EAGLE GOLD PROJECT

FINAL CONSOLIDATED REPORT - SOUTH MCQUESTEN ROAD KM42 SPILL

MAY 31 2019

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1 INTRODUCTION

At approximately 6:20 am on January 7, 2019, the driver of crew truck transporting diesel lost control in the vicinity of the Haggart Creek culvert crossing resulting in the vehicle sliding off the road surface and rolling onto its side at Haggart Creek. The driver of the vehicle was uninjured. One of two diesel tanks in the rear of the crew truck was damaged and approximately 350L of diesel was released onto the snow and ice adjacent to and on Haggart Creek. Efforts to remove the vehicle and manage the spill commenced immediately.

This document is intended to consolidate all analyses, works and remedial action undertaken by StrataGold Corporation (SGC) to date. Remediation efforts at the spill site are now considered complete. The banks of Haggart Creek have been stabilized and there is no evidence of scour or erosion. Soil and water sample results all show non-detect for Light Extractable Petroleum Hydrocarbons (LEPH), Heavy Extractable Petroleum Hydrocarbons (HEPH), oil/grease, Volatile Organic Compounds (VOCs) and Polycyclic aromatic hydrocarbons (PAHs).

The materials recovered from the site of the spill have been transported to the on-site land treatment facility (LTF) for remediation in accordance with Land Treatment Facility Permit 24-047 issued by the Yukon Department of Environment on April 11, 2019.

2 CHRONOLOGY OF EVENTS

The following chronology of events is intended to provide an overview of all notifications, remedial actions and sampling undertaken that have been previously provided to the Department of Energy, Mines and Resources - Major Mines Unit (EMR-MMU). Sections 3 and 4 of this report provides additional information with respect to the spill and remediation efforts.

<u>January 7, 2019</u>

- Spill occurs
- Vehicle recovered, spill pads and booms deployed
- SGC reports spill to Yukon Spill Hotline
- Sump excavated in stream bank to channel and contain diesel
- Visibly contaminated snow, ice and streambank material excavated, placed in roll off bins and removed from area

<u>January 8, 2019</u>

- Excavator used to remove additional contaminated snow, ice and streambank material which is placed in roll off bins and removed from area
- Conditions deemed unsafe for water quality sampling at that time
- SGC reports spill to Senior Natural Resource Officer for EMR-MMU

<u>January 9, 2019</u>

- Excavator used to create temporary lined sump above high-water mark, out of the main channel and uphill of spill site
- Excavator used to remove additional contaminated snow, ice and streambank material some of which is placed in roll off bins and removed from area and other material placed in temporary lined sump
- Conditions deemed unsafe for water quality sampling at that time
- SGC reports spill to Senior Natural Resource Officer for Energy, Mines and Resources Compliance Monitoring and Inspections Branch - Mayo District
- SGC emails initial spill report (Attachment A) and site photos to Senior Natural Resource Officer for EMR-MMU and Senior Natural Resource Officer for Energy, Mines and Resources Compliance Monitoring and Inspections Branch - Mayo District (EMR-CMI)

<u>January 10 - 11, 2019</u>

- Periodic scraping of newly formed ice from the seeping and upwelling water with excavator
- Conditions remain unsafe for water quality sampling

<u>January 12, 2019</u>

- Water samples at spill location and downstream collected and sent for analysis

January 17, 2019

- Detailed spill report uploaded to Yukon Water Board Waterline registry (Attachment B)

January 18, 2019

- Results received for January 12, 2019 water quality sampling - all samples below CCME guidelines for long term effects to freshwater

January 20, 2019

- Lined and bermed containment facility constructed on lower camp access road for temporary storage of all contaminated materials
- Materials from roll off bins and temporary lined sump near spill location transported to containment facility

January 21, 2019

- SGC emails detailed spill report (Attachment B) to Senior Natural Resource Officer for EMR-MMU and Senior Natural Resource Officer for EMR-CMI

January 27, 2019

- Excavator with ripper attachment used to loosen frozen ground from side bank upwelling area
- Excavator used to remove additional contaminated material
- Clean fill placed in excavation zone
- Spill pads placed in area where water was upwelling to capture any remaining hydrocarbons
- Confirmatory soil samples taken from area

February 6, 2019

- Inspection of spill site by Energy Mines and Resources Major Mines Unit personnel
- Senior Natural Resource Officer from EMR-MMU verbally requests an update on the remedial action plan prior to next inspection

February 13, 2019

- Results received for January 27, 2019 soil sampling - all samples below CCME guidelines for industrial sites

February 21 ,2019

- EMR-MMU emails Inspection Report for February 6, 2019 inspection to SGC which includes corrective action order requiring:
    - Submission of plans for site monitoring, site stabilization and site restoration on or before March 8, 2019

  - Submission of bi-weekly reports, or as deemed necessary, until the inspector is satisfied that a danger to persons, property or environment has been reasonably mitigated and remedied

March 6, 2019

- Issued for Construction design report for Land Treatment Facility prepared by Tetra Tech Canada Inc. received by SGC
- Application for a Land Treatment Facility Permit submitted to Department of Environment

March 8, 2019

- SGC emails remedial action report (Attachment C) to Senior Natural Resource Officer for EMR-MMU

March 11, 2019

- Water samples at spill location and downstream collected and sent for analysis

March 17 - 20, 2019

- Excavator with ripper attachment used to loosen frozen ground in spill location
- Excavator used to remove additional contaminated soil
- Seepage water that collected in excavation pumped out
- Clean crushed rock placed to channel grade, covered with 6" rip rap and contoured to prevent scouring
- Soil samples at excavation location collected and sent for analysis

March 21, 2019

- Results received for March 11, 2019 water quality sampling - all samples show non-detect for LEPH/HEPH, oil/grease, VOCs and PAHs

March 22, 2019

- SGC emails update to ERM-MMU including laboratory results and site photos

March 25, 2019

- Results received for March 21, 2019 soil sampling (Attachment D) - All parameters (except as noted further here) were non-detect for LEPH/HEPH, oil/grease and 16 PAH compounds. The only parameters present in samples Km42-1, Km42-2 or Km42-3 were two PAH compounds (naphthalenes and/or fluorene) in very minor concentrations. Only naphthalene has a CSR standard (50 mg/kg), and the maximum result (0.115 mg/kg) was well below (two orders of magnitude) the standard.
- SGC emails sample results to EMR-MMU

April 11, 2019

- EMR-MMU personnel inspect spill location (in addition to other areas at the Project site) - request another round of water quality sampling and additional rip rap placement to protect streambank

April 25, 2019

- EMR-MMU emails Inspection Report for April 11, 2019 inspection to SGC which includes corrective action order requiring submission of final consolidated report containing all analysis, work and remedial actions undertaken to date.

3 SITE STABILIZATION AND RESTORATION

The overall objective of site stabilization and restoration was to return the channel and stream habitat to a stable and functioning riparian area. The remediated location is somewhat protected from scouring during high flows due to its position away from culvert outflow on the left bank and downstream side of the channel where back eddies are likely to form. To stabilize the site, the channel location was evenly filled and graded with clean gravel using an excavator and eventually raised to a stage above normal high water. The area was then armoured with a coarser clean rip-rap, sufficient to protect the channel from scouring during freshet and high magnitude rainfall-runoff events.

To prevent a similar incident concrete lock blacks have been placed along the edge of the creek on the corner.

During final restoration work, there was no evidence of remaining contamination and SGC now considers the site to be fully restored.

Photo 3-1: Site Stabilization with Rip Rap - May 10, 2019

Photo 3-2: Site Stabilization with Rip Rap and View of Concrete Lock Blocks - May 10, 2019

Photo 3-3: Site Stabilization with Rip Rap and View of Concrete Lock Blocks - May 14, 2019

4 FINAL SAMPLING

Water quality samples were taken on April 12, 2019 before the final stabilization and restoration immediately adjacent to the spill area and 15m down stream of the spill site. Results for this sampling event were received on April 26, 2019 and came back below CCME guidelines for freshwater aquatic life (long term). Some parameters (total and dissolved metals) are naturally high in Haggart Creek and show as exceedances, but are seen at similarly high levels further up stream.

A final water quality sample was taken on May 14, 2019 after the completion of stabilization and restoration. The official laboratory analysis has not yet been released however preliminary results showed all results below CCME guidelines for freshwater aquatic life (long term) for all parameters related to the spill.

Results for these sampling events, and for those results that have only been provided informally via email to EMR-MMU, are provided as Attachment D.

Photo 4-1: Final Water Quality Sampling - May 14, 2019

Attachment A

Initial Spill Report - January 9, 2019

EAGLE GOLD PROJECT
SPILL RESPONSE FORM

StrataGold Corporation

FIRST OBSERVER			
Name & Company:	Redacted		
Date & Time Observed:	January 7, 2019 at 6:20 AM		
Location of Spill:	KM 41.5 of Haggert Creek Road		
Distance to Waterbody:	<10 m from Haggert Creek	**Photos Taken?**	☒ Yes ☐ No
Estimated Spill Volume:	~350 L	**Reported to:**	Redacted

COMPANY RESPONSIBLE	
Supervisor/Investigator:	Redacted
Date of Spill:	January 7, 2019
Substance Spilled:	Diesel fuel
Equipment Involved:	Slip tank of crew truck (unit# 15455)
Volume of Contaminated Material:	Undetermined. Clean up still underway.
Personnel Contacted for Disposal (Name):	Site Services
Cause of Spill: (Equipment Failure, vehicle accident, foreign object, etc.)	Redacted truck unit # 15455 lost control at KM 41.5 of Haggert Creek Road. The crew truck was unable to recover and went over the edge of the road. As a result, ~350 L of diesel fuel from the slip tank of the unit was released.
Spill Response Actions Taken: (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.)	The area was secured and the crew truck was able to be recovered. Once the crew truck was recovered, clean up of the impacted area as a result of the release commenced. Numerous spill kits were deployed and absorbent material was utilized. Victoria Gold's Site Services performed the clean up. A back hoe was utilized to channel and contain the diesel fuel that was released within Haggert Creek, to the extent possible. The contaminated material removed from the impacted area will be transported to Site Services for disposal. Clean up of the release commenced on January 7 and is still ongoing at this time.

ENVIRONMENTAL DEPARTMENT USE ONLY			
IR#:	EIR-19003	**Reportable to Spill Hotline?**	☒ Yes ☐ No
Info Re. Spill Hotline:	Haggart Cr., at 6:20am, truck roll over, 1/2-1 tidy tank of diesel and 40-80L of gas spilled close to the creek		
Disposal Container Labelled?	☒ Yes ☐ No	**Samples taken?**	☒ Yes ☐ No
Environmental areas affected: (Watercourse, soil, etc.):	Spill happened within the high water mark of Haggart Cr. and some fuel was released into the creek.		
Method of Disposal & Further Remediation Required:	Snow berms were created during the incident. Excavation started once the vehicle was removed		
Follow Up Required?	☒ Yes ☐ No	**Follow Up Date:**	January 10, 2019

SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS			
Employee:		**Signature:**	
Supervisor:		**Signature:**	
Safety:		**Signature:**	
Environment:		**Signature:**	

Attachment B

Detailed Spill Report - January 17, 2019

EAGLE GOLD PROJECT

FUEL SPILL REPORT

JANUARY 2019

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1 INTRODUCTION

At approximately 6:20 am on January 7, 2019, the driver of crew truck transporting diesel lost control in the vicinity of the Haggart Creek culvert crossing resulting in the vehicle sliding off the road surface and rolling onto its side at Haggart Creek. The driver of the vehicle was uninjured. One of two diesel tanks in the rear of the crew truck was damaged and approximately 350L of diesel was released onto the snow and ice adjacent to and on Haggart Creek.

Efforts to remove the vehicle and manage the spill commenced immediately. The spill was reported to the Yukon Spill Report Line at 10:00am on January 7, 2019. The incident has also been discussed with the Inspector from the Major Mines Unit, the Mayo Senior Natural Resource Officer and staff from the First Nation of Nacho Nyak Dun’s Lands and Resources Department.

Active management of the spill location is ongoing to recover additional volumes of diesel. Sampling in the location of the spill and in the receiving environment is also ongoing.

This document is intended to provide details on the event including, but not limited to, dates, quantities, causes, and other relevant details and explanations as required by the regulatory approvals for the Eagle Gold Project.

2 SPILL DETAILS

2.1 LOCATION

The incident occurred at kilometer 42 of the South McQuesten Road at 7,097,886N, 458,444E (NAD83, Zone 8) as shown in Figure 2.1.

The initial scene of the incident is shown in Photos 2-1 to 2-3.

2.2 MATERIAL RELEASED

As a result of the incident, a house connection on the slip tank broke off releasing approximately 350L of diesel onto the ice and snow adjacent to and on the channel.

Photo 2-1: Path of Crew Truck

Photo 2-2: Crew Truck with Diesel Tank

Photo 2-3: Recovery of Crew Truck

Figure 2-1: Spill Location

3 SPILL RESPONSE

3.1 CONTAINMENT AND RECOVERY

3.1.1 January 7

During stabilization of the vehicle, a snow berm was created to help contain the leaking fuel. Spill pads and a bucket were also used to capture the leaking diesel. Numerous spill kits were deployed and booms and spill pads were utilized to absorb the diesel.

A backhoe was then used to excavate a sump in the stream bank to channel and contain the diesel to the greatest extent possible and to prevent drainage towards the creek. Initially fuel was manually scooped form the water in the sump using a bucket. Additional spill pads and booms were used to capture diesel outside of the sump.

Visibly contaminated material (snow, ice and riverbed material) was excavated and removed from the area and placed in roll off bins.

Temperatures were recorded at -38^{o}C which made assessing the extent of the spill difficult as any open water quickly froze over.

Recovery efforts on January 7 are shown in Photos 3-1 to 3-5.

Photo 3-1: Spill Area and Diesel Tank - January 7, 2019

Photo 3-2: Contaminated Snow and Ice - January 7, 2019

Photo 3-3: Spill Response Equipment - January 7, 2019

Photo 3-4: Excavation of Contaminated Material - January 7, 2019

Photo 3-5: Excavation of Contaminated Material - January 7, 2019

3.1.2 January 8

Environmental Coordinators and Site Services personnel returned to the scene during daylight hours to further assess the scene and plan the next phase of the recovery. The temperature was -46°C with windchill.

Observations were made downstream of the spill location to assess whether sampling could be conducted. It was determined at that time that it was unsafe to attempt sampling. The creek was frozen over and water could be detected flowing under the ice.

An excavator was used to remove ice from the immediate spill area. Once the ice was cleared, a small amount of diesel was seen floating on top of the water which appeared to be seeping from the stream bank. Additional excavation was undertaken to remove the contaminated snow, ice and bank material that was the source of the seepage. The excavated material was placed in roll off bins so that it could be backhauled to the main camp area for further handling.

Recovery efforts on January 8 are shown in Photos 3-6 to 3-9.

Photo 3-6: Excavation of Ice - January 8, 2019

Photo 3-7: Recovered Contaminated Materials - January 8, 2019

Photo 3-8: Recovery of Contaminated Materials - January 8, 2019

Photo 3-9: Recovery of Contaminated Materials - January 8, 2019

3.1.3 January 9 to 11

The excavator was used to create a larger lined temporary sump above the high-water mark, out of the main channel and uphill of the spill. Contaminated snow and ice remaining at the incident site was excavated and placed into the temporary sump and roll off bins.

Periodic scraping of newly formed ice from the seeping and upwelling water continued to ensure that any hydrocarbons remaining in the spill area were captured.

Weather conditions remained extremely cold and it was again determined to be unsafe for sampling within the watercourse.

Recovery efforts on January 9 are shown in Photos 3-10 to 3-13.

Photo 3-10: Spill Location - January 9, 2019

Photo 3-11: Recovery of Contaminated Materials - January 9, 2019

Photo 3-12: Temporary Lined Sump - January 9, 2019

Photo 3-13: Recovery of Contaminated Materials and Seepage Water - January 9, 2019

3.1.4 January 12 to Date

Monitoring of the spill location continues with clean up and recovery being undertaken as necessary. Weather conditions improved on January 12 which allowed for sampling to be undertaken as discussed in Section 4.

3.2 REPORTING

The spill was reported to the Yukon Spill Hotline at 10:00am on January 7th by the site Environmental Coordinator. Following reports to the Inspector from the Major Mines Unit, the Mayo Senior Natural Resource Officer were made on January 9th to ensure that they had been informed by the Yukon Spill Hotline personnel. The preliminary spill report (attached as Appendix A) was provided to both Inspectors on January 9th.

An environmental monitor from the First Nation of Nacho Nyak Dun's (FNNND) arrived on site on January 11th and was advised of the spill and our response. Communication with the FNNND Lands and Resources Department is ongoing at this time.

4 SAMPLING

Samples were collected on January 12th at four locations (as shown in Figure 4-1):

- Upstream at W4 (reference site)
- Adjacent to and just downstream of the spill location
- 100 m downstream of the spill location on Haggart Creek
- Downstream of the spill location at W5 (far field reference site)

The samples were immediately dispatched to ALS Laboratory for analysis; however, final results have not been received at the time of this report. The sampling efforts are shown in Photos 4-1 to 4-

Photo 4-1: Sampling Upstream at W4 - January 12, 2019

Photo 4-2: Sampling at Spill Location - January 12, 2019

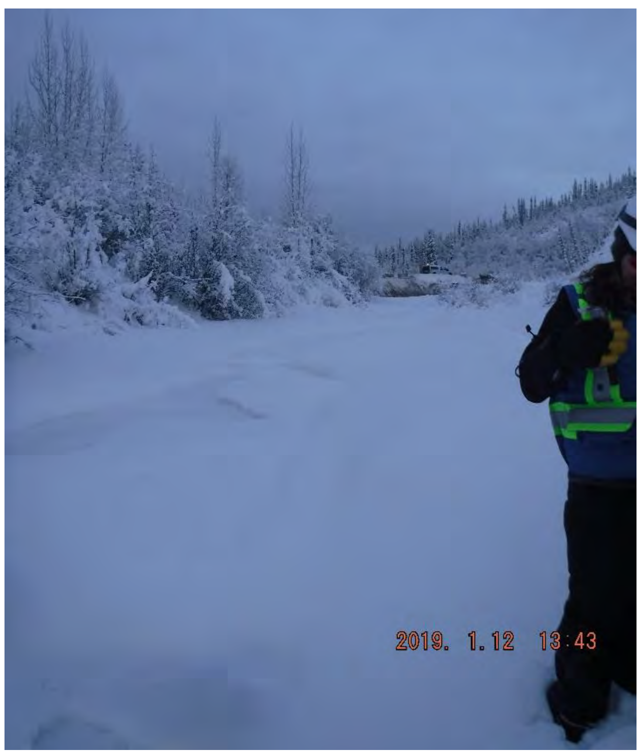

Photo 4-3: Sampling 100 m Downstream of Spill Location - January 12, 2019

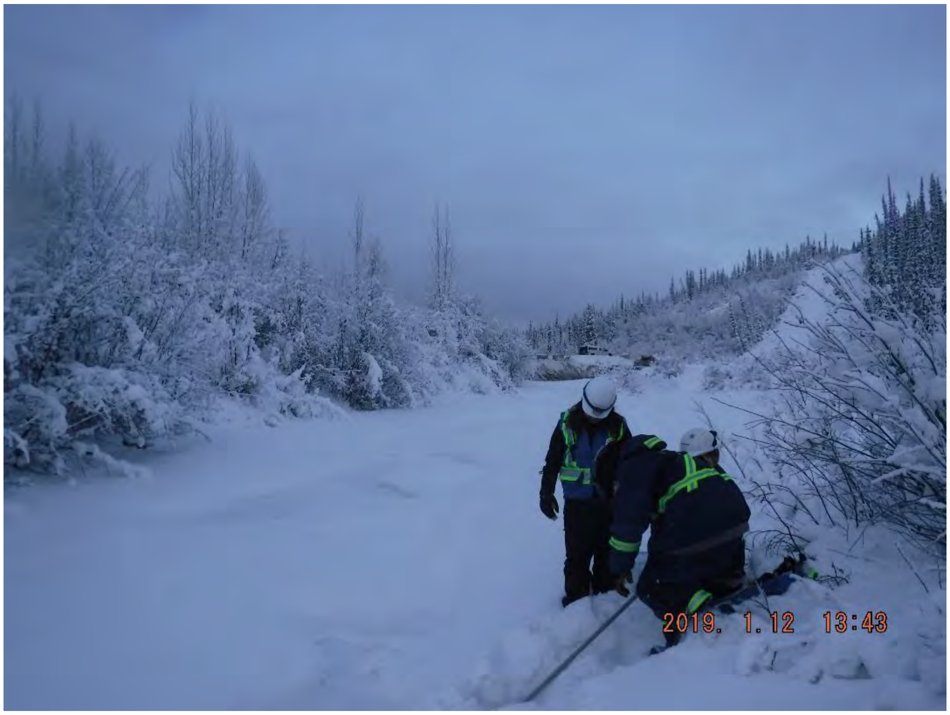

Photo 4-4: Sampling Downstream of Spill Location at W5 - January 12, 2019

Figure 4-1: Sample Locations

EAGLE GOLD PROJECT
SPILL RESPONSE FORM

FIRST OBSERVER			
Name & Company:	Redacted		
Date & Time Observed:	January 7, 2019 at 6:20 AM		
Location of Spill:	KM 41.5 of Haggert Creek Road		
Distance to Waterbody:	<10 m from Haggert Creek	**Photos Taken?**	☒ Yes ☐ No
Estimated Spill Volume:	~350 L	**Reported to:**	Redacted
COMPANY RESPONSIBLE			
Supervisor/Investigator:	Redacted		
Date of Spill:	January 7, 2019		
Substance Spilled:	Diesel fuel		
Equipment Involved:	Slip tank of crew truck (unit# 15455)		
Volume of Contaminated Material:	Undetermined. Clean up still underway.		
Personnel Contacted for Disposal (Name):	Site Services		
Cause of Spill: (Equipment Failure, vehicle accident, foreign object, etc.)	Redacted truck unit # 15455 lost control at KM 41.5 of Haggert Creek Road. The crew truck was unable to recover and went over the edge of the road. As a result, ~350 L of diesel fuel from the slip tank of the unit was released.		
Spill Response Actions Taken: (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.)	The area was secured and the crew truck was able to be recovered. Once the crew truck was recovered, clean up of the impacted area as a result of the release commenced. Numerous spill kits were deployed and absorbent material was utilized. Victoria Gold's Site Services performed the clean up. A back hoe was utilized to channel and contain the diesel fuel that was released within Haggert Creek, to the extent possible. The contaminated material removed from the impacted area will be transported to Site Services for disposal. Clean up of the release commenced on January 7 and is still ongoing at this time.		
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Disposal Container Labelled?	☒ Yes ☐ No	**Samples taken?**	☒ Yes ☐ No
Environmental areas affected: (Watercourse, soil, etc.):	Spill happened within the high water mark of Haggart Cr. and some fuel was released into the creek.		
Method of Disposal & Further Remediation Required:	Snow berms were created during the incident. Excavation started once the vehicle was removed		
Follow Up Required?	☒ Yes ☐ No	**Follow Up Date:**	January 10, 2019
SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS			
Employee:		**Signature:**	
Supervisor:		**Signature:**	
Safety:		**Signature:**	
Environment:		**Signature:**	

Attachment C

Remedial Action Plan - March 8, 2019

EAGLE GOLD PROJECT

REMEDIAL ACTION REPORT SOUTH MCQUESTEN ROAD KM42 SPILL

MARCH 8 2019

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1 INTRODUCTION

At approximately 6:20 am on January 7, 2019, the driver of crew truck transporting diesel lost control in the vicinity of the Haggart Creek culvert crossing resulting in the vehicle sliding off the road surface and rolling onto its side at Haggart Creek. The driver of the vehicle was uninjured. One of two diesel tanks in the rear of the crew truck was damaged and approximately 350L of diesel was released onto the snow and ice adjacent to and on Haggart Creek. Efforts to remove the vehicle and manage the spill commenced immediately.

Active management of the spill location is ongoing to recover additional volumes of diesel. Sampling in the location of the spill and in the receiving environment is also ongoing.

This document is intended to provide information regarding the remedial action plan to address the ongoing and final spill clean up from the 350 L diesel spill at the Haggart Creek culvert crossing (Km 42 of the South McQuesten Road) as directed by the Inspector's from the Department of Energy, Mines and Resources, Compliance Monitoring and Inspection - Major Mines Unit (CMI) on February 21. Specifically, this document contains all lab results received by Victoria Gold to date, and the remedial action plans for site monitoring, site stabilization and site restoration as directed in the Corrective Action from CMI. This document also provides a summary of the event including, but not limited to, dates, quantities, causes, and other relevant details and explanations as required by the regulatory approvals for the Eagle Gold Project.

1.1 REPORTING

The spill was reported to the Yukon Spill Hotline at 10:00am on January 7th by the site Environmental Coordinator. Reports to the Inspector from the Major Mines Unit and the Mayo Senior Natural Resource Officer were made on January 9th to ensure that they had been informed by the Yukon Spill Hotline personnel. The preliminary spill report was provided to both Inspectors on January 9th.

An environmental monitor from the First Nation of Nacho Nyak Dun (FNNND) arrived on site on January 11th and was advised of the spill and our response. Communication with the FNNND Lands and Resources Department is ongoing at this time.

2 SPILL DETAILS

2.1 LOCATION

The incident occurred at kilometer 42 of the South McQuesten Road at 7,097,886N, 458,444E (NAD83, Zone 8) as shown in Figure 2.1.

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2.2 MATERIAL RELEASED

As a result of the incident, a house connection on the slip tank broke off releasing approximately 350L of diesel onto the ice and snow adjacent to and on the channel.

Photo 2-1: Path of Crew Truck

Photo 2-2: Crew Truck with Diesel Tank

Photo 2-3: Recovery of Crew Truck

Figure 2-1: Spill Location

3 INITIAL SPILL RESPONSE

3.1 CONTAINMENT AND RECOVERY

3.1.1 January 7

During stabilization of the vehicle, a snow berm was created to help contain the leaking fuel. Spill pads and a bucket were also used to capture the leaking diesel. Numerous spill kits were deployed and booms and spill pads were utilized to absorb the diesel.

A backhoe was then used to excavate a sump in the stream bank to channel and contain the diesel to the greatest extent possible and to prevent drainage towards the creek. Initially, fuel was manually scooped from the water in the sump using a bucket. Additional spill pads and booms were used to capture diesel outside of the sump.

Visibly contaminated material (snow, ice and riverbed material) was excavated and removed from the area and placed in roll off bins.

Temperatures were recorded at -38°C which made assessing the extent of the spill difficult as any open water quickly froze over.

Recovery efforts on January 7 are shown in Photos 3-1 to 3-5.

Photo 3-1: Spill Area and Diesel Tank - January 7, 2019

Photo 3-2: Contaminated Snow and Ice - January 7, 2019

Photo 3-3: Spill Response Equipment - January 7, 2019

Photo 3-4: Excavation of Contaminated Material - January 7, 2019

Photo 3-5: Excavation of Contaminated Material - January 7, 2019

3.1.2 January 8

Environmental Coordinators and Site Services personnel returned to the scene during daylight hours to further assess the scene and plan the next phase of the recovery. The temperature was -46°C with windchill.

Observations were made downstream of the spill location to assess whether sampling could be conducted. It was determined at that time that it was unsafe to attempt sampling. The creek was frozen over and water could be detected flowing under the ice.

An excavator was used to remove ice from the immediate spill area. Once the ice was cleared, a small amount of diesel was seen floating on top of the water which appeared to be seeping from the stream bank. Additional excavation was undertaken to remove the contaminated snow, ice and bank material that was the source of the seepage. The excavated material was placed in roll off bins so that it could be backhauled to the main camp area for further handling.

Recovery efforts on January 8 are shown in Photos 3-6 to 3-9.

Photo 3-6: Excavation of Ice - January 8, 2019

Photo 3-7: Recovered Contaminated Materials - January 8, 2019

Photo 3-8: Recovery of Contaminated Materials - January 8, 2019

Photo 3-9: Recovery of Contaminated Materials - January 8, 2019

3.1.3 January 9 to 11

The excavator was used to create a larger lined temporary sump above the high-water mark, out of the main channel and uphill of the spill. Contaminated snow and ice remaining at the incident site was excavated and placed into the temporary sump and roll off bins.

Periodic scraping of newly formed ice from the seeping and upwelling water continued to ensure that any hydrocarbons remaining in the spill area were captured.

Weather conditions remained extremely cold and it was again determined to be unsafe for sampling within the watercourse.

Recovery efforts on January 9 are shown in Photos 3-10 to 3-13.

Photo 3-10: Spill Location - January 9, 2019

Photo 3-11: Recovery of Contaminated Materials - January 9, 2019

Photo 3-12: Temporary Lined Sump - January 9, 2019

Photo 3-13: Recovery of Contaminated Materials and Seepage Water - January 9, 2019

3.1.4 January 12th

Weather conditions improved and water samples of the spill location and downstream were collected. The sampling process and results are discussed in Section 4.

3.1.5 January 20th

A temporary containment berm was created on the lower camp access road at the location shown in Figure to temporarily store the contaminated material. This temporary berm is 20m x 20m wide and 1m deep as shown in Picture 3-14. All of the contaminated material stockpiled in the sump and roll off bins adjacent to the spill area have been hauled into this temporary berm. An oil water separator is currently being sourced and this material will be transported for further treatment at the future land treatment facility (discussed in Section 5).

Figure 3-1: Location of Temporary Berm

Photo 3-14: Contaminated material moved to temporary containment berm, January 20th

3.1.6 January 27th

A second round of cleanup was performed in the spill location to ensure the affected area was cleared of contaminated soil and frozen upwelled water. A ripper attachment on an excavator was used to loosen the frozen ground and water from the side bank upwelling. Fresh clean material was hauled to the spill area to berm off the newly exposed upwelling water from entering the area that was cleaned on January 9th. Material was alternately ripped up, scraped back, and hauled to the temporary containment area. Clean material was used to “fill in” the upwelling water to make it easier to haul away. Each time a load was hauled away, the clean material berm was moved back farther away from the creek, minimizing the suspected contaminated area each time. By the end of this clean up session, only a small area of frozen water remained that had a chance of being contaminated. This area was covered with spill pads to ensure any upwelling water that could have contained diesel would be captured. Three soil samples were taken in this area, see Figure 4-2 below for sample locations. The samples taken have come back with all analytes below the Yukon Contaminated Sites Regulation for industrial land use.

Photo 3-15: Contaminated material being scraped back and separated by "clean" berm - January 27th

Photo 3-16: Small remaining area that needs to be scraped clean and sampled, separated by berm - January 27

4 SAMPLING

4.1 WATER SAMPLING – JANUARY 12TH

Samples were collected on January 12th at four locations (as shown in Figure 4-1):

- Upstream at W4 (reference site)
- Adjacent to and just downstream of the spill location
- 100 m downstream of the spill location on Haggart Creek
- Downstream of the spill location at W5 (far field reference site)

All samples came back below CCME guidelines for long term effects to freshwater. Results are attached as an appendix and further sampling plans are discussed below.

Photo 4-1: Sampling Upstream at W4 - January 12, 2019

Photo 4-2: Sampling at Spill Location - January 12, 2019

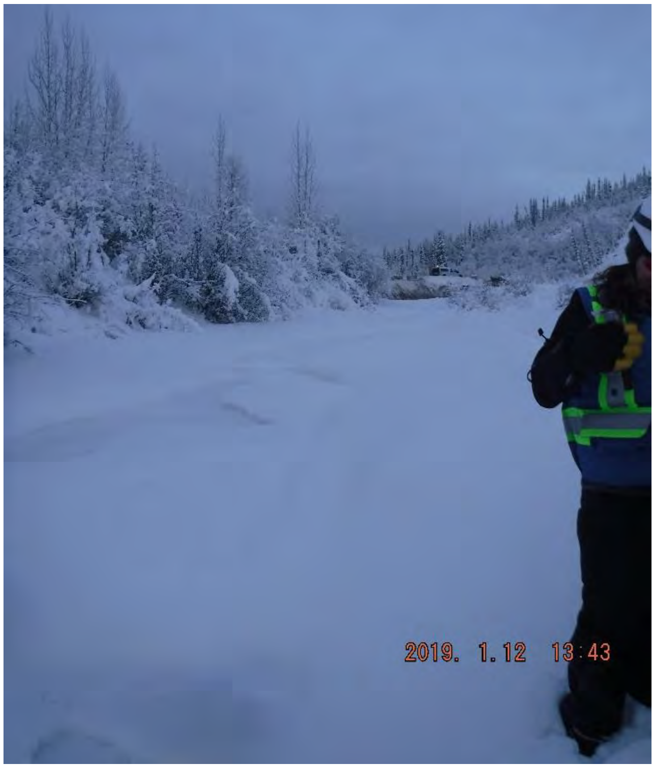


Photo 4-3: Sampling 100 m Downstream of Spill Location - January 12, 2019

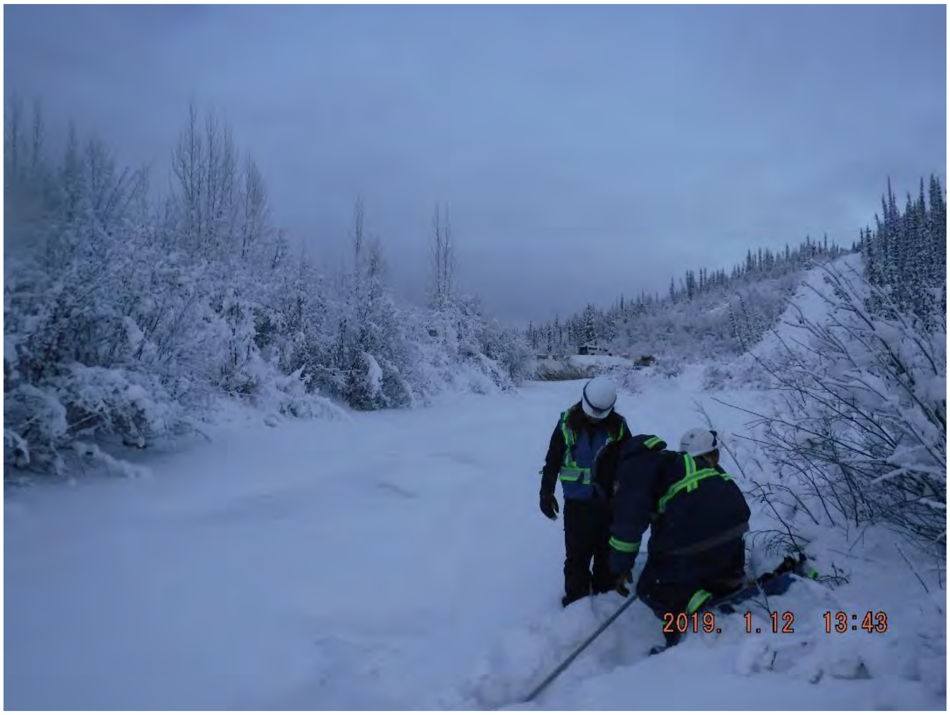


Photo 4-4: Sampling Downstream of Spill Location at W5 - January 12, 2019

Figure 4-1: Water Sample Locations – January 12th

4.2 SOIL SAMPLING – JANUARY 27TH

Soil samples taken on January 27th (Figure 4-2) came back below CCME guidelines for industrial sites. The results are included as an appendix. The samples were taken from 3 areas that were scraped back and expected to be clean from visual observation. The samples consisted of sandy material; all large rocks were removed. The samples were taken at approximately 30 cm depth. Additional samples will be taken in a grid pattern across the entire area and adjacent to the spill location to ensure all contaminants were removed. This is further discussed below.

Figure 4-2: Soil Sample Locations - January 27th

4.3 RESULTS

Results for water sample analysis were below detection for total oil and grease and LEPH/HEPH in all areas sampled. All analytes were below CCME guidelines for long term effects in fresh water with the exception of fluoride, which was above guideline limits (0.12 mg/L) at 0.125 mg/l. Fluoride levels were slightly elevated at all sites, and it is not expected that this elevated result is due to the spill. Total aluminum results were above guideline limit of 0.005 mg/L, this is to be expected as Haggart creek has historically seen high background levels of aluminum. Dissolved zinc concentrations also show an exceedance at the spill location, but this is expected to be due to sampling or analysis error, as dissolved concentrations exceed the total concentrations by an order of magnitude.

All soil samples were below detection for analytes under the contaminated sites regulation for LEPH/HEPH. All samples were under the guideline amounts for CCME soil regulations for industrial sites for all parameters analyzed. Results and regulation comparisons are attached as appendices.

4.4 ONGOING MONITORING AND FUTURE SAMPLING

Monitoring of the spill location continues with clean up and recovery being undertaken as necessary.

The objective of the future sampling and monitoring is to define the spatial extent of remaining hydrocarbons to guide additional material excavation as necessary. The primary round of water sampling occurred on January 12th. A second round of water sampling is planned for March 11th. Samples will be collected in the areas depicted in Figure 4.3 and results will be submitted to CMI when they are received.

Spill cleanup efforts will be deemed final when all samples come back below guidelines for CCME industrial or Contaminated sites regulation or as deemed so by CMI. A clean up session involving scraping back the small bermed off area several times and backfilling with clean material to ensure any remaining hydrocarbons are removed is planned for mid March. A petroflag hydrocarbon detector will be used to perform infield and in-house hydrocarbon detection. If any are detected, another round of scraping and clearing will occur. After this is complete, a second round of soil sampling will occur in the area. If these samples come back with traces of hydrocarbons, another round of scraping will occur.

Samples will be collected following the pattern depicted in Figure 4.4 to ensure the full extent of the impacted area is monitored. Samples will be taken at varying depths in each location, depending on visual observation and petroflag results. The next sequence of cleaning and sampling will be guided by the results from the lab after this sampling session. Parameters that will be sampled for include Total Oil and Grease, LEPH/HEPH, metals and general chemistry.

As a precautionary measure, spill booms will be placed in the area directly adjacent to the culvert to prevent any possible hydrocarbons from entering the stream. This will be done prior to freshet, after the second round of soil samples are taken. This area will be monitored routinely during freshet.

All sampling undertaken will comply with the relevant protocols for the Contaminated Sites Regulations Under the Environment Act.

Figure 4-3: Future planned water sample locations

Figure 4-4: Soil Future planned soil sample locations - multiple depths in a grid pattern

5 SITE STABILIZATION AND RESTORATION PLAN

The overall objective of site stabilization and restoration is to return the channel and stream habitat to a stable and functioning riparian area. The remediated location is somewhat protected from scouring during high flows due to its position away from culvert outflow on the left bank and downstream side of the channel where back eddies are likely to form. The location will also likely be above water during low flows. To stabilize the site, the channel location will be evenly filled and graded with clean gravel using an excavator and eventually raised to a stage above normal high water. The area will then be armoured with a coarser clean rip-rap, a size to be determined based on a hydraulic analysis of flows, and sufficient to protect the channel from scouring during freshet and high magnitude rainfall-runoff events. During site grading and armoring activities, the excavator will work from the road and or streambank and avoid any contact with the stream channel. The channel fill and rip-rap will be sourced from a nearby borrow location in the Haggart Creek valley, where the material is comprised of stream alluvium, gravel and boulders.

To support onsite remediation of hydrocarbon contaminated soils, an issued for construction design of a Land Treatment Facility was prepared by Tetra Tech Canada Inc. The IFC design was immediately submitted to Yukon Government Department of Environment in support of an Application for a Land Treatment Facility Permit. The full application for the onsite facility is provided as Appendix B to this report.

The application package provides details of the proposed LTF location and the proposed construction, operation, maintenance and sampling of the facility.

6 REPORTING

Bi-weekly reports or as deemed necessary will be submitted to the inspector until the inspector is satisfied that a danger to persons, property or environmental has been reasonably mitigated and remedied

A Final Spill report summarizing remedial action taken to mitigate the spill will be submitted which will include preventative measures for future incidents will be submitted when the inspector is satisfied with the remediation.

Appendix A

External Lab Results and Regulation Comparisons

STRATAGOLD CORPORATION
ATTN: Hugh Coyle
Suite 1000 - 1050 W. Pender St
Vancouver BC V6E 3S7

Date Received: 14-JAN-19
Report Date: 18-JAN-19 18:11 (MT)
Version: FINAL

Client Phone: 604-682-5122

Certificate of Analysis

Lab Work Order #: L2219808

Project P.O. #: NOT SUBMITTED
Job Reference: KM 42 SPILL
C of C Numbers: 1 of 1
Legal Site Desc: Victoria Gold Corp.

