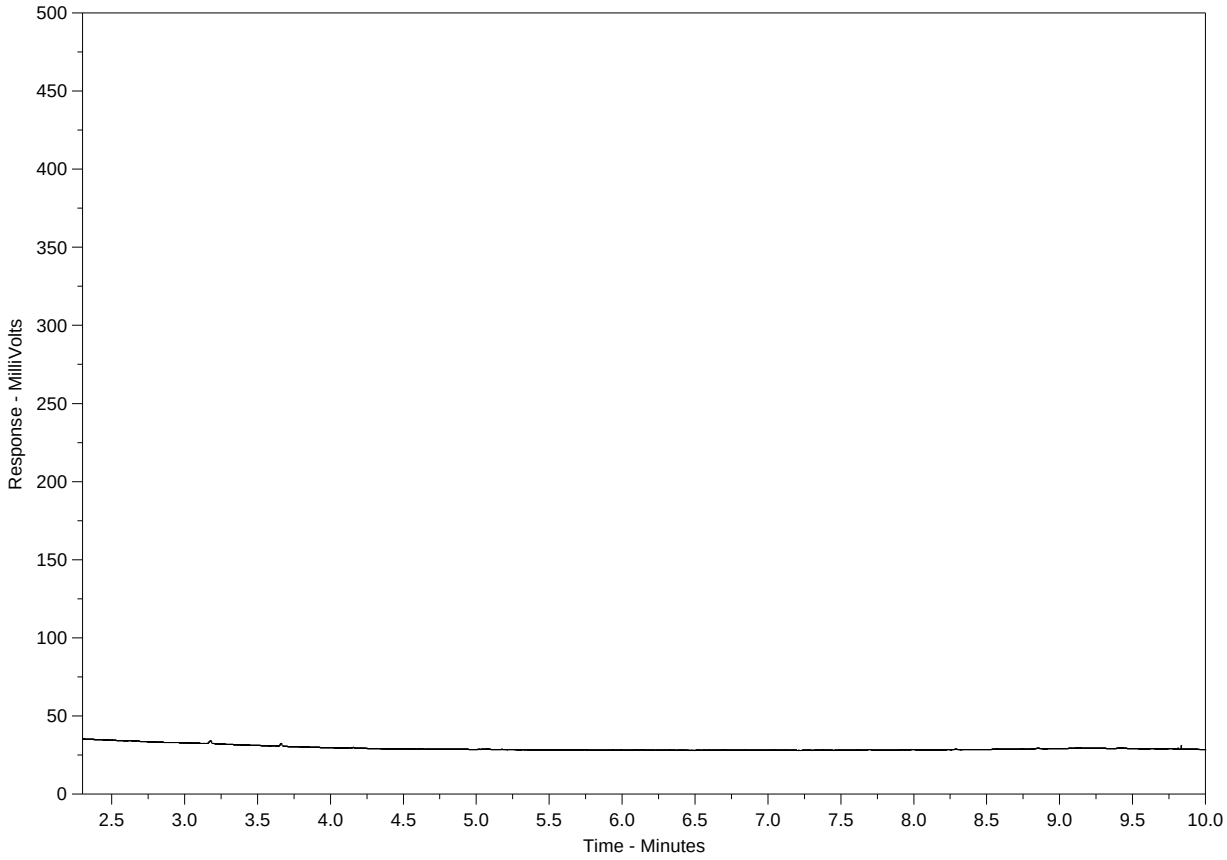
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-43
Client Sample ID: AST -TP3-002 @1.0M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