Joanne Lee
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2219808-1	L2219808-2	L2219808-3	L2219808-4	
	Description	Water	Water	Water	Water	
	Sampled Date	12-JAN-19	12-JAN-19	12-JAN-19	12-JAN-19	
	Sampled Time	11:05	14:00	13:30	16:20	
	Client ID	KM42 DS W5	KM42 DS 100M	KM42 SPILL LOCATION	KM42 US	
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	382	438	443	448	
	Hardness (as CaCO3) (mg/L)	248	235	244	200	
	pH (pH)	7.80	7.88	7.86	7.77	
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	<3.0	
	TDS (Calculated) (mg/L)	246	269	274	262	
	Turbidity (NTU)	0.76	0.53	0.56	0.43	
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	115	133	133	136	
	Ammonia, Total (as N) (mg/L)	<0.0050	0.0125	0.0144	0.0086	
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50	
	Fluoride (F) (mg/L)	0.115	0.119	0.125	0.115	
	Nitrate (as N) (mg/L)	0.159	0.157	0.177	0.164	
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Total Kjeldahl Nitrogen (mg/L)	<0.050	<0.050	<0.050	0.061	
	Total Nitrogen (mg/L)	0.159	0.157	0.177	0.225	
	Orthophosphate-Dissolved (as P) (mg/L)	0.0011	0.0010	<0.0010	0.0012	
	Phosphorus (P)-Total (mg/L)	<0.0020	<0.0020	<0.0020	<0.0020	
	Phosphorus (P)-Total Dissolved (mg/L)	<0.0020	0.0035	<0.0020	<0.0020	
	Sulfate (SO4) (mg/L)	88.1	105	106	108	
	Anion Sum (meq/L)	4.15	4.86	4.88	4.98	
	Cation Sum (meq/L)	5.11	4.84	5.03	4.12	
	Cation - Anion Balance (%)	10.3	-0.2	1.5	-9.4	
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	0.88	1.07	1.25	1.15	
Total Metals	Aluminum (Al)-Total (mg/L)	0.0078	0.0067	0.0071	0.0070	
	Antimony (Sb)-Total (mg/L)	0.00058	0.00059	0.00059	0.00029	
	Arsenic (As)-Total (mg/L)	0.00242	0.00258	0.00254	0.00130	
	Barium (Ba)-Total (mg/L)	0.0467	0.0479	0.0480	0.0434	
	Beryllium (Be)-Total (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	
	Bismuth (Bi)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	
	Boron (B)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	
	Cadmium (Cd)-Total (mg/L)	0.0000350	0.0000146	0.0000249	0.0000225	
	Calcium (Ca)-Total (mg/L)	60.7	62.6	58.8	50.0	
	Chromium (Cr)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Cobalt (Co)-Total (mg/L)	0.00013	0.00021	0.00030	0.00014	
	Copper (Cu)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Iron (Fe)-Total (mg/L)	0.039	0.047	0.061	0.058	

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2219808-1	L2219808-2	L2219808-3	L2219808-4	
	Description	Water	Water	Water	Water	
	Sampled Date	12-JAN-19	12-JAN-19	12-JAN-19	12-JAN-19	
	Sampled Time	11:05	14:00	13:30	16:20	
	Client ID	KM42 DS W5	KM42 DS 100M	KM42 SPILL LOCATION	KM42 US	
Grouping	**Analyte**					
WATER						
Total Metals	Lead (Pb)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	
	Lithium (Li)-Total (mg/L)	0.0086	0.0087	0.0083	0.0077	
	Magnesium (Mg)-Total (mg/L)	25.1	24.5	24.8	20.9	
	Manganese (Mn)-Total (mg/L)	0.0669	0.0907	0.106	0.0482	
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
	Molybdenum (Mo)-Total (mg/L)	0.000509	0.000163	0.000141	0.000126	
	Nickel (Ni)-Total (mg/L)	0.00118	0.00124	0.00135	0.00130	
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	
	Potassium (K)-Total (mg/L)	1.38	1.34	1.36	1.19	
	Selenium (Se)-Total (mg/L)	0.000247	0.000213	0.000278	0.000328	
	Silicon (Si)-Total (mg/L)	4.67	4.78	4.69	4.61	
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Sodium (Na)-Total (mg/L)	2.71	2.60	2.68	2.42	
	Strontium (Sr)-Total (mg/L)	0.304	0.301	0.290	0.243	
	Sulfur (S)-Total (mg/L)	41.2	40.0	39.8	31.5	
	Thallium (Tl)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
	Titanium (Ti)-Total (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	
	Uranium (U)-Total (mg/L)	0.00237	0.00231	0.00227	0.00162	
	Vanadium (V)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Zinc (Zn)-Total (mg/L)	0.0040	0.0049	0.0052	0.0034	
	Zirconium (Zr)-Total (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	
	Aluminum (Al)-Dissolved (mg/L)	0.0021	0.0023	0.0021	0.0029	
	Antimony (Sb)-Dissolved (mg/L)	0.00054	0.00051	0.00051	0.00024	
	Arsenic (As)-Dissolved (mg/L)	0.00213	0.00229	0.00225	0.00111	
	Barium (Ba)-Dissolved (mg/L)	0.0464	0.0454	0.0467	0.0418	
	Beryllium (Be)-Dissolved (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	
	Cadmium (Cd)-Dissolved (mg/L)	0.0000140	0.0000177	0.0000211	0.0000197	
	Calcium (Ca)-Dissolved (mg/L)	59.2	55.1	59.6	47.6	
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	0.00014	<0.00010	
	Cobalt (Co)-Dissolved (mg/L)	0.00012	0.00019	0.00029	0.00013	
	Copper (Cu)-Dissolved (mg/L)	0.00030	0.00025	0.00027	0.00021	
	Iron (Fe)-Dissolved (mg/L)	0.015	0.023	0.093 DTC	0.015	

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2219808-1	L2219808-2	L2219808-3	L2219808-4
	Description	Water	Water	Water	Water
	Sampled Date	12-JAN-19	12-JAN-19	12-JAN-19	12-JAN-19
	Sampled Time	11:05	14:00	13:30	16:20
	Client ID	KM42 DS W5	KM42 DS 100M	KM42 SPILL LOCATION	KM42 US
Grouping	**Analyte**				
WATER					
Dissolved Metals	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.0083	0.0081	0.0083	0.0078
	Magnesium (Mg)-Dissolved (mg/L)	24.4	23.7	23.1	19.6
	Manganese (Mn)-Dissolved (mg/L)	0.0639	0.0868	0.107	0.0459
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Dissolved (mg/L)	0.000204	0.000144	0.000147	0.000119
	Nickel (Ni)-Dissolved (mg/L)	0.00107	0.00119	0.00127	0.00126
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)	1.34	1.31	1.32	1.15
	Selenium (Se)-Dissolved (mg/L)	0.000247	0.000210	0.000239	0.000241
	Silicon (Si)-Dissolved (mg/L)	4.39	4.48	4.42	4.52
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	2.53	2.46	2.51	2.26
	Strontium (Sr)-Dissolved (mg/L)	0.283	0.260	0.272	0.215
	Sulfur (S)-Dissolved (mg/L)	38.6	37.1	37.3	32.1
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030
	Uranium (U)-Dissolved (mg/L)	0.00254	0.00235	0.00234	0.00164
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Dissolved (mg/L)	0.0028	0.0025	DTC 0.0131	0.0031
	Zirconium (Zr)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030
Aggregate Organics	Oil and Grease (mg/L)	DLIS <10	DLIS <10	DLIS <10	DLIS <10
Volatile Organic Compounds	Benzene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
	Bromodichloromethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Bromoform (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Carbon Tetrachloride (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
	Chlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Dibromochloromethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Chloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Chloroform (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Chloromethane (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050
	1,2-Dichlorobenzene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
	1,3-Dichlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	1,4-Dichlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	1,1-Dichloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2219808-1	L2219808-2	L2219808-3	L2219808-4	
	Description	Water	Water	Water	Water	
	Sampled Date	12-JAN-19	12-JAN-19	12-JAN-19	12-JAN-19	
	Sampled Time	11:05	14:00	13:30	16:20	
	Client ID	KM42 DS W5	KM42 DS 100M	KM42 SPILL LOCATION	KM42 US	
Grouping	**Analyte**					
WATER						
Volatile Organic Compounds	1,2-Dichloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	1,1-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	cis-1,2-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	trans-1,2-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Dichloromethane (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	
	1,2-Dichloropropane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	cis-1,3-Dichloropropylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	trans-1,3-Dichloropropylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	1,3-Dichloropropene (cis & trans) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Ethylbenzene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Methyl t-butyl ether (MTBE) (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Styrene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	1,1,1,2-Tetrachloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	1,1,2,2-Tetrachloroethane (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	
	Tetrachloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Toluene (mg/L)	<0.00045	<0.00045	<0.00045	<0.00045	
	1,1,1-Trichloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	1,1,2-Trichloroethane (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Trichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Trichlorofluoromethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Vinyl Chloride (mg/L)	<0.00040	<0.00040	<0.00040	<0.00040	
	ortho-Xylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	meta- & para-Xylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
	Xylenes (mg/L)	<0.00075	<0.00075	<0.00075	<0.00075	
	Surrogate: 4-Bromofluorobenzene (SS) (%)	98.2	95.4	100.0	100.0	
	Surrogate: 1,4-Difluorobenzene (SS) (%)	110.8	106.8	107.8	104.4	
Hydrocarbons	EPH10-19 (mg/L)	<0.25	<0.25	<0.25	<0.25	
	EPH19-32 (mg/L)	<0.25	<0.25	<0.25	<0.25	
	LEPH (mg/L)	<0.25	<0.25	<0.25	<0.25	
	HEPH (mg/L)	<0.25	<0.25	<0.25	<0.25	
	Surrogate: 2-Bromobenzotrifluoride (%)	89.0	90.7	86.8	92.1	
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Acenaphthylene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Acridine (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Anthracene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Benz(a)anthracene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2219808-1	L2219808-2	L2219808-3	L2219808-4	
	Description	Water	Water	Water	Water	
	Sampled Date	12-JAN-19	12-JAN-19	12-JAN-19	12-JAN-19	
	Sampled Time	11:05	14:00	13:30	16:20	
	Client ID	KM42 DS W5	KM42 DS 100M	KM42 SPILL LOCATION	KM42 US	
Grouping	**Analyte**					
WATER						
Polycyclic Aromatic Hydrocarbons	Benzo(a)pyrene (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
	Benzo(b&j)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Benzo(b+j+k)fluoranthene (mg/L)	<0.000015	<0.000015	<0.000015	<0.000015	
	Benzo(g,h,i)perylene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Benzo(k)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Chrysene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Dibenz(a,h)anthracene (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
	Fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Fluorene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	1-Methylnaphthalene (mg/L)	<0.000050	<0.000050	0.000139	<0.000050	
	2-Methylnaphthalene (mg/L)	<0.000050	<0.000050	0.000187	<0.000050	
	Naphthalene (mg/L)	<0.000050	<0.000050	0.000083	<0.000050	
	Phenanthrene (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	
	Pyrene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Quinoline (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	
	Surrogate: Acridine d9 (%)	90.7	85.8	82.5	87.3	
	Surrogate: Chrysene d12 (%)	98.1	95.9	89.7	96.6	
	Surrogate: Naphthalene d8 (%)	101.4	101.3	94.3	106.7	
	Surrogate: Phenanthrene d10 (%)	99.6	99.4	94.3	101.1	

* 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)
Laboratory Control Sample	Bromoform	LCS-ND	L2219808-1, -2, -3, -4
Laboratory Control Sample	Sulfur (S)-Dissolved	MES	L2219808-3
Matrix Spike	Aluminum (Al)-Dissolved	MS-B	L2219808-3
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L2219808-1, -2, -3, -4
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L2219808-3
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L2219808-1, -2, -3, -4
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L2219808-3
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L2219808-1, -2, -3, -4
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L2219808-3
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L2219808-1, -2, -3, -4
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L2219808-3
Matrix Spike	Potassium (K)-Dissolved	MS-B	L2219808-1, -2, -3, -4
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L2219808-3
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2219808-1, -2, -3, -4
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2219808-3
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L2219808-1, -2, -3, -4
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L2219808-3
Matrix Spike	Barium (Ba)-Total	MS-B	L2219808-1, -2, -3, -4
Matrix Spike	Calcium (Ca)-Total	MS-B	L2219808-1, -2, -3, -4
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2219808-1, -2, -3, -4
Matrix Spike	Manganese (Mn)-Total	MS-B	L2219808-1, -2, -3, -4
Matrix Spike	Sodium (Na)-Total	MS-B	L2219808-1, -2, -3, -4
Matrix Spike	Strontium (Sr)-Total	MS-B	L2219808-1, -2, -3, -4
Matrix Spike	Sulfur (S)-Total	MS-B	L2219808-1, -2, -3, -4
Matrix Spike	Sulfate (SO4)	MS-B	L2219808-1, -2, -3, -4

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLIS	Detection Limit Adjusted: Insufficient Sample
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.
LCS-ND	Lab Control Sample recovery was slightly outside ALS DQO. Reported non-detect results for associated samples were unaffected.
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

BE-D-L-CCMS-VA	Water	Diss. Be (low) in Water by CRC ICPMS	APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

BE-T-L-CCMS-VA	Water	Total Be (Low) in Water by CRC ICPMS	EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

BR-L-IC-N-VA	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310B TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

CL-IC-N-VA	Water	Chloride in Water by IC	EPA 300.1 (mod)

Reference Information

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

EC-SCREEN-VA	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

EPH-ME-FID-VA	Water	EPH in Water	BC Lab Manual

EPH is extracted from water using a hexane micro-extraction technique, with analysis by GC-FID, as per the BC Lab Manual. EPH results include PAHs and are therefore not equivalent to LEPH or HEPH.

F-IC-N-VA	Water	Fluoride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in $CaCO_3$ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-D-CVAA-VA	Water	Diss. Mercury in Water by CVAAS or CVAFS	APHA 3030B/EPA 1631E (mod)

Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

HG-T-CVAA-VA	Water	Total Mercury in Water by CVAAS or CVAFS	EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

IONBALANCE-VA	Water	Ion Balance Calculation	APHA 1030E

Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.

Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance is calculated as:

Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]

LEPH/HEPH-CALC-VA	Water	LEPHs and HEPHs	BC MOE LEPH/HEPH

LEPHw and HEPHw are measures of Light and Heavy Extractable Petroleum Hydrocarbons in water. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.

LEPHw = EPH10-19 minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene.

HEPHw = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

MET-T-CCMS-VA	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

NO2-L-IC-N-VA	Water	Nitrite in Water by IC (Low Level)	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-L-IC-N-VA	Water	Nitrate in Water by IC (Low Level)	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

OGG-SF-VA	Water	Oil & Grease by Gravimetric	BCMOE (2010), EPA1664A

Reference Information

The procedure involves an extraction of the entire water sample with hexane. This extract is then evaporated to dryness, and the residue weighed to determine Oil and Grease.

P-T-PRES-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.
Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

P-TD-PRES-COL-VA	Water	Total Dissolved P in Water by Colour	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorus is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.
Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

PAH-ME-MS-VA	Water	PAHs in Water	EPA 3511/8270D (mod)

PAHs are extracted from water using a hexane micro-extraction technique, with analysis by GC/MS. Because the two isomers cannot be readily separated chromatographically, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.
Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

SO4-IC-N-VA	Water	Sulfate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

TDS-CALC-VA	Water	TDS (Calculated)	APHA 1030E (20TH EDITION)

This analysis is carried out using procedures adapted from APHA 1030E "Checking Correctness of Analyses".
The Total Dissolved Solids result is calculated from measured concentrations of anions and cations in the sample.

TKN-F-VA	Water	TKN in Water by Fluorescence	APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

TN-CALC-VA	Water	Total Nitrogen (Calculation)	BC MOE LABORATORY MANUAL (2005)

Total Nitrogen is a calculated parameter. Total Nitrogen = Total Kjeldahl Nitrogen + [Nitrate and Nitrite (as N)]

TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.
Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.

TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

VOC-HSMS-VA	Water	VOCs in water by Headspace GCMS	EPA 5021A/8260C

The water sample, with added reagents, is 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-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA 5021A/8260C

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA 5035A/5021A/8260C
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION

Reference Information

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, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

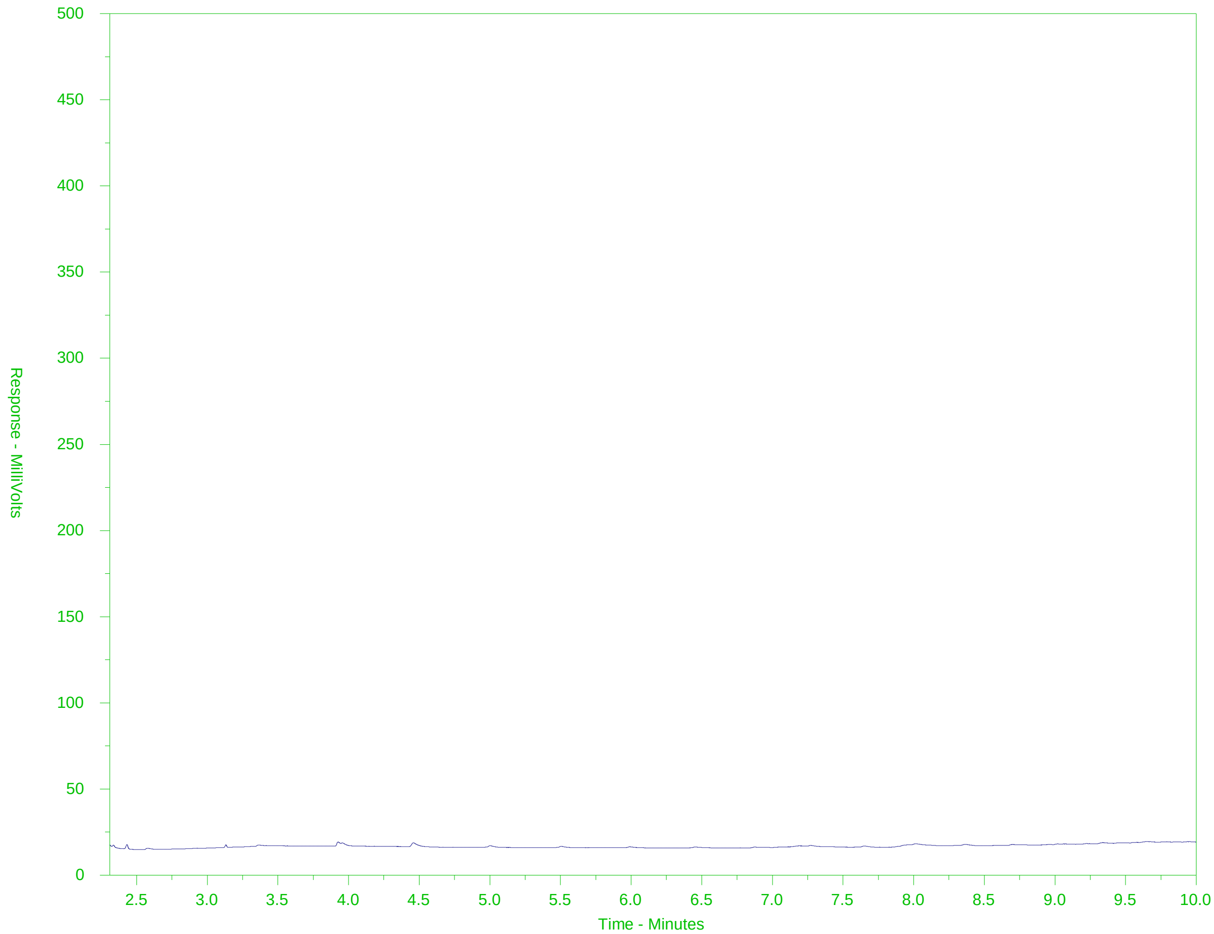
1 of 1

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.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2219808-1
Client Sample ID: KM42 DS W5



← EPH10-19 →	← EPH19-32 →	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

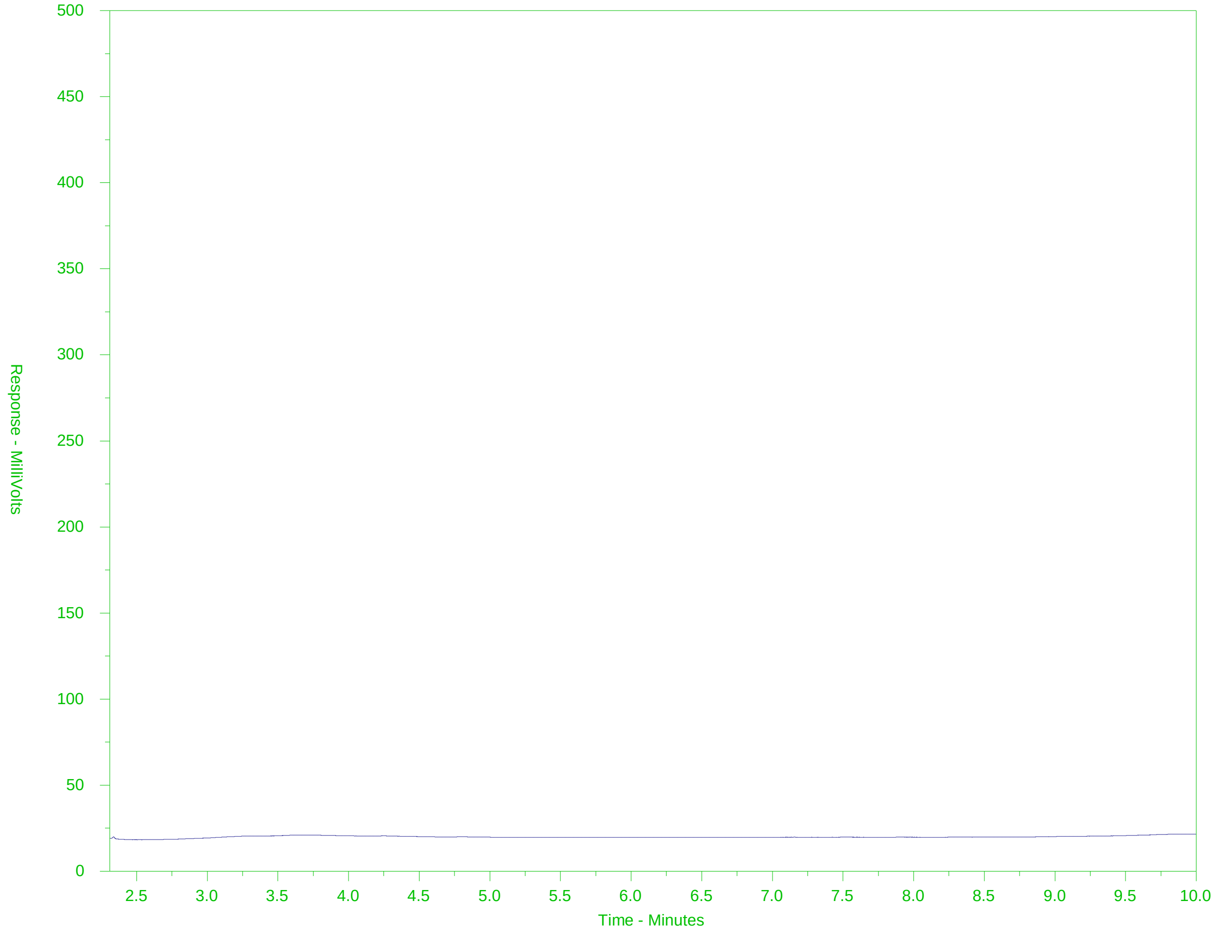
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2219808-2
Client Sample ID: KM42 DS 100M



← EPH10-19 →	← EPH19-32 →	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

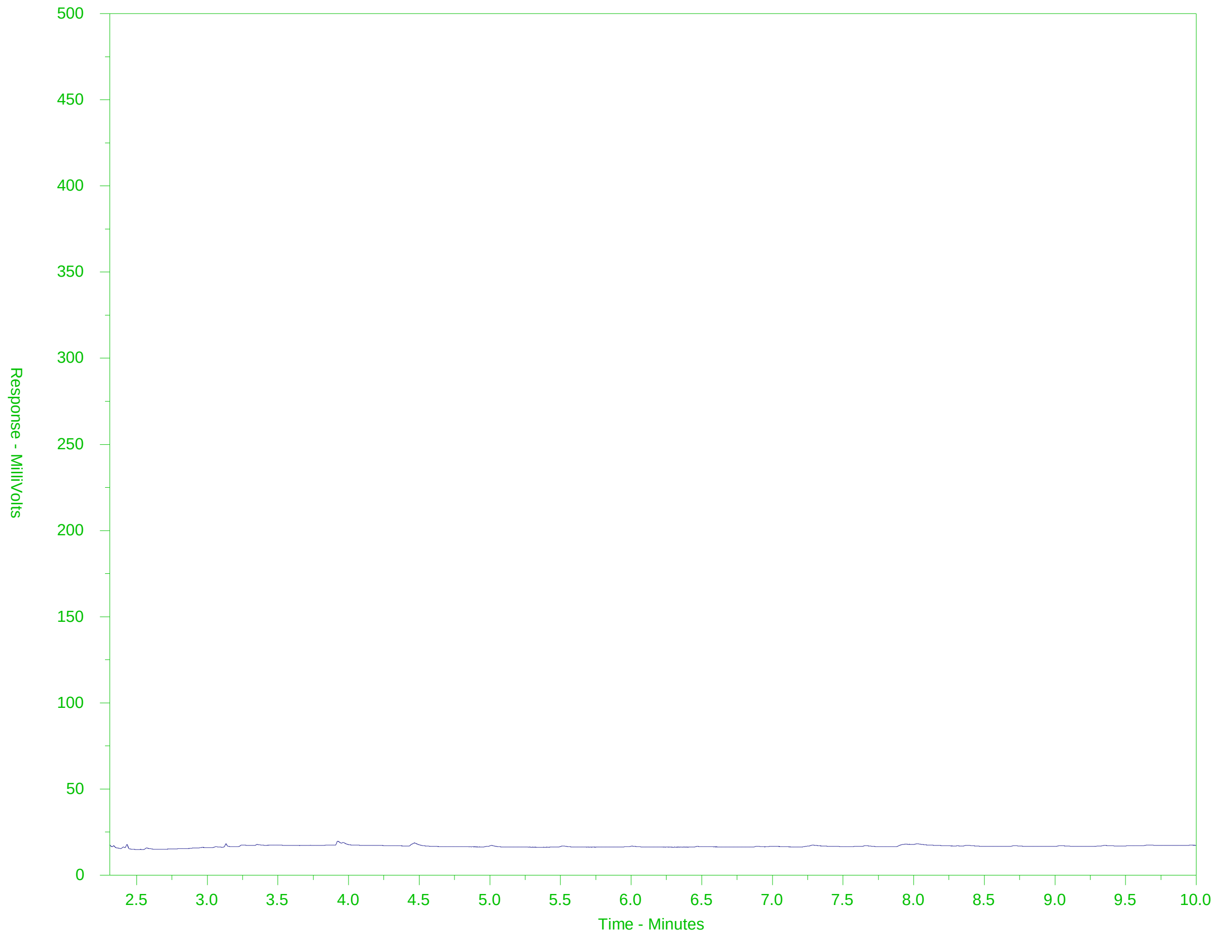
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2219808-3
Client Sample ID: KM42 SPILL LOCATION



← EPH10-19 →	← EPH19-32 →	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

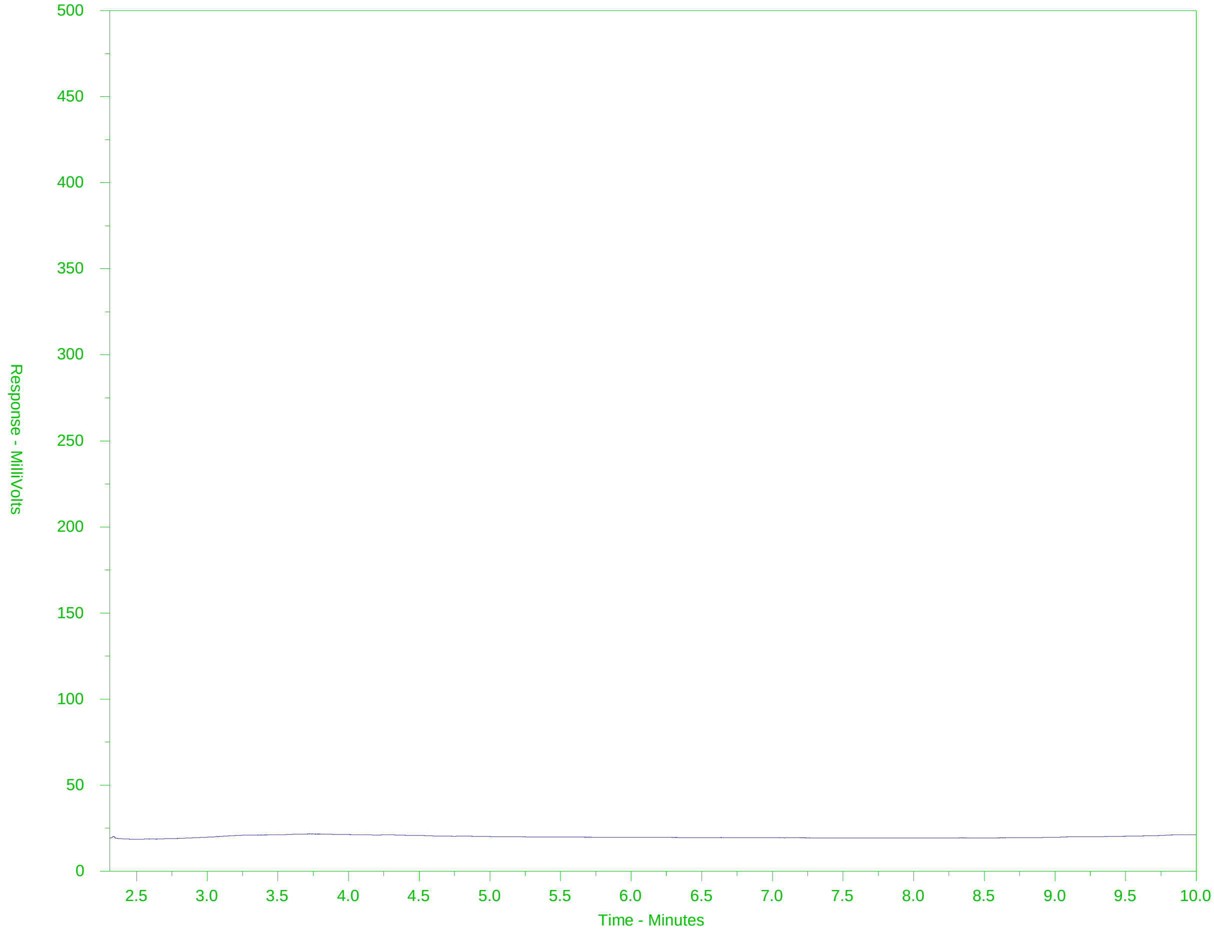
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2219808-4
Client Sample ID: KM42 US



EPH10-19		EPH19-32
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

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

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

L2219808-COFC

ALS Environmental

Chain of Custody / An
Canada Toll Free. . ...
www.alsglobal.com

C #

Page 1 of 1

Report To	
Company:	StrataGold Corporation
Contact:	Hugh Coyle
Address:	1000 - 1050 West Pender Street, Vancouver, BC V6E 3S7
Phone:	604-696-6600 Fax:
Invoice To Same as Report ?	☑ Yes ☐ No
Hardcopy of Invoice with Report?	☐ Yes ☑ No
Company:	
Contact:	
Address:	
Phone:	Fax:
Lab Work Order # (lab use only)	

Report Format / Distribution	
☑ Standard ☐ Other	
☑ PDF ☑ Excel ☑ Digital ☐ Fax	
Email 1:	hcoyle@vitgoldcorp.com; jknox@vitgoldcorp.com
Email 2:	pemerson@vitgoldcorp.com; kbabin@vitgoldcorp
Email 3:	
Client / Project Information	
Job #:	Km 42 Spill
PO / AFE:	
LSD:	Victoria Gold Corp.
Quote #:	Q68199
ALS Contact:	Heather McKenzie
Sampler:	HM,JW,KB,BM

Service Requested (Rush for routine analysis subject to availability)
- ◉ Regular (Standard Turnaround Times - Business Days)
- ○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
- ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
- ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT

Analysis Request
Please indicate below Filtered, Preserved or both (F, P, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	General water quality group 1 gr	Tss/TDS	Total/Diss nutrients (P)	Total/dissolved metals and merc	VOC/C1-C5 Gases (P)	Hydrocarbons (F/P)	Oil andGrease (F/P)	(P)		(F/P)	(P)	(P)		Number of Containers
	Km42 DS w5	12-Jan-18	11:05	Water	X	X	X	X	X	X	X							11
	Km42 DS 100m	12-Jan-18	14:00	Water	X	X	X	X	X	X	X							11
	Km42 Spill Location	12-Jan-18	13:30	Water	X	X	X	X	X	X	X							11
	Km42 US	12-Jan-18	16:20	Water	X	X	X	X	X	X	X							11

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

W21 dissolved metals and DOC not filtered or preserved

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 provided on a separate Excel tab.
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by: K.Babin	Date (dd-mmm-yy) 2019-Jan-12	Time (hh-mm)	Received by: dJ	Date: JAN 14/19	Time: 09:23	Temperature: 1.0 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF

STRATAGOLD CORPORATION
ATTN: Hugh Coyle
Suite 1000 - 1050 W. Pender St
Vancouver BC V6E 3S7

Date Received: 04-FEB-19
Report Date: 13-FEB-19 18:03 (MT)
Version: FINAL

Client Phone: 604-682-5122

Certificate of Analysis

Lab Work Order #: L2228285

Project P.O. #: NOT SUBMITTED
Job Reference: EAGLE GOLD
C of C Numbers:
Legal Site Desc: Victoria Gold Corp.

Joanne Lee
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2228285-1	L2228285-2	L2228285-3		
	Description	Soil	Soil	Soil		
	Sampled Date	27-JAN-19	27-JAN-19	27-JAN-19		
	Sampled Time	15:20	14:00	12:40		
	Client ID	SUMP	CULVERT	DOWNSTREAM EDGE		
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)	16.1	25.6	13.4		
Hydrocarbons	EPH10-19 (mg/kg)	<200	<200	<200		
	EPH19-32 (mg/kg)	<200	<200	<200		
	LEPH (mg/kg)	<200	<200	<200		
	HEPH (mg/kg)	<200	<200	<200		
	Surrogate: 2-Bromobenzotrifluoride (%)	109.0	93.7	95.6		
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	<0.0070 DLCI	<0.0050	<0.0050		
	Acenaphthylene (mg/kg)	<0.0050	<0.0050	<0.0050		
	Anthracene (mg/kg)	<0.0040	<0.0040	<0.0040		
	Benz(a)anthracene (mg/kg)	<0.010	<0.010	<0.010		
	Benzo(a)pyrene (mg/kg)	<0.010	<0.010	<0.010		
	Benzo(b&j)fluoranthene (mg/kg)	<0.010	<0.010	<0.010		
	Benzo(b+j+k)fluoranthene (mg/kg)	<0.015	<0.015	<0.015		
	Benzo(g,h,i)perylene (mg/kg)	<0.010	<0.010	<0.010		
	Benzo(k)fluoranthene (mg/kg)	<0.010	<0.010	<0.010		
	Chrysene (mg/kg)	<0.010	<0.010	<0.010		
	Dibenz(a,h)anthracene (mg/kg)	<0.0050	<0.0050	<0.0050		
	Fluoranthene (mg/kg)	<0.010	<0.010	<0.010		
	Fluorene (mg/kg)	0.011	<0.010	<0.010		
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.010	<0.010	<0.010		
	1-Methylnaphthalene (mg/kg)	0.136	<0.050	<0.050		
	2-Methylnaphthalene (mg/kg)	0.187	0.040	<0.010		
	Naphthalene (mg/kg)	<0.060 DLQ	<0.020 DLQ	<0.010		
	Phenanthrene (mg/kg)	<0.010	<0.010	<0.010		
	Pyrene (mg/kg)	<0.010	<0.010	<0.010		
	Quinoline (mg/kg)	<0.050	<0.050	<0.050		
	Surrogate: Acenaphthene d10 (%)	108.9	82.3	86.7		
	Surrogate: Chrysene d12 (%)	119.2	93.8	102.5		
	Surrogate: Naphthalene d8 (%)	105.0	77.8	82.6		
	Surrogate: Phenanthrene d10 (%)	115.1	89.4	90.9		
	B(a)P Total Potency Equivalent (mg/kg)	<0.020	<0.020	<0.020		
	IACR (CCME) (mg/kg)	<0.15	<0.15	<0.15		

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

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.

Test Method References:

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

Analysis is in accordance with BC MOE Lab Manual method "Extractable Petroleum Hydrocarbons in Solids by GC/FID", v2.1, July 1999. Soil samples are extracted with a 1:1 mixture of hexane and acetone using a rotary extraction technique modified from EPA 3570 prior to 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).

ALS Test Code	Matrix	Test Description	Method Reference**
LEPH/HEPH-CALC-VA	Soil	LEPHs and HEPHs	BC MOE LEPH/HEPH

LEPHs and HEPHs are measures of Light and Heavy Extractable Petroleum Hydrocarbons in soil. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.

LEPHs = EPH10-19 minus Naphthalene and Phenanthrene.

HEPHs = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene, and Pyrene.

ALS Test Code	Matrix	Test Description	Method Reference**
MOISTURE-VA	Soil	Moisture content	CCME PHC in Soil - Tier 1 (mod)

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

ALS Test Code	Matrix	Test Description	Method Reference**
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 3570 & 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.

Benzo(a)pyrene Total Potency Equivalents [B(a)P TPE] represents the sum of estimated cancer potency relative to B(a)P for all potentially carcinogenic unsubstituted PAHs, and is calculated as per the CCME PAH Soil Quality Guidelines reference document (2010).

** 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, BRITISH COLUMBIA, CANADA

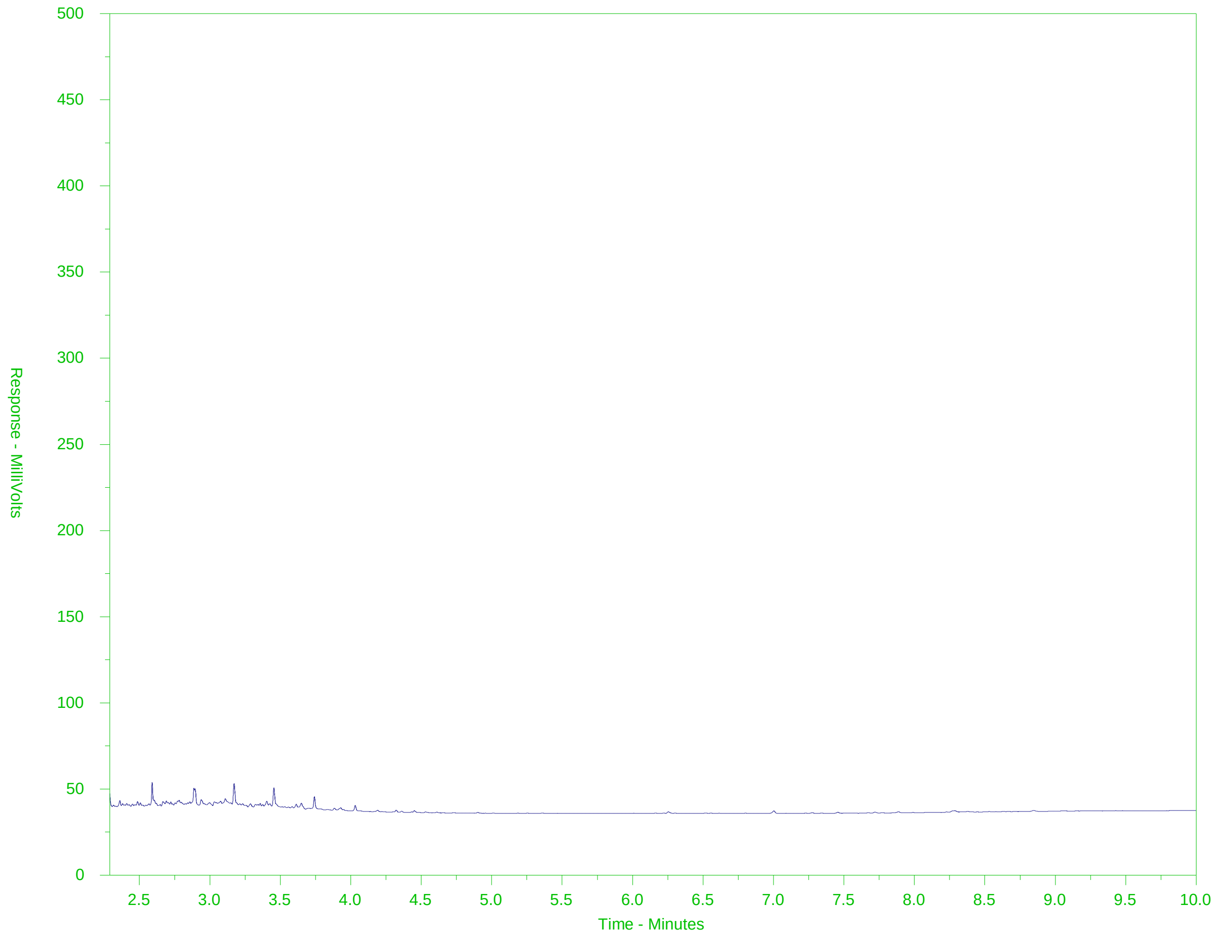
Chain of Custody Numbers:

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.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2228285-1
Client Sample ID: SUMP



← EPH10-19 →	← EPH19-32 →	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

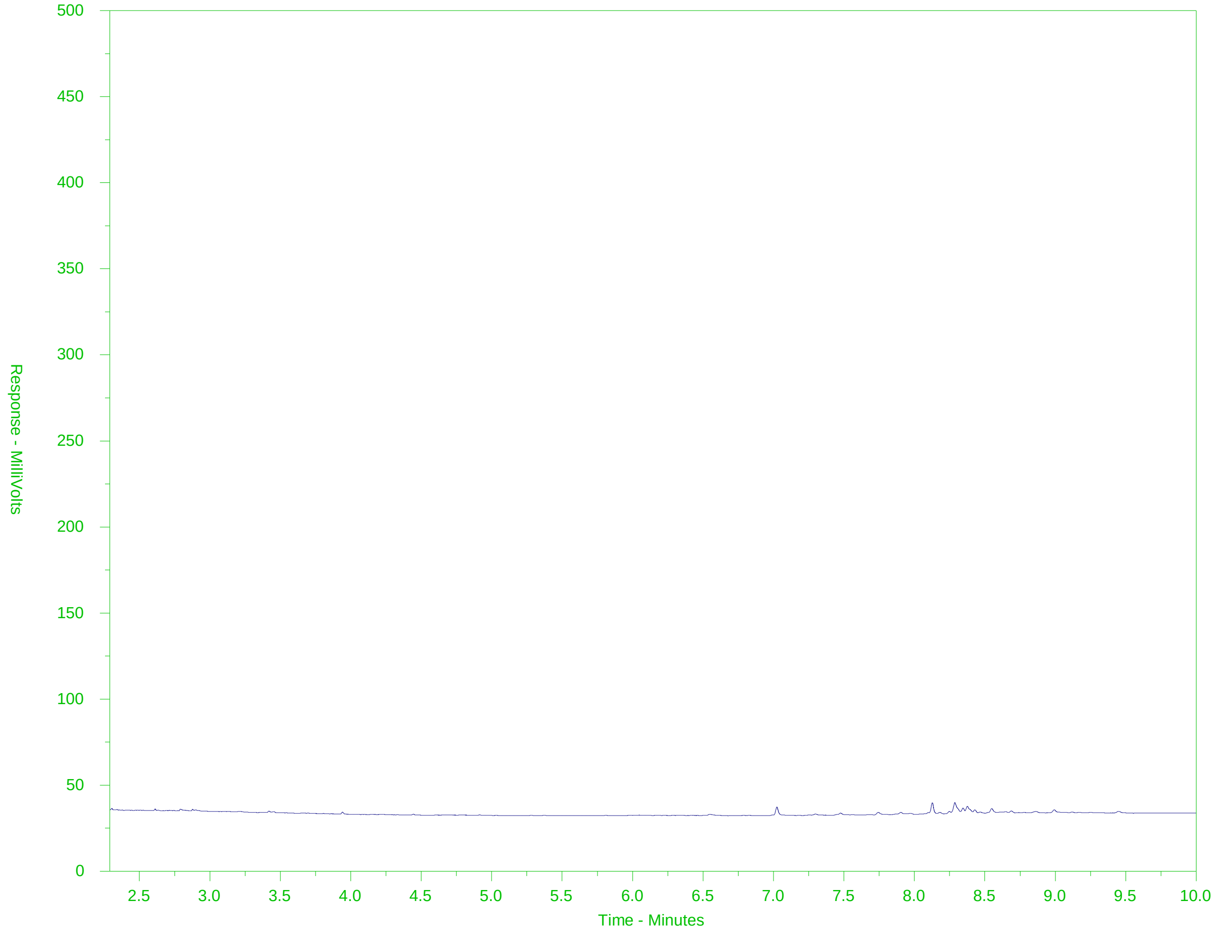
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2228285-2
Client Sample ID: CULVERT



EPH10-19	EPH19-32	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

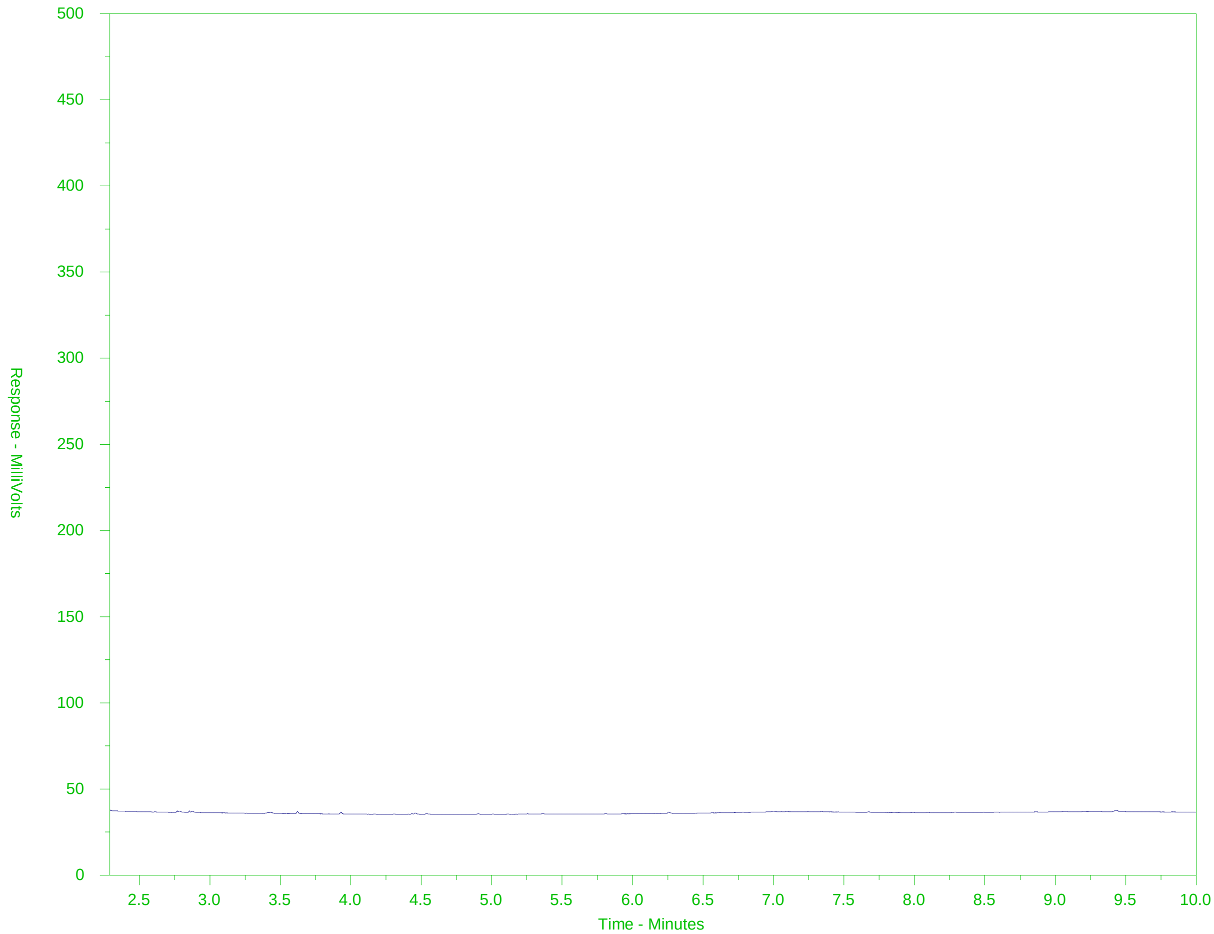
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

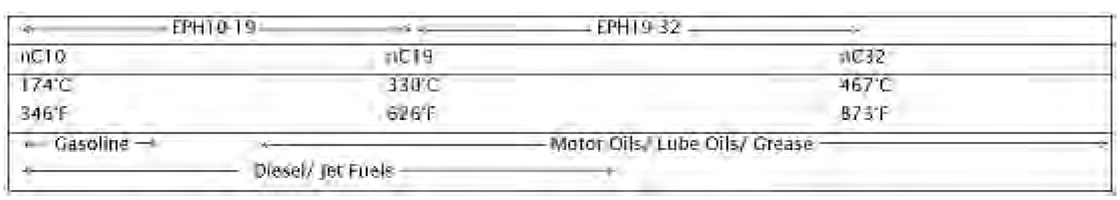
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2228285-3
Client Sample ID: DOWNSTREAM EDGE





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

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

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

ALS Environmental

Chain of Custody / Canada Toll
www.

L2228285-COFC

COC #

Page 1 of 1

Report To		Report Format / Distribution	
Company:	StrataGold Corporation	☑Standard ☐Other	
Contact:	Hugh Coyle	☑PDF ☑Excel ☑Digital ☐Fax	
Address:	1000 - 1050 West Pender Street	Email 1:	hcoyle@vitgoldcorp.com; jknox@vitgoldcorp.com
	Vancouver, BC V6E 3S7	Email 2:	pemerson@vitgoldcorp.com; kbabin@vitgoldcorp.
Phone:	604-696-6600 Fax:	Email 3:	swilbur@vitgoldcorp.com; cbeaudry@vitgoldcorp.
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Eagle Gold
Company:		PO / AFE:	
Contact:		LSD:	Victoria Gold Corp.
Address:			
Phone:	Fax:	Quote #:	
Lab Work Order # (lab use only)		ALS Contact: Joanne Lee Brent Mack	Sampler: JW

Service Requested (Rush for routine analysis subject to availability)

- ◉Regular (Standard Turnaround Times - Business Days)
- ○Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
- ○Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
- ○Same Day or Weekend Emergency - Contact ALS to Confirm TAT

Analysis Request

Please indicate below Filtered, Preserved or both (F, P, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	LEPH/HEPH-CSR-VA	Number of Containers
1	Sump	27-Jan-19	15:20	Soil	X	2
2	Culvert	27-Jan-19	14:00	Soil	X	2
3	Downstream Edge	27-Jan-19	12:40	Soil	X	2
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

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

YUKON CSR

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 provided on a separate Excel tab.
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Crystal Beaudry	2-Feb-19	7:20	EF	2019 4Feb	11:40	0.0 °C	UA	2/7	11:41	

GENF 20.00 Front

Same Frozen

5 (A-5 of 5)

ALS		Sample ID		SUMP	CULVERT	DOWNSTREAM EDGE
3/8/2019		ALS ID		L2228285-1	L2228285-2	L2228285-3
L2228285		Date Sampled		1/27/2019 3:20:00 PM	1/27/2019 2:00:00 PM	1/27/2019 12:40:00 PM
Analyte	**Units**	**LOR**	**YTCSR SOIL IL**	Soil	Soil	Soil
Moisture	%	0.25	-	16.1	25.6	13.4
EPH10-19	mg/kg	200	2000	<200	<200	<200
EPH19-32	mg/kg	200	5000	<200	<200	<200
LEPH	mg/kg	200	2000	<200	<200	<200
HEPH	mg/kg	200	5000	<200	<200	<200
2-Bromobenzotrifluoride	%	Surrogate	-	109	93.7	95.6
Acenaphthene	mg/kg	0.005	-	<0.0070 *	<0.0050	<0.0050
Acenaphthylene	mg/kg	0.005	-	<0.0050	<0.0050	<0.0050
Anthracene	mg/kg	0.004	-	<0.0040	<0.0040	<0.0040
Benz(a)anthracene	mg/kg	0.01	10	<0.010	<0.010	<0.010
Benzo(a)pyrene	mg/kg	0.01	10	<0.010	<0.010	<0.010
Benzo(b&j)fluoranthene	mg/kg	0.01	-	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	mg/kg	0.015	-	<0.015	<0.015	<0.015
Benzo(g,h,i)perylene	mg/kg	0.01	-	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	mg/kg	0.01	10	<0.010	<0.010	<0.010
Chrysene	mg/kg	0.01	-	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	mg/kg	0.005	10	<0.0050	<0.0050	<0.0050
Fluoranthene	mg/kg	0.01	-	<0.010	<0.010	<0.010
Fluorene	mg/kg	0.01	-	0.011	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	mg/kg	0.01	10	<0.010	<0.010	<0.010
1-Methylnaphthalene	mg/kg	0.05	-	0.136	<0.050	<0.050
2-Methylnaphthalene	mg/kg	0.01	-	0.187	0.04	<0.010
Naphthalene	mg/kg	0.01	50	<0.060 *	<0.020 *	<0.010
Phenanthrene	mg/kg	0.01	50	<0.010	<0.010	<0.010
Pyrene	mg/kg	0.01	100	<0.010	<0.010	<0.010
Quinoline	mg/kg	0.05	-	<0.050	<0.050	<0.050
Acenaphthene d10	%	Surrogate	-	108.9	82.3	86.7
Chrysene d12	%	Surrogate	-	119.2	93.8	102.5
Naphthalene d8	%	Surrogate	-	105	77.8	82.6
Phenanthrene d10	%	Surrogate	-	115.1	89.4	90.9
B(a)P Total Potency Equivalent	mg/kg	0.02	-	<0.020	<0.020	<0.020
IACR (CCME)	mg/kg	0.15	-	<0.15	<0.15	<0.15
* = Result Qualified	Mouse-over the result to see the qualification.					
Applied Guideline:	**[Combined] - Yukon CSR and Special Waste Regulation - YTCSR-Schedule 1/2 Soil Industrial Land Use**					
Color Key:	Within Guideline					

ALS		Sample ID					SUMP	CULVERT	DOWNSTREAM EDGE
3/8/2019		ALS ID					L2228285-1	L2228285-2	L2228285-3
L2228285		Date Sampled					1/27/2019 3:20:00 PM	1/27/2019 2:00:00 PM	1/27/2019 12:40:00 PM
Analyte	**Units**	**LOR**	**CCME-SOIL-C-1in100K-CL-GW**	**CCME-SOIL-C-1in100K-CL-NoGW**	**CCME-SOIL-F-1in100K-CL-GW**	**CCME-SOIL-F-1in100K-CL-NoGW**	Soil	Soil	Soil
Moisture	%	0.25	-	-	-	-	16.1	25.6	13.4
EPH10-19	mg/kg	200	-	-	-	-	<200	<200	<200
EPH19-32	mg/kg	200	-	-	-	-	<200	<200	<200
LEPH	mg/kg	200	-	-	-	-	<200	<200	<200
HEPH	mg/kg	200	-	-	-	-	<200	<200	<200
2-Bromobenzotrifluoride	%	Surrogate	-	-	-	-	109	93.7	95.6
Acenaphthene	mg/kg	0.005	-	-	-	-	<0.0070 *	<0.0050	<0.0050
Acenaphthylene	mg/kg	0.005	-	-	-	-	<0.0050	<0.0050	<0.0050
Anthracene	mg/kg	0.004	32	32	32	32	<0.0040	<0.0040	<0.0040
Benz(a)anthracene	mg/kg	0.01	10	10	10	10	<0.010	<0.010	<0.010
Benzo(a)pyrene	mg/kg	0.01	72	72	72	72	<0.010	<0.010	<0.010
Benzo(b&j)fluoranthene	mg/kg	0.01	10	10	10	10	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	mg/kg	0.015	10	10	10	10	<0.015	<0.015	<0.015
Benzo(g,h,i)perylene	mg/kg	0.01	-	-	-	-	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	mg/kg	0.01	10	10	10	10	<0.010	<0.010	<0.010
Chrysene	mg/kg	0.01	-	-	-	-	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	mg/kg	0.005	10	10	10	10	<0.0050	<0.0050	<0.0050
Fluoranthene	mg/kg	0.01	180	180	180	180	<0.010	<0.010	<0.010
Fluorene	mg/kg	0.01	-	-	-	-	0.011	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	mg/kg	0.01	10	10	10	10	<0.010	<0.010	<0.010
1-Methylnaphthalene	mg/kg	0.05	-	-	-	-	0.136	<0.050	<0.050
2-Methylnaphthalene	mg/kg	0.01	-	-	-	-	0.187	0.04	<0.010
Naphthalene	mg/kg	0.01	0.013	0.013	0.013	0.013	<0.060 *	<0.020 *	<0.010
Phenanthrene	mg/kg	0.01	0.046	0.046	0.046	0.046	<0.010	<0.010	<0.010
Pyrene	mg/kg	0.01	100	100	100	100	<0.010	<0.010	<0.010
Quinoline	mg/kg	0.05	-	-	-	-	<0.050	<0.050	<0.050
Acenaphthene d10	%	Surrogate	-	-	-	-	108.9	82.3	86.7
Chrysene d12	%	Surrogate	-	-	-	-	119.2	93.8	102.5
Naphthalene d8	%	Surrogate	-	-	-	-	105	77.8	82.6
Phenanthrene d10	%	Surrogate	-	-	-	-	115.1	89.4	90.9
B(a)P Total Potency Equivalent	mg/kg	0.02	5.3	5.3	5.3	5.3	<0.020	<0.020	<0.020
IACR (CCME)	mg/kg	0.15	1	1	1	1	<0.15	<0.15	<0.15
* = Result Qualified	Mouse-over the result to see the qualification.								
Applied Guideline:	**Federal CCME Canadian Environmental Quality Guidelines (JUN, 2018) = [Suite] - CA_CCME-Soil-Commercial-C/F-GW Protected/Unprotected**								
Color Key:	Within Guideline	Exceeds Guideline							

ALS		Sample ID			KM42 DS W5	KM42 DS 100M	KM42 SPILL LOCATION	KM42 US
3/8/2019		ALS ID			L2219808-1	L2219808-2	L2219808-3	L2219808-4
L2219808		Date Sampled			1/12/2019 11:05:00 AM	1/12/2019 2:00:00 PM	1/12/2019 1:30:00 PM	1/12/2019 4:20:00 PM
Analyte	Units	LOR	CCME-WATER-FAL(LL)	CCME-WATER-FAL-LT	Water	Water	Water	Water
Conductivity	uS/cm	2	-	-	382	438	443	448
Hardness (as CaCO3)	mg/L	0.5	-	-	248	235	244	200
pH	pH	0.1	6.5	9	7.8	7.88	7.86	7.77
Total Suspended Solids	mg/L	3	-	-	<3.0	<3.0	<3.0	<3.0
TDS (Calculated)	mg/L	1	-	-	246	269	274	262
Turbidity	NTU	0.1	-	-	0.76	0.53	0.56	0.43
Alkalinity, Total (as CaCO3)	mg/L	1	-	-	115	133	133	136
Ammonia, Total (as N)	mg/L	0.005	-	-	<0.0050	0.0125	0.0144	0.0086
Bromide (Br)	mg/L	0.05	-	-	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	0.5	-	120	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	mg/L	0.02	-	0.12	0.115	0.119	0.125	0.115
Nitrate (as N)	mg/L	0.005	-	3	0.159	0.157	0.177	0.164
Nitrite (as N)	mg/L	0.001	-	0.06	<0.0010	<0.0010	<0.0010	<0.0010
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	<0.050	<0.050	<0.050	0.061
Total Nitrogen	mg/L	0.05	-	-	0.159	0.157	0.177	0.225
Orthophosphate-Dissolved (as P)	mg/L	0.001	-	-	0.0011	0.001	<0.0010	0.0012
Phosphorus (P)-Total	mg/L	0.002	-	-	<0.0020	<0.0020	<0.0020	<0.0020
Phosphorus (P)-Total Dissolved	mg/L	0.002	-	-	<0.0020	0.0035	<0.0020	<0.0020
Sulfate (SO4)	mg/L	0.3	-	-	88.1	105	106	108
Anion Sum	meq/L	n/a	-	-	4.15	4.86	4.88	4.98
Cation Sum	meq/L	n/a	-	-	5.11	4.84	5.03	4.12
Cation - Anion Balance	%	n/a	-	-	10.3	-0.2	1.5	-9.4
Total Organic Carbon	mg/L	0.5	-	-	0.88	1.07	1.25	1.15
Aluminum (Al)-Total	mg/L	0.003	-	0.005	0.0078	0.0067	0.0071	0.007
Antimony (Sb)-Total	mg/L	0.0001	-	-	0.00058	0.00059	0.00059	0.00029
Arsenic (As)-Total	mg/L	0.0001	-	0.005	0.00242	0.00258	0.00254	0.0013
Barium (Ba)-Total	mg/L	0.0001	-	-	0.0467	0.0479	0.048	0.0434
Beryllium (Be)-Total	mg/L	0.00002	-	-	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Total	mg/L	0.00005	-	-	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	0.01	-	-	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Total	mg/L	0.000005	-	0.00004	0.000035	0.0000146	0.0000249	0.0000225
Calcium (Ca)-Total	mg/L	0.05	-	-	60.7	62.6	58.8	50
Chromium (Cr)-Total	mg/L	0.0001	-	0.001	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)-Total	mg/L	0.0001	-	-	0.00013	0.00021	0.0003	0.00014
Copper (Cu)-Total	mg/L	0.0005	-	0.002	<0.00050	<0.00050	<0.00050	<0.00050
Iron (Fe)-Total	mg/L	0.01	-	0.3	0.039	0.047	0.061	0.058
Lead (Pb)-Total	mg/L	0.00005	-	0.001	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)-Total	mg/L	0.001	-	-	0.0086	0.0087	0.0083	0.0077
Magnesium (Mg)-Total	mg/L	0.1	-	-	25.1	24.5	24.8	20.9
Manganese (Mn)-Total	mg/L	0.0001	-	0.2	0.0669	0.0907	0.106	0.0482
Mercury (Hg)-Total	mg/L	0.000005	-	0.000026	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total	mg/L	0.00005	-	0.073	0.000509	0.000163	0.000141	0.000126
Nickel (Ni)-Total	mg/L	0.0005	-	0.025	0.00118	0.00124	0.00135	0.0013
Phosphorus (P)-Total	mg/L	0.05	-	-	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total	mg/L	0.1	-	-	1.38	1.34	1.36	1.19
Selenium (Se)-Total	mg/L	0.00005	-	0.001	0.000247	0.000213	0.000278	0.000328
Silicon (Si)-Total	mg/L	0.1	-	-	4.67	4.78	4.69	4.61
Silver (Ag)-Total	mg/L	0.00001	-	0.00025	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total	mg/L	0.05	-	-	2.71	2.6	2.68	2.42
Strontium (Sr)-Total	mg/L	0.0002	-	-	0.304	0.301	0.29	0.243
Sulfur (S)-Total	mg/L	0.5	-	-	41.2	40	39.8	31.5
Thallium (Tl)-Total	mg/L	0.00001	-	0.0008	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Total	mg/L	0.0001	-	-	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L	0.0003	-	-	<0.00030	<0.00030	<0.00030	<0.00030
Uranium (U)-Total	mg/L	0.00001	-	-	0.00237	0.00231	0.00227	0.00162
Vanadium (V)-Total	mg/L	0.0005	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Total	mg/L	0.003	-	0.007	0.004	0.0049	0.0052	0.0034
Zirconium (Zr)-Total	mg/L	0.0003	-	-	<0.00030	<0.00030	<0.00030	<0.00030
Dissolved Mercury Filtration Location		n/a	-	-	FIELD	FIELD	FIELD	FIELD
Dissolved Metals Filtration Location		n/a	-	-	FIELD *	FIELD *	FIELD *	FIELD *
Aluminum (Al)-Dissolved	mg/L	0.001	-	0.005	0.0021	0.0023	0.0021	0.0029
Antimony (Sb)-Dissolved	mg/L	0.0001	-	-	0.00054	0.00051	0.00051	0.00024
Arsenic (As)-Dissolved	mg/L	0.0001	-	0.005	0.00213	0.00229	0.00225	0.00111

ALS		Sample ID			KM42 DS W5	KM42 DS 100M	KM42 SPILL LOCATION	KM42 US
3/8/2019		ALS ID			L2219808-1	L2219808-2	L2219808-3	L2219808-4
L2219808		Date Sampled			1/12/2019 11:05:00 AM	1/12/2019 2:00:00 PM	1/12/2019 1:30:00 PM	1/12/2019 4:20:00 PM
Analyte	**Units**	**LOR**	**CCME-WATER-FAL(LL)**	**CCME-WATER-FAL-LT**	Water	Water	Water	Water
Barium (Ba)-Dissolved	mg/L	0.0001	-	-	0.0464	0.0454	0.0467	0.0418
Beryllium (Be)-Dissolved	mg/L	0.00002	-	-	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Dissolved	mg/L	0.00005	-	-	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	mg/L	0.01	-	-	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Dissolved	mg/L	0.000005	-	0.00004	0.000014	0.0000177	0.0000211	0.0000197
Calcium (Ca)-Dissolved	mg/L	0.05	-	-	59.2	55.1	59.6	47.6
Chromium (Cr)-Dissolved	mg/L	0.0001	-	0.001	<0.00010	<0.00010	0.00014	<0.00010
Cobalt (Co)-Dissolved	mg/L	0.0001	-	-	0.00012	0.00019	0.00029	0.00013
Copper (Cu)-Dissolved	mg/L	0.0002	-	0.002	0.0003	0.00025	0.00027	0.00021
Iron (Fe)-Dissolved	mg/L	0.01	-	0.3	0.015	0.023	0.093 *	0.015
Lead (Pb)-Dissolved	mg/L	0.00005	-	0.001	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)-Dissolved	mg/L	0.001	-	-	0.0083	0.0081	0.0083	0.0078
Magnesium (Mg)-Dissolved	mg/L	0.1	-	-	24.4	23.7	23.1	19.6
Manganese (Mn)-Dissolved	mg/L	0.0001	-	0.2	0.0639	0.0868	0.107	0.0459
Mercury (Hg)-Dissolved	mg/L	0.000005	-	0.000026	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	mg/L	0.00005	-	0.073	0.000204	0.000144	0.000147	0.000119
Nickel (Ni)-Dissolved	mg/L	0.0005	-	0.025	0.00107	0.00119	0.00127	0.00126
Phosphorus (P)-Dissolved	mg/L	0.05	-	-	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	0.1	-	-	1.34	1.31	1.32	1.15
Selenium (Se)-Dissolved	mg/L	0.00005	-	0.001	0.000247	0.00021	0.000239	0.000241
Silicon (Si)-Dissolved	mg/L	0.05	-	-	4.39	4.48	4.42	4.52
Silver (Ag)-Dissolved	mg/L	0.00001	-	0.00025	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	0.05	-	-	2.53	2.46	2.51	2.26
Strontium (Sr)-Dissolved	mg/L	0.0002	-	-	0.283	0.26	0.272	0.215
Sulfur (S)-Dissolved	mg/L	0.5	-	-	38.6	37.1	37.3	32.1
Thallium (Tl)-Dissolved	mg/L	0.00001	-	0.0008	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	0.0001	-	-	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	0.0003	-	-	<0.00030	<0.00030	<0.00030	<0.00030
Uranium (U)-Dissolved	mg/L	0.00001	-	-	0.00254	0.00235	0.00234	0.00164
Vanadium (V)-Dissolved	mg/L	0.0005	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	mg/L	0.001	-	0.007	0.0028	0.0025	0.0131 *	0.0031
Zirconium (Zr)-Dissolved	mg/L	0.0003	-	-	<0.00030	<0.00030	<0.00030	<0.00030
Oil and Grease	mg/L	10	-	-	<10 *	<10 *	<10 *	<10 *
Benzene	mg/L	0.0005	-	0.37	<0.00050	<0.00050	<0.00050	<0.00050
Bromodichloromethane	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010
Bromoform	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010
Carbon Tetrachloride	mg/L	0.0005	-	0.0133	<0.00050	<0.00050	<0.00050	<0.00050
Chlorobenzene	mg/L	0.001	-	0.0013	<0.0010	<0.0010	<0.0010	<0.0010
Dibromochloromethane	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010
Chloroethane	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010
Chloroform	mg/L	0.001	-	0.0018	<0.0010	<0.0010	<0.0010	<0.0010
Chloromethane	mg/L	0.005	-	-	<0.0050	<0.0050	<0.0050	<0.0050
1,2-Dichlorobenzene	mg/L	0.0005	-	0.0007	<0.00050	<0.00050	<0.00050	<0.00050
1,3-Dichlorobenzene	mg/L	0.001	-	0.15	<0.0010	<0.0010	<0.0010	<0.0010
1,4-Dichlorobenzene	mg/L	0.001	-	0.026	<0.0010	<0.0010	<0.0010	<0.0010
1,1-Dichloroethane	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dichloroethane	mg/L	0.001	-	0.1	<0.0010	<0.0010	<0.0010	<0.0010
1,1-Dichloroethylene	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010
cis-1,2-Dichloroethylene	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010
trans-1,2-Dichloroethylene	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010
Dichloromethane	mg/L	0.005	-	0.0981	<0.0050	<0.0050	<0.0050	<0.0050
1,2-Dichloropropane	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010
cis-1,3-Dichloropropylene	mg/L	0.0005	-	-	<0.00050	<0.00050	<0.00050	<0.00050
trans-1,3-Dichloropropylene	mg/L	0.0005	-	-	<0.00050	<0.00050	<0.00050	<0.00050
1,3-Dichloropropene (cis & trans)	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010
Ethylbenzene	mg/L	0.0005	-	0.09	<0.00050	<0.00050	<0.00050	<0.00050
Methyl t-butyl ether (MTBE)	mg/L	0.0005	-	10	<0.00050	<0.00050	<0.00050	<0.00050
Styrene	mg/L	0.0005	-	0.072	<0.00050	<0.00050	<0.00050	<0.00050
1,1,1,2-Tetrachloroethane	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010
1,1,2,2-Tetrachloroethane	mg/L	0.0002	-	-	<0.00020	<0.00020	<0.00020	<0.00020
Tetrachloroethylene	mg/L	0.001	-	0.111	<0.0010	<0.0010	<0.0010	<0.0010
Toluene	mg/L	0.00045	-	0.002	<0.00045	<0.00045	<0.00045	<0.00045
1,1,1-Trichloroethane	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010
1,1,2-Trichloroethane	mg/L	0.0005	-	-	<0.00050	<0.00050	<0.00050	<0.00050

ALS		Sample ID			KM42 DS W5	KM42 DS 100M	KM42 SPILL LOCATION	KM42 US
3/8/2019		ALS ID			L2219808-1	L2219808-2	L2219808-3	L2219808-4
L2219808		Date Sampled			1/12/2019 11:05:00 AM	1/12/2019 2:00:00 PM	1/12/2019 1:30:00 PM	1/12/2019 4:20:00 PM
Analyte	**Units**	**LOR**	**CCME-WATER-FAL(LL)**	**CCME-WATER-FAL-LT**	Water	Water	Water	Water
Trichloroethylene	mg/L	0.001	-	0.021	<0.0010	<0.0010	<0.0010	<0.0010
Trichlorofluoromethane	mg/L	0.001	-	-	<0.0010	<0.0010	<0.0010	<0.0010
Vinyl Chloride	mg/L	0.0004	-	-	<0.00040	<0.00040	<0.00040	<0.00040
ortho-Xylene	mg/L	0.0005	-	-	<0.00050	<0.00050	<0.00050	<0.00050
meta- & para-Xylene	mg/L	0.0005	-	-	<0.00050	<0.00050	<0.00050	<0.00050
Xylenes	mg/L	0.00075	-	-	<0.00075	<0.00075	<0.00075	<0.00075
4-Bromofluorobenzene (SS)	%	Surrogate	-	-	98.2	95.4	100	100
1,4-Difluorobenzene (SS)	%	Surrogate	-	-	110.8	106.8	107.8	104.4
EPH10-19	mg/L	0.25	-	-	<0.25	<0.25	<0.25	<0.25
EPH19-32	mg/L	0.25	-	-	<0.25	<0.25	<0.25	<0.25
LEPH	mg/L	0.25	-	-	<0.25	<0.25	<0.25	<0.25
HEPH	mg/L	0.25	-	-	<0.25	<0.25	<0.25	<0.25
2-Bromobenzotrifluoride	%	Surrogate	-	-	89	90.7	86.8	92.1
Acenaphthene	mg/L	0.00001	-	0.0058	<0.000010	<0.000010	<0.000010	<0.000010
Acenaphthylene	mg/L	0.00001	-	-	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	mg/L	0.00001	-	0.0044	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	mg/L	0.00001	-	0.000012	<0.000010	<0.000010	<0.000010	<0.000010
Benz(a)anthracene	mg/L	0.00001	-	0.000018	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.000005	-	0.000015	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo(b&j)fluoranthene	mg/L	0.00001	-	-	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(b+j+k)fluoranthene	mg/L	0.000015	-	-	<0.000015	<0.000015	<0.000015	<0.000015
Benzo(g,h,i)perylene	mg/L	0.00001	-	-	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(k)fluoranthene	mg/L	0.00001	-	-	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	mg/L	0.00001	-	-	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz(a,h)anthracene	mg/L	0.000005	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene	mg/L	0.00001	-	0.00004	<0.000010	<0.000010	<0.000010	<0.000010
Fluorene	mg/L	0.00001	-	0.003	<0.000010	<0.000010	<0.000010	<0.000010
Indeno(1,2,3-c,d)pyrene	mg/L	0.00001	-	-	<0.000010	<0.000010	<0.000010	<0.000010
1-Methylnaphthalene	mg/L	0.00005	-	-	<0.000050	<0.000050	0.000139	<0.000050
2-Methylnaphthalene	mg/L	0.00005	-	-	<0.000050	<0.000050	0.000187	<0.000050
Naphthalene	mg/L	0.00005	-	0.0011	<0.000050	<0.000050	0.000083	<0.000050
Phenanthrene	mg/L	0.00002	-	0.0004	<0.000020	<0.000020	<0.000020	<0.000020
Pyrene	mg/L	0.00001	-	0.000025	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	mg/L	0.00005	-	0.0034	<0.000050	<0.000050	<0.000050	<0.000050
Acridine d9	%	Surrogate	-	-	90.7	85.8	82.5	87.3
Chrysene d12	%	Surrogate	-	-	98.1	95.9	89.7	96.6
Naphthalene d8	%	Surrogate	-	-	101.4	101.3	94.3	106.7
Phenanthrene d10	%	Surrogate	-	-	99.6	99.4	94.3	101.1
* = Result Qualified	Mouse-over the result to see the qualification.							
Applied Guideline:	**Federal CCME Canadian Environmental Quality Guidelines (JUN, 2018) - CCME - Freshwater Aquatic Life (Long Term)**							
Color Key:	Within Guideline	Exceeds Guideline						

Appendix B

Land Treatment Facility Permit Application

EAGLE GOLD PROJECT

APPLICATION FOR ENVIRONMENT ACT PERMIT 81-064 AMENDMENT

INFORMATION REPORT

MARCH 2019

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List of Appendices

1. INTRODUCTION

The Eagle Gold Mine Project (the 'Project') is located 85 km from Mayo, Yukon, the nearest community using existing highway and access roads. StrataGold Corporation (SGC) has been constructing facilities related to the Project since August 2017, and is providing the enclosed information in support of an application to amend Permit No: 81-064 (Attachment A) to allow for development of an on-site Land Treatment Facility (LTF). Waste management for the Project is undertaken in accordance with Permit No: 81-064, which currently authorizes SGC to:

- operate an incinerator capable of burning, according to the manufacturer's specifications, more than 5 kg of solid waste per day;
- generate or store: waste oil and lubricants, waste lead-acid batteries, waste antifreeze, waste solvents; and
- operate equipment for the incineration of waste oil

The permit amendment contemplated in this report is specifically related to the construction of a LTF, which constitutes the next phase of SGC's plan for managing and disposing of Project wastes to addresses concerns raised during the assessment and licensing processes. Attachment B1 includes the Application for Renewal, Amendment of Cancellation of Environment Act Permits, and Attachment B2 includes the completed Application for a Land Treatment Facility under the Contaminated Sites Regulation (CSR).

The location of Project facilities and environmental monitoring locations in relation to the proposed LTF are shown in Figure 1-1. The proposed LTF is approximately 350 m from the nearest watercourse. A sketch plan of the LTF, nearest water bodies, roads and adjacent facilities are shown on Figure 1 -2.

The name and address of the applicant is:

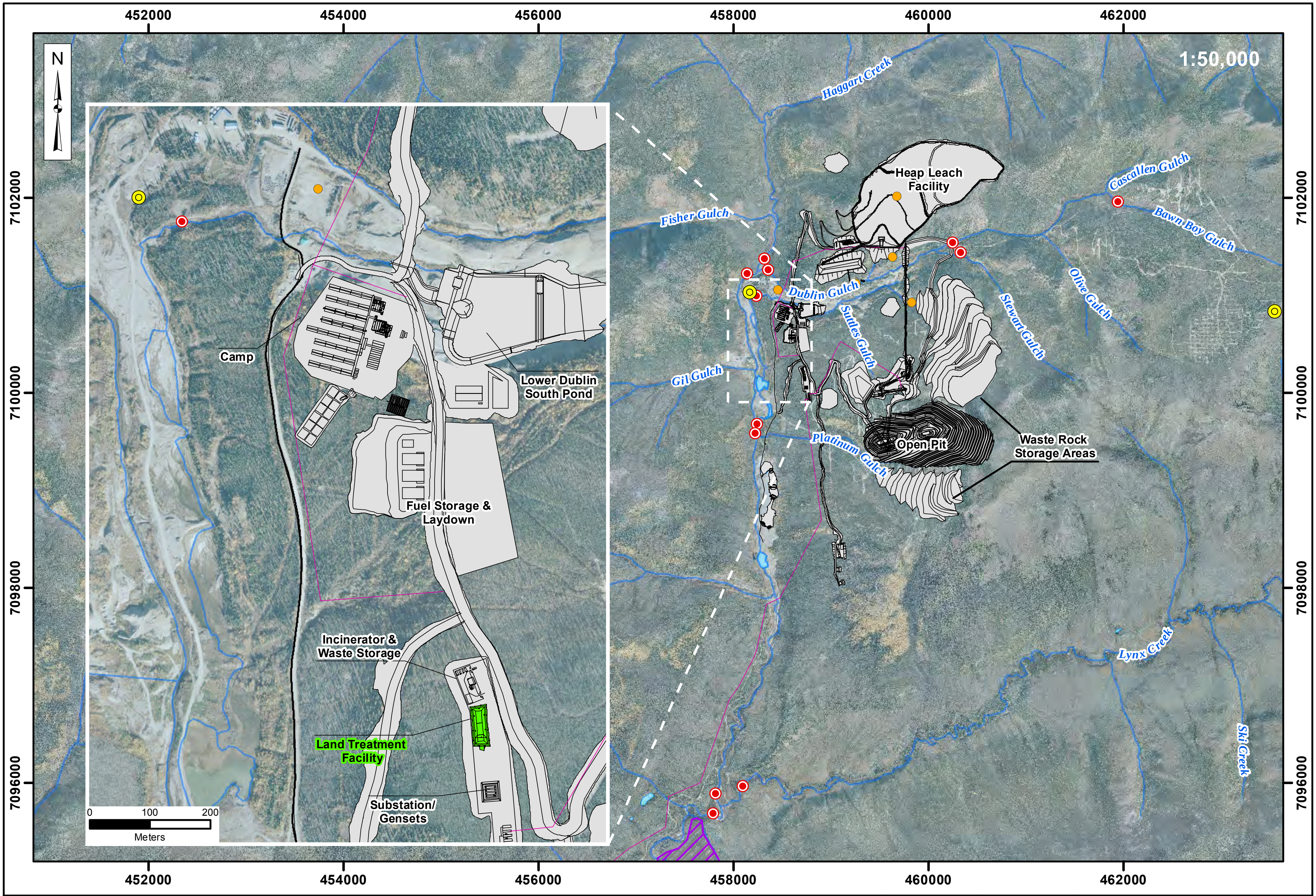
StrataGold Corporation
Hugh Coyle, Lands and Permitting Manager
1000-1050 West Pender, Vancouver, BC
HCoyle@vitgoldcorp.com

The people responsible for activities requiring the permit are:

Chris Copley, Project Manager - Construction
JDS Energy & Mining Inc.
Suite 900 – 999 West Hastings Street
Vancouver BC V6C 2W2
Email: chrisc@jdsmining.ca
Phone: (604) 558-6300

Mike Gunn
Site Manager, StrataGold Corporation
Email: MGunn@vitgoldcorp.com
Phone: (867) 335-4928

Other site information in relation to Permit No: 81-064 remains the same.



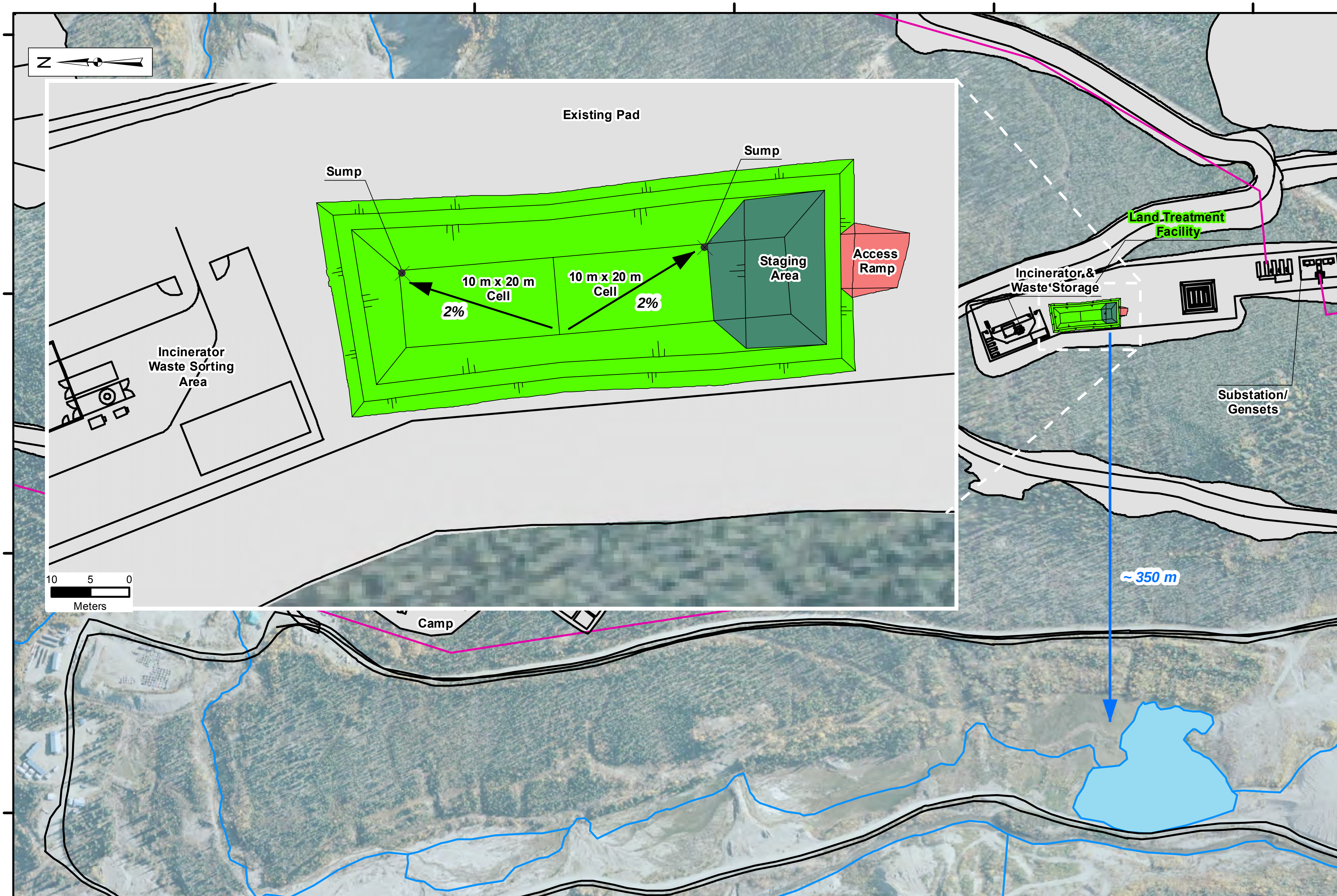
Legend:

- Land Treatment Facility
- Facility
- Site Power
- Climate Station
- Hydrometric & Water Quality Monitoring Station
- Groundwater Monitoring Station
- Watercourse
- Category B Settlement Land

StrataGold Corporation

0 0.75 1.5
Kilometers

Projection:	Drawn By:	EAGLE GOLD PROJECT YUKON TERRITORY
NAD 83 UTM Zone 8N	JK	
Date: 2019/02/13	Figure: 1-1.	Land Treatment Facility Site Location



Legend:

Land Treatment Facility	Facility	Watercourse
Staging Area	Site Power	Waterbody
Access Ramp		

StrataGold Corporation

0 25 50 100
Meters

Projection: NAD 83 UTM Zone 8N

Drawn By: JK

Date: 2019/02/13

Figure: 1-2.

EAGLE GOLD PROJECT
YUKON TERRITORY

Land Treatment Facility Site Plan

2. LAND TREATMENT FACILITY

SGC is applying to amend Permit No: 81-064 to treat contaminated soil generated by the Project in an onsite LTF shown in Figures 1-1 and 1-2.

The LTF has been designed in accordance with *Guidelines for Land Treatment Facilities* (Yukon Government 2018). Attachment C includes the Land Treatment Facility Design Report by Tetra Tech (2019). The LTF has been designed on a slope of less than 6%, is in a location where groundwater has not been detected, and is located approximately 350 m east of Eagle Creek, the nearest watercourse, and is outside of any floodplain.

The LTF will be built with an impermeable, synthetic liner (manufacturer's specifications', welding techniques, and cross sections of the liner are included in Appendix C). The LTF will have a capacity of up to 200 m^3 based on assumed 0.5 m lift of contaminated material over the entire base pad (detailed design drawings and cross sections are included in Figures C01 and C02 in Appendix C).

The LTF will not accept highly contaminated material and is below the treatment capacity requiring a hydrogeological assessment in accordance with the *Guidelines for Land Treatment Facilities* (Yukon Government 2018). Groundwater has not been detected at the site of the site of the LTF and groundwater assessment and monitoring for the Project in accordance with the Project's approved Environmental Monitoring, Surveillance and Adaptive Management Plan is sufficient for the facility.

2.1 BASELINE SOIL CHARACTERIZATION

During baseline studies for the Project, a comprehensive soil sampling program was conducted. Soil analyses included testing for metals and trace element concentration in samples collected from the site in order to provide pre-disturbance soil information. Areas that contain ore bodies often have mineralized soil associated with them, and thus have naturally elevated concentrations of some metals associated with the ore bodies.

The most common soil types at the Project site are Cryosols and Brunisols. Soil textures are predominantly sandy-silt to silty sandy-loam, with coarse fragments ranging from gravel to boulders. Topsoil depths are generally from 10 to 15 cm.

Overburden samples collected at depths between 0.5 and 6 meters, and surface-soil samples collected at depths between 0 and 0.5 m, were almost all found to exceed arsenic guidelines (CCME and Yukon CSR Guidelines for Agriculture and Parkland Soils). The mean concentration of As in soils (0 – 50 cm depth) was 193 mg/kg, with a range of 2.4 to 880 mg/kg. In overburden, the mean As concentration was 320 mg/kg, ranging from 23.7 to 1350 mg/kg. For the remainder of the analyzed elements, three soil samples, and four overburden samples, had Cd, Cu, Pb, Mo, Ni, or Se concentrations which met or exceeded the lowest of the soil quality guidelines, which was often the CCME agriculture guideline limit.

The Project area lies within a zone of discontinuous permafrost. The proposed LTF is in area influenced by permafrost processes and made up of moraine (till) sediments, typical of lower elevations at the Project site. Permafrost was found below 2.5 m at the nearest borehole to the LTF location.

Since the LTF will be built on an existing pad that was constructed with construction grade waste rock material, encountering permafrost during construction of the facility is highly unlikely. Nonetheless, should permafrost be encountered during construction, it will be handled in accordance with the Project's Frozen Materials Management Plan. Materials that form the existing granular pad will serve as the foundation of the facility and will be inspected prior to fill placement to verify it is homogenous and free of soft areas.

2.2 IDENTIFIED SOURCE OF CONTAMINATED

SGC is proposing to construct the LTF to treat contaminated soil, snow and ice generated as a result of the two incidents described below, as well as other contaminated soil that may be generated by the Project during construction and operations. The LTF will not accept soil that is considered highly contaminated. Should highly contaminated soils be generated on site, they will be relocated, in accordance with a Relocation Permit, to a facility designed and approved to accept such materials.

On March 24, 2016 diesel spill of an estimated 7,000L occurred onsite. Approximately 4,925L of the spilt diesel was recovered almost immediately, the spill was reported to the Yukon Spill Report Line, and the site was inspected by the Department of Energy, Mines and Resources (EMR). In conjunction with remediation efforts, contaminated soil was characterized to delineate the contaminated soil unit and estimate its volume. While Yukon Contaminated Sites Regulation (September 2002) - *YTCSR-Schedule 1 and 2 Soil Industrial Land Use* were exceeded, soil samples were not considered highly contaminated with results for Total Petroleum Hydrocarbons (TPH) and Total Extractable Hydrocarbons (THE) below 30,000 parts per million. Approximately 35 m^3 of contaminated soil was excavated during remediation and placed into 1 m^3 soil bags stored on pallets in a secure location safe from flooding, pending further action. Confirmatory samples indicated that the entire contaminated soil unit was successfully excavated. SGC plans to remediate this material in the proposed LTF.

On January 7, 2019, approximately 350 L of diesel was released onto snow and ice along adjacent to and on Haggart Creek at the Project site as a result of a vehicle roll over. Spill containment efforts began immediately, and the spill was reported to the Yukon Spill Report Line. The incident was subsequently discussed with the Inspector from EMR's Major Mines Unit, the Mayo Senior Natural Resource Officer and staff from the First Nation of Nacho Nyak Dun's Lands and Resources Department. Contaminated material (snow, ice and soil) was excavated and removed from the area. Active management to recover additional contaminated material and complete confirmatory sampling per the CSR at this spill location is ongoing. Sampling results to characterize the contaminated soil sampling are not yet available, but results are expected to be below 30,000 parts per million. Should results show this material is highly contaminated, it will be relocated in accordance with a Relocation Permit; otherwise SGC plans to remediate this material in the proposed LTF.

2.3 DESIGN AND LOCATION

The LTF is rectangular in shape with base pad dimensions of 10 m wide x 50 m long to accommodate a soil treatment area and a staging area. The 10 m width is oriented in an east-west direction, and the 50 m length is oriented north-south. The soil treatment area measures 10 m wide x 40 m long and is divided into two 10 m x 20 m areas separated by a granular demarcation berm. A staging area occupies the remaining south end lined area and will be built to berm elevation. It will measure approximately 20 m wide x 10 m long to maximize the area within the berm enclosure.

The treatment capacity of the LTF is 200 m^3. Both treatment areas have an approximate capacity of 100 m^3 based on an assumed 0.5 m lift of contaminated material over the entire base pad. However, the capacity will be similar if the material is placed in wind rows.

Containment berms have been designed approximately 3 m high. The containment berm slopes are 2H:1V with a berm crest width of 2 m. The base pad of the LTF is designed with a 2% cross-grade from the centerline (demarcation berm) to the northeast and southeast corners to allow flow from each treatment area.

The LTF cells and berms will have a liner system that consists of a minimum 60 mil textured high-density polyethylene (HDPE) geomembrane confined between two layers of non-woven geotextile for protection to ensure containment of contaminates and prevent runoff from passing through the LTF. It will be installed over a bedded foundation excavated into the existing granular pad. A natural over liner material will be placed over the HDPE liner to protect the liner from degradation and equipment damage. Minimum over liner requirements to preserve the liner integrity from working equipment are dependent on type of equipment and ground pressure as detailed in Appendix C. Additionally, Appendix C includes:

- the manufacturer's specifications for the impermeable liner;
- a description of the proposed liner installation methods, including welding techniques; and
- detailed design drawings (plan and cross-cross-sectional diagrams) showing the proposed liner and installation design, indicating the location of the liner in relation to berms, cushioning layers, sumps, and other design features.

An access ramp will be constructed over the LTF berm to allow equipment access to the facility without compromising the berm. Signs will be installed to notify personnel that the facility contains contaminated material and that access is restricted.

The LTF will be located in a cleared area adjacent to the Waste Management Area. With Project construction and activities ongoing, the site is not used by wildlife on a regular basis. The proposed LTF is about 350 m from the nearest water body, Eagle Creek, and over 750 m from the camp water source. The site is not located on a floodplain, and groundwater has not been detected below the LTF site. The nearest residential property is approximately 85 km away in Mayo, Yukon.

The slope of the LTF will be less than 6% grade (designed with a with a 2% cross-grade). The area will be leveled and sloped such that run-off from the area can be contained and treated prior to release to the receiving environment.

2.4 OPERATION AND MAINTENANCE

The LTF will be managed and operated in accordance with the *Guidelines for Land Treatment Facilities* (Yukon Government, 2018). The guidelines provide specific guidance related to soil thickness and tilling events. Hydrocarbon contaminated soils will be stored within the LTF and remediated by regular tilling (aeration) and standard northern bioremediation practices.

2.4.1 Operational Season

The operational season of the LTF will be limited to the portion of the year when the soil is not frozen or covered with snow, approximately April through October. No new contaminated soil will be applied when the soil is frozen, covered in snow or saturated with water. Snow will be removed prior to spring freshet to the greatest extent possible to prevent excess runoff from the facility.

Before spring thaw, snow and ice accumulated within the LTF can be removed and placed outside the LTF to melt, if it has not come in contact with the underlying contaminated soil. LTF soils should not be disturbed during the snow removal process and approximately 100 mm of contact snow cover should remain on all surfaces. If the LTF soils are disturbed, contact snow will remain in the LTF area and be deposited in the sump to melt.

2.4.2 Soil Characterization

Contaminated material entering the LTF will tested to determine the level and type of contamination. Prior to treatment, contaminated soils will be tested for petroleum hydrocarbons (PHC) following Protocol 3, *Soil Sampling Procedures at Contaminated Sites* (Environment Yukon, 2018a). Testing will be in accordance with Protocol 5, *Petroleum Hydrocarbon Analytical Methods and Standards* (Environment Yukon, 2017), at a rate of one sample for every 50 m^3 of material. If field testing results or spill conditions indicate that the material is highly contaminated, material will be relocated in accordance with a Relocation Permit to a facility permitted to receive highly contaminated material.

2.4.3 Soil Treatment

The LTF will only be used to treat contaminated materials generated at the Project site; however, soil may have different compositions or contaminant concentrations and should be kept and treated in separate cells or stockpiles within the LTF. Each treatment cell or stockpile will be managed to provide the most efficient and environmentally sound remediation for the type of contaminant being treated. The construction of dual cells allows materials containing different levels of contamination to be kept separate within the facility.

2.4.3.1 Equipment

The LTF will be operated using a bobcat and CAT 325 excavator. CAT 740 haul trucks will be operated over the staging area. Equipment used on the LTF staging area and inside the LTF cells will observe the minimum cover thicknesses provided in Appendix C in any area they operate. Equipment other than the specified excavator, bobcat, and haul trucks may be used; however, their respective ground pressures will be reviewed prior to use in the facility. The CAT 325 excavator can safely operate on 600 mm of cover. The CAT 325 excavator will thus be restricted to the floor area only where sufficient cover is provided.

2.4.3.2 Soil Placement

The LTF has been built with a staging area, upon which haul trucks carrying contaminated soil can dump material. Smaller equipment will then be used within the facility to move contaminated material into the cells as required.

Care will be taken during facility operation to ensure the liner is not damaged. During soil placement and material movement (e.g., for aeration), equipment turning within the facility will be limited to long radius turns without locking tracks or wheels to avoid inducing shear stresses in the underlying liner. If this cannot be accomplished, smaller equipment will be used to move contaminated material as required.

Soil will be either spread over the entire based of the pad in a lift not exceeding 0.5 m, or placed in wind rows or piles to a maximum of 3.0 m high measured from the base of the facility to the peak of the soil pile.

2.4.3.3 Tillage

Tilling aerates the soil, which provides microbes with the oxygen they need to break down PHCs. The *Guidelines for Land Treatment Facilities* require soil placed to a depth of greater than 15 cm be tilled or turned at least twice yearly. Tilling more frequently will allow the soil to remediate more quickly, and the Environmental Program Branch recommends that soil be tilled at least once per month (Yukon Government, 2018).

Tilling schedules will be determined based on the characteristics of contaminated material and depth of material placement, and will meet the *Guidelines for Land Treatment Facilities* at a minimum. Interim sampling will be conducted to estimate the rate that treatment is occurring, and the rate of tilling may be adjusted based on results, if required.