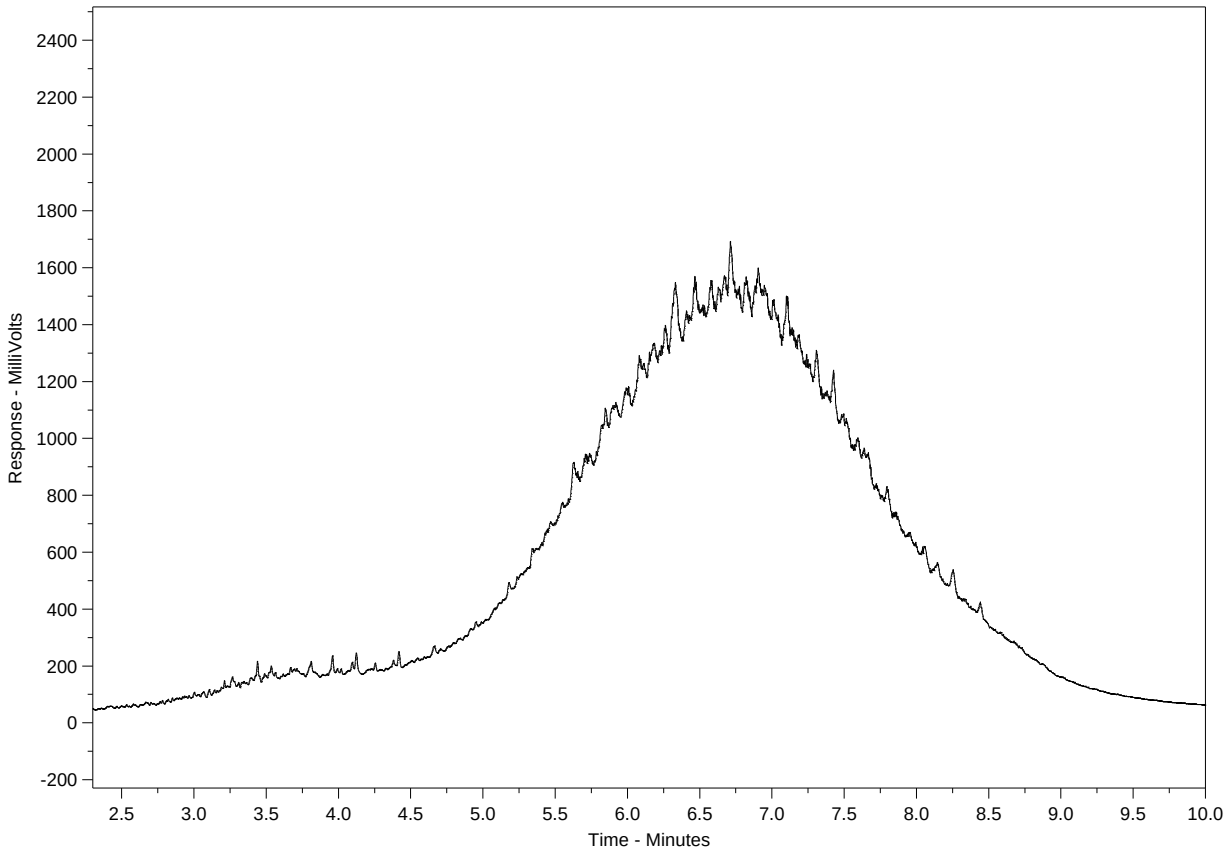
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-44
Client Sample ID: CLASS 01 @0M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