Tilling will only be carried out by an experienced, trained operator who is familiar with the layout of the LFT.

2.4.3.4 Soil Conditioning

In addition to aeration, aerobic microbial activity can be stimulated through the addition of fertilizer or other soil amendments. Soil amendment may be added that increase organic matter, balance pH and/or increase water holding capacity, in order to optimize remediation.

The addition of fertilizer may be beneficial to ensure that the soil is remediated in a timely manner. Application of fertilizer is anticipated to consist of approximately 1 kg fertilizer per ton of contaminated material.

In order to ensure that the microbes in the soil can process hydrocarbons efficiently, the pH of the soil will be maintained between 6.5 and 8.5.

Soil amendments may also include bulking materials such as sawdust or straw added prior to or during treatment to facilitate mixing and/or sufficient water retention.

Interim sampling will estimate the rate that treatment is occurring, and be used to make adjustments to amendment application rates, if required. If Interim testing shows that remediation is not occurring, treatability studies will be undertaken to determine whether adjustments to amendment type or application rates should be made.

2.4.3.5 Water Management

Where possible, accumulated runoff water collected in the LTF sumps will be reused within the facility to maintain optimal moisture levels for remediation. It is anticipated that up to and 100 liters of water per ton of contaminated material could be used for irrigation within the LTF; however, water content may vary depending on moisture content of the contaminated soils.

Care will be taken to ensure that the soil in the LTF does not become saturated; saturation can reduce the oxygen available to microbes and slow or halt remediation.

Runoff from the LTF, will be collected in the sumps within the facility and pumped to a trailer mounted oil/water separator (Figure 2-1) for treatment prior to application to the material within the LTF or discharge to ground. The guidance provided in by *Environmental Programs - Oil Water Separators* (Environment Yukon, 2013) will be followed prior to any discharge of treated water to ground. In the event that the Yukon Government Environmental Programs Branch does not approve discharge of the treated water, the fluid will be transported off site for treatment and disposal at a licensed offsite facility,

The LTF sumps will be monitored and pumped out regularly to maintain cell capacity and reduce the risk of inundating LTF soils. At the end of summer, the LTF will be pumped dry to provide maximum storage capacity for freshet and contaminated snow placement, if any. The waste stream from the oil/water separator will be removed from site for treatment and disposal at a licensed offsite facility as necessary.

Figure 2-1: Trailer Mounted Oil/Water Separator

2.4.4 Confirmation Sampling

Once interim testing and/or conditions indicate a stockpile has been successfully remediated, it will be tested in accordance with Protocol 11, *Sampling Procedures for Land Treatment Facilities* (Environment Yukon, 2018b) in support of a request for approval to remove the soil from the LTF. Remediated soil from the LTF will remain on site and be used for reclamation purposes.

To support a removal request, confirmatory sampling will consist of one representative sample for every 100 m^3 of material formed by combining a number of grab samples from throughout the volume of soil to be represented. Testing will be in accordance with Protocol 5, *Petroleum Hydrocarbon Analytical Methods and Standards* (Environment Yukon, 2017). SGC will obtain approval from Standards & Approvals section of the Environmental Programs Branch to remove the material from the LTF for re-application as required around the Project site.

2.4.5 Monitoring and Record Keeping

LTF operators will implement regular monitoring and maintain records, as follows:

- An inventory of the soil undergoing treatment including its origin, volume, contaminant types and concentrations will be maintained;
- Regular operational activities including aeration activities the addition of nutrients and bulking materials will be implemented and documented;
- Results of soil monitoring analyses will be retained, including characterization sampling, regular interim sampling used to monitor the progress of remediation, and confirmation sampling.
- The LTF will be inspected every two weeks during the operational season and maintained in good working order. Inspection findings and records of maintenance or repairs completed will be documented.

2.5 DECOMMISSIONING

The LTF will be decommissioned when it is no longer required onsite. This is anticipated to be during the Post-closure phase of the Project. Decommissioning will involve removing remaining treated soil from the facility for use in site reclamation activities, removing the artificial liner, levelling the berms, and re-vegetating the area.

A closure plan, including a decommissioning schedule, confirmation sampling demonstrating that contaminated soils have been remediated, and details regarding the use of treated soils will be submitted to and approved by the Environmental Programs Branch before decommissioning work begins. Following decommissioning, closure samples must be collected from the soil beneath and surrounding the former soil treatment facility to confirm the site has not become contaminated during soil treatment.

2.6 CONTINGENCY AND EMERGENCY RESPONSE

In the event of a breach of the facility or release of contaminated material, the Project Spill Response Plan will be followed. Spill kits will be available at all hazardous materials storage sites and transfer areas, including the LTF. Spill kits will contain booms, sorbent materials, shovels and PPE, and fire extinguishers will be located in close proximity to assist in responding to a possible spill incident involving flammable materials. Spill kits will also contain a kit inventory sheet to assist with monthly inspections and the replenishment of spent supplies and equipment. All spill kits will include the 2016

Emergency Response Guidebook. The Spill Kit at the Land Treatment Facility will include equipment to contain cleanup a 50-gallon spill and include:

- Booms, Sorbent Pads, Socks, Pillows
- Disposal Bags and Ties
- Granular Absorbent
- Neoprene Drain Cover
- Chemical-resistant Gloves
- Goggles
- Shovels
- Spill Response Plan
- Emergency Response Guidebook
- Respirator

2.7 PERSONNEL TRAINING

Personnel operating the LTF will be familiar with the design and layout of the facility, equipment, tilling and soil conditioning, water management and sampling, inspections and record keeping for the Facility.

LTF personnel will be trained in the handling, use, storage and transportation of hazardous substances will be trained in the procedures for responding to and reporting of spills. Training topics will include:

- Workplace Hazardous Materials Information System (WHMIS)
- Hazardous Materials Handling; and
- Spill Response training cover topics including:
    - Responsibilities of personnel
    - Causes of spills and preventative measures
    - Control, containment and cleanup methods for various spill locations
    - Proper use of spill response equipment
    - Emergency contact information and location
    - Storage and disposal of materials used on site
    - Reporting requirement and procedure
    - Overview of Spill Response Plan
    - PPE requirements for handling potential spill materials

- o PPE designed for use in handling the various types of hazardous materials.

3. REFERENCES

Environment Yukon (2013). Environmental Programs. Oil Water Separators, prepared June 2013. Available at: http://www.env.gov.yk.ca/air-water-waste/documents/SW19_Oil_Water_Separator_2013.pdf

Environment Yukon (2017). Protocol for the Contaminated Sites Regulation under the *Environment Act* Protocol No. 5: Petroleum Hydrocarbon Analytical Methods and Standards. Rev 05, prepared December, 2017. Available at: http://www.env.gov.yk.ca/air-water-waste/documents/Protocol5.pdf

Environment Yukon (2018a). Protocol for the Contaminated Sites Regulation under the *Environment Act* Protocol No. 3: Soil Sampling Procedures at Contaminated Sites. Rev 05, Prepared February, 2018. Available at: http://www.env.gov.yk.ca/air-water-waste/documents/Protocol3.pdf

Environment Yukon (2018b). Protocol for the Contaminated Sites Regulation under the *Environment Act* Protocol No. 11: Sampling Procedures for Land Treatment Facilities. Rev 05, Prepared February, 2018. Available at: http://www.env.gov.yk.ca/air-water-waste/documents/Protocol11.pdf

Tetra Tech. 2018. Land Treatment Facility Design Eagle Gold Project, YT. Presented to JDS Engineering: December 14, 2018.

Yukon Government (2018). Guidelines for Land Treatment Facilities Construction, Operation, and Decommissioning. CSR#5 Prepared February 2018. Available at: http://www.env.gov.yk.ca/air-water-waste/documents/guidelines_land_treatment_facilities.pdf

ATTACHMENT A

Waste Management Permit No: 81-064

Permit No: 81-064

WASTE MANAGEMENT PERMIT

Issued Pursuant to the *Environment Act*,
the *Air Emissions Regulations*, the *Solid Waste Regulations*,
and the *Special Waste Regulations*

Permittee:	**StrataGold Corporation**
Mailing Address:	**1000-1050 West Pender, Vancouver, BC**
Site Location:	**Haggart Creek Road, Mayo**
Site Location Coordinates:	**64°2'13.409"N 135°44'32.616"W**
Authorized Representative:	**Hugh Coyle, Lands and Permitting Manager** **Roman Bilobrowka, Project Manager – Construction**
Phone/Fax:	**1-250-808-0196**
Email:	**HCoyle@vitgoldcorp.com** **romanb@jdsmining.ca**
Effective Date:	**Date of Director's signature**
Expiry Date:	**December 31, 2021**

This permit replaces permit #81-064 issued on December 29, 2016.

Scope of Authorization: In accordance with your application, **StrataGold Corporation**, represented by yourself, is authorized to:

a) operate an incinerator capable of burning, according to the manufacturer's specifications, more than 5 kg of solid waste per day;
b) generate or store: **waste oil and lubricants, waste lead-acid batteries, waste antifreeze, waste solvents**; and
c) operate equipment for the incineration of: **waste oil**

at the above site location ("the site") as set out in the terms and conditions of this permit.

Dated this 22 day of June, 2018

T. Powell

____

Director, Environmental Programs Branch
Environment Yukon

1. DEFINITIONS

1. In this permit,

   "Act" means the *Environment Act*, R.S.Y. 2002, c. 76;

   "approved plan" means a plan that is submitted by the permittee and approved by an environmental protection analyst under this permit and includes any terms and conditions specified by the environmental protection analyst in the approval;

   "associated personnel" means all employees, contractors and volunteers involved in the permitted activities;

   "Branch" means the Environmental Programs Branch, Environment Yukon;

   "contaminated material" means any soil, snow, sediment, or water that has one or more parameters in excess of applicable standards in the *Contaminated Sites Regulation*, O.I.C. 2002/171;

   "dangerous wildlife" means wildlife so defined in the *Wildlife Act*, R.S.Y. 2002, c. 229;

   "disposal areas" means the location of the solid waste incinerator;

   "environmental protection analyst" means an employee of the Branch so designated by the Minister of Environment under the Act;

   "environmental protection officer" means an employee of the Government of Yukon so designated by the Minister of Environment under the Act;

   "incinerator" means equipment used for the burning of solid waste where the air intake and combustion temperature may be controlled;

   "putrescible waste" means food or plant-based waste which can decompose or rot;

   "Regulations" means any or all of the *Air Emissions Regulations*, O.I.C. 1998/207, the *Solid Waste Regulations*, O.I.C. 2000/11, the *Contaminated Sites Regulation*, O.I.C. 2002/171, the *Designated Materials Regulation*, O.I.C. 2003/184, the *Storage Tank Regulations*, O.I.C. 1996/194, the *Spills Regulations*, O.I.C. 1996/193, and the *Special Waste Regulations*, O.I.C. 1995/047, as applicable;

   "solid waste" includes waste which originates from residential, commercial, industrial or institutional sources, or from the demolition or construction of buildings or other structures or which is specified in a solid waste management plan to be solid waste and for greater certainty includes litter, as defined in the Act, but does not include untreated brush or wood products that are not mixed with other materials;

   "special waste management facility" means an operation which handles or disposes special wastes generated by other persons or operations, and includes without limitation a community collection system which is intended to collect or transport special waste to a special waste management facility in the Yukon;

"spill" means a release of a substance in excess of the amounts specified in Schedule A of the *Spills Regulations*, O.I.C. 1996/193, or that is abnormal in quantity or quality in light of all the circumstances of the release;

"storage tank" means a closed container with a capacity of more than 230 litres that is designed to be installed in a fixed location, and includes either an aboveground storage tank or an underground storage tank;

"substance" means a hazardous substance, pesticide, contaminant, or special waste.

"vehicle" has the same meaning as in the *Motor Vehicles Act*, R.S.Y. 2002, c. 153; and

"waste manifest" means the shipping document required to be completed by the permittee as set out in this permit in the form approved by an environmental protection officer.

2. Any term not defined in this permit that is defined in the Act or the Regulations has the same meaning as in the Act or the Regulations.

2. General

1. The permittee is authorized to operate an incinerator capable of burning, according to the manufacturer's specifications, more than 5 kg of solid waste per day; generate or store waste oil and lubricants, waste lead-acid batteries, waste antifreeze, waste solvents; and operate equipment for the incineration of waste oil at the above site location ("the site") as set out in the terms and conditions of this permit.

2. No condition of this permit limits the applicability of any other law or bylaw.

3. The permittee shall ensure that all activities authorized by this permit occur on property that the permittee has the right to enter upon and use for that purpose.

4. The permittee shall ensure that all associated personnel:
   a) have access to a copy of this permit;
   b) are knowledgeable of the terms and conditions of this permit; and
   c) receive the appropriate training for the purposes of carrying out the requirements of this permit.

5. The permittee shall provide notice in writing to an environmental protection analyst prior to any significant change of circumstances at the site, including without limitation:
   a) closure of the operation or site;
   b) change of ownership of the site;
   c) discontinuation of any regulated activity at the site;
   d) generating, storing or transporting special wastes other than those authorized by this permit; or
   e) change to the mailing address or phone number of the permittee.

6. The permittee shall obtain approval from an environmental protection analyst prior to:
    a) burning any type of waste that is not combustible waste as defined in this permit; or
    b) any change to existing incineration or open burning equipment, including the addition, removal or replacement of equipment.

7. Where conflicts exist between this permit, the permit application or elements of any plan pertaining to any activity regulated under the Act, this permit shall prevail.

8. If an inspection reveals that the site or equipment is in any way not in compliance with this permit or approved plans developed in accordance with this permit, the permittee shall repair the damage or take other actions as required to bring the site or equipment into compliance.

9. For clarity, all obligations of the permittee under this permit survive the expiry date.

3. PLANS AND REPORTS

1. When the permittee is required to submit a plan under this permit, the permittee shall:
    a) ensure the plan meets the requirements for that type of plan as established by the Branch in writing, where applicable;
    b) submit the plan in writing to an environmental protection analyst; and
    c) implement the plan as of the date it is submitted, unless otherwise provided for in this permit.

2. If the permittee wants to amend a submitted plan, the permittee shall submit the proposed amendment to an environmental protection analyst as if the amendment were a plan under section 3.1 of this permit.

3. If an environmental protection analyst directs in writing that a submitted plan be amended, the permittee must prepare the required amendment by the date specified and submit it as if it were a plan referred to in section 3.1 of this permit.

4. FENCING AND SECURITY

1. The permittee shall install and maintain, in accordance with written guidance from the Department of Environment, an electric exclusion fence(s) and gates that encompass all putrescible waste storage and disposal areas and any other areas of the site location that become or may become an attractant to animals. The fence and gates shall be adequate to prevent dangerous wildlife from entering the encompassed areas of the site.

2. The fences and gates referenced in section 4.1 above must be:
    a) activated continuously from May 1 to October 31 of each year;
    b) activated between November 1 and April 30 of each year if there are tracks or other signs of dangerous wildlife attempting to access the dump; and

c) activated upon the written request of an environmental protection officer.

3. If the permittee wishes to deactivate the electric fence for any length of time during the period of operation referenced in section 4.2 (other than for regular maintenance of the fence), the permittee shall obtain prior approval from an environmental protection officer.

4. The permittee shall conduct weekly inspections of all electric fences and shall maintain them as necessary during periods of activation as specified in section 4.2 to ensure that:
   a) the fence is sufficiently charged to deter wildlife; and
   b) there is no vegetation or windblown litter or other items along the perimeter of the fence, or contacting the fence, that may act as a ground.

5. The permittee shall ensure that all gates are closed and secured every time personnel leave the area bounded by the electric fence.

6. The permittee shall install and maintain fencing or other comparable measures to prevent the release of solid waste from the site location.

5. STORAGE AND OFF-SITE TRANSFER OF SOLID WASTE

1. The permittee shall ensure that putrescible waste is stored in bear-proof containers and that it is not stored for a period of greater than seven days prior to being transferred offsite or incinerated in accordance with this permit.

2. The permittee shall ensure that all ash from incinerating or open burning is placed in a covered metal container and transported to a permitted solid waste disposal facility.

3. The permittee shall ensure that all materials listed in Schedule A of the *Designated Materials Regulation*, O.I.C. 2003/184, are not buried or burned and that they are taken periodically to a municipal or community dump or other depot for those materials.

4. The permittee shall ensure that they receive written authorization from the operator of any municipal or Yukon government solid waste disposal facility prior to transferring any waste to that facility.

5. The permittee shall report any incidents involving dangerous wildlife to the Government of Yukon, Conservation Officer Services Branch (**867-390-2685**) or the TIPP line (**1-800-661-0525**).

6. INCINERATION OF SOLID WASTE

1. The permittee shall only incinerate solid waste generated by the commercial activity at the site and shall use an incinerator that meets the requirements established by the Branch in the

"Requirements for Commercial Dumps" guidelines as updated from time to time. The permittee shall only incinerate the types of waste that the incinerator is designed to incinerate, as stated in the manufacturer's specifications, and shall operate the incinerator in accordance with the manufacturer's specifications and operating and maintenance manuals.

2. Notwithstanding section 7.1**,** the permittee shall not incinerate the following materials, unless written approval is obtained from an environmental protection analyst:
   a) contaminated soil;
   b) tires;
   c) special wastes, including waste petroleum products; and
   d) treated wood products (e.g., wood products treated with creosote, chromium copper arsenate, pentachlorphenol) and wood painted with lead- or PCB-based paint.

3. The permittee shall:
   a) maintain the integral physical components of the incinerator, including the burners, gauges, valves, lines, monitoring equipment (if applicable), walls, doors and exhaust components in accordance with the manufacturer's specifications and in such a manner as to provide optimal control of air contaminant emissions during all operating periods;
   b) follow the manufacturer's instructions and recommendations for calibration of the unit (including temperature gauges), maintenance, and repair and document all calibrations, maintenance and repair activities; and
   c) conduct monthly visual inspections and maintenance on all incinerator components, and tanks and piping supplying fuel to the incinerator.

4. The permittee shall conduct analytical testing of the ash produced by incineration as directed in writing by an environmental protection analyst. The permittee shall follow the direction of an environmental protection analyst with respect to requirements for burying or otherwise handling the ash.

7. STORAGE AND HANDLING OF SPECIAL WASTE

1. The permittee shall not handle special wastes other than those authorized by this permit.

2. The permittee shall not discard, destroy, treat, process, incinerate, or recycle special wastes unless specifically authorized by this permit, except for mixing or dilution authorized by an environmental protection officer as an acceptable treatment or disposal option for the special waste.

3. The permittee shall ensure that each container containing special waste is clearly labelled to indicate the type of special waste stored. The permittee shall not mix different types of special waste.

4. The permittee shall ensure that special wastes are stored and handled in such a manner as to prevent their release into the environment.

5. The permittee shall ensure that:
    a. all drums and other portable containers containing special wastes are covered or stored out of inclement weather;
    b. all drums and other portable containers containing special wastes are stored off the ground;
    c. all containers used to store special waste are closed at all times during storage;
    d. special wastes are stored in a manner that will prevent incompatible substances from reacting adversely with each other;
    e. containers used for the storage of special waste are made of materials that will not adversely react with the special waste;
    f. special wastes stored in leaking containers are immediately transferred to intact containers; and
    g. all containers used for the storage of special waste are clearly marked to identify what special waste is stored in the container.

6. The permittee shall inspect special waste storage containers:
    a) weekly in terms of visual inspections for leaks;
    b) monthly in terms of the volume of special wastes stored on site;
    c) annually in terms of tank/container quality, piping, and auxiliary equipment; and
    d) upon request from an environmental protection officer.

7. The permittee shall not allow any residue at the bottom of a container used for the storage of special waste to be released to the environment. Such residue shall be collected by the permittee and considered to be special waste until proven by testing to not be special waste.

8. The permittee shall not store special wastes that are petroleum products in a storage tank with a capacity greater than 4000 L unless specifically authorized by a permit issued pursuant to the *Storage Tank Regulations*, O.I.C. 1996/194.

9. The permittee shall not store special wastes that are not petroleum products in a storage tank with a capacity of 2000 L or greater unless specifically authorized by a permit issued pursuant to the *Storage Tank Regulations*, O.I.C. 1996/194.

10. If an inspection reveals that the amount of special waste stored at the site may pose a risk to human health or the environment, the permittee shall develop and implement a final disposal plan for the special waste, as directed in writing by an environmental protection officer.

8. WASTE OIL

1. Waste oil in which one or more contaminants exceeds the standards specified in Table 1 below shall be considered contaminated waste oil.

TABLE 1: ACCEPTABLE ANALYSIS METHODS AND CONTAMINANT LEVELS IN WASTE OIL

Contaminant	Maximum Concentration (mg/kg)	Test Method
Arsenic	5.0	EPA 3050B/3051 & 7060
Cadmium	2.0	EPA 3050B/3052 & 7000/7131
Chromium	10	EPA 3050B/3051 & 7000/7191
Lead	50	EPA 3050B/3051 & 7000/7421
Total organic halogens	1000	EPA 9020B or EPA 9022
PCBs	2.0	EPA 3540C/3541 & 8082

2. Determination as to whether waste oil is contaminated shall be made in accordance with the "General Information on Waste Oil" guidelines established by the Branch, as amended from time to time.

3. Prior to blending contaminated waste oil with uncontaminated waste oil, the permittee shall obtain analytical results for both the contaminated and uncontaminated oil and blend the oil in accordance with the "General Information on Waste Oil" guidelines established by the Branch, as amended from time to time.

4. When submitting a sample of waste oil feedstock for laboratory analysis the permittee shall ensure that the laboratory uses the methods specified in Table 1, or equivalent, as amended from time to time, for each listed substance. The permittee shall ensure that the detection limit of the method used is lower than the standards set forth in Table 1.

5. The permittee shall not incinerate contaminated waste oil.

6. Waste oil shall only be incinerated in an appliance which is approved or certified to burn waste oil by the Canadian Standards Association (CSA), the Underwriters' Laboratories (UL), or the Underwriters' Laboratories of Canada (ULC).

7. The waste oil incinerator must be installed, operated and maintained in accordance with the manufacturer's written instructions and specifications.

8. The permittee shall have a sample of their waste oil feedstock analyzed as directed by an environmental protection officer, and shall allow an environmental protection officer to obtain samples of their waste oil feedstock for the purpose of submitting them for analysis.

9. No special wastes other than waste oil may be incinerated under this permit without undertaking an environmental assessment pursuant to the *Yukon Environmental and Socio-economic Assessment Act.*

9. TRANSPORT AND TRANSFER OF SPECIAL WASTE

1. The permittee shall not transport or transfer special wastes other than within the site.

2. The permittee shall ensure that all special wastes are transported and transferred in such a manner as to prevent their release into the environment.

3. The permittee shall complete a waste manifest documenting each shipment of special wastes from the site. The permittee shall distribute copies of the waste manifest in the manner described thereon.

4. The permit number **YG81-064** shall be used as the Provincial Identification Number on waste manifests used for the transport of the listed special wastes.

5. The permittee shall ensure that all vehicles operated by the permittee and carrying any special wastes are secured to prevent access by unauthorized persons.

6. The permittee shall ensure that special wastes are transported to a special waste management facility in Yukon or another jurisdiction that is permitted to receive those listed special wastes.

7. The permittee shall ensure that special wastes are transported by a carrier permitted in Yukon to transport the listed special wastes.

10. SPILLS

1. The permittee shall contact either an environmental protection officer or the 24-hour Yukon Spill Report Centre (**867-667–7244**) as soon as possible under the circumstances in the event of a release, spill, unauthorized emission, discharge, or escape of any substance listed in the *Spills Regulations*, O.I.C. 1996/193, or any special wastes.

2. The permittee shall ensure that clean-up equipment appropriate for the amount and type of special waste generated or stored on site (such as sorbent, shovel, broom, bucket, gloves, boots, etc.) is readily accessible at all locations where the special wastes are handled or stored.

3. The permittee shall ensure that spill procedures are developed, maintained, and posted at all locations where special wastes are handled or stored, and that all personnel (employees, contractors or volunteers) are familiar with those procedures. The spill procedures must meet the requirements for that type of plan as established by the Branch in writing.

4. The permittee shall ensure that contaminated material resulting from a release, spill, unauthorized emission, discharge, or escape or any special wastes is properly handled in accordance with the *Contaminated Sites Regulation*, O.I.C. 2002/171.

11. <u>Inspections and Record Keeping</u>

1. The permittee shall keep the following general records at the site:
   a) a current site plan showing the location of the solid and special waste storage and handling locations, and the incinerator;
   b) a copy of each plan developed under this permit, and any amendments to and approvals of each plan;
   c) inspections conducted by the permittee in accordance with this permit (including the name of the person conducting the inspection, the date of each inspection, any observations recorded during the inspection, actions taken as a result of those observations, and the date each action was taken); and
   d) any and all deficiencies remedied in accordance with section 2.8, and how and when they were remedied.

2. The permittee shall keep the following records at the site related to the offsite transfer of solid waste:
   a) written authorization from the operator of any municipal or Yukon government solid waste disposal facility authorizing the transfer of waste to that facility.

3. The permittee shall keep the following records at the site related to operation of the solid waste incinerator:
   a) the name of the incinerator operator;
   b) the date and time of operation of the incinerator;
   c) the types and approximate quantities of solid waste incinerated; and
   d) dates, times and length of any emergency shutdown and/or malfunction of any incinerator component or the tanks or piping supplying fuel to the incinerator.

4. The permittee shall keep the following records at the site related to the storage and handling of special waste:
   a) the types of special wastes generated or stored at the site, their estimated volumes, and their storage location(s);
   b) a copy of any waste manifests used to transport special wastes to or from the site; and
   c) notes concerning any release, spill, unauthorized emission, discharge, or escape that occurred at the site, including the substance involved and estimated quantity, the date of observation, any spill reports made, and clean-up procedures implemented.

5. The permittee shall keep all records required under this permit in a format acceptable to an environmental protection officer for a minimum of three years and make them available for inspection by an environmental protection officer upon request.

ATTACHMENT B

Permit and Permit Amendment Application Forms

Yukon
Environment

APPLICATION FOR RENEWAL, AMENDMENT OR CANCELLATION OF *ENVIRONMENT ACT* PERMITS

Please complete the following and ensure that all information is legibly printed or typed:

Permittee: StrataGold Corporation
(Business or individual name)

Permit type: Land treatment facility permit
(e.g. pesticide, special waste, air emissions, solid waste, land treatment facility, relocation, ODS/OH)

Permit number: 81-064
(e.g. 4201-XX-XXX)

Please check (✓) appropriate box:

Renewal

☐ I have fully reviewed my permit and the information on my current permit is correct and complete and my business is operating as described therein.

Amendment

☑ I have fully reviewed my permit and the following changes or additions have occurred and should be taken into account when renewing my permit (attach additional information if necessary):

Ownership: __________
Mailing Address: __________
Site Location(s): __________
Telephone #: __________ Fax #: __________
Email: __________
Products/Activities: Construction and operation of a land treatment facility
Transport special wastes: yes: ☐ no: ☑
Other: Please see additional information and application forms

Note: additional information may be required depending on the nature of the change.

Cancellation

☐ I am no longer undertaking the activities authorized by the above permit. I understand that I will be contacted by enforcement officials to confirm that a permit is no longer required, at the following coordinates:

Mailing Address: __________
Site Location(s): __________
Telephone #: __________ Fax #: __________
Email: __________
Permitted Activities: __________

I, Hugh Coyle *[print name clearly]*, certify that I am an authorized representative of StrataGold Corporation *[business name]*, and hereby make application for the renewal, amendment or cancellation of the above-noted permit, as indicated, and certify that the information provided on this form is correct.

Signature of applicant

March 6, 2019
Date

\# of attachments

This information is being collected under the authority of s.90 of the *Environment Act*. For further information contact the Environmental Programs Branch at (867) 667-5683.

Yukon

CONTAMINATED SITES REGULATION

APPLICATION FOR A LAND TREATMENT FACILITY PERMIT

Applicants should ensure that they:

- are familiar with the *Contaminated Sites Regulation* (under the *Yukon Environment Act*).
- complete all applicable sections, legibly printing or typing all information.
- complete the signature block at the end of the form.
- submit all required attachments.

A pre-permit inspection may be conducted prior to the issuance of any permit.

This application form, when completed as directed, satisfies the requirement for a land treatment facility plan under subsection 18(2) of the *Contaminated Sites Regulation*.

Payment of a technical review fee may be required prior to issuance of this permit

The original completed and signed application form should be mailed or delivered to your local government office or:

Environmental Programs Branch (V-8)
Department of Environment
Government of Yukon (located at 10 Burns Road, Whitehorse)
Box 2703, Whitehorse, Yukon Y1A 2C6

For additional information:

Phone: (867) 667-5683 or 1-800-661-0408 ext. 5683 • Fax: (867) 393-6205
Internet: www.env.gov.yk.ca/air-water-waste/pesticides_regs.php
E-mail: envprot@gov.yk.ca

ALL APPLICANTS SHOULD BE AWARE OF THE FOLLOWING:

Applicants for a land treatment facility with a capacity of 3000 m^3 or greater or for a land treatment facility that will accept highly contaminated material must conduct a hydrogeological assessment. Applicants are required to cover the cost to have a third-party expert review the hydrogeological assessment. Please consult the "Technical Reviews" document for more information or contact the Environmental Programs Branch.

Please note that a Land Treatment Facility may not be located on a site that:

- Has a slope greater than 6%;
- Has a seasonal high water table of less than 3 metres below the surface;
- Is within 100 metres of a surface water body;
- Is on land identified as being within a 25 year floodplain;
- Is within 60 metres of a residence or residential property boundary.

PLEASE READ CAREFULLY AND FILL OUT ALL APPLICABLE SECTIONS. ATTACH ADDITIONAL PAGES AS NEEDED.

PART 1 - CONTACT AND SITE INFORMATION

1. Name and address of applicant

The applicant is the person filling out this application, and whose name is to appear on the permit.

Hugh Coyle, Lands and Permitting Manager — 604.696.6600
CONTACT NAME AND POSITION TITLE — PHONE #

StrataGold Corporation — 604.682.5232
BUSINESS NAME OR GOVERNMENT AGENCY/BRANCH/DEPARTMENT — FAX #

Suite 1000 - 1050 West Pender St., Vancouver, BC — V6E 3S7
MAILING ADDRESS — POSTAL CODE

hcoyle@vitgoldcorp.com
EMAIL ADDRESS

StrataGold Corporation
NAME (PERSON OR BUSINESS) TO APPEAR ON PERMIT

2. Who will be operating the Land Treatment Facility?

☐ same as (1) above, or *(for multiple site locations, list on a separate sheet)*:

Mike Gunn — 867-335-4928
CONTACT NAME AND POSITION TITLE — PHONE #

StrataGold Corporation — 604.682.5232
BUSINESS NAME OR GOVERNMENT AGENCY/BRANCH/DEPARTMENT — FAX #

mgunn@vitgoldcorp.com
EMAIL ADDRESS

3. Where will the Land Treatment Facility be located? *(For multiple site locations, list on a separate sheet).*

Eagle Gold Mine Project, Haggart Creek Road, Mayo

STREET ADDRESS

Dublin Gulch Claim Block

LEGAL ADDRESS

64°2'13.409" N 139°44' 32.616" W

GEOGRAPHIC COORDINATES (CENTRE OF SITE IN LAT/LONG, UTM (SPECIFY ZONE) OR YUKON ALBERS)

4. Who owns the land on which the Land Treatment Facility will be located?

☐ same as (1) above, or *(for multiple site locations, list on a separate sheet):*

Quartz Claims held by StrataGold Corporation

Applicants not owning the land on which the facility is to be located, including when the applicant is leasing the land from another party, must include with this application a letter from the landowner authorizing the intended activity on their property.

5. Is the land leased? If so, by whom?

☐ same as (1) above, or *(for multiple site locations, list on a separate sheet):*

6. If the land is within municipal boundaries, what is the zoning of that land? *(For multiple site locations, list on a separate sheet.)*

Applicants must comply with municipal bylaws and ensure they are aware of any restrictions on activities in zoned areas.

PART 2 - FACILITY DETAILS

7. Please indicate the nature of the operation:

☒ The facility will be used to treat contaminated material generated by the applicant only.

☐ The facility will be used on an ongoing basis to treat contaminated material generated by others.

☐ Other:

8. What type of contaminated material will be treated at the facility?

☒ Contaminated soil ☐ Contaminated water

9. What are the contaminants to be remediated? *(e.g. petroleum hydrocarbons, pentachlorophenol, etc.)*

Petroleum hydrocarbons

10. What sources of contaminated material have been identified? *(e.g. locations, spill events)*

The sources of contaminated material to be treated in the Land Treatment Facility is from fuel spills that occurred onsite on March 24, 2016 and January 7, 2019. Spills were reported, remediated and contaminated material has been stored onsite. Additional details are provided in the Information Report.

11. Will any of the contaminated material treated at the facility be highly contaminated?

☒ No

☐ Yes – please elaborate *(attach additional pages if needed)*:

12. What volume of soil is the facility designed to store and treat? 200 m³

13. What are the proposed dimensions of the facility, measuring along the inside edge of the berms, and to what height will the soil be piled? *(This information is used to determine whether the Yukon Environmental and Socioeconomic Assessment Act applies to the facility.)*

Dimensions: two cells each 10 m x 20 m Max pile height: 3 m

14. Is the site cleared? ☒ Yes ☐ No

15. Is the site used by wildlife on a regular basis? ☐ Yes ☒ No

16. How far is the site from the nearest surface water body (creek, pond, etc.)? 350 m

17. How far is the site from the nearest drinking water source? >750 m

18. Is the site located on a floodplain?

☐ Yes ☒ No

If "Yes", is the site within the: ☐ 25-yr floodplain ☐ 50-yr floodplain ☐ 100-yr floodplain

19. **What is the depth of the seasonal high water table?** (in metres below the surface) n/a m

20. **What is the slope of the site?** 2% percent grade or ______ degrees

21. **What is the distance to the nearest residential property?** 85 km

22. **What are the predominant soil types at the site?** *(Include approximate depths of each stratum,where known.)*
Please see Information Report.

NOTE that an impermeable synthetic liner (geomembrane) or natural compacted liner with a minimum permeability of equal to or less than 10^{-5} cm/sec (10^{-6} cm/sec for facilities accepting highly contaminated material) and a thickness of a minimum of 1 metre is required for all facilities.

23. **Will an impermeable synthetic liner be used beneath all treatment cells?**
☒ Yes – go to 25 below ☐ No – go to 24 below.

24. **If not using an impermeable synthetic liner, provide (as an attachment)** information demonstrating that the natural liner and berm source material has a permeability of equal to or less than 10^{-5} cm/sec (10^{-6} cm/sec for facilities accepting highly contaminated materia). This information shall include:
    (a) Characterization sampling results of the liner and berm source material at a rate of one sample per 500 m^3, or at a greater frequency if visual changes in soil type are observed at the source location, for the following parameters: particle size analysis, calculated hydraulic conductivity, moisture density proctor test (minimum 5-point curve) and moisture content.
    (b) Laboratory hydraulic conductivity test results of the liner and berm source material at a rate of one sample per 1500 m^3, or at a greater frequency if visual changes in soil type are observed at the source location, using a minimum 90% modified proctor density or 95% standard proctor density.
    (c) Proposed methodology for installation of the natural liner including excavation, screening and compaction of the liner and berm material.

25. **If using an impermeable liner, provide as attachments:**
    (a) the manufacturer's specifications for the impermeable liner,
    (b) a description of the proposed liner installation methods, including welding techniques, and
    (c) cross-sectional diagrams showing the proposed liner and installation design, indicating the location of the liner in relation to berms, cushioning layers, sumps, and other design features.

26. **Provide a detailed design drawing of the facility which includes both a plan view and cross sectional view.**

27. **Provide a clear, well-marked diagram showing the location of the facility,** structures on the site (including those to be built), and features such as the nearest residential property, adjacent properties (and their uses), surface water bodies, wells, etc.

28. **Describe contingency and emergency plans** which will be implemented in the event of a breach of the facility or a release of contaminated material, including a list of any equipment to be used.
Please see Information Report.

29. **Describe the training workers at the facility will have** in handling contaminated material, spill prevention, emergency procedures, and health and safety.
Please see Information Report.

30. **Describe the methods to be used** to determine that contaminated soil is sufficiently treated to be removed from the facility.
Please see Information Report.

31. **Describe the features of the site designed to control access and secure the facility** (e.g. fencing, signage).
Please see Information Report.

32. Describe the operating and maintenance plans and schedules to be used to treat contaminated soil, including the tillage or turning schedule, equipment to be used, and watering and/or nutrient addition schedule.

Please see Information Report.

33. Describe plans for decommissioning and abandoning the facility and site, including the location to which the remediated soil will be removed, if applicable.

Please see Information Report.

PART 3 – GROUNDWATER ASSESSMENT AND MONITORING

All applicants planning to construct or operate a facility that will accept highly contaminated material or that will have a capacity of 3,000 m^3 or greater must complete this Part. Such facilities must undergo a hydrogeological assessment and undertake ongoing groundwater monitoring. The hydrogeological assessment will be reviewed by an independent third-party qualified hydrogeologist and the applicant must cover the cost of this review.

34. Please provide (as an attachment) the report of a hydrogeological assessment of the proposed site location, conducted by a qualified hydrogeologist, which:

(a) determines the direction and rate of groundwater flow;

(b) identifies potential receiving environment(s);

(c) assesses travel times for potential contaminant pathways, and

(d) is based on data from a minimum of one well upgradient of the facility and two wells downgradient of the facility, at locations chosen by the qualified hydrogeologist, and which are installed in such a way as to allow their use for ongoing monitoring of groundwater for contamination. Additional wells must be installed if they are found to be necessary to characterize the groundwater flow regime and/or to effectively monitor potential impacts to groundwater quality downgradient of the facility. Please note that larger facilities will most likely require the installation and monitoring of additional wells.

I, Hugh Coyle, am the authorized representative
PRINT NAME CLEARLY

of StrataGold Corporation, and I certify that the information
BUSINESS PERSON RESPONSIBLE FOR SOURCE OR ACTIVITY

provided on this application form is correct and complete to the best of my knowledge.

Signature of applicant | March 6, 2019 Date | No. of attachments

This information is being collected under the authority of section 17 of the Contaminated Sites Regulation. Permits and related documents may be included on a public register as required by these regulations and/or disclosed to the public. For further information contact the Environmental Programs Branch at (867) 667-5683 or toll free at 1-800-661-0408 extension 5683.

ATTACHEMNT C

Land Treatment Facility Design

Land Treatment Facility Design
Eagle Gold Project, YT



PRESENTED TO
JDS Energy & Mining Inc.

MARCH 6, 2019
ISSUED FOR USE – REVISION 1
FILE: ENG.WARC03235-06

Tetra Tech Canada Inc.
14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
Tel 780.451.2121 Fax 780.454.5688

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LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of JDS Energy & Mining Inc. and their agents. Tetra Tech Canada Inc. (Tetra Tech) 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 JDS Energy & Mining Inc., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

1.0 INTRODUCTION

NND-EBA Land Protection Corp. operating as NELPCo Limited Partnership (NELPCo) was retained by JDS Energy & Mining Inc. (JDS) on behalf of Victoria Gold Corp. (Victoria Gold) to provide consulting services for a Land Treatment Facility (LTF) at the Eagle Gold Project (the Project), YT. JDS requested completion of a LTF design to remediate petroleum hydrocarbon (PHC) contaminated soil that may be generated during on-site operations.

Tetra Tech Canada Inc. (Tetra Tech) has prepared this report on behalf of NELPCo, as their engineering service provider. This design report presents the existing site conditions, LTF design, and operational considerations for the LTF. Construction drawings and specifications have also been prepared as part of this report and are included as Appendices.

2.0 PROJECT DESCRIPTION

The Eagle Gold Project is situated in the Dublin Gulch area of central Yukon Territory, approximately 45 km north-northeast of Mayo and 370 km north of Whitehorse. The area covers approximately 555 km² and contains two major gold reserves: The Eagle and Olive deposits. Project construction began in March 2018 and operations are anticipated to begin in late 2019 (Victoria Gold 2018).

A LTF is required at the Project to support upcoming mining operations. The primary objective is to provide a facility for the proper handling and remediation of PHC impacted soils generated from site activities. Remediation is achieved by spreading impacted soils in either wind rows or a uniform layer across the LTF base to increase exposure to air and nutrients for stimulation of microbial activity required for PHC remediation. The LTF will be constructed on an existing granular pad northeast of the camp and in the south of the Project area at approximately 850 masl (meters above sea level). Requirements for the LTF were outlined by JDS and the Owner as follows:

- LTF to be a cell with a 10 m wide x 40 m long treatment area;
- Provide a demarcation berm to provide two treatments areas within the cell;
- Provide a lined staging area to store equipment and contaminated soil prior to sorting;
- Maintain maximum 1 m high berms above ground by recessing the LTF into the existing pad;
- Grade LTF to sump areas in downslope corners; and
- LTF will be operated using a bobcat and CAT 325 excavator. CAT 740 haul trucks will be operated over the staging area.

The LTF has been designed in accordance to *Guidelines for Land Treatment Facilities* by the Government of Yukon. JDS will be responsible for completing the permitting, necessary soil sampling, and management in accordance with the guidelines.

3.0 SITE CONDITIONS

3.1 Topography

The Project area is characterized by rolling hills and plateaus ranging in elevation from approximately 750 masl to a local maximum of 1,525 masl. The area is drained by deeply-incised creeks and canyons (JDS 2016). The ground surface is covered by residual soil and felsenmeer. Outcrops generally consist of less than 2% of the surface area and are limited to ridge tops and creek walls. Lower elevations are vegetated with black spruce, willow, alder, and moss while higher elevations are predominantly covered by subalpine vegetation (JDS 2016).

3.2 Surficial Geology

The surficial geology primarily consists of diamicton, gravel, shattered bedrock, sand, and silt lenses. Glacial till is sparse over the project area, with exception of a till blanket on the east side of Haggart creek and south of its confluence with Dublin Gulch. The glacial till generally consists of silty or sandy clay matrix with clasts up to cobble size (BGC 2012).

3.3 Permafrost

The Project area lies within a zone of discontinuous permafrost. Permafrost, where present, is typically found on north and east facing slopes, highlands, and poorly drained valley bottoms with temperatures near 0°C. Ice-rich soils are typically fine grained (BGC 2012).

3.4 Climate

The central Yukon has a northern continental climate. The mean annual temperature is -3.6°C at the Camp climate station (782 masl) and -3.9°C at the Potato Hills climate station (1,420 masl). Typically, January is the coldest month while July is the warmest.

The most recent hydro-meteorological characterization for the Project area was completed in March 2017 (Lorax 2017). The report presents the expected long-term climatic and hydrologic conditions at the site and provides the basis for hydro-meteorological inputs used in the design of the LTF. Monthly average synthetic precipitation estimates were constructed for three reference elevations: 782 masl, 1,125 masl, and 1,420 masl. The data for 782 masl was used to approximate environmental inflows into the LTF and are summarized in Table 1.

Mean annual precipitation (MAP) for the site at 782 masl is 375 mm. Mean snow accumulation from October to April is predicted as 160 mm snow water equivalent (SWE) and 43% of MAP, with an extreme SWE of 288 mm. The freshet volumes are estimated from April 1 SWE data collected at snow survey sites near the Project and have varied from 50% to 180% of normal over the past 40 years (Lorax 2017).

Snow melt accumulation represents the greatest environmental input and was used to estimate inflows and size the LTF. A conservative SWE of 288 mm was used for the design.

Table 1: Synthesized Precipitation Events at the Project[1]

Precipitation Event	Annual Exceedance Probability (1 over return period)	Estimated Precipitation Amount (mm)
24-hour Extreme Rainfall[2]	1 / 100	47
Mean Annual Precipitation[3]	1 / 2	375
Mean Annual Rainfall[3]	1 / 2	214
Mean Spring Snowpack SWE[3]	1 / 2	160
Extreme Spring Snowpack SWE in Wet Condition[4]	-	288

[1]Syntesized precipitation events at Camp climate station at 782 masl

[2]Synthetic values specific to Eagle Gold Project based on conservative scaled Mayo data from Lorax (2017)

[3] Synthetic values specific to Eagle Gold Project from Lorax (2017)

[4] Synthetic value specific to Eagle Gold Project scaled based on most critical percent of normal SWE for April from data collected 1975 to 2017, taken from Lorax (2017)

4.0 LANDFARM DESIGN DETAILS

The LTF design consists of a lined bermed cell with an up-gradient area for remediation of PHC-impacted soils and two down-gradient sump areas to collect runoff. The LTF cell is divided into two treatment areas by a centerline crown with a 2% cross-gradient towards the northeast and southeast corners, and a granular demarcation berm. PHC-impacted soils can be segregated based on contamination levels and runoff from each side will be collected separately. A lined staging area has been designed along the south side of the LTF cell for temporary contaminated soil storage.

The liner system consists of a textured high-density polyethylene (HDPE) geomembrane confined between two layers of non-woven geotextile for protection. It will be installed over a bedded foundation excavated into the existing granular pad. Minimum cover requirements must be maintained over the liner to preserve the liner integrity from working equipment.

Construction specifications and drawings for the LTF are included in Appendices B and C, respectively. Drawing C01 shows a general site plan for the proposed LTF. Design details for the LTF are provided on Drawing C02 and in the construction specifications.

4.1 Sizing and Dimensions

The LTF has a rectangular geometry with base pad dimensions of 10 m wide x 50 m long to accommodate a soil treatment area and a staging area. The 10 m width is oriented in an east-west direction, and the 50 m length is oriented north-south. The soil treatment area measures 10 m wide x 40 m long and is divided into two 10 m x 20 m areas separated by a granular demarcation berm. A staging area occupies the remaining south end lined area and will be built to berm elevation. It will measure approximately 20 m wide x 10 m long to maximize the area within the berm enclosure.

The treatment capacity of the LTF is 200 m^3. Both treatment areas have an approximate capacity of 100 m^3 based on an assumed 0.5 m lift of contaminated material over the entire base pad. However, the capacity will be similar if the material is placed in wind rows.

Containment berms have been designed approximately 3 m high to accommodate the design precipitation inflow. Countersinking the LTF into the existing granular pad was incorporated into the design to maintain a maximum berm height 1 m above ground. The containment berm slopes are 2H:1V with a berm crest width of 2 m.