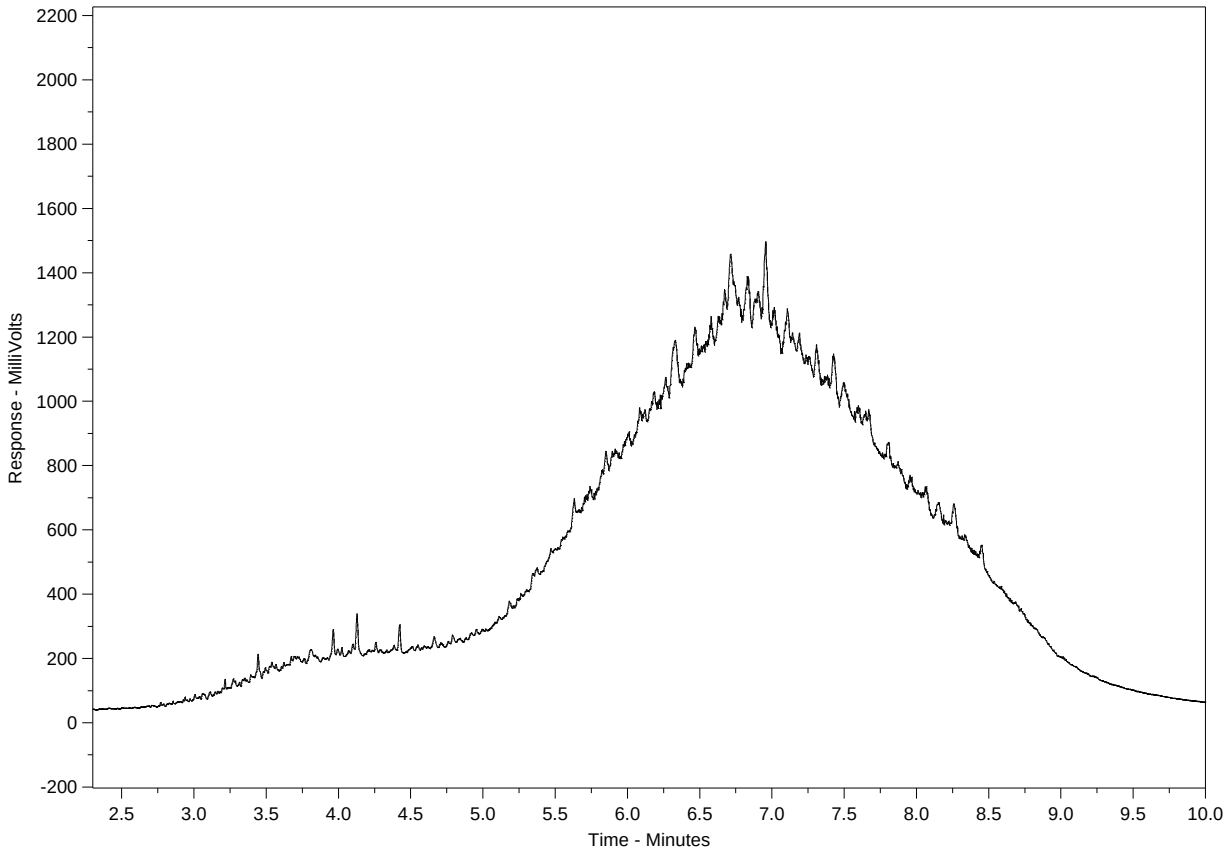
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-45
Client Sample ID: CLASS 02 @0M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

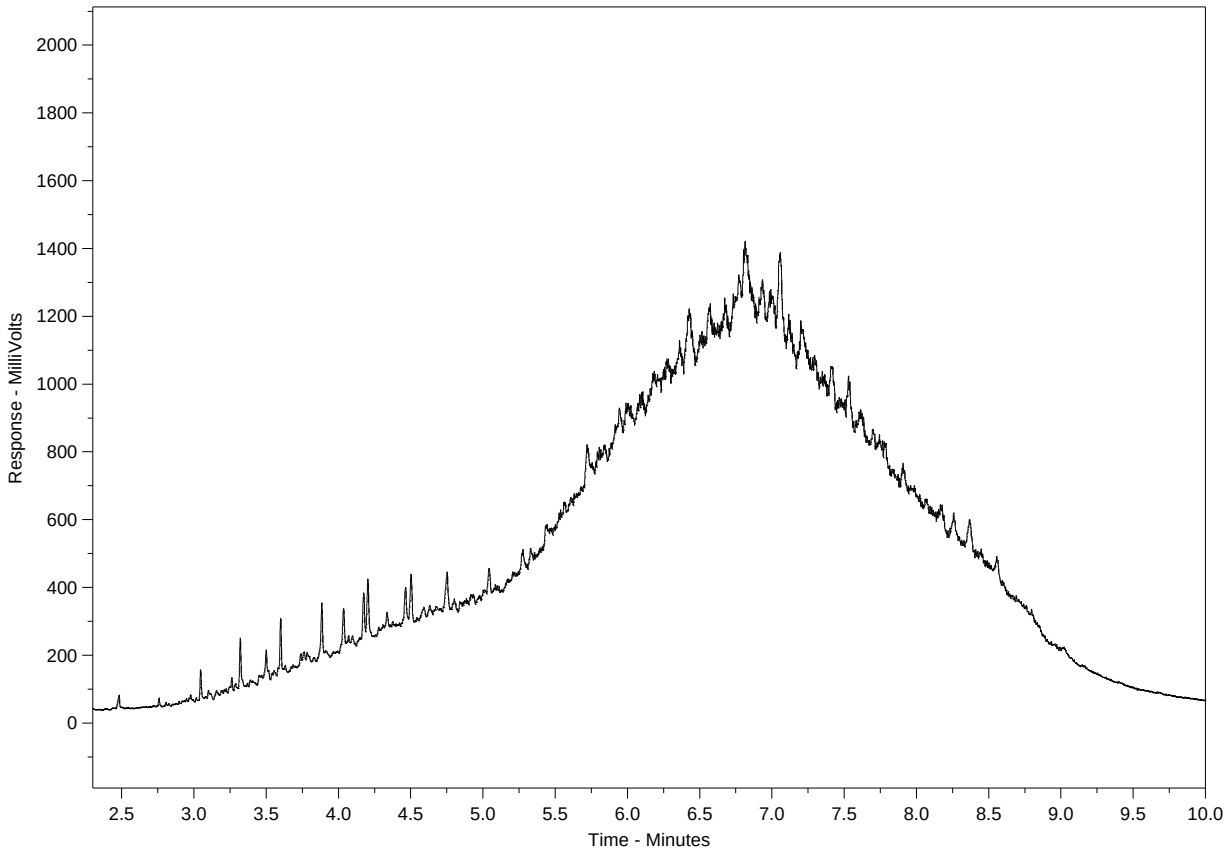
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1172681-46
Client Sample ID: CLASS 03 @0M



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

10-173890

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

Page 1 of 4

Report To	Shane Dooley
Company:	EBA
Contact:	Shane Dooley
Address:	105 Industrial Unit 6. Whse VT.
Phone:	668-3068 Fax:
Invoice To	Same as Report ? (circle) (Yes) or No (if No, provide details)
	Copy of Invoice with Report? (circle) Yes or No
Company:	
Contact:	
Address:	
Phone:	Fax:
Lab Work Order # (lab use only)	L1172681

Report Format / Distribution	
Standard: ✓	Other (specify):
Select: PDF ✓	Excel ✓ Digital Fax
Email 1:	sdooley@eba.ca
Email 2:	chorwood@eba.ca
Client / Project Information	
Job #:	W23101570
PO / AFE:	
LSD:	
Quote #:	
ALS Contact:	**Sampler:**

Service Request: (Rush subject to availability - Contact ALS to confirm TAT)

- ✓ Regular (Standard Turnaround Times - Business Days)
- Priority (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
- Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
- Same Day or Weekend Emergency - Contact ALS to confirm TAT

Analysis Request

(Indicate Filtered or Preserved, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	HOLD	Metals	LEPH/HEPH/PAH/VPH	Number of Containers
	EBA - TP1-001 @0.5m	28-06-12	N/A	Grab-Soil			✓	
	EBA - TP1-002 @1.0m				✓			
	EBA - TP1-003 @1.5m				✓			
	EBA - TP2-002 @0.5m				✓		✓	
	EBA - TP2-003 @1.0m				✓			
	EBA - TP2-004 @1.5m						✓	
	EBA - TP3-001 @0.5m						✓	
	EBA - TP3-002 @1.0m				✓			
	EBA - TP3-003 @1.5m				✓			
	EBA - TP4-001 @0.5m						✓	
	EBA - TP4-002 @1.0m				✓			
	EBA - TP4-003 @1.5m				✓			

L1172681-COFC

Special Instructions / Regulation with water or land use (CCME- Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details

Jars are all labelled W23101558, correct # is W23101570, as per CoC's.