The base pad of the LTF is designed with a 2% cross-grade from the centerline (demarcation berm) to the northeast and southeast corners to allow flow from each treatment area. Runoff will pool in each of the corners and will need to be pumped out as part of landfarm operations. In extreme events runoff will back up into the upgradient portion of the cell potentially inundating cover and treatment soils.

The LTF configuration is summarized in Table 2.

Table 2: LTF Design Dimensions

Item	Dimensions
LTF Base Pad	10 m x 40 m
Staging Area	20 m x 10 m
Berm Crest	3 m (1 m above existing pad)
Berm Side Slopes	2H:1V
Length of Outer Containment Berm (North-South)	65 m
Width of Outer Containment Berm (West-East)	25 m
Cell Base Gradient	2%
Staging Area Gradient	2%

4.2 Inflow Design Precipitation

The design precipitation event is based on the extreme spring freshet from snow melting in wet condition (180% of normal condition) at the beginning of April, corresponding to a SWE of 288 mm. The estimated inflow with this SWE is 357 m^3 inflow under the LTF design sizing and dimensions. The LTF storage capacity is 416 m^3 at an elevation of 851.2 m, which exceeds the critical inflow condition. A freeboard of 0.5 m to the top of the geomembrane liner was adopted in the design.

Coincident precipitation events (snowmelt and rainfall) were not considered in the analysis as the current snowpack estimate is conservative and potential capacity issues could be identified prior to freshet. A long-term event was not considered as contact water can be pumped out of the sump as required.

4.3 Construction Methodology

4.3.1 Foundation

The LTF foundation will be constructed by excavating into the existing granular pad. The base of the excavation should have a minimum pad thickness of 1 m. The base excavation should be composed of homogenous fill free of deleterious material, frozen material, snow, and ice. It should be compacted in accordance with the construction specifications and should meet the lines, grade, and elevations as per the construction drawings. Liner bedding, comprising 20 mm minus granular fill, will be placed over the prepared excavation surface to provide a smooth surface for liner deployment. Details on compaction, visual inspections, and quality control procedures are set out in Appendix B.

The existing pad is constructed with construction grade waste rock. The gradation of the material is unknown; however, JDS indicates the material is in the order of 200 mm minus. Granular materials from the existing granular pad will serve as the foundation of the LTF. The excavation surface should be inspected prior to fill placement to verify it is homogenous and free of soft areas or deleterious material.

4.3.2 Granular Materials

A 20 mm minus granular fill will serve as the bedding and cover layers for the liner system to protect it from damage during construction and while in operation. The material will need to be processed from hard, durable, non-acid generating mine rock to have a maximum particle size of 20 mm, as outlined in Table 3.

Table 3: Fine Granular Fill Gradation (20 mm Minus)

Particle Size	Percent Passing (%)
20	100
12.5	65 - 100
5	45 - 70
0.63	15 - 35
0.08	4 - 10

Repairs to foundation soft spots and general fill can use a 200 mm minus granular fill conforming to gradations shown in Table 4.

Table 4: Existing Granular Fill Gradation (200 mm Minus)

Particle Size	Percent Passing (%)
200	100
100	50 - 100
50	25 - 65
25	10 - 40
5	0 - 15

Detailed material specifications, lift thicknesses, and quality control procedures are outlined in the construction specifications in Appendix B. All granular materials should be placed in lifts and compacted as specified. Moisture conditioning may be required to achieve the compaction requirements.

4.3.3 Geomembrane Liner

The LTF liner system will be installed following preparation and bedding of the excavated foundation. A double textured HDPE geomembrane will act as the main seepage barrier of the LTF. It will be confined between two layers of non-woven geotextile to form the complete liner system. The non-woven geotextile should comprise needle punched polypropylene fabric with a minimum weight of 540 g/m^2. Minimum cover thicknesses when operating construction equipment over the liner system can be found in Table 5.

Table 5: Minimum Liner Cover Thicknesses

Backfill Thickness	Typical Placement Equipment	Allowable Ground Pressure
No Backfill	Foot traffic	-
150 mm	Hand placement	-
300 mm	D4 – D6 style Bulldozer, Skid-Steer	25 - 60 kPa
600 mm	D7 – D9 style Bulldozer, CAT 325 excavator	60 - 110 kPa
900 mm	Motor Graders	110 - 350 kPa
900 mm - 1,200 mm	Loaded tandem axle trucks, CAT 740 haul trucks	> 350 kPa

Liner system specifications, installation, repair procedures, quality control, and submissions are outlined in Appendix B. The following minimum cover thicknesses were used over the liner system in LTF design:

- 300 mm over the berm slopes and top of berm;
- 600 mm over the base pad (10 m x 50 m); and
- 1,000 mm over the staging area.

Cover immediately adjacent to the liner (300 mm) should comprise 20 mm minus granular fill. The remaining cover to maintain the cover thickness noted above can be composed of either 20 mm or 200 mm minus granular fill.

4.4 Material Quantities

Material quantities for the LTF are summarized in Table 6. The quantities for non-woven geotextile and geomembrane include allowances for over build or wastage.

Table 6: Material Quantities Estimate

Material	Quantity
Non-woven Geotextile*	3,940 m^2
Geomembrane*	1,970 m^2
Granular Fill	1,662 m^3

*Geomembrane and geotextile quantities provide a 20% allowance for overlap and waste

4.5 Quality Assurance and Control

A quality assurance program should be implemented during construction. The construction quality assurance program should be structured to verify that construction sensitive features of the design are achieved. The elements of the program will include:

- Careful surveying to establish material quantities and allow preparation of as-built construction drawings;
- Specific engineering approvals at critical times such as foundation preparation;
- Monitoring of field and laboratory testing of fill material;
- Specific approval and observation of liner installation;

- Observation and approval of contractor's proposed material placement sequences and preparation of each surface prior to the placement of next lift; and
- Defined procedures for reporting with identified responsibilities for decision making during construction.

5.0 OPERATIONAL CONSIDERATIONS

The LTF should be managed and operated in accordance with the *Guidelines for Land Treatment Facilities* by the Government of Yukon. The guidelines provide specific guidance related to soil thickness and tilling events.

Equipment used inside the treatment cells or on the staging area should conform to the minimum cover thicknesses provided. Equipment other than the specified excavator, bobcat, and haul trucks can be used; however, their respective ground pressures should be reviewed prior to use in the facility. The CAT 325 excavator can safely operate on 600 mm of cover. Given the current design, the CAT 325 excavator should be restricted to the floor area only where sufficient cover is provided.

Turning within the facility should be limited to long radius turns without locking tracks or wheels to avoid inducing shear stresses in the underlying liner. If this cannot be accomplished, then contaminated material should be dumped near the facility entrance and smaller equipment used inside the LTF to move contaminated material as required. Containment within the facility is contingent on liner integrity. As such, care should be taken during construction and operation not to damage the liner.

Tilling should only be carried out by an experienced, trained operator who is familiar with the layout of the LTF. Only the contaminated soils layer should be tilled to avoid potential damage to the underlying liner system. Any damage to the liner system, surrounding berms, or sump area must be reported to the Site Manager immediately.

Before spring thaw, snow and ice accumulated within the LTF can be removed and placed outside the LTF facility to melt, if it has not come in contact with the underlying contaminated soil. LTF soils should not be disturbed during the snow removal process and approximately 100 mm of contact snow cover should remain on all surfaces. If the LTF soils are disturbed, contact snow should remain in the LTF area and be deposited in the sump to melt.

The LTF sumps should be monitored and pumped out regularly to maintain cell capacity and reduce the risk of inundating LTF soils. At the end of summer, the LTF should be pumped dry to provide maximum storage capacity for freshet and contaminated snow placement.

6.0 CLOSURE

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

Respectfully submitted,
Tetra Tech Canada Inc.

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PERMIT TO PRACTICE
TETRA TECH CANADA INC.
SIGNATURE
Date March 6, 2019
PERMIT NUMBER PP003
Association of Professional
Engineers of Yukon

/jf

REFERENCES

BGC Engineering Inc. (BGC), 2012. *Geotechnical assessment and design of the waste rock storage areas, Eagle Gold Project feasibility study, Dublin Gulch, Yukon.* Technical report submitted to Victoria Gold Corp. by BGC Engineering Inc. February 23, 2012.

Government of Yukon, 2018. *Environmental Programs: Guidelines for Land Treatment Facilities. Construction, Operation, and Decommissioning.* Contaminated Sites Regulation, Whitehorse, YT (Information sheets and guidance).

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APPENDIX A

TETRA TECH'S LIMITATIONS ON USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOTECHNICAL

1.1 USE OF DOCUMENT AND OWNERSHIP

This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

The Professional Document is intended for the sole use of TETRA TECH's Client (the "Client") as specifically identified in the TETRA TECH Services Agreement or other Contractual Agreement entered into with the Client (either of which is termed the "Contract" herein). TETRA TECH does not accept any responsibility for the accuracy of any of the data, analyses, recommendations or other contents of the Professional Document when it is used or relied upon by any party other than the Client, unless authorized in writing by TETRA TECH.

Any unauthorized use of the Professional Document is at the sole risk of the user. TETRA TECH accepts no responsibility whatsoever for any loss or damage where such loss or damage is alleged to be or, is in fact, caused by the unauthorized use of the Professional Document.

Where TETRA TECH has expressly authorized the use of the Professional Document by a third party (an "Authorized Party"), consideration for such authorization is the Authorized Party's acceptance of these Limitations on Use of this Document as well as any limitations on liability contained in the Contract with the Client (all of which is collectively termed the "Limitations on Liability"). The Authorized Party should carefully review both these Limitations on Use of this Document and the Contract prior to making any use of the Professional Document. Any use made of the Professional Document by an Authorized Party constitutes the Authorized Party's express acceptance of, and agreement to, the Limitations on Liability.

The Professional Document and any other form or type of data or documents generated by TETRA TECH during the performance of the work are TETRA TECH's professional work product and shall remain the copyright property of TETRA TECH.

The Professional Document is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of TETRA TECH. Additional copies of the Document, if required, may be obtained upon request.

1.2 ALTERNATIVE DOCUMENT FORMAT

Where TETRA TECH submits electronic file and/or hard copy versions of the Professional Document or any drawings or other project-related documents and deliverables (collectively termed TETRA TECH's "Instruments of Professional Service"), only the signed and/or sealed versions shall be considered final. The original signed and/or sealed electronic file and/or hard copy version archived by TETRA TECH shall be deemed to be the original. TETRA TECH will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

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

1.3 STANDARD OF CARE

Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by persons other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document 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 conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary investigation and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, TETRA TECH has not been retained to investigate, address or consider and has not investigated, addressed or considered any environmental or regulatory issues associated with development on the subject site.

1.8 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems and methods employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. TETRA TECH does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

1.9 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

1.10 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historic environment. TETRA TECH does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional investigation and review may be necessary.

1.11 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

1.12 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

1.13 INFLUENCE OF CONSTRUCTION ACTIVITY

There is a direct correlation between construction activity and structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques are known.

1.14 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, as well as the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

1.15 DRAINAGE SYSTEMS

Where temporary or permanent drainage systems are installed within or around a structure, the systems which will be installed must protect the structure from loss of ground due to internal erosion and must be designed so as to assure continued performance of the drains. Specific design detail of such systems should be developed or reviewed by the geotechnical engineer. Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function.

1.16 BEARING CAPACITY

Design bearing capacities, loads and allowable stresses quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition assumed. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions assumed in this report in fact exist at the site.

1.17 SAMPLES

TETRA TECH will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client’s expense upon written request, otherwise samples will be discarded.

APPENDIX B

CONSTRUCTION SPECIFICATIONS

Construction Specifications
Land Treatment Facility



PRESENTED TO

JDS Energy & Mining Inc.

MARCH 6, 2019
ISSUED FOR USE – REVISION 1
FILE: ENG.WARC03235-06

Tetra Tech Canada Inc.
14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
Tel 780.451.2121 Fax 780.454.5688

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LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of JDS Energy & Mining Inc. and their agents. Tetra Tech Canada Inc. (Tetra Tech) 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 JDS Energy & Mining Inc., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

1.0 SECTION 1001

1.0 DEFINITIONS

1.1 General

.1 Definitions of terms used throughout the Construction Specifications are presented in this Section.

.2 NND-EBA Land Protection Corp., operating as NELPCo Limited Partnership (NELPCo), was retained by JDS Energy & Mining Inc. (JDS) on behalf of Victoria Gold Corp. (Victoria Gold) to provide consulting services for a Land Treatment Facility at the Eagle Gold Project.

.3 Tetra Tech Canada Inc. (Tetra Tech) has prepared these Construction Specifications on behalf of NELPCo, as their engineering service provider.

1.2 Definitions

.1 LTF: Land Treatment Facility

.2 Construction Drawings: the design drawings as issued for construction of the LTF.

.3 Construction Specifications: this document.

.4 Contract: the legal and binding agreement between the Contractor and JDS regarding construction of the LTF.

.5 Contractor: the general contractor responsible for constructing the LTF.

.6 Engineer: Owner's on-site representative during construction or related activities.

.7 Owner: Victoria Gold Corp.

.8 Site: the area in which construction activity is occurring.

.9 Unsuitable: not meeting the requirements stated herein or not receiving the Engineer's approval.

END OF SECTION

2.0 SECTION 1002

2.0 GENERAL

2.1 Scope of Work

.1 This specification relates to construction of a lined, bermed containment area called the LTF for the Eagle Gold Project.

.2 The LTF comprises a single high density polyethylene (HDPE) lined cell for treatment of hydrocarbon impacted soils.

.3 The LTF is to be constructed on an existing granular pad as shown on the Construction Drawings. The Engineer shall be notified of any modifications to the LTF location, elevation, or configuration to verify the adequacy of the proposed changes.

2.2 Codes and Regulations

.1 All construction should be completed according to the terms and conditions outlined in the Guidelines for the LTF.

2.3 Construction Methods

.1 The elevations and dimensions shown on the Construction Drawings are for the purpose of construction and measurement. The Contractor shall ensure that all grades, elevations, and dimensions are adhered to.

.2 The Contractor is responsible for all construction surveys and documentation to verify quantities.

2.4 Drawings and Discrepancies

.1 Any discrepancies found on the drawings shall be brought to the immediate attention of the Engineer.

.2 No deviations shall be permitted from the Construction Drawings without written approval from the Engineer.

.3 The Contractor shall immediately submit in writing to the Engineer any conflicts discovered within this Specification or between this Specification, the purchase order, the accompanying data sheets, and construction drawings, and any other supplemental information or Specifications. The Engineer will then make a ruling and clarify the matter in writing.

2.5 Material Quantities

.1 The materials required to construct the LTF are designated on the Construction Drawings and have been estimated as follows:

Table 2.1: Material Quantities

Material Type	Quantity (1)(2)
Construction Grade Waste Rock	n/a (3)
200 mm Granular Fill	n/a (4)
20 mm Granular Fill – Below Liner System	532 m^3
20 mm Granular Fill – Above Liner System	787 m^3
20 mm Granular Fill – Staging Area	343 m^3
Textured 60 mil HDPE Geomembrane	1,970 m^2 (5)
Non-Woven Geotextile (1 layer on either side of HDPE Geomembrane)	3,940 m^2 (5)

Notes:

(1) Quantities based on topographic data provided by JDS.

(2) Granular quantities are in-place volumes and do not include allowances for wastage, overbuild that may occur due to constructability constraints as a function of construction equipment selection or availability, unless otherwise noted.

(3) Construction Grade Waste Rock to be placed as part of infrastructure pad construction under separate contract.

(4) 200 mm granular fill to be placed as required to repair soft spots and general fill in foundation.

(5) The liner system material quantities include a 20% contingency for overlapping requirements, wastage, and repair provisions.

END OF SECTION

3.0 SECTION 1003

3.0 FOUNDATION PREPARATION

3.1 General

.1 Foundation preparation requirements for the construction of the LTF are presented in this Section.

.2 The berms and pad foundation shall be constructed to support a liner system and be stable from a geotechnical perspective.

.3 The LTF will be founded on previously placed construction grade waste rock. Pad excavation will be required to establish the grades shown on the Construction Drawings.

3.2 Excavation

.1 Excavation shall be performed in accordance with the best modern practice and with equipment best adapted to the work being performed.

.2 Excavation of pad material shall conform to the lines, grades, and elevations shown on the Construction Drawings, and as specified herein. The Contractor shall not excavate beyond the lines shown on the Construction Drawings without authorization from the Engineer.

.3 Excavated material shall be inspected by the Engineer for its suitability in berm construction. Acceptable material shall be stockpiled in a segregated area for future construction. Unsuitable material shall be disposed of in an area designated by the Owner.

.4 The Contractor shall remove all debris, vegetation, or any other material not conforming to the requirements stated herein. The Contractor shall dispose of these materials in an area approved by the Owner.

3.3 Foundation Preparation

.1 The excavated foundation shall be compacted a minimum of six passes with a smooth-drum vibratory compactor to the satisfaction of the Engineer.

.2 Segregated or unfit materials may need to be removed and replaced with the materials meeting the requirements stated herein, as required by the Engineer.

.3 The prepared foundation surface shall be free of snow, ice, boulder fields, soils, or other deleterious material prior to pad construction. Any deleterious material shall be removed and replaced as directed by the Engineer.

.4 The excavation base shall be proof-rolled following excavation and shall be witnessed by the Engineer. Any soft, loose, or otherwise unsuitable material shall be excavated and replaced with 200 mm minus granular fill, compacted to the satisfaction of the Engineer.

.5 The foundation base shall be graded as shown on the Construction Drawings prior to constructing the berms for ease of construction.

.6 The Contractor shall carry out an accurate survey to act as a reference for material quantities.

3.4 Foundation Approval

.1 The existing foundation shall be inspected and approved by the Engineer before any fill material is placed. The Contractor shall give not less than 24 hours' notice to the Engineer regarding required approval.

END OF SECTION

4.0 SECTION 1004

4.0 GRANULAR FILL MATERIALS

4.1 General

.1 This Section describes the available granular fill materials for construction of the LTF.

.2 Material quantities are presented in Section 2.5.

4.2 Material Sources

.1 No material of any type shall be borrowed or excavated without the Owner's prior approval.

.2 Borrow Pits shall be maintained and managed in accordance with the requirements set out in the Owner's Land Use and Quarry Permits.

.3 20 mm and 200 mm granular material shall be processed from material obtained from sources approved by the Owner, provided the final product meets the requirements specified herein. Processing will be required to achieve the specified gradations.

.4 The parent rock from which all fill materials are derived shall consist of sound, hard, durable material free from soft, thin, elongated, or laminated particles and shall contain no unsuitable substances. The potential quarry source shall be approved by the Engineer. The Engineer may require trial crushing and durability testing prior to approving a quarry site.

.5 The quarry source for fill materials shall be inspected by the Engineer throughout material processing and construction activities to ensure that the product meets the requirements stated herein.

4.3 Material Specifications

.1 20 mm Minus Granular Fill

20 mm Minus Granular Fill shall consist of, hard durable particles, be free of roots, topsoil, and other deleterious material and have a particle size distribution as presented in Table 4.3.1. Processing will be required to achieve the specified gradation.

Table 4.3.1: 20 mm Minus Granular Fill Gradation

Particle Size	Percent Passing (%)
20	100
12.5	65 - 100
5	45 - 70
0.63	15 - 35
0.08	4 - 10

.2 200 mm Minus Granular Fill

200 mm Minus Granular Fill shall consist of, hard durable particles, be free of roots, topsoil, and other deleterious material and have a particle size distribution as presented in Table 4.3.2. Processing may be required to achieve the specified gradation.

Table 4.3.2: 200 mm Minus Granular Fill Gradation

Particle Size	Percent Passing (%)
200	100
100	50 - 100
50	25 - 65
25	10 - 40
5	0 - 15

END OF SECTION

5.0 SECTION 1005

5.0 GRANULAR FILL PLACEMENT

5.1 General

.1 The placement methods to be used during construction are described in this Section.

.2 Construction shall be performed in accordance with the best modern practice and with equipment best adapted to the work being performed.

.3 Granular materials shall be placed so that each layer is homogeneous, free of stratifications, ice chunks, icy material, frozen soils, organics, and deleterious materials not suitable for berm construction.

.4 No fill material shall be placed on any part of the foundation until it has been prepared as specified herein and approved by the Engineer. Placement of fill material shall conform to the lines, grades, and elevations shown on the Construction Drawings, as specified herein.

.5 Berm and pad construction shall not proceed when the work cannot be performed in accordance with the requirements of the Construction Specifications. Any part of the berms and pad that have been damaged by the action of rain, snow, or any other cause shall be removed and replaced with the appropriate material conforming to the requirements stated herein before succeeding layers are placed.

.6 Stockpiling, loading, transporting, placing, and spreading of all materials shall be carried out in such a manner to avoid segregation. Segregated materials may need to be removed and replaced with the materials meeting the requirements stated herein, as required by the Engineer.

.7 The Contractor shall remove all debris, vegetation, or any other material not conforming to the requirements stated herein. The Contractor shall dispose of these materials in an area approved by the Owner.

5.2 Reference Standards

.1 Where material properties are specified the following standards are applicable:

.a ASTM D698 [07e1], Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft lbf/ft;) (600 kN m/m^3).

.b ASTM D422 Test Method for Particle-Size Analysis of Soils.

.c ASTM D1140 Test Method for Amount of Material in Soils Finer than the No. 200 (75 µm) Sieve.

.d ASTM C136 Test Method for Sieve Analysis of Fine and Coarse Aggregates.

.e ASTM D2216 Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock.

.f ASTM D2922 Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (shallow depths).

.g CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.

.h CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

5.3 Grading

.1 The liner bedding (20 mm Granular Fill) shall be sloped towards the sump locations as indicated on the Construction Drawings.

.2 Prior to installation of the liner system, the Engineer shall inspect the bedding to ensure that it is satisfactory, and any defects noted shall be rectified. The Contractor is responsible for providing notice to the Engineer to ensure that he is available for the inspection.

.3 Following the liner installation, a layer shall be placed on top of the liner system in the presence of the Engineer and Liner Technician. All necessary precautions shall be taken during this operation to ensure that no damage is done to the liner system. Any damage to the liner system shall be repaired at the Contractor's expense, to the satisfaction of the Engineer.

.4 The contractor shall maintain the minimum liner cover thicknesses indicated in Table 5.3.1 when operating equipment on the liner. Temporary fill, exceeding those shown on the Construction Drawings, may be required to permit some equipment to work over the liner.

Table 5.3.1: Minimum Liner Cover Thickness

Backfill Thickness	Typical Placement Equipment	Allowable Ground Pressure
No Backfill	Foot traffic	-
150 mm	Hand placement	-
300 mm	D4 – D6 style Bulldozer, Skid-Steer	25 - 60 kPa
600 mm	D7 – D9 style Bulldozer, CAT 325 excavator	60 - 110 kPa
900 mm	Motor Graders	110 - 350 kPa
900 mm - 1,200 mm	Loaded tandem axle trucks, CAT 740 haul truck	> 350 kPa

5.4 Placement of Granular Fill Material

.1 20 mm Minus Granular Fill

.a 20 mm Minus Granular Fill shall be placed in lifts not exceeding 150 mm. The material shall be placed so as to avoid segregation.

.b The material shall be moisture conditioned as required and compacted to a minimum of 95% of maximum dry density (ASTM D698).

.2 200 mm Minus Granular Fill

.a The 200 mm Minus Granular Fill shall be placed in lifts not exceeding 300 mm in thickness using techniques which avoid segregation and nesting of coarse particles.

.b 200 mm Minus Granular Fill shall be compacted a minimum of six passes with a smooth-drum vibratory compactor weighing not less than 10 tonnes or other method approved by the Engineer. Moisture conditioning may be required prior to compaction.

.c 200 mm Minus Granular Fill shall be placed and compacted to the satisfaction of the Engineer. Subsequent lifts of 200 mm Minus Granular Fill shall not be placed without approval of the Geotechnical Engineer.

END OF SECTION

6.0 SECTION 1006

6.0 NON-WOVEN GEOTEXTILE

6.1 General

.1 The product and installation specifications for the non-woven geotextile are presented in this Section.

.2 This specification covers non-woven geotextile test properties for subsequent use as protection (or cushioning) materials. The typical use will be as a protective covering or underlayment of a geomembrane against puncture or tear due to rock, stones, concrete, or other hard surfaces and/or objects.

6.2 References

Where material properties are specified the following standards are applicable:

.1 American Society for Testing and Materials (ASTM):

.a ASTM D 4354 Practice for Sampling of Geosynthetics for Testing.

.b ASTM D 4355 Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus).

.c ASTM D 4533 Test Method for Trapezoidal Tearing Strength of Geotextiles.

.d ASTM D 4632 Test Method for Grab Breaking Load and Elongation of Geotextiles.

.e ASTM D 4759 Practice for Determining the Specification Conformance of Geosynthetics.

.f ASTM D 4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products.

.g ASTM D 4873 Guide for Identification, Storage, and Handling of Geotextiles.

.h ASTM D 5261 Test Method for Measuring Mass per Unit Area of Geotextiles.

.i ASTM D 5494 Test Method for the Determination of Pyramid Puncture Resistance of Unprotected and Protected Geomembranes.

.j ASTM D 6241 Test Method for Static Puncture Strength of Geotextiles and Geotextile Related Product Using a 50-mm Probe.

.2 Geosynthetic Research Institute (GRI):

.a GRI GT12 Test Methods and Properties for Nonwoven Geotextiles Used as Protection (or Cushioning) Materials.

6.3 Geotextile

.1 Non-woven geotextile shall comprise needle punch polypropylene fabric made of 100% polypropylene staple fibers conforming to the properties in Table 6.3.1.

.2 The geotextile shall be a minimum weight of 540 g/m^2. (Layfield Plastics LP16, or equivalent).

.3 Physical properties of the non-woven geotextile are as follows:

Table 6.3.1: Non-woven Geotextile Physical Properties

Test Parameter	Required Specifications	ASTM Test Method (Or Approved Equivalent)
Grab Tensile (N / lbs)	1,690 / 380	D4632
Elongation (%)	50	D4632
Tear (N / lbs)	644 / 145	D4533
Puncture (N / lbs)	4,560 / 1,025	D4833
Weight (g/m^2 / oz/yd^2)	542 / 16.0	D5261
UV Resistance	70	D4355

6.4 Construction Methods

.1 The Contractor shall place the geotextile once the bedding surface has been completed and approved by the Engineer.

.2 Place geotextile material by unrolling onto graded surface.

.3 Place geotextile material smooth and free of tension, stress, folds, wrinkles, and creases.

.4 Place geotextile material on sloping surfaces in one continuous length from toe of slope to over crest.

.5 Overlap each successive length of geotextile 600 mm, or to manufacturer's instructions.

.6 Heat tack or sew seams.

.7 Protect installed geotextile material from displacement and damage. Replace damaged and deteriorated geotextile.

.8 Do not permit passage of any vehicle directly on geotextile at any time.

END OF SECTION

7.0 SECTION 1007

7.0 HDPE GEOMEMBRANE

7.1 General

.1 This specification includes furnishing and installing a HDPE geomembrane for the construction of the LTF.

.2 The work includes the manufacture, supply, and installation of the liner, anchor, trench, connections, field welds, and supply and inspection of the geomembrane.

7.2 References

Where material properties are specified the following standards are applicable:

.1 American Society for Testing and Materials (ASTM):

- .a ASTM D 413 Standard Test Methods for Rubber Property—Adhesion to Flexible Substrate.
- .b ASTM D 638 Standard Test Method for Tensile Properties of Plastics.
- .c ASTM D 751 Standard Test Methods for Coated Fabrics.
- .d ASTM D 792 Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
- .e ASTM D 1004 Standard Test Method for Initial Tear Resistance of Plastic Film and Sheeting.
- .f ASTM D 1204 Standard Test Method for Linear Dimensional Changes of Non Rigid Thermoplastic Sheeting or Film at Elevated Temperature.
- .g ASTM D 1238 Standard Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer.
- .h ASTM D 1505 Standard Test Method for Density of Plastics by Density-Gradient Technique.
- .i ASTM D 1603 Standard Test Method for Carbon Black in Olefin Plastics.
- .j ASTM D 3895 Test Method for Oxidative Induction Time of Polyolefins by Thermal Analysis.
- .k ASTM D 4218 Test Method for Determination of Carbon Black Content in Polyethylene Compounds by the Muffle-Furnace Technique.
- .l ASTM D 4437 Standard Practice for Determining the Integrity of Field Seams Used in Joining Flexible Polymeric Sheet Geomembranes.
- .m ASTM D 4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products.
- .n ASTM D 5199 Standard Test Method for Measuring Nominal Thickness of Smooth Geomembranes.
- .o ASTM D 5397 Standard Test Method for Evaluation of Stress Crack Resistance of Polyolefins using Notched Constant Tensile Load Test.
- .p ASTM D 5596 Standard Practice for Microscopical Examination of Pigment Dispersion in Plastic Compounds.
- .q ASTM D 5641 Standard Practice for Geomembrane Seam Evaluation by Vacuum Chamber.
- .r ASTM D 5820 Test Method for Air Testing.

.s ASTM D 5820-95 Pressurized Air Channel Test for Dual Seamed Geomembranes.

.t ASTM D 5994 Standard Test Method for Measuring Nominal Thickness of Textured Geomembranes.

.u ASTM D 6365 Standard Practice for the Nondestructive Testing of Geomembrane Seams using The Spark Test.

.v ASTM D 6392 Determining the Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods.

.w ASTM D6693 Standard Test Method for Determining Tensile Properties of Nonreinforced Polyethylene and Nonfreinforced Flexible Polypropylene Geomembranes.

.2 Geosynthetic Research Institute (GRI):

.a GRI GM 9 Cold Weather Seaming of Geomembranes.

.b GRI GM 10 The Stress Crack Resistance of HDPE Geomembrane Sheet.

.c GRI GM 12 Measurement of the Asperity Height of Textured Geomembranes Using a Depth Gage.

.d GRI GM 13 Test Properties, Testing Frequency for High Density Polyethylene (HDPE) Smooth and Textured Geomembranes.

.e GRI GM 14 Selecting Variable Intervals for Taking Geomembrane Destructive Seam Samples Using the Method of Attributes.

.f GRI GM 19 Seam Strength and Related Properties of Thermally Bonded Polyolefin Geomembranes.

7.3 Special Requirements

.1 Guarantee of Geomembrane Material

.a The manufacturer or supplier, on a pro-rata basis shall guarantee the HDPE geomembrane liner in writing for a period of 20 years. The guarantee shall be against manufacturing defects of workmanship and against deterioration due to ozone, ultraviolet, or other normal weather ageing.

.2 Experience of Contractor

.a The Contractor shall have demonstrated an ability to perform this work by having previously successfully installed a minimum of 100,000 square metres of similar type flexible liners.

.b The onsite liner supervisor assigned full time to this work shall have directed the installation of a minimum of 50,000 square metres of similar type flexible liner.

.3 Samples and Specifications of Material

.a The Contractor shall submit the manufacturer's certification stating that the material proposed for use for this project has physical properties equal to the certified values.

.4 Workmanship Guarantee

.a The Liner Contractor shall guarantee the liner installation to be free of defects in materials and workmanship for a period of one year following the date of acceptance by the Owner or its representative.

.b The Contractor shall agree to make, at his expense, any repairs or replacements made necessary by defects in materials or workmanship in the work that became evident within said guarantee period.

.c The Contractor shall make repairs and replacements promptly upon receipt of written order from the Owner or its authorized representative.

.d If the Contractor fails to make repairs and replacements promptly, the Owner may do so, and the Contractor shall be liable for the cost of such repairs and replacements.

7.4 Material

.1 General

.a All materials arriving on site are subject to inspection. Replacement or repair of damaged material will be at no cost to the Owner.

.b The liner material produced shall be free of blisters, holes, undispersed raw materials, or any sign of contamination by foreign matter. Any such defect shall be repaired using welding techniques in accordance with manufacturer's recommendations. Excessive defects, as determined by the Owner's representative, may be grounds for rejection of entire roll of liner.

.2 Material Property

.a The material supplied under these Specifications shall be new, first quality products.

.b The liner material shall be a HDPE textured geomembrane and have the minimum property values indicated in Table 7.4.1.

Table 7.4.1: Material Properties

Test Parameter	Required Specifications	ASTM Test Method (Or Approved Equivalent)
Minimum Average Thickness (mm / mil)	1.5 / 60	D5994
Density	.94	D792
Stress @ Yield (kN/m / ppi)	22 / 126	D6693
Stress @ Break (kN/m / ppi)	16 / 90	
Strain @ Yield (%)	12	
Strain @ Break (%)	100	
Tear Resistance (N / lbs)	187 / 42	D1004
Low Temperature (°C / °F)	-60 / -76	D746 Procedure B
Dimensional Stability (%)	+/-2.0	D1204
Puncture Resistance (N / lbs)	400 / 90	ASTM D4833
Carbon Black (min)	2	D1603
Carbon Black Dispersion	Category 1 or 2	D5596

.c Extrusion resin used for extrusion joining of sheets and for repairs shall be HDPE from the same resin as the sheet resin. Physical properties shall be the same as the liner sheets.

7.5 Installation

.1 General

.a During installation of the liner, the Engineer and/or the Owner's representative shall have complete authority to order a stop work due to inclement weather, the use of improper installation procedures, or for any reason that in his sole opinion may result in a defective liner.

.b Geomembrane shall be free of holes, pinholes, bubbles, blisters, excessive contamination by foreign matter, and nicks and cuts on roll edges.

.c The geomembrane liners shall be installed in accordance with a panel layout plan approved by the Engineer.

.d Horizontal seams on slopes shall not be permitted, unless no other option is available and only as approved by the Engineer.

.e Tie-in seam shall be a minimum of 1.5 m beyond the toe of slope on the base of the facility.

.2 Material Transportation and Storage

.a Labelling: Each roll of geomembrane delivered to the site shall be labelled by the manufacturer. The label shall clearly state the manufacturer's name, product identification, thickness, length, width, and roll number. The label shall be found on either of the endcaps, an inside edge of the core, and outside the core.

.b Delivery: The rolls of liner shall be packaged and shipped by appropriate means to prevent damage to the material and to facilitate off-loading.

.c Storage: The on-site storage location for the geomembrane material should be level, smooth, elevated, and dry (not wooden pallets). The Contractor shall provide a suitable storage site which will protect the geomembrane from punctures, abrasions, excessive moisture, and dirt.

.d Handling: The materials are to be handled so as to prevent damage. Use equipment that does not contact the material itself when handling. Slings or other lifting devices shall provide adequate support without damaging the material. Instructions for moving geomembrane rolls shall be provided by the Manufacturer upon request.

.3 Liner Deployment

.a Deploy materials to minimize handling, damage, and contamination during installation.

.b Sufficient protection should be placed between the soil surface of the berm and the geomembrane to protect the underside of the geomembrane from damage during deployment.

.c Ensure that the sheet is not folded at any time during manufacturing, shipping, or installation.

.d Provide sufficient anchorage against uplift due to wind. Sandbags are preferred.

.e Adequate thermal slack will be incorporated in all layers of geomembrane, to the approval of the Owner's representative.

.f Information to be documented on the liner throughout the installation, shall be clearly visible to such point that the material is covered or construction is complete and will include:

- On each panel, the panel number, material roll number, and date deployed. A panel number will be a simple and logical identifying code. The coding system shall be subject to approval and shall be determined at the job site.

- All repairs shall be given an identification number, the welder, welder operator, and date shall be recorded with the identification number.

- All destructive sample locations will be identified by an identifying number and date removed.

- All non-destructive test data and date of test.

.g Key liner system (geomembrane liner and geotextile) completely down along the side and to the back of the anchor trench, as shown on the Construction Drawings.

.h Do not allow heavy vehicular traffic directly on geomembrane or geotextile.

7.6 Seams and Joints

.1 Joints between liner sheets shall be field welded using the manufacturer's recommended procedures and equipment. Only repairs shall be extrusion welded.

.a Seaming shall be performed using either the extrusion of double wedge automatic fusion welding equipment and techniques, as recommended by the manufacturer of the liner membrane. Extrusion welding shall be used where double wedge fusion welding is not possible such as for patches and repairs.

.b The weld area shall be free of all dirt, dust, moisture, or other foreign material. Surfaces to be welded shall be wiped with oil-free rags when required to remove any contamination by oil, grease, or excessive dirt.

.c If necessary, grinding of the liner material prior to welding shall be per the manufacturer's recommendations. The weld shall be made immediately after preparation and cleaning is complete. The temperature of the welding apparatus shall be checked a minimum of once every hour during welding.

.d The liner panels shall be welded together through the anchor trench.

.2 An overlap line, a minimum of 150 mm from the edge of the underlying sheet, will be clearly identified on the underlying panel of every fusion seam.

.3 The overlap shall be sufficient to leave a loose flap of geomembrane at least 25 mm wide adjacent to both sides of the seam.

.4 Cross and toe seams shall be staggered a minimum of 1 m.

.5 Completed seams and joints shall have a minimum bonded seam strength as follows.

.a Completed seams shall have a minimum strength in shear of at least 21 N/mm (85% of the specified parent material tensile strength) at yield when tested in accordance with ASTM D 4437 or approved equal.

.b Completed seams shall have a minimum strength in peal of at least 14 N/mm (60% of the specified parent material tensile strength) at yield, and break as a film tear bond or a minimum of 10% adhesion break when tested in accordance with ASTM D 4437 or approved equal.

.6 Seaming shall not proceed when ambient air temperature or adverse weather conditions jeopardize the integrity of the liner installation. Installer shall demonstrate that acceptable seaming can be performed by completing acceptable trial welds.

.7 Defects and Repairs

.a Examine all seams and non-seam areas of the geomembrane for defects, holes, blisters, undispersed raw materials, and any sign of contamination by foreign matter.

.b Repair and non-destructively test each suspect location in both seam and non-seam areas. Do not cover geomembrane at locations which have been repaired until test results with passing values are available.

.8 Seaming and repairs will not be completed without the presence of the Engineer.

7.7 Welding

.1 All welds will be completed according to the contractor's appropriate welding procedure.

.a Deviation from the written weld procedures in any manner may be cause for rejection of the affected welds by the Owner's representative.

.b Any welds that have been rejected shall be remedied to the satisfaction of the Owner's representative, at no additional cost to the Owner.

.2 Welding equipment and accessories shall meet the following requirements.

.a Gauges showing temperatures in apparatus extrusion welders (preheat and barrel) or wedge welders (wedge temperature; travel speed) shall be operational and clearly visible.

.b An adequate number of welding apparatus shall be available to avoid delaying work. There should at all times be an additional wedge welder and extrusion welder not in use, in the case of malfunction of those in use.

.c Power source capable of providing constant voltage under combined line load shall be used.

.3 Qualification of Welders

.a Perform trial, or qualification welds, in the presence of the Engineer, on geomembrane samples to verify welding equipment is operating properly.

.b No welding equipment or welder shall be allowed to perform production welds until equipment and welders have successfully completed a trial weld.

.c Trial welds shall be performed prior to use and at a minimum 4-hour frequency throughout each operating day, or as the origin (existing or new) of the liner panels to be seamed changes.

.d If any welder settings are changed, or maintenance is required other than routine cleaning, the welder will have to be prequalified.

.4 Trial Welds

.a Make trial welds under the same surface and environmental conditions as the production welds, (i.e. in contact with subgrade and at similar ambient temperature).

.b Trial welds of existing material from representative locations, to new material will be required as directed by the Owner's representative.

.c Each trial weld shall be a minimum of 1.5 m in length.

.d Cut five, 25 mm wide by 150 mm long test strips from the trial weld. Quantitatively test four specimens for peel adhesion, and then one for bonded seam strength (shear).

.e Repeat the trial weld, in its entirety, when any of the trial weld samples fail in either peel or shear.

.5 Extrusion Welding

.a Hot-air bond adjacent pieces together using procedures that do not damage the geomembrane, or underlying material.

.b Purge welding apparatus of heat-degraded extrudate before welding.

.c Extrudate tails shall not be discarded on any geosynthetic surface while still hot and shall not be left discarded on or below the liner.

.d Clean geomembrane surfaces according to the appropriate manufacturer approved procedures before welding, and weld shortly after.

.6 Wedge Welding

.a Welding apparatus shall be a self-propelled device equipped with an electronic controller which displays applicable temperatures.

.b Protect against moisture build-up between sheets.

.c Continuously clean seam area of dust, mud, moisture, and debris immediately ahead of the hot wedge welder.

7.8 Repair Procedures

.1 Any liner area showing injury due to excessive scuffing, puncture, or distress from any cause, shall, as directed by the Owner's representative, be replaced or repaired with an additional piece of HDPE liner welded over the defective area. All patches shall extend a minimum of 150 mm from the affected area.

.2 Remove damaged geomembrane and replace with acceptable geomembrane materials if damage cannot be satisfactorily repaired.

.3 All repairs shall be completed within 24 hours from when they are identified, except by approval of the Owner's representative.

.4 Repair any portion of unsatisfactory geomembrane or seam area failing a destructive or non-destructive test. Installer shall be responsible for repair of damaged or defective areas. Agreement upon the appropriate repair method shall be decided between the Owner's representative and the Installer. Procedures available include the following:

.a Patching: Used to repair large holes, tears, undispersed raw materials, and contamination by foreign matter.

.b Abrading and Re-welding: Used to repair small seam sections.

.c Spot Welding: Used to repair pinholes or other minor, localized flaws or where geomembrane thickness has been reduced.

.d Capping: Used to repair large lengths of failed seams.

.e Flap Welding: Used to extrusion weld the flap (excess outer portion) of a fusion weld in lieu of a full cap.

.f Removing the unacceptable seam and replace with new material.

.5 Repair Verification

.a Number and log each patch repair.

.b Non-destructively test each repair using methods identified in this Specification.

7.9 Contractor Construction Quality Control

.1 A visual inspection of the liner panels and joints shall be made as the installation progresses and again upon completion of the liner. Defective and questionable areas shall be clearly marked and repaired. All areas identified shall be repaired to the satisfaction of the Engineer.

.2 The Contractor shall further test all joints and repairs in the HDPE liner by vacuum testing or pressurized dual seams testing (for double hot wedge welds only). All testing shall be done in the presence of or with knowledge of the Engineer. All defective areas detected shall be repaired to the satisfaction of the Engineer.

.3 The Contractor shall perform a vacuum test on all extrusion welded seams and repairs, in the following manner:

.a The area to be tested shall be cleaned of all dirt, debris, and other foreign matter and then a soap and water solution shall be applied.

.b A gasket vacuum box (American Parts and Service Company, Alhambra, California, Series #A100 or approved equal) assembly consisting of a rigid housing, a clean transparent viewing window, and a vacuum gauge shall be immediately placed, in a manner as to ensure a seal over the area of the liner to be tested.

.c A vacuum of 35 kPa shall be induced and held for a minimum of 5 seconds or long enough for the area to be thoroughly examined.

.d Examine the geomembrane through the viewing window for the presence of soap bubbling, all areas where leaks are identified shall be marked and repaired.

.e Any portion of an extrusion seam or repair that cannot be vacuum tested, must be pick tested.

.f The Contractor shall perform pressurized testing of all double wedge weld seams, regardless of length, in the following manner.

.4 Both ends of the seam to be tested shall be sealed.

.a A needle with pressure gage, or other approved pressure feed device equipped with a pressure gauge, shall then be inserted into the channel produced in the middle of the double wedge weld.

.b The channel shall be pressurized to 200 kPa to allow the seam to stretch and stabilize before beginning the test.

.c If the loss of pressure exceeds 28 kPa during the testing period or does not stabilize, then the seam will either be repaired entirely, or the faulty area will be located and marked for repair.

.d If blockage is present, locate and test seam on both sides of blockage.

.e Remove needle or other approved pressure feed device and seal all penetration holes by extrusion welding.

.5 Destructive testing will be conducted by the Engineer, with cooperation of the contractor. The contractor will be responsible for cutting destructive samples as directed by the Engineer, repairing and testing the repaired area.

.a Sampling procedures are to be performed as follows:

- The installer shall cut samples at locations designated as the installation progresses in order to obtain laboratory test results before the geomembrane is covered.
- The Engineer will number each sample and mark sample number and location on the installation layout drawing.
- The Installer shall repair all holes in the geomembrane resulting from destructive sampling. Repair and test the continuity of the repair in accordance with these Specifications.
- Samples shall be 200 mm wide and a minimum length of 700 mm, with the seam centered lengthwise.

.b Location and frequency of testing of wedge welded seams.

- Collect destructive test samples at a minimum frequency of one every 150 m of seamed length per welder.

- More frequent samples will be required when numerous welders are used, or if welding is conducted during adverse weather conditions.
- Where possible the QA monitor and contractor shall coordinate destructive samples to be extracted from end of seams to be discarded and above the designed maximum fluid level.
- Test locations will be determined after seaming.

7.10 Failed Seam Procedures

.1 The following procedure shall be used when there is a destructive test failure.

.a The installer shall follow one of two options:

- Reconstruct the seam, or seams between any two passed test locations.
- Track the poor weld by extracting additional samples from either side of the failed sample. These samples must be taken a minimum of 3 m from the failed sample in both directions from the location of the failed test.

.2 Check next seam welded using same welding device if required to obtain additional sample (i.e. if one side of the seam is less than 3 m long).

.3 If any subsequent sample fails, the process shall be repeated to establish the zone in which the seam shall be reconstructed.

.4 Acceptable seams shall be bounded by two locations from which samples have passed destructive tests.

7.11 Submissions

.1 Identify the material selected for use.

.2 With delivery of material, provide written certification from the manufacturer of the material properties for each lot of material supplied.

.3 Additional Submittals (In-Progress and at Completion):

.a Manufacturer's warranty.

.b Geomembrane installation warranty.

.c Geomembrane liner panel layout plan.

.d Low-temperature seaming procedures.

.e Field seam non-destructive test results.

.f Field seam destructive test results.

.g Daily field installation reports.

.h Installation record drawing.

7.12 Liner Acceptance

.1 The geomembrane liner will be accepted by the engineer when:

.a The entire installation is finished.

.b All documentation of installation is completed.

.c Verification of the adequacy of all field seams and repairs and associated testing is complete.

7.13 Cover of Membrane

.1 The Liner Technician shall inspect bedding and protective materials prior to placement and shall confirm their suitability. The Liner Technician shall remain on the site throughout the placing of protective material and shall immediately bring to the Engineer’s attention any procedures that he considers to be detrimental to the membrane.

.2 The Contractor shall take the necessary steps to ensure that the integrity of the liner system is not compromised during placement of the protective cover material.

.3 Any damage to the liner system shall be immediately reported to the Engineer. Repair work shall commence as soon as possible. Granular cover material placement shall cease immediately in an area where the integrity of the liner system has been compromised. Granular cover material may need to be removed and fill surrounding the damaged liner system may have to be excavated, without further damaging the integrity of the liner, to permit repairs to be made.

.4 Care shall be taken to avoid any damage to the liner system by making sharp turns, sudden stops, or sudden starts adjacent to the liner system during cover placement. Non-essential heavy equipment traffic in the immediate vicinity of the liner system shall be minimized.

.5 The Contractor shall discuss with the Engineer the schedule for liner system granular cover material placement. The Engineer shall approve all plans and schedules for covering the liner system.

END OF SECTION

8.0 SECTION 1008

8.0 QUALITY ASSURANCE TESTING

8.1 General

.1 This section describes the quality assurance testing that shall be carried out during construction of the containment areas.

.2 The testing shall be carried out by the Engineer.

8.2 Reference Standards

.1 ASTM C136-04 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

.2 ASTM D698-00ae1 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.

.3 ASTM D2922-01 Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

8.3 Fill Testing Requirements

.1 Particle Size Analysis

.a Particle size analyses shall be completed in accordance with ASTM C136.

.b Particle size analysis testing shall be completed on representative samples obtained during production of the 20 mm Minus and 200 mm Minus Granular Fills.

.c Samples shall be collected and tested at the following frequencies:

- 20 mm Minus Granular Fill: One sample per 500 m^3 of material produced or one sample per 12 hours of production, whichever is more frequent.

- 200 mm Minus Granular Fill: One sample per 2,000 m^3 of material produced or one sample per 24 hours of production, whichever is more frequent.

.2 Moisture-Density Testing

.a Moisture density testing shall be completed on the 20 mm Minus Granular Fill at a frequency of one test per 10,000 m^3 of material produced or when a significant variation in the material gradation is observed.

.b Moisture-density testing shall be completed in accordance with ASTM D698.

8.4 Field Density Testing

.1 Field density testing shall be conducted on compacted 20 mm Minus Granular Fill in accordance with ASTM D2922-01. Testing shall be completed at a minimum frequency of one test per lift per 200 m^2.

END OF SECTION

APPENDIX A

TETRA TECH'S LIMITATIONS ON USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOTECHNICAL

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1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document 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 conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary investigation and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, TETRA TECH has not been retained to investigate, address or consider and has not investigated, addressed or considered any environmental or regulatory issues associated with development on the subject site.

1.8 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems and methods employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. TETRA TECH does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

1.9 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

1.10 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historic environment. TETRA TECH does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional investigation and review may be necessary.

1.11 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

1.12 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

1.13 INFLUENCE OF CONSTRUCTION ACTIVITY

There is a direct correlation between construction activity and structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques are known.

1.14 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, as well as the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

1.15 DRAINAGE SYSTEMS

Where temporary or permanent drainage systems are installed within or around a structure, the systems which will be installed must protect the structure from loss of ground due to internal erosion and must be designed so as to assure continued performance of the drains. Specific design detail of such systems should be developed or reviewed by the geotechnical engineer. Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function.

1.16 BEARING CAPACITY

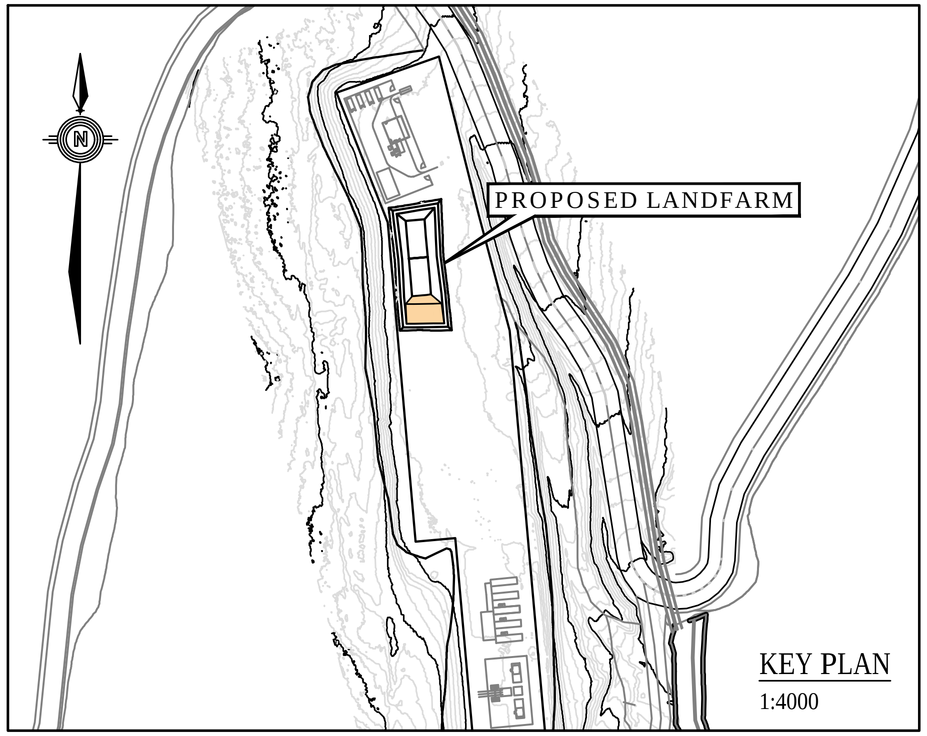
Design bearing capacities, loads and allowable stresses quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition assumed. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions assumed in this report in fact exist at the site.

1.17 SAMPLES

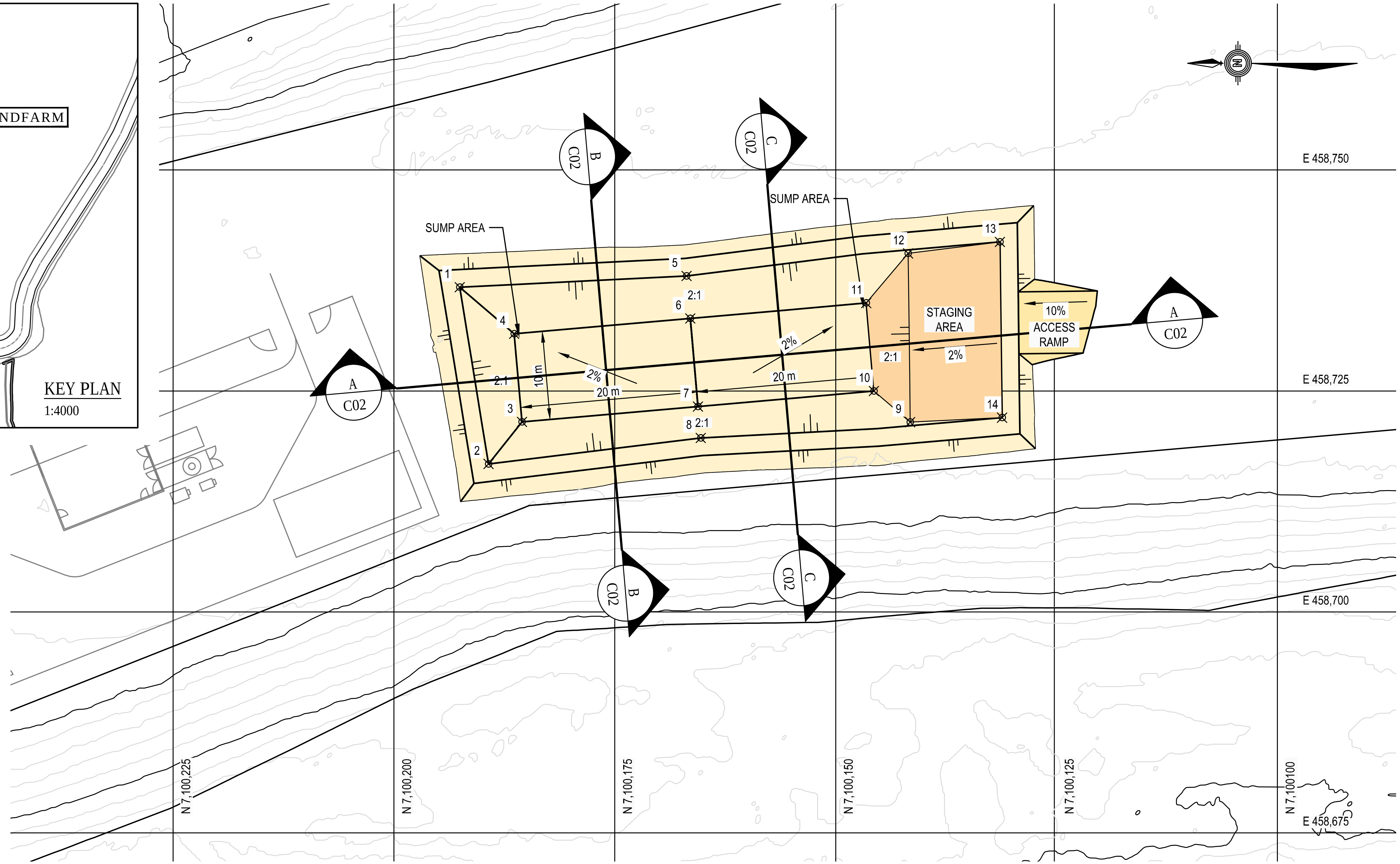
TETRA TECH will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

APPENDIX C

CONSTRUCTION DRAWINGS



KEY PLAN
1:4000



LAYOUT POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	7100192.561	458736.734	852.593	Top of Cover
2	7100189.292	458716.746	852.018	Top of Cover
3	7100185.515	458721.499	849.890	Top of Cover
4	7100186.387	458731.461	849.800	Top of Cover
5	7100166.882	458737.996	852.565	Top of Cover
6	7100166.463	458733.204	850.160	Top of Cover
7	7100165.592	458723.242	850.250	Top of Cover
8	7100165.279	458719.673	852.041	Top of Cover
9	7100141.558	458721.466	851.822	Top of Cover
10	7100145.668	458724.985	849.890	Top of Cover
11	7100146.539	458734.947	849.800	Top of Cover
12	7100141.795	458740.556	852.387	Top of Cover
13	7100131.410	458741.853	852.587	Top of Cover
14	7100131.163	458721.974	852.022	Top of Cover

0 25 m

Scale: 1: 500

REVISIONS

NUM	DATE	APR	DESCRIPTION
0	DEC 14/18	KJ	ISSUED FOR CONSTRUCTION

DRAWING STATUS

NUM	DATE	APR	DESCRIPTION
B	DEC 10/18	GK	60% FOR DISCUSSION
A	NOV 28/18	GK	30% FOR DISCUSSION

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
SIGNATURE
Date DEC. 14, 2018
PERMIT NUMBER PP003
Association of Professional Engineers of Yukon

PERMIT

PROFESSIONAL ENGINEER YUKON TERRITORY KEVIN W. JONES DEC. 14, 2018

PROFESSIONAL SEAL

CLIENT

Victoria GOLD CORP

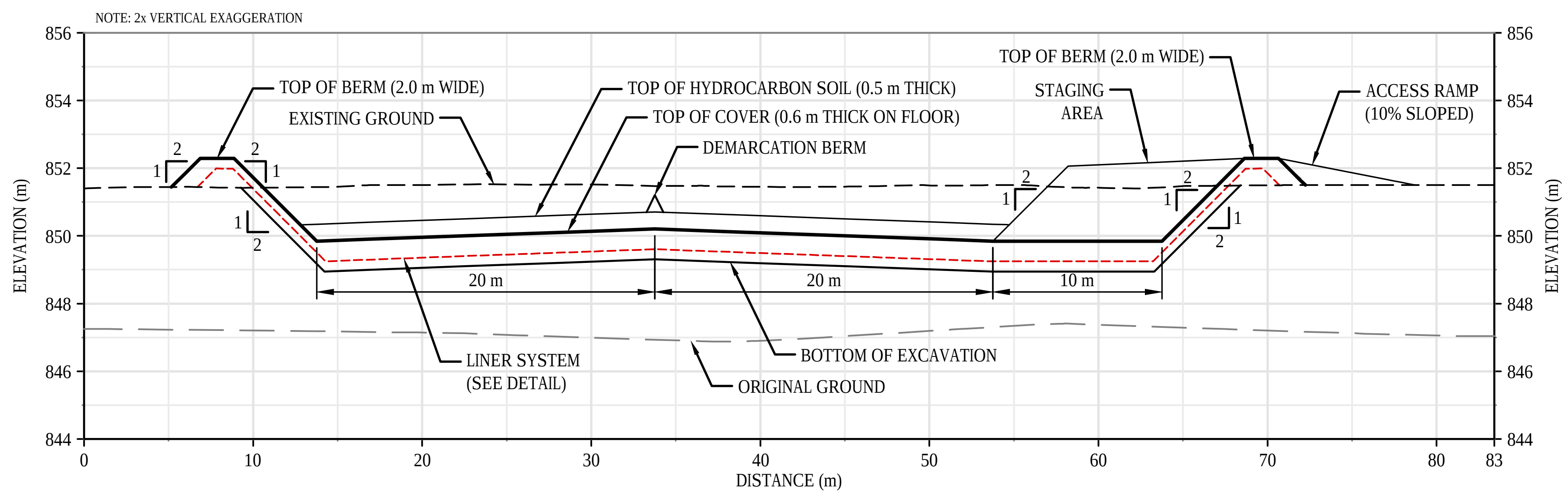
TETRA TECH

LANDFARM DESIGN
EAGLE GOLD PROJECT, YT

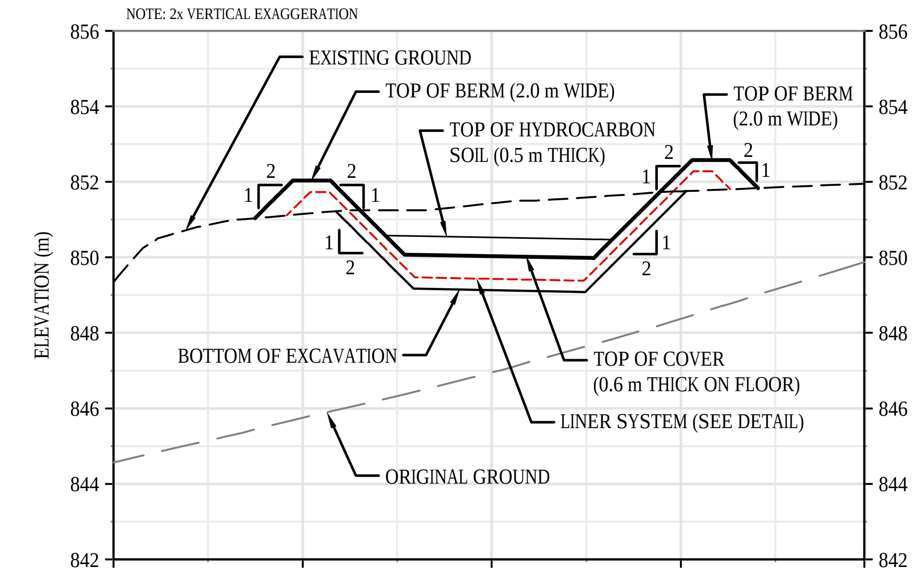
SITE PLAN
PROPOSED LANDFARM

PROJECT No.	OFFICE	DES	CKD	REV	DRAWING
ENG.WARC03235-06	EDM	GK/DBD	GK	0	C01
DATE:	SHEET No.	DWN	APP	STATUS	
November 2018	1 of 2	DBD	KJ	B	

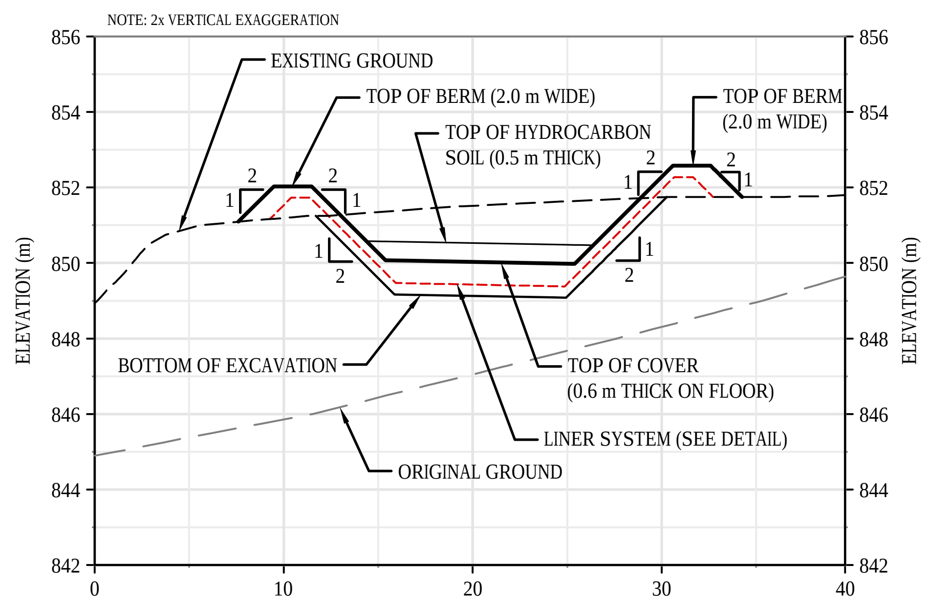
Q:\Edmonton\Engineering\E141\Projects\ENG.WARC03235-06 (Eagle Gold Landfarm)\3.0 CAD\3.0 Production Drawings\Issued for Construction\ENG.WARC03235-06 C01-C02_R0_IFC.dwg [C01] December 14, 2018 - 10:50:21 am (BY: DAS, DEBASHIS)



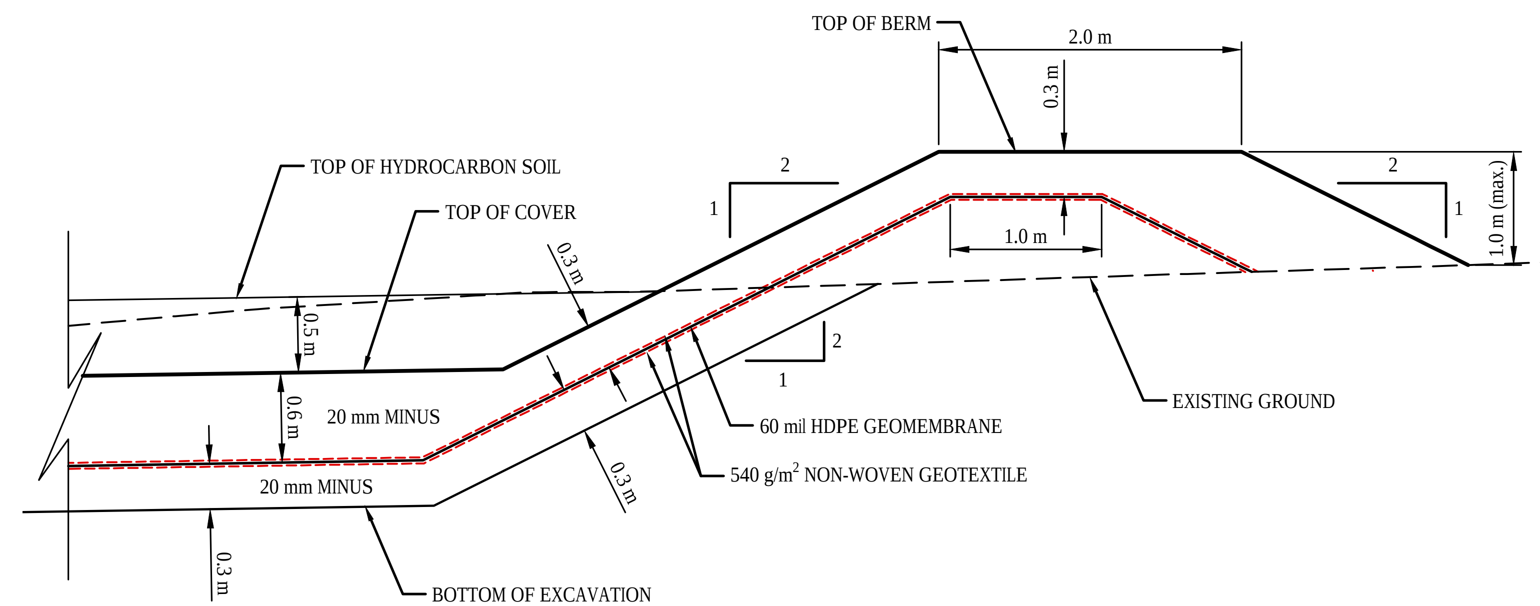
SECTION A



SECTION C

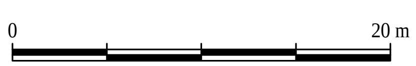


SECTION B



LINER SYSTEM DETAIL

1:50



Scale: 1: 400

NUM	DATE	APR	DESCRIPTION
0	DEC 14/18	KJ	ISSUED FOR CONSTRUCTION

REVISIONS

NUM	DATE	APR	DESCRIPTION
B	DEC 10/18	GK	60% FOR DISCUSSION
A	NOV 28/18	GK	30% FOR DISCUSSION

DRAWING STATUS

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
SIGNATURE
Date DEC. 14, 2018
PERMIT NUMBER PP003
Association of Professional Engineers of Yukon

PERMIT

PROFESSIONAL ENGINEER YUKON TERRITORY KEVIN W. JONES DEC. 14, 2018

PROFESSIONAL SEAL

CLIENT

Victoria GOLD CORP

TETRA TECH

LANDFARM DESIGN
EAGLE GOLD PROJECT, YT

CROSS-SECTIONS AND DETAIL
PROPOSED LANDFARM

PROJECT No.	OFFICE	DES	CKD	REV	DRAWING
ENG.WARC03235-06	EDM	GK/DBD	GK	0	C02
DATE:	SHEET No.	DWN	APP	STATUS	
November 2018	2 of 2	DBD	KJ	B	

Q:\Edmonton\Engineering\E141\Projects\ENG.WARC03235-06 (Eagle Gold Landfarm)\3.0 CAD\3.0 Production Drawings\Issued for Construction\ENG.WARC03235-06 C01-C02_R0_IFC.dwg [C02] December 14, 2018 - 10:50:47 am (BY: DAS, DEBASHIS)

Attachment D

Additional Sample Results

STRATAGOLD CORPORATION
ATTN: Hugh Coyle
Suite 1000 - 1050 W. Pender St
Vancouver BC V6E 3S7

Date Received: 13-MAR-19
Report Date: 21-MAR-19 18:29 (MT)
Version: FINAL

Client Phone: 604-696-6600

Certificate of Analysis

Lab Work Order #: L2243880

Project P.O. #: NOT SUBMITTED
Job Reference: KM 42 SPILL
C of C Numbers: 17-20190313 B
Legal Site Desc:

Joanne Lee
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2243880-1	L2243880-2	L2243880-3	L2243880-4	L2243880-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	11-MAR-19	11-MAR-19	11-MAR-19	11-MAR-19	11-MAR-19
	Sampled Time	10:30	07:10	15:20	15:10	
	Client ID	KM42 SPILL-DS49	KM42 SPILL-US	KM42 SPILL	KM42 SPILL-15MDS	DUPLICATE
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	520	476	665	485	694
	Hardness (as CaCO3) (mg/L)	250	222	327	231	343
	pH (pH)	7.92	7.69	8.08	8.33	8.27
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	<3.0	<3.0
	TDS (Calculated) (mg/L)	304	280	405	288	416
	Turbidity (NTU)	4.90	0.25	2.84 RRV	0.28	1.96 RRV
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	2.7	3.4	<1.0	<1.0	<1.0
	Alkalinity, Total (as CaCO3) (mg/L)	184	142	230	146	233
	Ammonia, Total (as N) (mg/L)	0.0691	0.0079	0.0050	0.0078	0.0056
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)	1.52	<0.50	0.63	<0.50	0.75
	Fluoride (F) (mg/L)	0.109	0.127	0.218	0.127	0.228
	Nitrate (as N) (mg/L)	0.173	0.152	0.209	0.156	0.201
	Nitrite (as N) (mg/L)	0.0022	<0.0010	0.0011	<0.0010	0.0013
	Total Kjeldahl Nitrogen (mg/L)	0.144	<0.050	0.117	<0.050	0.140
	Total Nitrogen (mg/L)	0.319	0.152	0.326	0.156	0.342
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Phosphorus (P)-Total (mg/L)	0.0066	<0.0020	0.0059	<0.0020	0.0064
	Sulfate (SO4) (mg/L)	96.1	115	150	117	153
	Anion Sum (meq/L)	5.74	5.23	7.76	5.37	7.89
	Cation Sum (meq/L)	5.19	4.59	6.74	4.77	7.07
	Cation - Anion Balance (%)	-5.0	-6.6	-7.0	-5.9	-5.5
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	2.13	0.94	2.40	0.98	2.43
Total Metals	Aluminum (Al)-Total (mg/L)	0.0198	0.0078	0.0609	0.0054	0.0922
	Antimony (Sb)-Total (mg/L)	0.00019	0.00055	0.00138	0.00061	0.00136
	Arsenic (As)-Total (mg/L)	0.00551	0.00230	0.00590	0.00231	0.00666
	Barium (Ba)-Total (mg/L)	0.136	0.0512	0.0494	0.0511	0.0502
	Beryllium (Be)-Total (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
	Bismuth (Bi)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	0.000280	0.0000182	0.0000493	0.0000199	0.0000642
	Calcium (Ca)-Total (mg/L)	72.0	56.4	77.2	60.2	77.1
	Chromium (Cr)-Total (mg/L)	0.00013	0.00025	0.00038	0.00016	0.00069
	Cobalt (Co)-Total (mg/L)	0.00090	0.00016	0.00023	0.00018	0.00028
	Copper (Cu)-Total (mg/L)	<0.00050	<0.00050	0.00130	<0.00050	0.00159
	Iron (Fe)-Total (mg/L)	0.618	0.052	0.166	0.048	0.234

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		L2243880-1	L2243880-2	L2243880-3	L2243880-4	L2243880-5
	Sample ID	L2243880-1	L2243880-2	L2243880-3	L2243880-4	L2243880-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	11-MAR-19	11-MAR-19	11-MAR-19	11-MAR-19	11-MAR-19
	Sampled Time	10:30	07:10	15:20	15:10	
	Client ID	KM42 SPILL-DS49	KM42 SPILL-US	KM42 SPILL	KM42 SPILL-15MDS	DUPLICATE
Grouping	**Analyte**					
WATER						
Total Metals	Lead (Pb)-Total (mg/L)	0.00168	<0.000050	0.000300	<0.000050	0.000444
	Lithium (Li)-Total (mg/L)	0.0052	0.0098	0.0110	0.0105	0.0113
	Magnesium (Mg)-Total (mg/L)	22.8	26.0	41.0	27.3	40.4
	Manganese (Mn)-Total (mg/L)	0.283	0.103	0.0663	0.123	0.0736
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Total (mg/L)	0.00114	0.000141	0.000192	0.000608	0.000193
	Nickel (Ni)-Total (mg/L)	0.00986	0.00148	0.00126	0.00155	0.00142
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)	0.97	1.54	2.23	1.59	2.21
	Selenium (Se)-Total (mg/L)	0.000458	0.000202	0.000343	0.000238	0.000340
	Silicon (Si)-Total (mg/L)	4.57	4.92	5.34	4.95	5.36
	Silver (Ag)-Total (mg/L)	0.000011	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)	3.75	2.77	3.68	2.84	3.61
	Strontium (Sr)-Total (mg/L)	0.266	0.297	0.490	0.320	0.481
	Sulfur (S)-Total (mg/L)	33.3	41.1	51.3	40.5	51.0
	Thallium (Tl)-Total (mg/L)	<0.000010	<0.000010	0.000010	<0.000010	0.000011
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)	<0.00030	<0.00030	0.00239	<0.00030	0.00316
	Uranium (U)-Total (mg/L)	0.000968	0.00250	0.00480	0.00271	0.00484
	Vanadium (V)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Total (mg/L)	0.0426	<0.0030	0.0059	0.0031	0.0079
	Zirconium (Zr)-Total (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0086	<0.0010	0.0020	0.0015	0.0040
	Antimony (Sb)-Dissolved (mg/L)	0.00015	0.00052	0.00126	0.00056	0.00144
	Arsenic (As)-Dissolved (mg/L)	0.00298	0.00184	0.00345	0.00184	0.00367
	Barium (Ba)-Dissolved (mg/L)	0.123	0.0483	0.0471	0.0495	0.0462
	Beryllium (Be)-Dissolved (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	0.000107	0.0000162	0.0000481	0.0000168	0.0000365
	Calcium (Ca)-Dissolved (mg/L)	69.0	52.4	71.1	53.9	74.4
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	0.00026	0.00042	0.00024
	Cobalt (Co)-Dissolved (mg/L)	0.00077	0.00014	0.00016	0.00017	0.00018
	Copper (Cu)-Dissolved (mg/L)	0.00024	0.00026	0.00090	0.00029	0.00085
	Iron (Fe)-Dissolved (mg/L)	0.114	0.013	0.017	0.017	0.016

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2243880-1	L2243880-2	L2243880-3	L2243880-4	L2243880-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	11-MAR-19	11-MAR-19	11-MAR-19	11-MAR-19	11-MAR-19
	Sampled Time	10:30	07:10	15:20	15:10	
	Client ID	KM42 SPILL-DS49	KM42 SPILL-US	KM42 SPILL	KM42 SPILL-15MDS	DUPLICATE
Grouping	**Analyte**					
WATER						
Dissolved Metals	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.0046	0.0087	0.0100	0.0088	0.0101
	Magnesium (Mg)-Dissolved (mg/L)	18.8	22.1	36.3	23.3	38.2
	Manganese (Mn)-Dissolved (mg/L)	0.259	0.0950	0.0557	0.114	0.0457
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Dissolved (mg/L)	0.00114	0.000132	0.000178	0.000293	0.000179
	Nickel (Ni)-Dissolved (mg/L)	0.00881	0.00132	0.00103	0.00151	0.00090
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)	0.92	1.45	2.12	1.51	2.21
	Selenium (Se)-Dissolved (mg/L)	0.000443	0.000213	0.000387	0.000226	0.000323
	Silicon (Si)-Dissolved (mg/L)	3.85	4.16	4.67	4.27	4.63
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	3.57	2.51	3.53	2.65	3.50
	Strontium (Sr)-Dissolved (mg/L)	0.246	0.282	0.466	0.305	0.527
	Sulfur (S)-Dissolved (mg/L)	30.0	36.2	48.3	37.6	49.2
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
	Uranium (U)-Dissolved (mg/L)	0.000838	0.00216	0.00423	0.00222	0.00461
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Dissolved (mg/L)	0.0363	0.0027	0.0046	0.0027	0.0036
	Zirconium (Zr)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Aggregate Organics	COD (mg/L)	<20	<20	<20	<20	<20
	Oil and Grease (mg/L)	<5.0	<5.0	<5.0	<5.0	<5.0
Volatile Organic Compounds	Benzene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Bromodichloromethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Bromoform (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Carbon Tetrachloride (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Chlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Dibromochloromethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Chloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Chloroform (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Chloromethane (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	1,2-Dichlorobenzene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	1,3-Dichlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,4-Dichlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2243880-1	L2243880-2	L2243880-3	L2243880-4	L2243880-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	11-MAR-19	11-MAR-19	11-MAR-19	11-MAR-19	11-MAR-19
	Sampled Time	10:30	07:10	15:20	15:10	
	Client ID	KM42 SPILL-DS49	KM42 SPILL-US	KM42 SPILL	KM42 SPILL-15MDS	DUPLICATE
Grouping	**Analyte**					
WATER						
Volatile Organic Compounds	1,1-Dichloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,2-Dichloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,1-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	cis-1,2-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	trans-1,2-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Dichloromethane (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	1,2-Dichloropropane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	cis-1,3-Dichloropropylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	trans-1,3-Dichloropropylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	1,3-Dichloropropene (cis & trans) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Ethylbenzene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Methyl t-butyl ether (MTBE) (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Styrene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	1,1,1,2-Tetrachloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,1,2,2-Tetrachloroethane (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Tetrachloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Toluene (mg/L)	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045
	1,1,1-Trichloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,1,2-Trichloroethane (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Trichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Trichlorofluoromethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Vinyl Chloride (mg/L)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	ortho-Xylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	meta- & para-Xylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Xylenes (mg/L)	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075
	Surrogate: 4-Bromofluorobenzene (SS) (%)	96.6	94.1	96.4	95.4	95.7
	Surrogate: 1,4-Difluorobenzene (SS) (%)	102.8	102.4	103.9	103.5	101.3
Hydrocarbons	EPH10-19 (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25
	EPH19-32 (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25
	LEPH (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25
	HEPH (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25
	Surrogate: 2-Bromobenzotrifluoride (%)	80.6	75.6	76.6	65.2	76.6
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	DLCI <0.000020
	Acenaphthylene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Acridine (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Anthracene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2243880-1	L2243880-2	L2243880-3	L2243880-4	L2243880-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	11-MAR-19	11-MAR-19	11-MAR-19	11-MAR-19	11-MAR-19
	Sampled Time	10:30	07:10	15:20	15:10	
	Client ID	KM42 SPILL-DS49	KM42 SPILL-US	KM42 SPILL	KM42 SPILL-15MDS	DUPLICATE
Grouping	**Analyte**					
WATER						
Polycyclic Aromatic Hydrocarbons	Benz(a)anthracene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Benzo(a)pyrene (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Benzo(b&j)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Benzo(b+j+k)fluoranthene (mg/L)	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
	Benzo(g,h,i)perylene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Benzo(k)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Chrysene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Dibenz(a,h)anthracene (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Fluorene (mg/L)	<0.000010	<0.000010	0.000012	<0.000010	0.000015
	Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	1-Methylnaphthalene (mg/L)	<0.000050	<0.000050	0.000203	<0.000050	0.000268
	2-Methylnaphthalene (mg/L)	<0.000050	<0.000050	0.000281	<0.000050	0.000371
	Naphthalene (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	0.000153
	Phenanthrene (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
	Pyrene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Quinoline (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	DLCI <0.000070
	Surrogate: Acridine d9 (%)	83.3	80.5	79.7	71.5	80.2
	Surrogate: Chrysene d12 (%)	98.7	92.7	90.3	92.6	97.3
	Surrogate: Naphthalene d8 (%)	82.0	81.4	78.5	71.6	86.3
	Surrogate: Phenanthrene d10 (%)	94.3	91.7	89.7	85.7	98.6

* 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)
Method Blank	Manganese (Mn)-Total	B	L2243880-1, -2, -3, -4, -5
Laboratory Control Sample	Sulfur (S)-Dissolved	MES	L2243880-4
Matrix Spike	COD	MS-B	L2243880-1, -2, -3, -4, -5
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L2243880-1, -2, -3, -4, -5
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L2243880-1, -2, -3, -4, -5
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L2243880-1, -2, -3, -4, -5
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2243880-1, -2, -3, -4, -5
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L2243880-1, -2, -3, -4, -5
Matrix Spike	Barium (Ba)-Total	MS-B	L2243880-1, -2, -3, -4, -5
Matrix Spike	Calcium (Ca)-Total	MS-B	L2243880-1, -2, -3, -4, -5
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2243880-1, -2, -3, -4, -5
Matrix Spike	Manganese (Mn)-Total	MS-B	L2243880-1, -2, -3, -4, -5
Matrix Spike	Sodium (Na)-Total	MS-B	L2243880-1, -2, -3, -4, -5
Matrix Spike	Strontium (Sr)-Total	MS-B	L2243880-1, -2, -3, -4, -5
Matrix Spike	Sulfur (S)-Total	MS-B	L2243880-1, -2, -3, -4, -5

Qualifiers for Individual Parameters Listed:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RRV	Reported Result Verified By Repeat Analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

Samples of industrial wastes, acid mine drainage, or other solutions that contain appreciable amounts of hydrolyzable metal ions such as aluminum, iron, and manganese may require hot peroxide treatment to ensure oxidation and hydrolysis of reduced forms of polyvalent cations. Acidity results may be highly variable if this procedure is not followed. Results in this report for 'Acidity (as CaCO3)' have not been peroxide treated.

ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

BE-D-L-CCMS-VA	Water	Diss. Be (low) in Water by CRC ICPMS	APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

BE-T-L-CCMS-VA	Water	Total Be (Low) in Water by CRC ICPMS	EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

BR-L-IC-N-VA	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310B TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

CL-IC-N-VA	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

COD-COL-VA	Water	Chemical Oxygen Demand by Colorimetric	APHA 5220 D. CHEMICAL OXYGEN DEMAND

This analysis is carried out using procedures adapted from APHA Method 5220 "Chemical Oxygen Demand (COD)". Chemical oxygen demand is

Reference Information

determined using the closed reflux colourimetric method.

EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

EC-SCREEN-VA	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

EPH-ME-FID-VA	Water	EPH in Water	BC Lab Manual

EPH is extracted from water using a hexane micro-extraction technique, with analysis by GC-FID, as per the BC Lab Manual. EPH results include PAHs and are therefore not equivalent to LEPH or HEPH.

F-IC-N-VA	Water	Fluoride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in $CaCO_3$ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-D-CVAA-VA	Water	Diss. Mercury in Water by CVAAS or CVAFS	APHA 3030B/EPA 1631E (mod)

Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

HG-T-CVAA-VA	Water	Total Mercury in Water by CVAAS or CVAFS	EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

IONBALANCE-VA	Water	Ion Balance Calculation	APHA 1030E

Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.

Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance is calculated as:

Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]

LEPH/HEPH-CALC-VA	Water	LEPHs and HEPHs	BC MOE LEPH/HEPH

LEPHw and HEPHw are measures of Light and Heavy Extractable Petroleum Hydrocarbons in water. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.

LEPHw = EPH10-19 minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene.

HEPHw = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

MET-T-CCMS-VA	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

NO2-L-IC-N-VA	Water	Nitrite in Water by IC (Low Level)	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-L-IC-N-VA	Water	Nitrate in Water by IC (Low Level)	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

OGG-SF-VA	Water	Oil & Grease by Gravimetric	BCMOE (2010), EPA1664A

Reference Information

The procedure involves an extraction of the entire water sample with hexane. This extract is then evaporated to dryness, and the residue weighed to determine Oil and Grease.

P-T-PRES-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.
Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

PAH-ME-MS-VA	Water	PAHs in Water	EPA 3511/8270D (mod)

PAHs are extracted from water using a hexane micro-extraction technique, with analysis by GC/MS. Because the two isomers cannot be readily separated chromatographically, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.
Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

SO4-IC-N-VA	Water	Sulfate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

TDS-CALC-VA	Water	TDS (Calculated)	APHA 1030E (20TH EDITION)

This analysis is carried out using procedures adapted from APHA 1030E "Checking Correctness of Analyses".
The Total Dissolved Solids result is calculated from measured concentrations of anions and cations in the sample.

TKN-F-VA	Water	TKN in Water by Fluorescence	APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

TN-CALC-VA	Water	Total Nitrogen (Calculation)	BC MOE LABORATORY MANUAL (2005)

Total Nitrogen is a calculated parameter. Total Nitrogen = Total Kjeldahl Nitrogen + [Nitrate and Nitrite (as N)]

TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.
Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.

TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

VOC-HSMS-VA	Water	VOCs in water by Headspace GCMS	EPA 5021A/8260C

The water sample, with added reagents, is 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-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA 5021A/8260C

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA 5035A/5021A/8260C
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION

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:

Reference Information

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-20190313 B

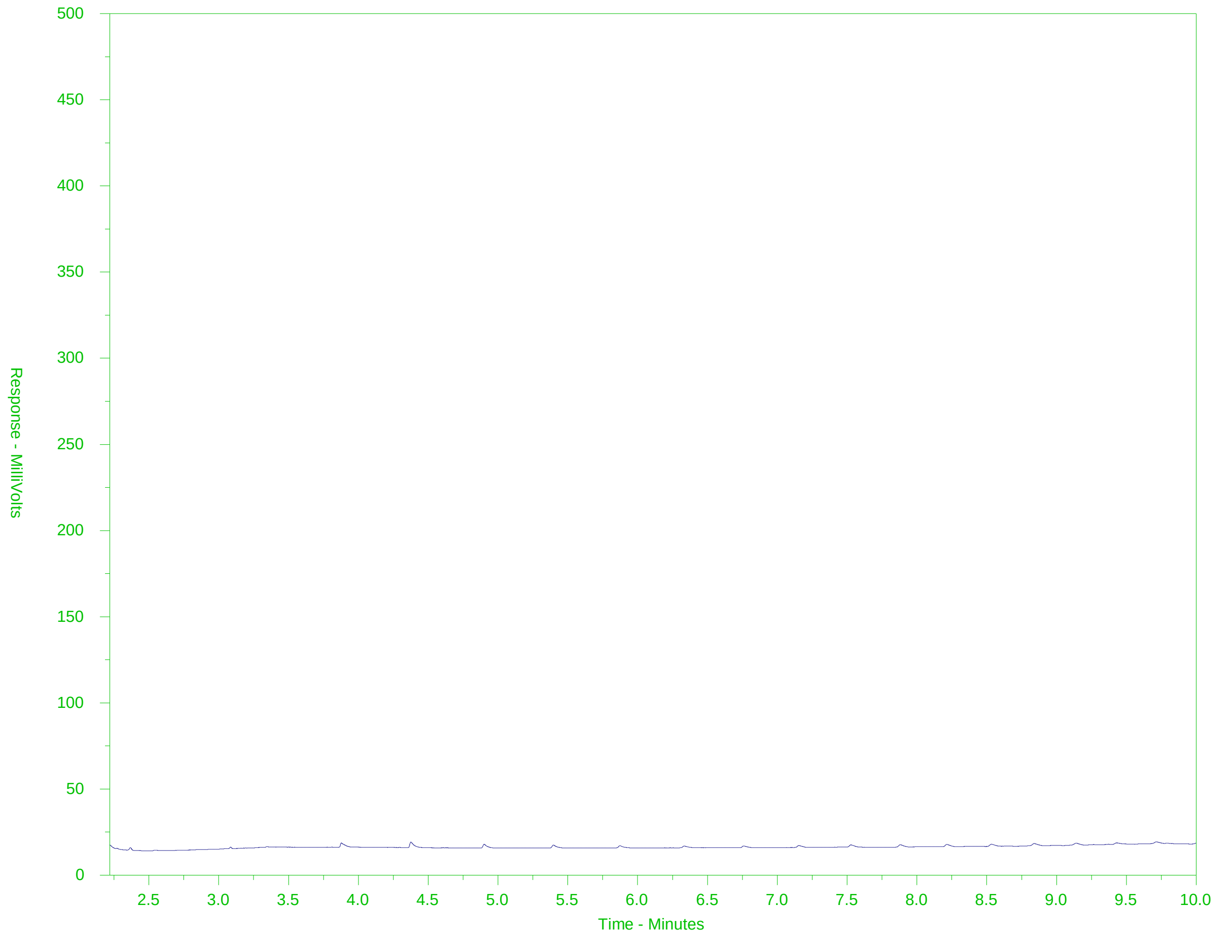
GLOSSARY OF REPORT TERMS

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.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2243880-1
Client Sample ID: KM42 SPILL-DS49



← EPH10-19 →	← EPH19-32 →	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

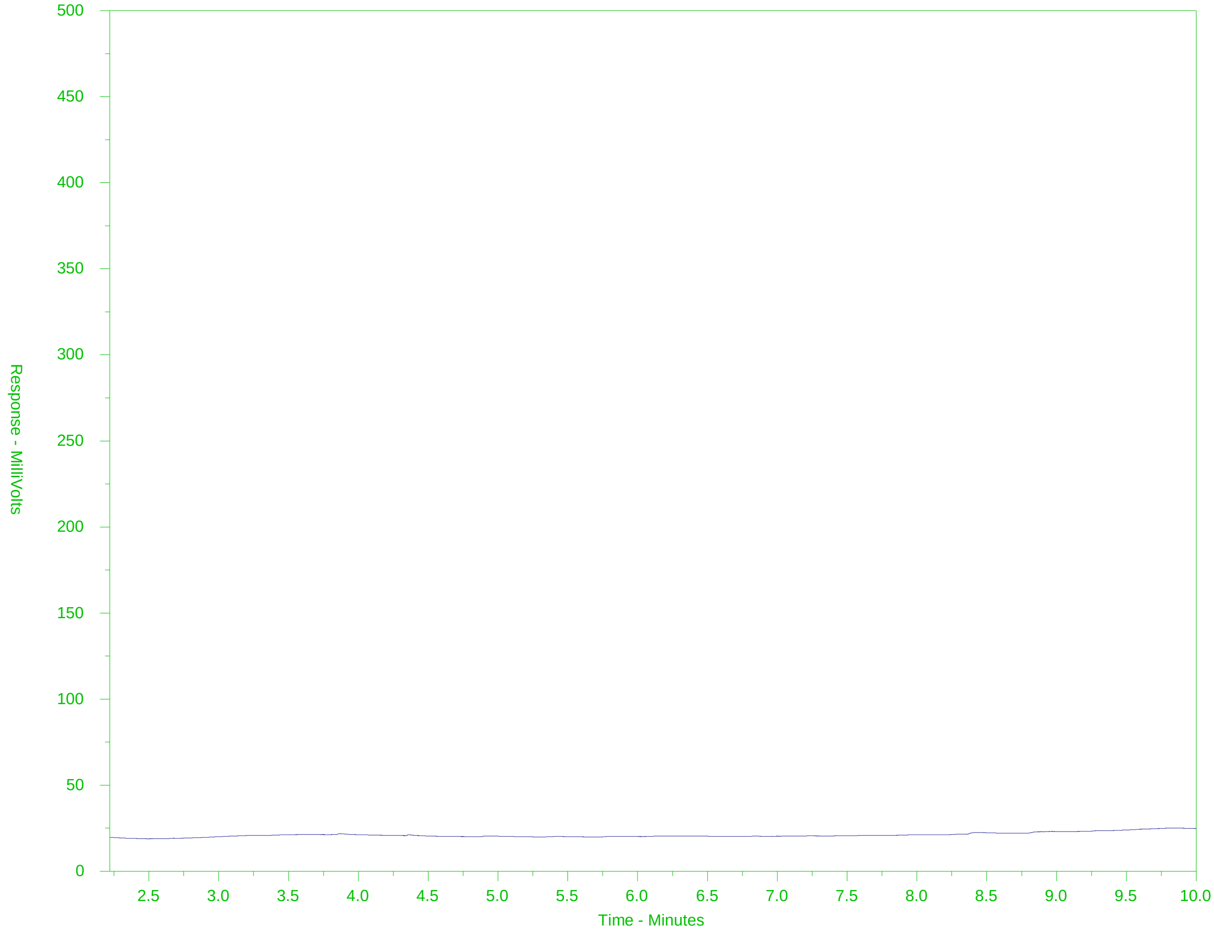
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2243880-2
Client Sample ID: KM42 SPILL-US



EPH10-19		EPH19-32
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

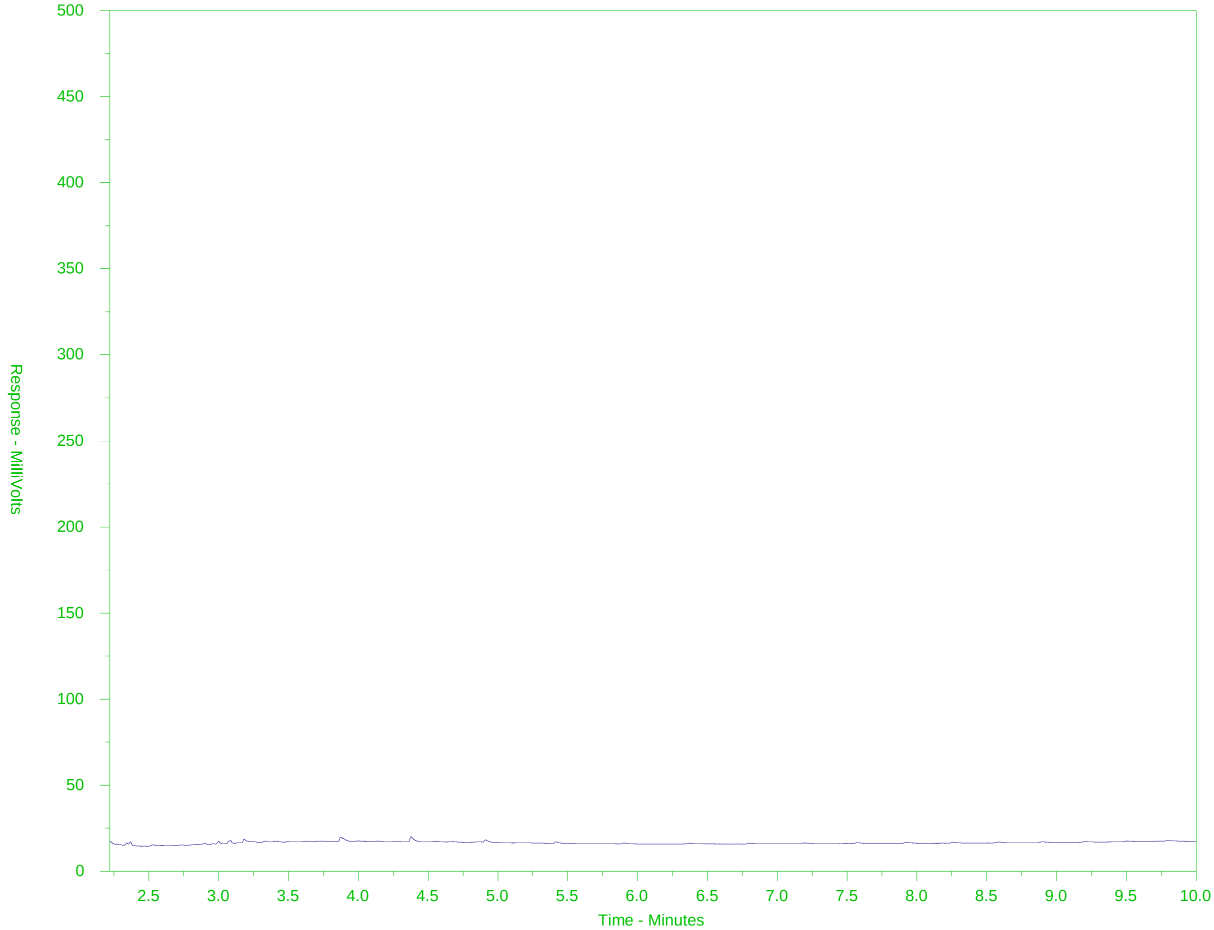
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

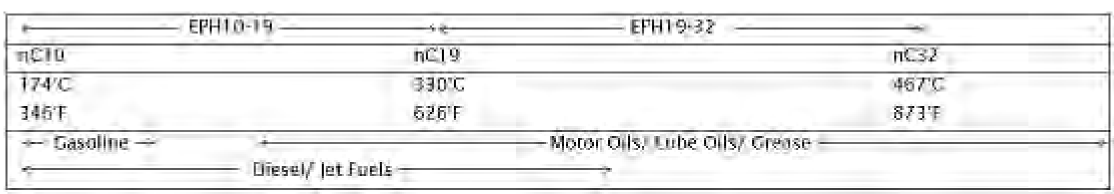
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2243880-3
Client Sample ID: KM42 SPILL





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

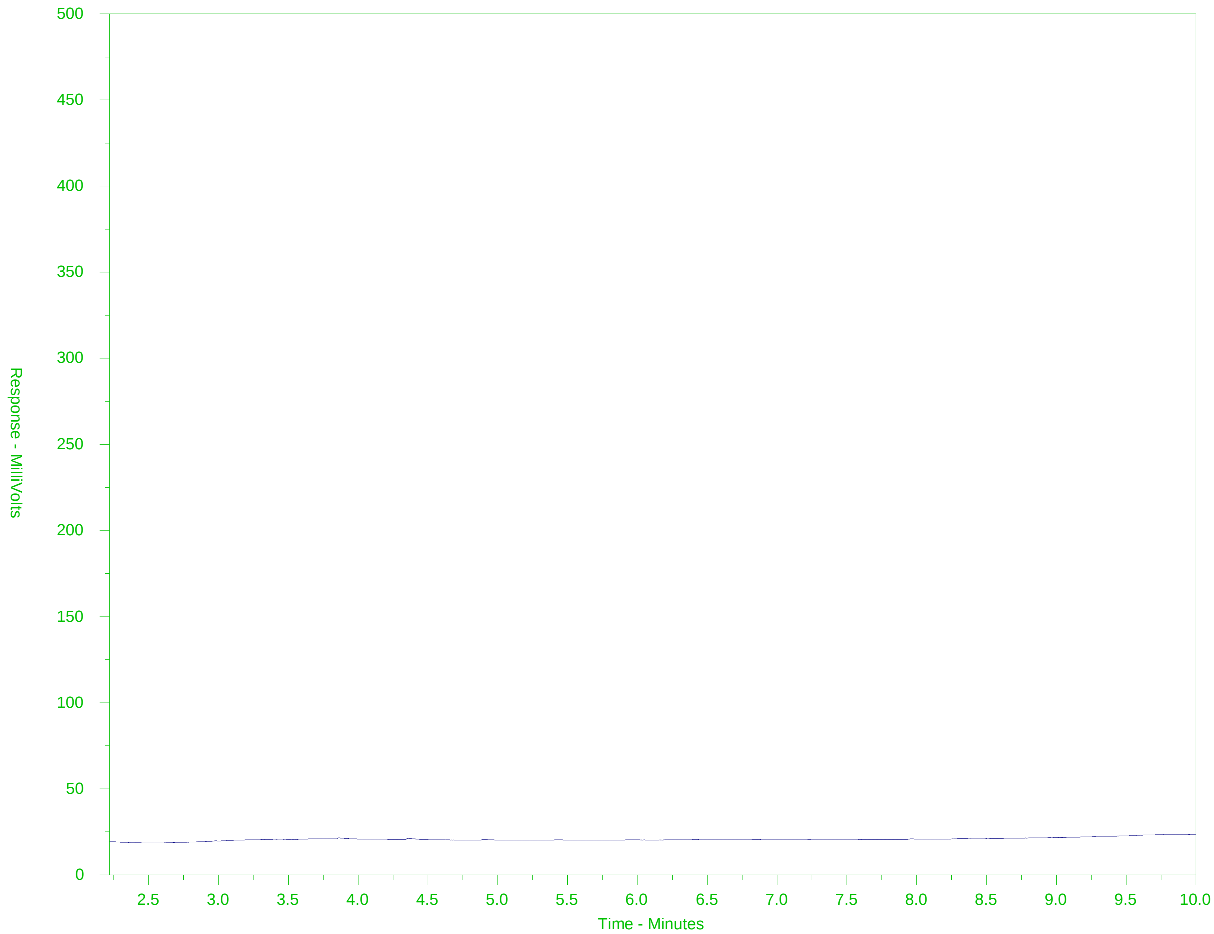
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2243880-4
Client Sample ID: KM42 SPILL-15MDS



EPH10-19	EPH19-32	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

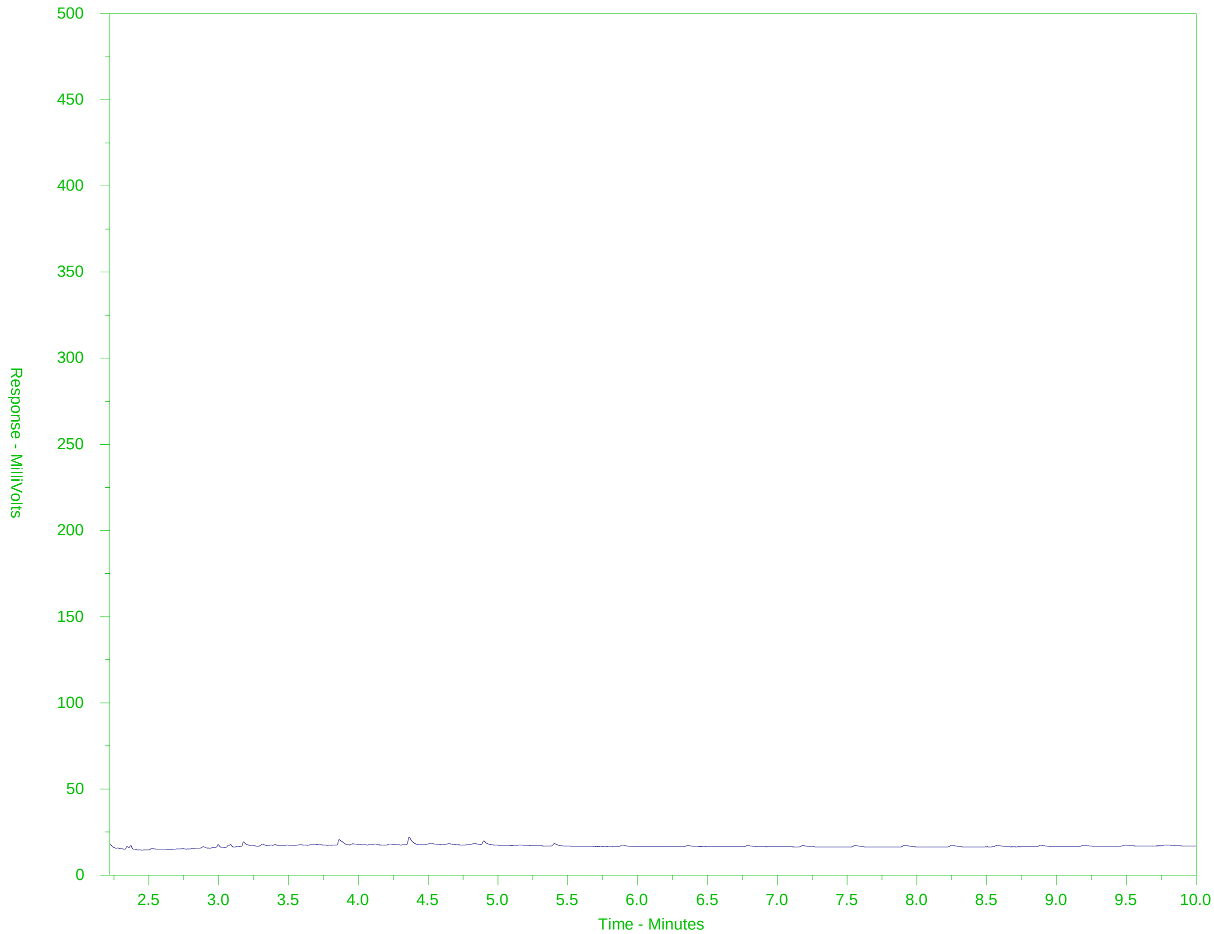
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2243880-5
Client Sample ID: DUPLICATE



EPH10-19		EPH19-32
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

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

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2243880-COFC

COC Number: 17 - 20190313 B

Page of

Report To	Contact and company name below will appear on the final report
Company:	StrataGold Corporation
Contact:	Hugh Coyle
Phone:	604-696-6600
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, V6E 3S7
Postal Code:	
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)

Quality Control (QC) Report with Report ☐ YES ☐ NO

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: kbabin@vitgoldcorp.com; pemerson@vitgoldcorp.c

Email 2: hcoyle@vitgoldcorp.com; jknox@vitgoldcorp.com

Email 3: swilbur@vitgoldcorp.com

Invoice Distribution

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax:

Email 2:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ 3 day [P3-25%] ☐ 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E - 100%] ☐ Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #:

Job #: KM 42 Spill

PO / AFE:

LSD:

ALS Lab Work Order # (lab use only):

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#

Major/Minor Code: Routing Code:

Requisitioner:

Location:

ALS Contact:

Sampler: KB,HM,BM

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	TSS, TDS, Turbidity, pH, Conductivity, Anions, Hardness, Acidity, Alkalinity	Nutrients total (P)	Total Metals/Mercury (P)	VOC/C1-C5 Gases, PAHs (P)	Hydrocarbons (P)	Total Oil and Grease (P)	LEPH.HEPH (P)	Diss. Metals/Mercury (F/P)	Number of containers	SUSPECTED HAZARD (see Special Instructions)
	KM42 Spill -DS49	11-Mar-19	10:30	Water	R	R	R	R	R	R	R	R	12	
	KM42 Spill - US	11-Mar-19	17:10	Water	R	R	R	R	R	R	R	R	12	
	KM42 Spill	11-Mar-19	15:20	Water	R	R	R	R	R	R	R	R	12	
	KM42 Spill - 15mDS	11-Mar-19	15:10	Water	R	R	R	R	R	R	R	R	12	
	Duplicate	11-Mar-19		Water	R	R	R	R	R	R	R	R	12	

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C: 2.0

FINAL COOLER TEMPERATURES °C: 8°C

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Katie Babin	date: 2019-03-13	Time: 7:00	Received by: EF	Date: 13 Mar 2019	Time: 15:00	Received by: D	Date: Mar 14-19	Time: 11:40am

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

JUNE 2016 FRONT

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.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

STRATAGOLD CORPORATION
ATTN: Hugh Coyle
Suite 1000 - 1050 W. Pender St
Vancouver BC V6E 3S7

Date Received: 20-MAR-19
Report Date: 25-MAR-19 16:47 (MT)
Version: FINAL

Client Phone: 604-682-5122

Certificate of Analysis

Lab Work Order #: L2247131

Project P.O. #:	NOT SUBMITTED
Job Reference:	KM 42 SPILL SOIL
C of C Numbers:	20190319A
Legal Site Desc:	

Joanne Lee
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2247131-1	L2247131-2	L2247131-3	L2247131-4	L2247131-5
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	19-MAR-19	19-MAR-19	19-MAR-19	19-MAR-19	19-MAR-19
	Sampled Time					
	Client ID	KM42-1	KM42-2	KM42-3	KM42-4	KM42-5
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)	23.5	13.9	15.4	14.1	19.3
Aggregate Organics	Oil and Grease (mg/kg)	<500	<500	<500	<500	<500
Hydrocarbons	EPH10-19 (mg/kg)	<200	<200	<200	<200	<200
	EPH19-32 (mg/kg)	<200	<200	<200	<200	<200
	LEPH (mg/kg)	<200	<200	<200	<200	<200
	HEPH (mg/kg)	<200	<200	<200	<200	<200
	Surrogate: 2-Bromobenzotrifluoride (%)	91.0	92.6	92.7	90.6	88.9
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	DLCI <0.0080	DLCI <0.0070	DLCI <0.0060	<0.0050	<0.0050
	Acenaphthylene (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Anthracene (mg/kg)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Benz(a)anthracene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Benzo(a)pyrene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Benzo(b&j)fluoranthene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Benzo(b+j+k)fluoranthene (mg/kg)	<0.015	<0.015	<0.015	<0.015	<0.015
	Benzo(g,h,i)perylene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Benzo(k)fluoranthene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Chrysene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Dibenz(a,h)anthracene (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Fluoranthene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Fluorene (mg/kg)	0.011	0.011	<0.010	<0.010	<0.010
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	1-Methylnaphthalene (mg/kg)	0.220	0.187	0.095	<0.050	<0.050
	2-Methylnaphthalene (mg/kg)	0.315	0.265	0.136	0.051	0.011
	Naphthalene (mg/kg)	0.115	0.083	0.034	0.016	<0.010
	Phenanthrene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Pyrene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Quinoline (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Surrogate: Acenaphthene d10 (%)	80.4	83.8	82.4	85.2	83.1
	Surrogate: Chrysene d12 (%)	84.1	94.6	89.6	88.7	88.8
	Surrogate: Naphthalene d8 (%)	81.3	84.6	83.4	85.7	83.0
	Surrogate: Phenanthrene d10 (%)	77.4	84.9	81.4	82.6	77.6
	B(a)P Total Potency Equivalent (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	IACR (CCME) (mg/kg)	<0.15	<0.15	<0.15	<0.15	<0.15

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2247131-6	L2247131-7	L2247131-8		
	Description	Soil	Soil	Soil		
	Sampled Date	19-MAR-19	19-MAR-19	19-MAR-19		
	Sampled Time					
	Client ID	KM42-6	KM42-7	KM42-8		
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)	14.6	16.8	15.1		
Aggregate Organics	Oil and Grease (mg/kg)	<500	<500	<500		
Hydrocarbons	EPH10-19 (mg/kg)	<200	<200	<200		
	EPH19-32 (mg/kg)	<200	<200	<200		
	LEPH (mg/kg)	<200	<200	<200		
	HEPH (mg/kg)	<200	<200	<200		
	Surrogate: 2-Bromobenzotrifluoride (%)	90.6	93.6	94.1		
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	<0.0050	<0.0050	<0.0050		
	Acenaphthylene (mg/kg)	<0.0050	<0.0050	<0.0050		
	Anthracene (mg/kg)	<0.0040	<0.0040	<0.0040		
	Benz(a)anthracene (mg/kg)	<0.010	<0.010	<0.010		
	Benzo(a)pyrene (mg/kg)	<0.010	<0.010	<0.010		
	Benzo(b&j)fluoranthene (mg/kg)	<0.010	<0.010	<0.010		
	Benzo(b+j+k)fluoranthene (mg/kg)	<0.015	<0.015	<0.015		
	Benzo(g,h,i)perylene (mg/kg)	<0.010	<0.010	<0.010		
	Benzo(k)fluoranthene (mg/kg)	<0.010	<0.010	<0.010		
	Chrysene (mg/kg)	<0.010	<0.010	<0.010		
	Dibenz(a,h)anthracene (mg/kg)	<0.0050	<0.0050	<0.0050		
	Fluoranthene (mg/kg)	<0.010	<0.010	<0.010		
	Fluorene (mg/kg)	<0.010	<0.010	<0.010		
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.010	<0.010	<0.010		
	1-Methylnaphthalene (mg/kg)	<0.050	<0.050	<0.050		
	2-Methylnaphthalene (mg/kg)	0.036	<0.010	0.018		
	Naphthalene (mg/kg)	<0.010	<0.010	<0.010		
	Phenanthrene (mg/kg)	<0.010	<0.010	<0.010		
	Pyrene (mg/kg)	<0.010	<0.010	<0.010		
	Quinoline (mg/kg)	<0.050	<0.050	<0.050		
	Surrogate: Acenaphthene d10 (%)	86.2	83.3	82.6		
	Surrogate: Chrysene d12 (%)	91.4	89.3	92.9		
	Surrogate: Naphthalene d8 (%)	85.9	82.6	81.3		
	Surrogate: Phenanthrene d10 (%)	82.5	81.5	79.0		
	B(a)P Total Potency Equivalent (mg/kg)	<0.020	<0.020	<0.020		
	IACR (CCME) (mg/kg)	<0.15	<0.15	<0.15		

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

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.

Test Method References:

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

Analysis is in accordance with BC MOE Lab Manual method "Extractable Petroleum Hydrocarbons in Solids by GC/FID", v2.1, July 1999. Soil samples are extracted with a 1:1 mixture of hexane and acetone using a rotary extraction technique modified from EPA 3570 prior to 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).

ALS Test Code	Matrix	Test Description	Method Reference**
LEPH/HEPH-CALC-VA	Soil	LEPHs and HEPHs	BC MOE LEPH/HEPH

LEPHs and HEPHs are measures of Light and Heavy Extractable Petroleum Hydrocarbons in soil. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.

LEPHs = EPH10-19 minus Naphthalene and Phenanthrene.

HEPHs = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene, and Pyrene.

ALS Test Code	Matrix	Test Description	Method Reference**
MOISTURE-VA	Soil	Moisture content	CCME PHC in Soil - Tier 1 (mod)

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

ALS Test Code	Matrix	Test Description	Method Reference**
OG-TMB-VA	Soil	Oil & Grease in Soil	BC Lab Manual - Oil and Grease in Solids

A subsample of the sediment/soil is extracted with 1:1 hexane:acetone using a rotary extraction apparatus. The extract is analyzed gravimetrically.

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.

ALS Test Code	Matrix	Test Description	Method Reference**
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 3570 & 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.

Benzo(a)pyrene Total Potency Equivalents [B(a)P TPE] represents the sum of estimated cancer potency relative to B(a)P for all potentially carcinogenic unsubstituted PAHs, and is calculated as per the CCME PAH Soil Quality Guidelines reference document (2010).

** 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, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

20190319A

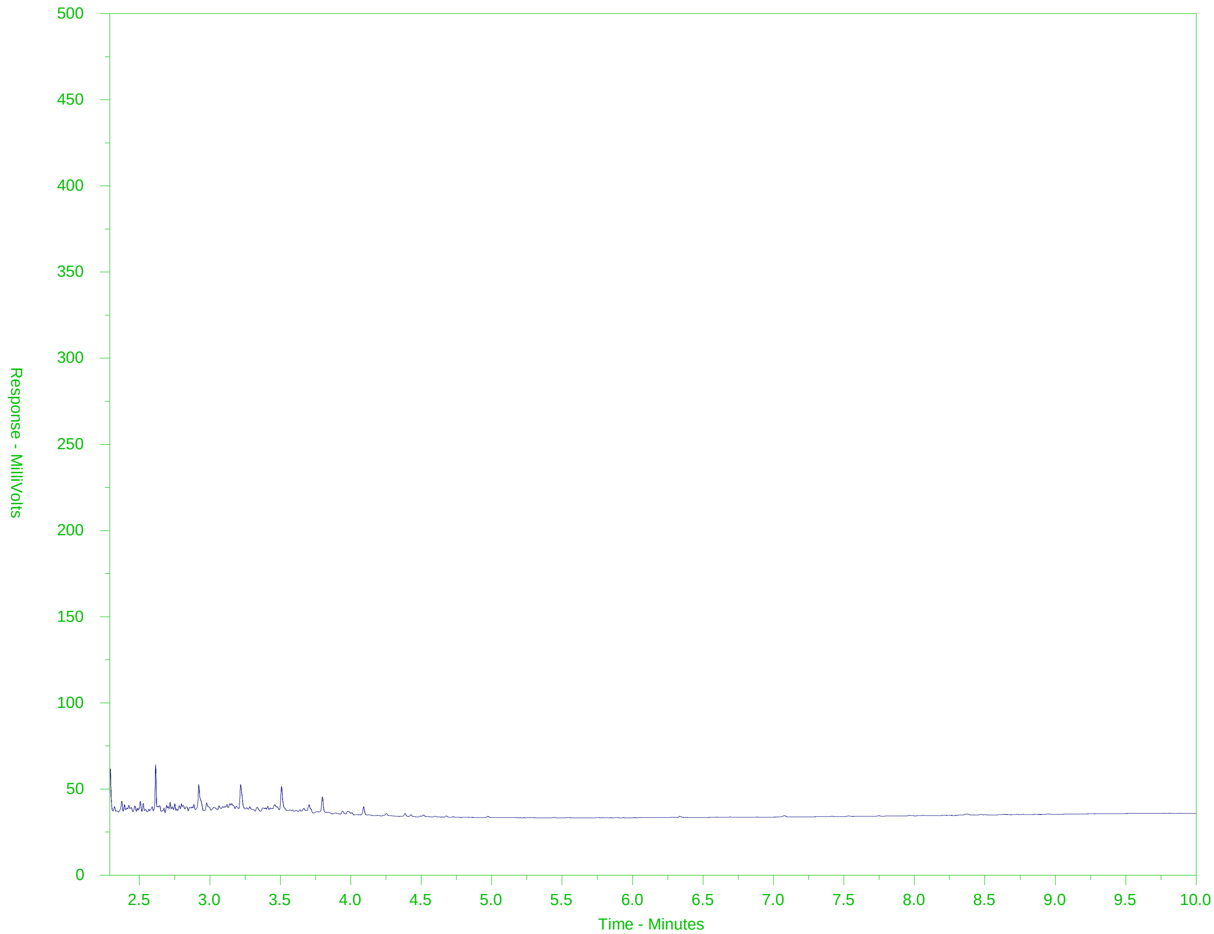
GLOSSARY OF REPORT TERMS

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.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247131-1
Client Sample ID: KM42-1



← EPH10-19 →	← EPH19-32 →	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

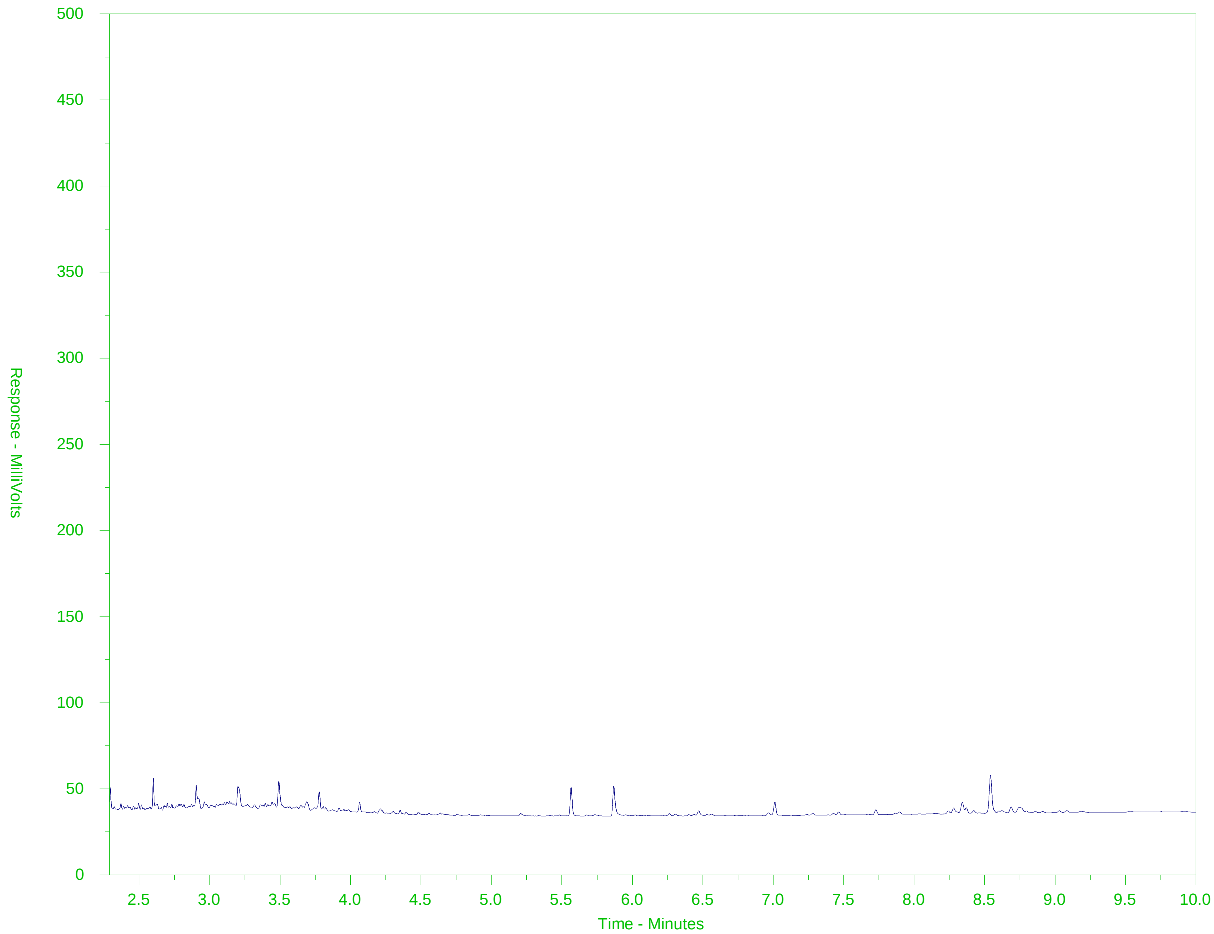
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247131-2
Client Sample ID: KM42-2



← EPH10-19 →	← EPH19-32 →	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

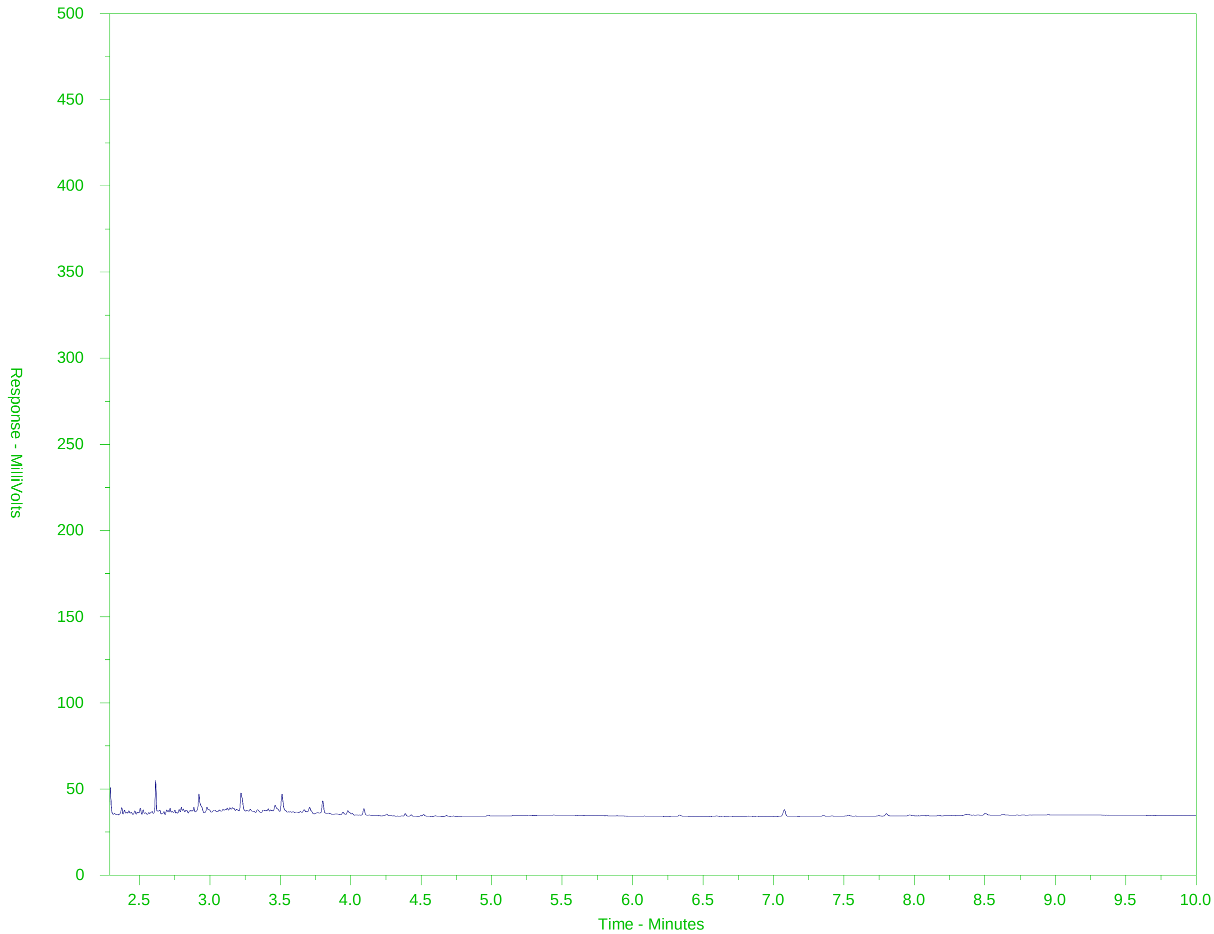
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

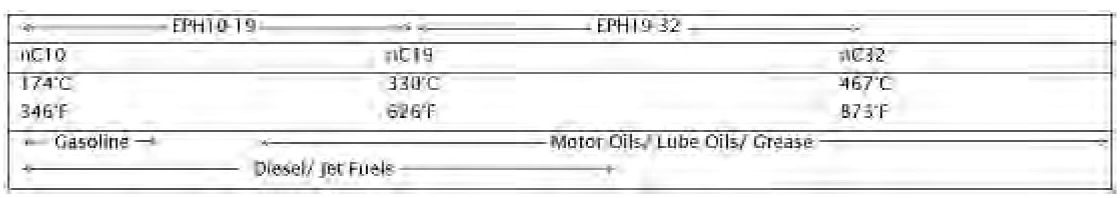
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247131-3
Client Sample ID: KM42-3





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

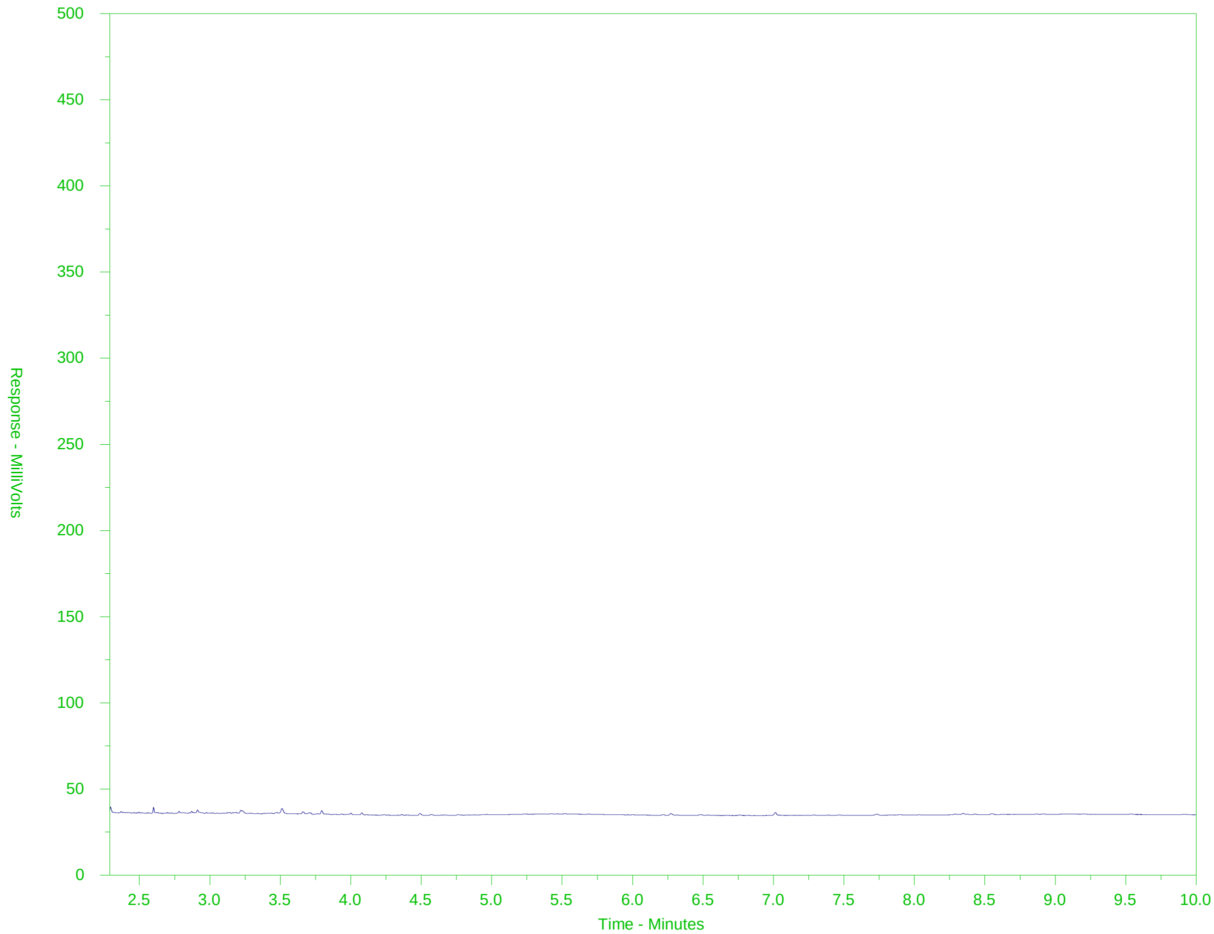
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247131-4
Client Sample ID: KM42-4



EPH10-19		EPH19-32
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

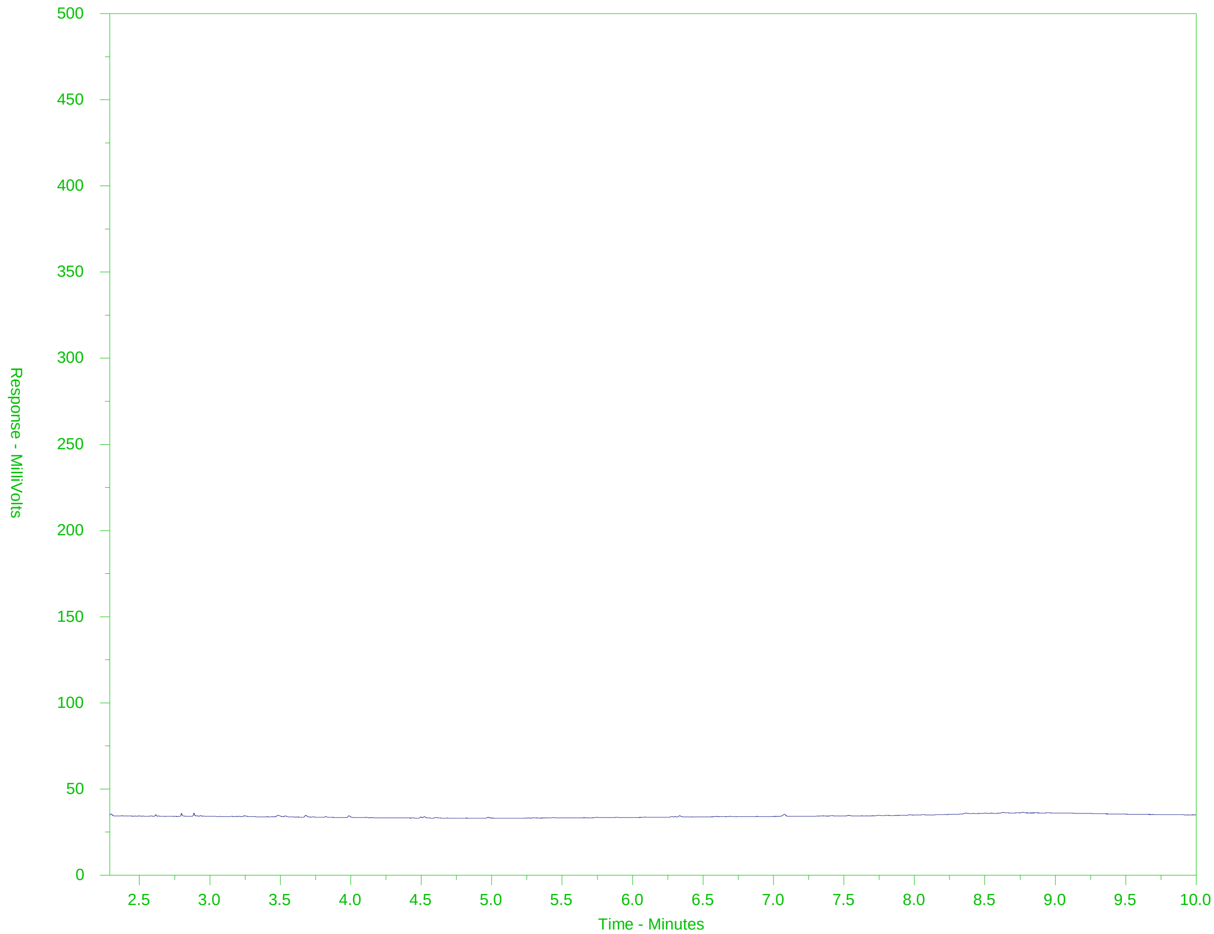
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247131-5
Client Sample ID: KM42-5



EPH10-19		EPH19-32
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

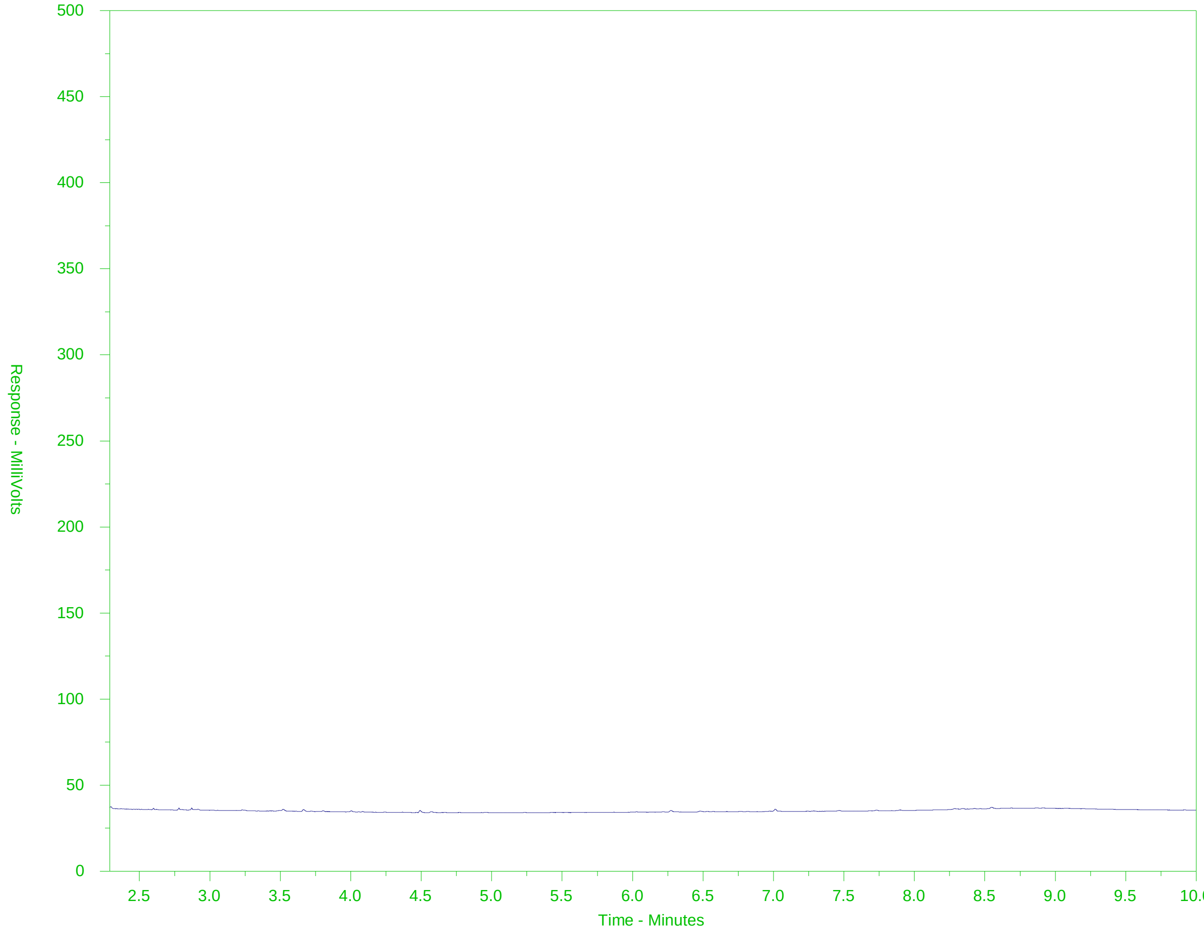
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WG3012688-3#L2247131-5
Client Sample ID: KM42-5