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
C. Harwood	July 4th	1:00pm.	Sen	04-JUL-12	14:00	11 °C				

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION | WHITE - LABORATORY COPY | YELLOW - CLIENT COPY | GENF 18.01 Front

10-173894

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

Report To	**Report Format / Distribution**	**Service Request:**(Rush subject to availability - Contact ALS to confirm TAT)
Company:	Standard: Other (specify):	Regular (Standard Turnaround Times - Business Days)
Contact:	Select: PDF Excel Digital Fax	Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address:	Email 1:	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
	Email 2:	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: Fax:		**Analysis Request**
Invoice To Same as Report ? (circle) Yes or No (if No, provide details)	**Client / Project Information**	(Indicate Filtered or Preserved, F/P)
Copy of Invoice with Report? (circle) Yes or No	Job #:	
Company:	PO / AFE:	
Contact:	LSD:	
Address:		
Phone: Fax:	Quote #:	
Lab Work Order # (lab use only)	**ALS Contact:** / **Sampler:**	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	HOLD	METALS	LEPH/HEPH/PAH/VPH	Number of Containers
	TP5-001 @0.5	28-06-12	N/A	Grab Soil			✓	
	TP5-002 @1.0				✓			
	TP5-003 @1.5				✓			
	TP6-001 @0.5						✓	
	TP6-002 @1.0				✓			
	TP6-003 @1.5				✓			
	TP7-001 @0.5						✓	
	TP7-002 @1.1				✓			
	TP7-003 @1.5				✓			
	TP8-001 @0.5						✓	
	TP8-002 @1.0				✓			
	TP8-003 @1.5				✓			

L117681-COFC

Special Instructions / Regulation with water or land use (CCME- Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
C. Harwood	July 4	1:00pm	Sam	04-JUL-12	14:00	11 °C				

10-173895

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

Report To	Report Format / Distribution	Service Request:(Rush subject to availability - Contact ALS to confirm TAT)
Company:	Standard: Other (specify):	Regular (Standard Turnaround Times - Business Days)
Contact:	Select: PDF Excel Digital Fax	Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address:	Email 1:	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
	Email 2:	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: Fax:		**Analysis Request**
Invoice To Same as Report ? (circle) Yes or No (if No, provide details)	**Client / Project Information**	(Indicate Filtered or Preserved, F/P)
Copy of Invoice with Report? (circle) Yes or No	Job #:	
Company:	PO / AFE:	
Contact:	LSD:	
Address:		
Phone: Fax:	Quote #:	
Lab Work Order # (lab use only)	**ALS Contact:** / **Sampler:**	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	HOLD	METALS	VOA/HEAP/PHC/BTEX	Glycols/Solvents	Number of Containers
	TP9 @0.5	Jun 28	N/A	Grab Soil			/		
	TP9 @1.0						/		
	TP10 @0.5						/		
	TP10 @1.0						/		
	TP11 @0.5						/		
	TP11 @1.0						/		
	South Ext 001 @0.5m						/		
	West Ext 001 @ 0.5						/		
	North Ext 001 @0.5						/		
	East Ext 001 @0.5						/		
	TP6-000 @ 0.0m						/		
	TP7-000 @0.0m						/		

L1172681-COFC

Special Instructions / Regulation with water or land use (CCME- Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

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SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
C. Harwood	July 4	1200pm.	Sav	04-Jul-12	14:00	11 °C				

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

Report To	**Report Format / Distribution**
Company:	Standard: Other (specify):
Contact:	Select: PDF Excel Digital Fax
Address:	Email 1:
	Email 2:
Phone: Fax:	
Invoice To Same as Report ? (circle) Yes or No (if No, provide details)	**Client / Project Information**
Copy of Invoice with Report? (circle) Yes or No	Job #:
Company:	PO / AFE:
Contact:	LSD:
Address:	
Phone: Fax:	Quote #:
Lab Work Order # (lab use only)	**ALS Contact:** Sampler:

Service Request:(Rush subject to availability - Contact ALS to confirm TAT)
- Regular (Standard Turnaround Times - Business Days)
- Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
- Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
- Same Day or Weekend Emergency - Contact ALS to confirm TAT

Analysis Request
(Indicate Filtered or Preserved, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	HOLD	METALS	LEPH/HEPH/PAH/VAH	Number of Containers
	AST-TP1-~~[illegible]~~-001 @ 0m	28-06-12	NA	Grab Soil	/			
	AST-TP1-002 @ 0.5m	↓	↓	↓	/			
	AST-TP1-003 @ 1.0m	↓	↓	↓		/	/	
	AST-TP2-001 @ 0.5m	28-06-12	↓	↓	/			
	AST-TP2-002 @ 1.0m	↓	↓	↓			/	
	AST-TP3-001 @ 0.5m	↓	↓	↓	/			
	AST-TP3-002 @ 1.0m	↓	↓	↓			/	
	Class 01 @ 0m	27-06-12	NA	Comp. soil			/	
	Class 02 @ 0m	↓	↓	↓			/	
	Class 03 @ 0m	↓	↓	↓			/	

L1172681-COFC

Special Instructions / Regulation with water or land use (CCME- Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by: C. Hamand	Date: July 4	Time: 1:500PM	Received by: Sen	Date: 04-Jul-12	Time: 14:00	Temperature: 11 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF

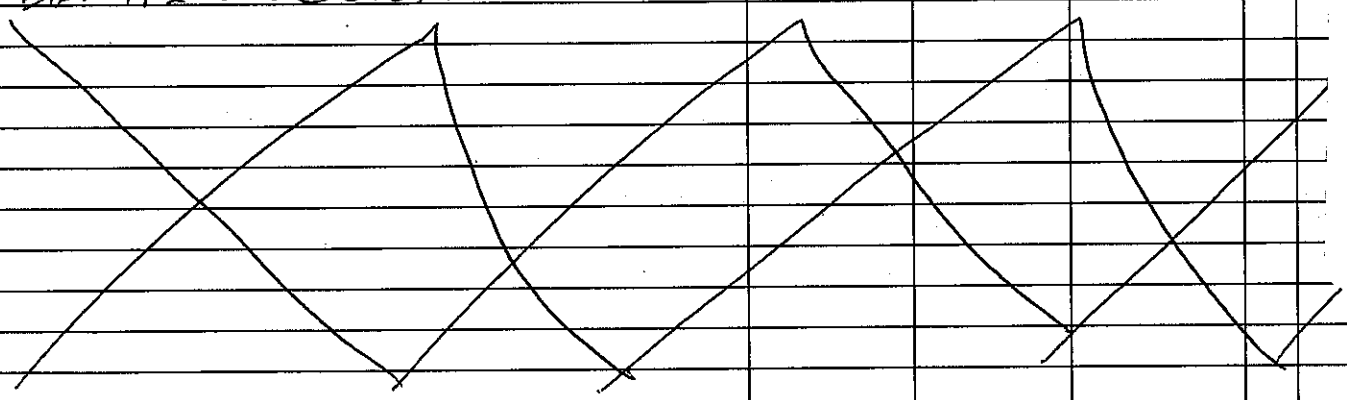
10-173897

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

Report To	**Report Format / Distribution**	**Service Request:**(Rush subject to availability - Contact ALS to confirm TAT)
Company:	Standard: Other (specify):	Regular (Standard Turnaround Times - Business Days)
Contact:	Select: PDF Excel Digital Fax	Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address:	Email 1:	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
	Email 2:	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: Fax:		**Analysis Request**
Invoice To Same as Report ? (circle) Yes or No (if No, provide details)	**Client / Project Information**	(Indicate Filtered or Preserved, F/P)
Copy of Invoice with Report? (circle) Yes or No	Job #:	
Company:	PO / AFE:	
Contact:	LSD:	
Address:		
Phone: Fax:	Quote #:	
Lab Work Order # (lab use only)	**ALS Contact:** **Sampler:**	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	14&LO	Number of Containers
	EBA-TP1-000 @0.0m	28-06-12	NA	Grab Soil		
	EBA-TP2-001@0.0m	↓	↓	↓		



Special Instructions / Regulation with water or land use (CCME- Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

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SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
C-Harwood	July 4	1:00pm	[illegible]	04-JUL-12	14:00	4 °C				