EPH10-19		EPH19-32
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

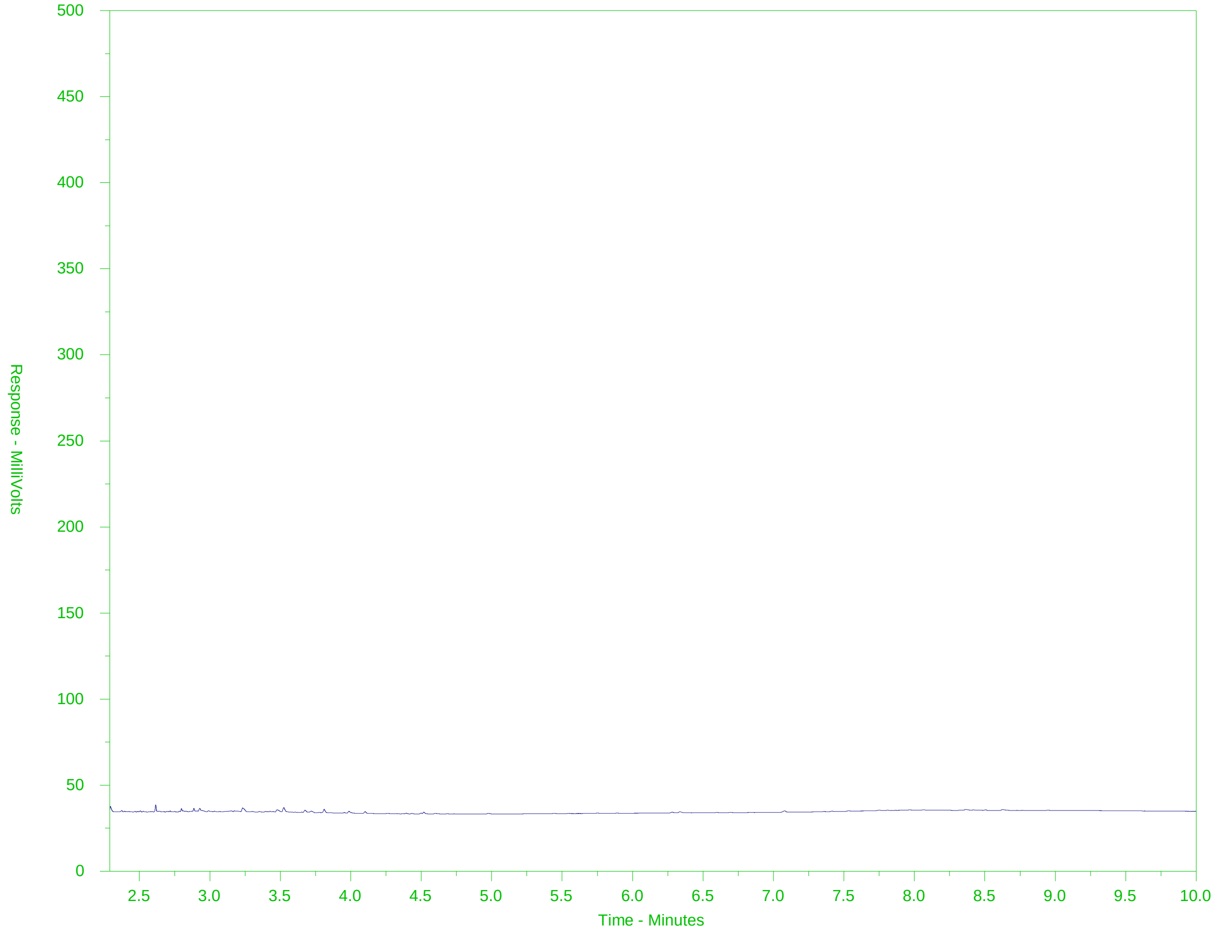
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247131-6
Client Sample ID: KM42-6



EPH10-19		EPH19-32
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

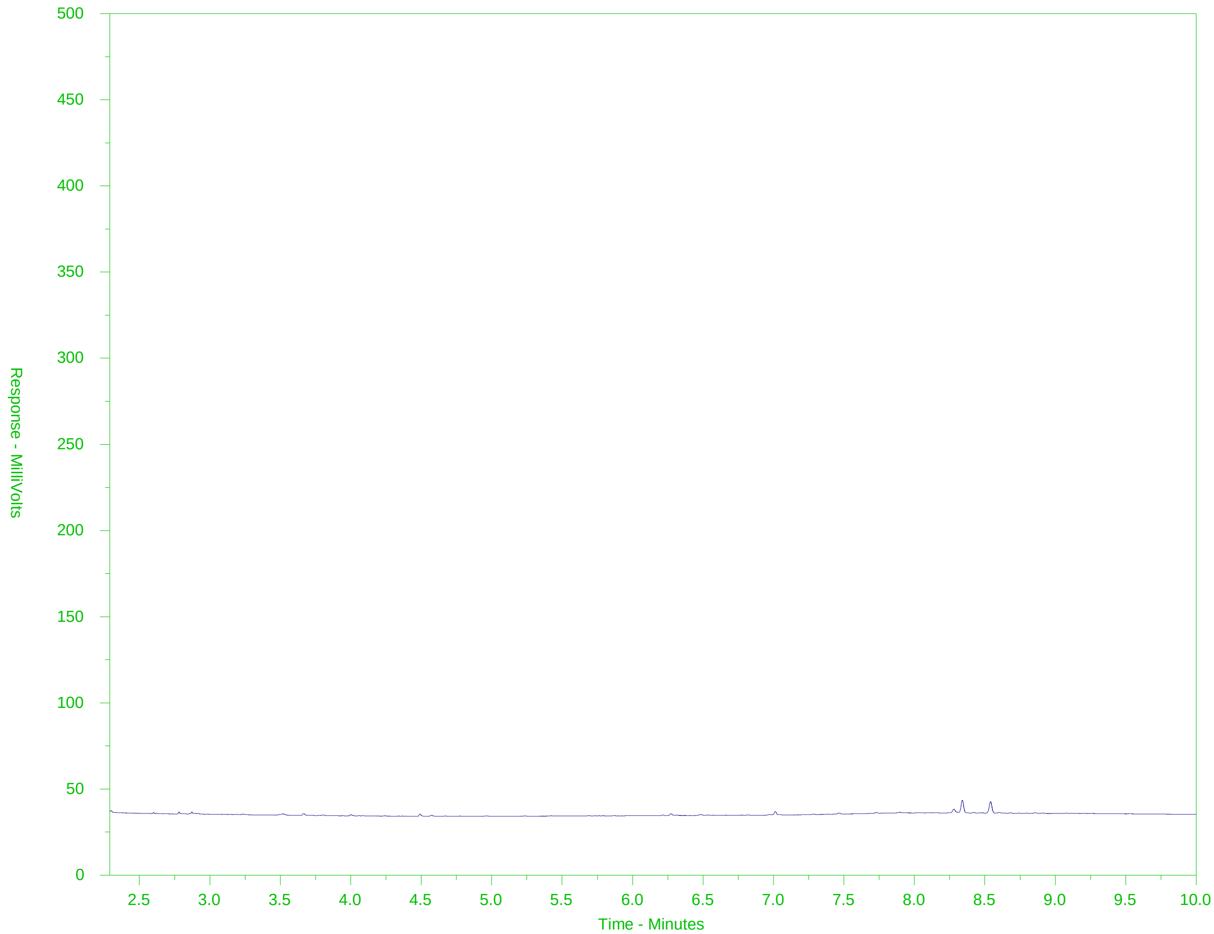
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247131-7
Client Sample ID: KM42-7



← EPH10-19 →	← EPH19-32 →	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

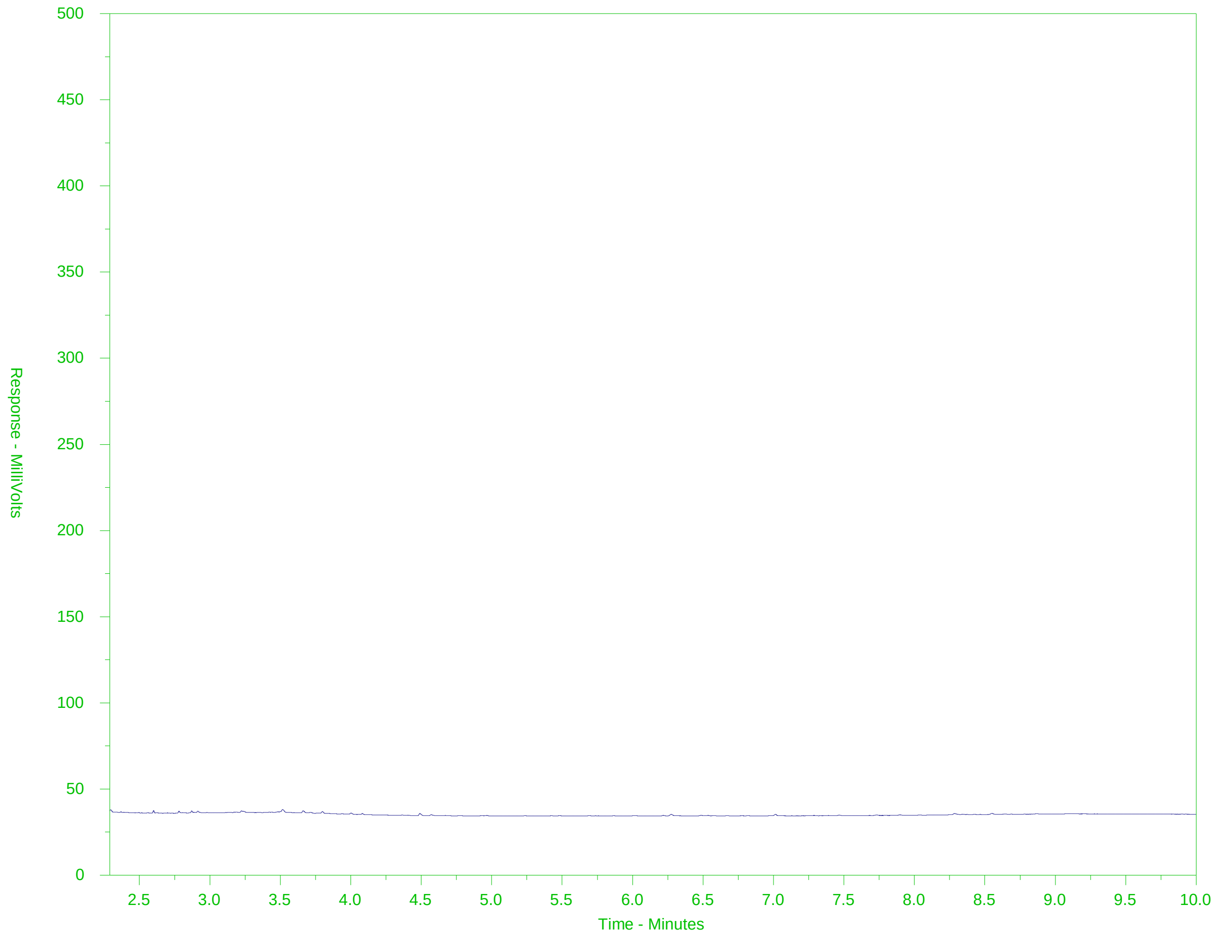
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247131-8
Client Sample ID: KM42-8



EPH10-19	EPH19-32	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

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

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

L2247131-COFC

ALS Environmental

Chain of Custody / Anal
Canada Toll Free:
www.alsglobal.com

20190319A

Page 1 of 1

Report To		**Report Format / Distribution**		**Service Requested** (Rush for routine analysis subject to availability)
Company:	StrataGold Corporation	☑ Standard ☐ Other		○ Regular (Standard Turnaround Times - Business Days)
Contact:	Hugh Coyle	☑ PDF ☑ Excel ☑ Digital ☐ Fax		● Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1000 - 1050 West Pender Street	Email 1:	hcoyle@vitgoldcorp.com; jknox@vitgoldcorp.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6E 3S7	Email 2:	pemerson@vitgoldcorp.com; kbabin@vitgoldcorp.	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-696-6600 Fax:	Email 3:	swilbur@vitgoldcorp.com; cbeaudry@vitgoldcorp.	**Analysis Request**
Invoice To	Same as Report ? ☑ Yes ☑ No	**Client / Project Information**		Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Km 42 spill soil	
Company:		PO / AFE:		
Contact:		LSD:	Victoria Gold Corp.	
Address:				
Phone:	Fax:	Quote #:		
Lab Work Order # (lab use only)		ALS Contact:	Joanne Lee Brent Mack	Sampler: KB JW

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	LEPH/HEPH-CSR-VA	total oil grease										Number of Containers
1	KM42-1	19-Mar-19		Soil	X	X										2
2	KM42-2	19-Mar-19		Soil	X	X										2
3	KM42-3	19-Mar-19		Soil	X	X										2
4	KM42-4	19-Mar-19		Soil	X	X										2
5	KM42-5	19-Mar-19		Soil	X	X										2
6	KM42-6	19-Mar-19		Soil	X	X										2
7	KM42-7	19-Mar-19		Soil	X	X										2
8	KM42-8	19-Mar-19		Soil	X	X										2
9																
10																
11																
12																
13																
14																

Priority 2

P2.

RUSH

Special Instructions / Regulations with water or land use (CCME-Freshwater A ... **azardous Details**

YUKON CSR

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 provided on a separate Excel tab.
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
K. Babin	19-Mar-19	18:00	EF	20 Mar 2019	16:30	9.0°C	HA	3/21	1pm	

GENF 20.00 Front

6

STRATAGOLD CORPORATION
ATTN: Hugh Coyle
Suite 1000 - 1050 W. Pender St
Vancouver BC V6E 3S7

Date Received: 15-APR-19
Report Date: 26-APR-19 16:41 (MT)
Version: FINAL

Client Phone: 604-682-5122

Certificate of Analysis

Lab Work Order #: L2257992

Project P.O. #: NOT SUBMITTED
Job Reference: KM 42 SPILL
C of C Numbers: 17-20190412B
Legal Site Desc:

Comments: Oil and grease analysis could not be done due to no appropriate containers received.

Joanne Lee
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2257992-1					
	Description	Water					
	Sampled Date	12-APR-19					
	Sampled Time	14:00					
	Client ID	KM42 DS					
Grouping	**Analyte**						
WATER							
Physical Tests	Conductivity (uS/cm)	436					
	Hardness (as CaCO3) (mg/L)	242					
	pH (pH)	8.04					
	Total Suspended Solids (mg/L)	6.2					
	TDS (Calculated) (mg/L)	267					
	Turbidity (NTU)	10.3					
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	2.1					
	Alkalinity, Total (as CaCO3) (mg/L)	125					
	Ammonia, Total (as N) (mg/L)	0.0136					
	Bromide (Br) (mg/L)	<0.050					
	Chloride (Cl) (mg/L)	1.79					
	Fluoride (F) (mg/L)	0.129					
	Nitrate (as N) (mg/L)	0.110					
	Nitrite (as N) (mg/L)	<0.0010					
	Total Kjeldahl Nitrogen (mg/L)	0.072					
	Total Nitrogen (mg/L)	0.182					
	Orthophosphate-Dissolved (as P) (mg/L)	0.0014					
	Phosphorus (P)-Total Dissolved (mg/L)	0.0021					
	Phosphorus (P)-Total (mg/L)	0.0093					
	Sulfate (SO4) (mg/L)	99.0					
	Anion Sum (meq/L)	4.62					
	Cation Sum (meq/L)	5.06					
	Cation - Anion Balance (%)	4.5					
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)	3.56					
Total Metals	Aluminum (Al)-Total (mg/L)	0.181					
	Antimony (Sb)-Total (mg/L)	0.00087					
	Arsenic (As)-Total (mg/L)	0.0111					
	Barium (Ba)-Total (mg/L)	0.0485					
	Beryllium (Be)-Total (mg/L)	<0.000020					
	Bismuth (Bi)-Total (mg/L)	<0.000050					
	Boron (B)-Total (mg/L)	<0.010					
	Cadmium (Cd)-Total (mg/L)	0.0000512					
	Calcium (Ca)-Total (mg/L)	53.9					
	Chromium (Cr)-Total (mg/L)	0.00030					
	Cobalt (Co)-Total (mg/L)	0.00047					
	Copper (Cu)-Total (mg/L)	0.00105					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2257992-1				
	Description	Water				
	Sampled Date	12-APR-19				
	Sampled Time	14:00				
	Client ID	KM42 DS				
Grouping	**Analyte**					
WATER						
Total Metals	Iron (Fe)-Total (mg/L)	0.364				
	Lead (Pb)-Total (mg/L)	0.000957				
	Lithium (Li)-Total (mg/L)	0.0087				
	Magnesium (Mg)-Total (mg/L)	23.5				
	Manganese (Mn)-Total (mg/L)	0.127				
	Mercury (Hg)-Total (mg/L)	<0.0000050				
	Molybdenum (Mo)-Total (mg/L)	0.000184				
	Nickel (Ni)-Total (mg/L)	0.00203				
	Phosphorus (P)-Total (mg/L)	<0.050				
	Potassium (K)-Total (mg/L)	1.83				
	Selenium (Se)-Total (mg/L)	0.000195				
	Silicon (Si)-Total (mg/L)	4.72				
	Silver (Ag)-Total (mg/L)	<0.000010				
	Sodium (Na)-Total (mg/L)	3.49				
	Strontium (Sr)-Total (mg/L)	0.291				
	Sulfur (S)-Total (mg/L)	36.5				
	Thallium (Tl)-Total (mg/L)	<0.000010				
	Tin (Sn)-Total (mg/L)	<0.00010				
	Titanium (Ti)-Total (mg/L)	0.00656				
	Uranium (U)-Total (mg/L)	0.00195				
	Vanadium (V)-Total (mg/L)	<0.00050				
	Zinc (Zn)-Total (mg/L)	0.0043				
	Zirconium (Zr)-Total (mg/L)	<0.00030				
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD				
	Dissolved Metals Filtration Location	FIELD				
	Aluminum (Al)-Dissolved (mg/L)	0.0041				
	Antimony (Sb)-Dissolved (mg/L)	0.00064				
	Arsenic (As)-Dissolved (mg/L)	0.00394				
	Barium (Ba)-Dissolved (mg/L)	0.0460				
	Beryllium (Be)-Dissolved (mg/L)	<0.000020				
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050				
	Boron (B)-Dissolved (mg/L)	<0.010				
	Cadmium (Cd)-Dissolved (mg/L)	0.0000419				
	Calcium (Ca)-Dissolved (mg/L)	56.6				
	Chromium (Cr)-Dissolved (mg/L)	<0.00010				
	Cobalt (Co)-Dissolved (mg/L)	0.00034				
	Copper (Cu)-Dissolved (mg/L)	0.00111				

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2257992-1				
	Description	Water				
	Sampled Date	12-APR-19				
	Sampled Time	14:00				
	Client ID	KM42 DS				
Grouping	**Analyte**					
WATER						
Dissolved Metals	Iron (Fe)-Dissolved (mg/L)	0.024				
	Lead (Pb)-Dissolved (mg/L)	0.000058				
	Lithium (Li)-Dissolved (mg/L)	0.0093				
	Magnesium (Mg)-Dissolved (mg/L)	24.5				
	Manganese (Mn)-Dissolved (mg/L)	0.121				
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050				
	Molybdenum (Mo)-Dissolved (mg/L)	0.000191				
	Nickel (Ni)-Dissolved (mg/L)	0.00175				
	Phosphorus (P)-Dissolved (mg/L)	<0.050				
	Potassium (K)-Dissolved (mg/L)	1.92				
	Selenium (Se)-Dissolved (mg/L)	0.000270				
	Silicon (Si)-Dissolved (mg/L)	4.27				
	Silver (Ag)-Dissolved (mg/L)	<0.000010				
	Sodium (Na)-Dissolved (mg/L)	3.73				
	Strontium (Sr)-Dissolved (mg/L)	0.267				
	Sulfur (S)-Dissolved (mg/L)	32.3				
	Thallium (Tl)-Dissolved (mg/L)	<0.000010				
	Tin (Sn)-Dissolved (mg/L)	<0.00010				
	Titanium (Ti)-Dissolved (mg/L)	<0.00030				
	Uranium (U)-Dissolved (mg/L)	0.00213				
	Vanadium (V)-Dissolved (mg/L)	<0.00050				
	Zinc (Zn)-Dissolved (mg/L)	0.0028				
	Zirconium (Zr)-Dissolved (mg/L)	<0.00030				
Aggregate Organics	COD (mg/L)	<20				
Volatile Organic Compounds	Benzene (mg/L)	<0.00050				
	Bromodichloromethane (mg/L)	<0.0010				
	Bromoform (mg/L)	<0.0010				
	Carbon Tetrachloride (mg/L)	<0.00050				
	Chlorobenzene (mg/L)	<0.0010				
	Dibromochloromethane (mg/L)	<0.0010				
	Chloroethane (mg/L)	<0.0010				
	Chloroform (mg/L)	<0.0010				
	Chloromethane (mg/L)	<0.0050				
	1,2-Dichlorobenzene (mg/L)	<0.00050				
	1,3-Dichlorobenzene (mg/L)	<0.0010				
	1,4-Dichlorobenzene (mg/L)	<0.0010				

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2257992-1				
		Description	Water				
		Sampled Date	12-APR-19				
		Sampled Time	14:00				
		Client ID	KM42 DS				
Grouping	**Analyte**						
WATER							
Volatile Organic Compounds	1,1-Dichloroethane (mg/L)		<0.0010				
	1,2-Dichloroethane (mg/L)		<0.0010				
	1,1-Dichloroethylene (mg/L)		<0.0010				
	cis-1,2-Dichloroethylene (mg/L)		<0.0010				
	trans-1,2-Dichloroethylene (mg/L)		<0.0010				
	Dichloromethane (mg/L)		<0.0050				
	1,2-Dichloropropane (mg/L)		<0.0010				
	cis-1,3-Dichloropropylene (mg/L)		<0.00050				
	trans-1,3-Dichloropropylene (mg/L)		<0.00050				
	1,3-Dichloropropene (cis & trans) (mg/L)		<0.0010				
	Ethylbenzene (mg/L)		<0.00050				
	Methyl t-butyl ether (MTBE) (mg/L)		<0.00050				
	Styrene (mg/L)		<0.00050				
	1,1,1,2-Tetrachloroethane (mg/L)		<0.0010				
	1,1,2,2-Tetrachloroethane (mg/L)		<0.00020				
	Tetrachloroethylene (mg/L)		<0.0010				
	Toluene (mg/L)		<0.00045				
	1,1,1-Trichloroethane (mg/L)		<0.0010				
	1,1,2-Trichloroethane (mg/L)		<0.00050				
	Trichloroethylene (mg/L)		<0.0010				
	Trichlorofluoromethane (mg/L)		<0.0010				
	Vinyl Chloride (mg/L)		<0.00040				
	ortho-Xylene (mg/L)		<0.00050				
	meta- & para-Xylene (mg/L)		<0.00050				
	Xylenes (mg/L)		<0.00075				
	Surrogate: 4-Bromofluorobenzene (SS) (%)		106.0				
	Surrogate: 1,4-Difluorobenzene (SS) (%)		97.1				
Hydrocarbons	EPH10-19 (mg/L)		<0.25				
	EPH19-32 (mg/L)		<0.25				
	LEPH (mg/L)		<0.25				
	HEPH (mg/L)		<0.25				
	Surrogate: 2-Bromobenzotrifluoride (%)		86.0				
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)		<0.000010				
	Acenaphthylene (mg/L)		<0.000010				
	Acridine (mg/L)		<0.000010				
	Anthracene (mg/L)		<0.000010				

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2257992-1				
	Description	Water				
	Sampled Date	12-APR-19				
	Sampled Time	14:00				
	Client ID	KM42 DS				
Grouping	**Analyte**					
WATER						
Polycyclic Aromatic Hydrocarbons	Benz(a)anthracene (mg/L)	<0.000010				
	Benzo(a)pyrene (mg/L)	<0.0000050				
	Benzo(b&j)fluoranthene (mg/L)	<0.000010				
	Benzo(b+j+k)fluoranthene (mg/L)	<0.000015				
	Benzo(g,h,i)perylene (mg/L)	<0.000010				
	Benzo(k)fluoranthene (mg/L)	<0.000010				
	Chrysene (mg/L)	<0.000010				
	Dibenz(a,h)anthracene (mg/L)	<0.0000050				
	Fluoranthene (mg/L)	<0.000010				
	Fluorene (mg/L)	<0.000010				
	Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010				
	1-Methylnaphthalene (mg/L)	<0.000050				
	2-Methylnaphthalene (mg/L)	<0.000050				
	Naphthalene (mg/L)	<0.000050				
	Phenanthrene (mg/L)	<0.000020				
	Pyrene (mg/L)	<0.000010				
	Quinoline (mg/L)	<0.000050				
	Surrogate: Acridine d9 (%)	112.3				
	Surrogate: Chrysene d12 (%)	112.6				
	Surrogate: Naphthalene d8 (%)	92.1				
	Surrogate: Phenanthrene d10 (%)	108.5				

* 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)
Matrix Spike	Total Organic Carbon	MS-B	L2257992-1
Matrix Spike	Total Organic Carbon	MS-B	L2257992-1
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L2257992-1
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L2257992-1
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L2257992-1
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L2257992-1
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2257992-1
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L2257992-1
Matrix Spike	Barium (Ba)-Total	MS-B	L2257992-1
Matrix Spike	Calcium (Ca)-Total	MS-B	L2257992-1
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2257992-1
Matrix Spike	Sodium (Na)-Total	MS-B	L2257992-1
Matrix Spike	Strontium (Sr)-Total	MS-B	L2257992-1
Matrix Spike	Sulfur (S)-Total	MS-B	L2257992-1
Matrix Spike	Phosphorus (P)-Total	MS-B	L2257992-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

Samples of industrial wastes, acid mine drainage, or other solutions that contain appreciable amounts of hydrolyzable metal ions such as aluminum, iron, and manganese may require hot peroxide treatment to ensure oxidation and hydrolysis of reduced forms of polyvalent cations. Acidity results may be highly variable if this procedure is not followed. Results in this report for 'Acidity (as CaCO3)' have not been peroxide treated.

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ALS Test Code	Matrix	Test Description	Method Reference**
BE-D-L-CCMS-VA	Water	Diss. Be (low) in Water by CRC ICPMS	APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

ALS Test Code	Matrix	Test Description	Method Reference**
BE-T-L-CCMS-VA	Water	Total Be (Low) in Water by CRC ICPMS	EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

ALS Test Code	Matrix	Test Description	Method Reference**
BR-L-IC-N-VA	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

ALS Test Code	Matrix	Test Description	Method Reference**
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310B TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

ALS Test Code	Matrix	Test Description	Method Reference**
CL-IC-N-VA	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

ALS Test Code	Matrix	Test Description	Method Reference**
COD-COL-VA	Water	Chemical Oxygen Demand by Colorimetric	APHA 5220 D. CHEMICAL OXYGEN DEMAND

This analysis is carried out using procedures adapted from APHA Method 5220 "Chemical Oxygen Demand (COD)". Chemical oxygen demand is determined using the closed reflux colourimetric method.

ALS Test Code	Matrix	Test Description	Method Reference**
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

ALS Test Code	Matrix	Test Description	Method Reference**
EC-SCREEN-VA	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Reference Information

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

EPH-ME-FID-VA	Water	EPH in Water	BC Lab Manual

EPH is extracted from water using a hexane micro-extraction technique, with analysis by GC-FID, as per the BC Lab Manual. EPH results include PAHs and are therefore not equivalent to LEPH or HEPH.

F-IC-N-VA	Water	Fluoride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-D-CVAA-VA	Water	Diss. Mercury in Water by CVAAS or CVAFS	APHA 3030B/EPA 1631E (mod)

Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

HG-T-CVAA-VA	Water	Total Mercury in Water by CVAAS or CVAFS	EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

IONBALANCE-VA	Water	Ion Balance Calculation	APHA 1030E

Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.

Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance is calculated as:

Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]

LEPH/HEPH-CALC-VA	Water	LEPHs and HEPHs	BC MOE LEPH/HEPH

LEPHw and HEPHw are measures of Light and Heavy Extractable Petroleum Hydrocarbons in water. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.

LEPHw = EPH10-19 minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene.

HEPHw = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

MET-T-CCMS-VA	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

NO2-L-IC-N-VA	Water	Nitrite in Water by IC (Low Level)	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-L-IC-N-VA	Water	Nitrate in Water by IC (Low Level)	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-PRES-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.
Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

P-TD-PRES-COL-VA	Water	Total Dissolved P in Water by Colour	APHA 4500-P Phosphorous

Reference Information

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorus is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.
Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

PAH-ME-MS-VA	Water	PAHs in Water	EPA 3511/8270D (mod)

PAHs are extracted from water using a hexane micro-extraction technique, with analysis by GC/MS. Because the two isomers cannot be readily separated chromatographically, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.
Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

SO4-IC-N-VA	Water	Sulfate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

TDS-CALC-VA	Water	TDS (Calculated)	APHA 1030E (20TH EDITION)

This analysis is carried out using procedures adapted from APHA 1030E "Checking Correctness of Analyses".
The Total Dissolved Solids result is calculated from measured concentrations of anions and cations in the sample.

TKN-F-VA	Water	TKN in Water by Fluorescence	APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

TN-CALC-VA	Water	Total Nitrogen (Calculation)	BC MOE LABORATORY MANUAL (2005)

Total Nitrogen is a calculated parameter. Total Nitrogen = Total Kjeldahl Nitrogen + [Nitrate and Nitrite (as N)]

TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.
Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.

TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

VOC-HSMS-VA	Water	VOCs in water by Headspace GCMS	EPA 5021A/8260C

The water sample, with added reagents, is 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-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA 5021A/8260C

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA 5035A/5021A/8260C
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION

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, BRITISH COLUMBIA, CANADA

Reference Information

Chain of Custody Numbers:

17-20190412B

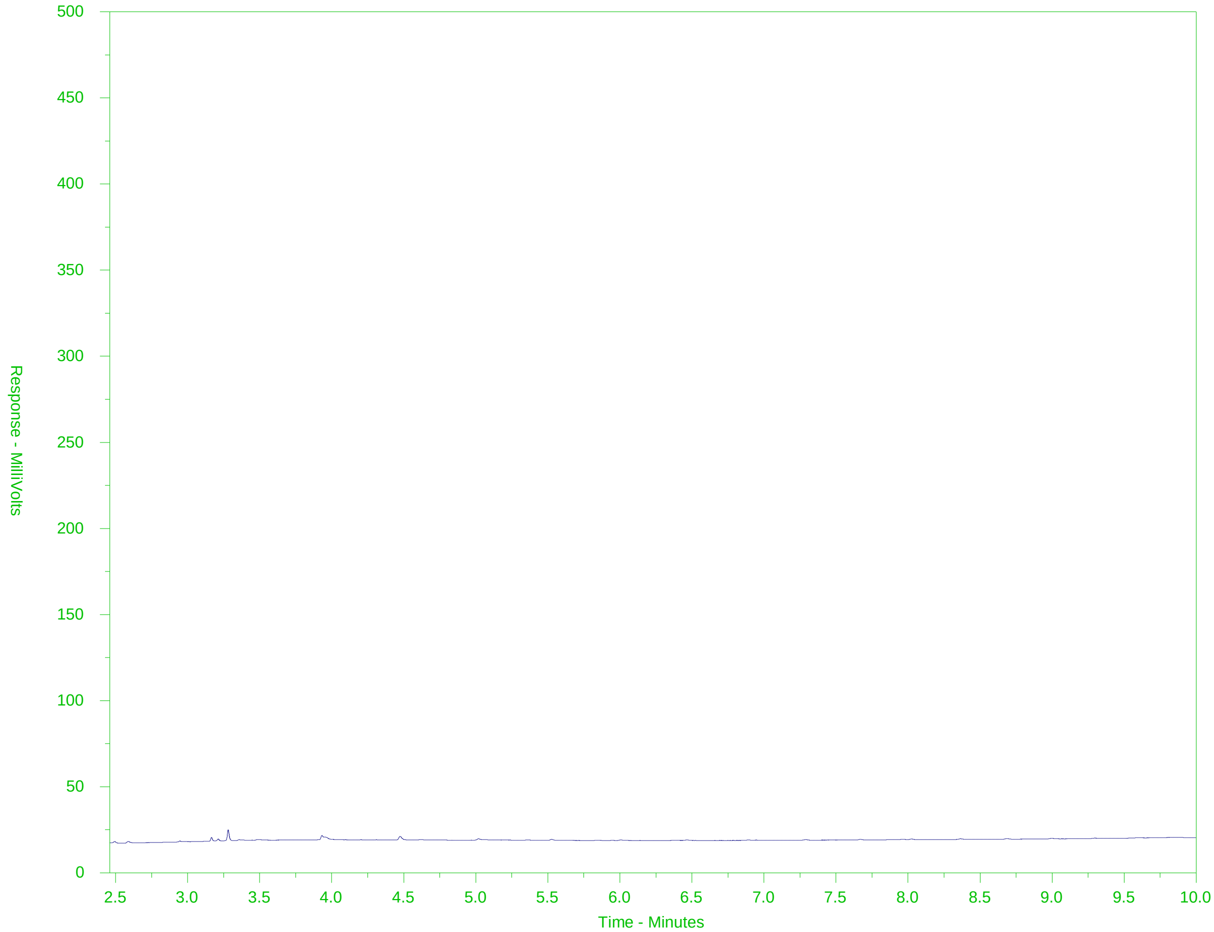
GLOSSARY OF REPORT TERMS

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.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2257992-1
Client Sample ID: KM42 DS



EPH10-19		EPH19-32
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

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

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2257992-COFC

COC Number: 17 - 20190412B

Page of

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	
Company:	StrataGold Corporation	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Contact:	Hugh Coyle	Quality Control (QC) Report with Report	☐ YES ☐ NO
Phone:	604-696-6600	☐ Compare Results to Criteria on Report - provide details below if box checked	
	Company address below will appear on the final report	Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Street:	100-1050 West Pender Street	Email 1 or Fax	kbabin@vitgoldcorp.com; pemerson@vitgoldcorp.c
City/Province:	Vancouver, V6E 3S7	Email 2	hcoyle@vitgoldcorp.com; jknox@vitgoldcorp.com
Postal Code:		Email 3	swilbur@vitgoldcorp.com
Invoice To	Same as Report To ☑ YES ☐ NO	Invoice Distribution	
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Company:		Email 1 or Fax	
Contact:		Email 2	

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ 3 day [P3-25%] ☐ 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E - 100%] ☐ Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:	KM 42 Spill	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler: KB

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	TSS, TDS, Turbidity, pH, Conductivity, Anions, Hardness, Acidity, Alkalinity	Nutrients total (P)	Total Metals/Mercury (P)	VOC/C1-C5 Gases, PAHs (P)	Hydrocarbons (P)	Total Oil and Grease (P)	LEPH HEPH (P)	Diss. Metals/Mercury (F/P)	Number of containers	SUSPECTED HAZARD (see Special Instructions)
	KM42 DS	12-Apr-19	14:00	Water	R	R	R	R	R	R	R	R	12	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C: 7

FINAL COOLER TEMPERATURES °C: 7.0

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Katie Babin	date: 2019-04-19	Time: 7:00	Received by:	Date: APR 15/19	Time: 09:20	Received by:	Date: APR 16	Time: 11:35

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

JUNE 2018 FRONT

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.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

STRATAGOLD CORPORATION
ATTN: Hugh Coyle
Suite 1000 - 1050 W. Pender St
Vancouver BC V6E 3S7

Date Received: 15-APR-19
Report Date: 26-APR-19 17:15 (MT)
Version: FINAL

Client Phone: 604-682-5122

Certificate of Analysis

Lab Work Order #: L2257994

Project P.O. #: NOT SUBMITTED
Job Reference: KM 42 SPILL
C of C Numbers: 17-20190412C
Legal Site Desc:

Joanne Lee
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2257994-1				
		Description	Water				
		Sampled Date	12-APR-19				
		Sampled Time	14:20				
		Client ID	KM 42				
Grouping	**Analyte**						
WATER							
Physical Tests	Conductivity (uS/cm)		433				
	Hardness (as CaCO3) (mg/L)		235				
	pH (pH)		8.02				
	Total Suspended Solids (mg/L)		10.3				
	TDS (Calculated) (mg/L)		262				
	Turbidity (NTU)		12.9				
Anions and Nutrients	Acidity (as CaCO3) (mg/L)		2.1				
	Alkalinity, Total (as CaCO3) (mg/L)		121				
	Ammonia, Total (as N) (mg/L)		0.0181				
	Bromide (Br) (mg/L)		<0.050				
	Chloride (Cl) (mg/L)		2.64				
	Fluoride (F) (mg/L)		0.131				
	Nitrate (as N) (mg/L)		0.105				
	Nitrite (as N) (mg/L)		<0.0010				
	Total Kjeldahl Nitrogen (mg/L)		0.096				
	Total Nitrogen (mg/L)		0.210				
	Phosphorus (P)-Total Dissolved (mg/L)		<0.0020				
	Phosphorus (P)-Total (mg/L)		0.0139				
	Sulfate (SO4) (mg/L)		97.8				
	Anion Sum (meq/L)		4.55				
	Cation Sum (meq/L)		4.94				
	Cation - Anion Balance (%)		4.1				
Organic / Inorganic Carbon	Total Organic Carbon (mg/L)		3.58				
Total Metals	Aluminum (Al)-Total (mg/L)		0.366				
	Antimony (Sb)-Total (mg/L)		0.00097				
	Arsenic (As)-Total (mg/L)		0.0198				
	Barium (Ba)-Total (mg/L)		0.0489				
	Beryllium (Be)-Total (mg/L)		<0.000020				
	Bismuth (Bi)-Total (mg/L)		0.000053				
	Boron (B)-Total (mg/L)		<0.010				
	Cadmium (Cd)-Total (mg/L)		0.0000557				
	Calcium (Ca)-Total (mg/L)		54.0				
	Chromium (Cr)-Total (mg/L)		0.00064				
	Cobalt (Co)-Total (mg/L)		0.00076				
	Copper (Cu)-Total (mg/L)		0.00163				
	Iron (Fe)-Total (mg/L)		0.733				

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2257994-1				
	Description	Water				
	Sampled Date	12-APR-19				
	Sampled Time	14:20				
	Client ID	KM 42				
Grouping	**Analyte**					
WATER						
Total Metals	Lead (Pb)-Total (mg/L)	0.00157				
	Lithium (Li)-Total (mg/L)	0.0091				
	Magnesium (Mg)-Total (mg/L)	22.2				
	Manganese (Mn)-Total (mg/L)	0.193				
	Mercury (Hg)-Total (mg/L)	<0.0000050				
	Molybdenum (Mo)-Total (mg/L)	0.000202				
	Nickel (Ni)-Total (mg/L)	0.00272				
	Phosphorus (P)-Total (mg/L)	<0.050				
	Potassium (K)-Total (mg/L)	1.98				
	Selenium (Se)-Total (mg/L)	0.000208				
	Silicon (Si)-Total (mg/L)	4.77				
	Silver (Ag)-Total (mg/L)	0.000014				
	Sodium (Na)-Total (mg/L)	3.77				
	Strontium (Sr)-Total (mg/L)	0.284				
	Sulfur (S)-Total (mg/L)	35.7				
	Thallium (Tl)-Total (mg/L)	<0.000010				
	Tin (Sn)-Total (mg/L)	<0.00010				
	Titanium (Ti)-Total (mg/L)	0.0148				
	Uranium (U)-Total (mg/L)	0.00197				
	Vanadium (V)-Total (mg/L)	0.00082				
	Zinc (Zn)-Total (mg/L)	0.0059				
	Zirconium (Zr)-Total (mg/L)	0.00036				
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD				
	Dissolved Metals Filtration Location	FIELD				
	Aluminum (Al)-Dissolved (mg/L)	0.0060				
	Antimony (Sb)-Dissolved (mg/L)	0.00065				
	Arsenic (As)-Dissolved (mg/L)	0.00417				
	Barium (Ba)-Dissolved (mg/L)	0.0436				
	Beryllium (Be)-Dissolved (mg/L)	<0.000020				
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050				
	Boron (B)-Dissolved (mg/L)	<0.010				
	Cadmium (Cd)-Dissolved (mg/L)	0.0000550				
	Calcium (Ca)-Dissolved (mg/L)	54.8				
	Chromium (Cr)-Dissolved (mg/L)	<0.00010				
	Cobalt (Co)-Dissolved (mg/L)	0.00046				
	Copper (Cu)-Dissolved (mg/L)	0.00123				
	Iron (Fe)-Dissolved (mg/L)	0.029				

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L2257994-1 Water 12-APR-19 14:20 KM 42				
Grouping	**Analyte**					
WATER						
Dissolved Metals	Lead (Pb)-Dissolved (mg/L)	0.000069				
	Lithium (Li)-Dissolved (mg/L)	0.0094				
	Magnesium (Mg)-Dissolved (mg/L)	23.8				
	Manganese (Mn)-Dissolved (mg/L)	0.177				
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050				
	Molybdenum (Mo)-Dissolved (mg/L)	0.000188				
	Nickel (Ni)-Dissolved (mg/L)	0.00209				
	Phosphorus (P)-Dissolved (mg/L)	<0.050				
	Potassium (K)-Dissolved (mg/L)	1.97				
	Selenium (Se)-Dissolved (mg/L)	0.000211				
	Silicon (Si)-Dissolved (mg/L)	4.06				
	Silver (Ag)-Dissolved (mg/L)	<0.000010				
	Sodium (Na)-Dissolved (mg/L)	4.14				
	Strontium (Sr)-Dissolved (mg/L)	0.273				
	Sulfur (S)-Dissolved (mg/L)	31.1				
	Thallium (Tl)-Dissolved (mg/L)	<0.000010				
	Tin (Sn)-Dissolved (mg/L)	<0.00010				
	Titanium (Ti)-Dissolved (mg/L)	<0.00030				
	Uranium (U)-Dissolved (mg/L)	0.00202				
	Vanadium (V)-Dissolved (mg/L)	<0.00050				
	Zinc (Zn)-Dissolved (mg/L)	0.0030				
	Zirconium (Zr)-Dissolved (mg/L)	<0.00030				
Aggregate Organics	COD (mg/L)	<20				
Volatile Organic Compounds	Benzene (mg/L)	<0.00050				
	Bromodichloromethane (mg/L)	<0.0010				
	Bromoform (mg/L)	<0.0010				
	Carbon Tetrachloride (mg/L)	<0.00050				
	Chlorobenzene (mg/L)	<0.0010				
	Dibromochloromethane (mg/L)	<0.0010				
	Chloroethane (mg/L)	<0.0010				
	Chloroform (mg/L)	<0.0010				
	Chloromethane (mg/L)	<0.0050				
	1,2-Dichlorobenzene (mg/L)	<0.00050				
	1,3-Dichlorobenzene (mg/L)	<0.0010				
	1,4-Dichlorobenzene (mg/L)	<0.0010				
	1,1-Dichloroethane (mg/L)	<0.0010				

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2257994-1				
	Description	Water				
	Sampled Date	12-APR-19				
	Sampled Time	14:20				
	Client ID	KM 42				
Grouping	**Analyte**					
WATER						
Volatile Organic Compounds	1,2-Dichloroethane (mg/L)	<0.0010				
	1,1-Dichloroethylene (mg/L)	<0.0010				
	cis-1,2-Dichloroethylene (mg/L)	<0.0010				
	trans-1,2-Dichloroethylene (mg/L)	<0.0010				
	Dichloromethane (mg/L)	<0.0050				
	1,2-Dichloropropane (mg/L)	<0.0010				
	cis-1,3-Dichloropropylene (mg/L)	<0.00050				
	trans-1,3-Dichloropropylene (mg/L)	<0.00050				
	1,3-Dichloropropene (cis & trans) (mg/L)	<0.0010				
	Ethylbenzene (mg/L)	0.00075				
	Methyl t-butyl ether (MTBE) (mg/L)	<0.00050				
	Styrene (mg/L)	<0.00050				
	1,1,1,2-Tetrachloroethane (mg/L)	<0.0010				
	1,1,2,2-Tetrachloroethane (mg/L)	<0.00020				
	Tetrachloroethylene (mg/L)	<0.0010				
	Toluene (mg/L)	<0.00045				
	1,1,1-Trichloroethane (mg/L)	<0.0010				
	1,1,2-Trichloroethane (mg/L)	<0.00050				
	Trichloroethylene (mg/L)	<0.0010				
	Trichlorofluoromethane (mg/L)	<0.0010				
	Vinyl Chloride (mg/L)	<0.00040				
	ortho-Xylene (mg/L)	0.00170				
	meta- & para-Xylene (mg/L)	0.00305				
	Xylenes (mg/L)	0.00475				
	Surrogate: 4-Bromofluorobenzene (SS) (%)	118.4				
	Surrogate: 1,4-Difluorobenzene (SS) (%)	96.2				
Hydrocarbons	EPH10-19 (mg/L)	0.41				
	EPH19-32 (mg/L)	<0.25				
	LEPH (mg/L)	0.41				
	HEPH (mg/L)	<0.25				
	Surrogate: 2-Bromobenzotrifluoride (%)	94.9				
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)	DLCI <0.000050				
	Acenaphthylene (mg/L)	DLCI <0.000020				
	Acridine (mg/L)	DLCI <0.000030				
	Anthracene (mg/L)	<0.000010				
	Benz(a)anthracene (mg/L)	<0.000010				

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2257994-1				
	Description	Water				
	Sampled Date	12-APR-19				
	Sampled Time	14:20				
	Client ID	KM 42				
Grouping	**Analyte**					
WATER						
Polycyclic Aromatic Hydrocarbons	Benzo(a)pyrene (mg/L)	<0.0000050				
	Benzo(b&j)fluoranthene (mg/L)	<0.000010				
	Benzo(b+j+k)fluoranthene (mg/L)	<0.000015				
	Benzo(g,h,i)perylene (mg/L)	<0.000010				
	Benzo(k)fluoranthene (mg/L)	<0.000010				
	Chrysene (mg/L)	<0.000010				
	Dibenz(a,h)anthracene (mg/L)	<0.0000050				
	Fluoranthene (mg/L)	<0.000010				
	Fluorene (mg/L)	0.000090				
	Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010				
	1-Methylnaphthalene (mg/L)	0.00121				
	2-Methylnaphthalene (mg/L)	0.00150				
	Naphthalene (mg/L)	0.000698				
	Phenanthrene (mg/L)	0.000040				
	Pyrene (mg/L)	<0.000010				
	Quinoline (mg/L)	DLCI <0.00010				
	Surrogate: Acridine d9 (%)	109.3				
	Surrogate: Chrysene d12 (%)	105.8				
	Surrogate: Naphthalene d8 (%)	91.3				
	Surrogate: Phenanthrene d10 (%)	102.9				

* 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)
Matrix Spike	Total Organic Carbon	MS-B	L2257994-1
Matrix Spike	Total Organic Carbon	MS-B	L2257994-1
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L2257994-1
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L2257994-1
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L2257994-1
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L2257994-1
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2257994-1
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L2257994-1
Matrix Spike	Barium (Ba)-Total	MS-B	L2257994-1
Matrix Spike	Calcium (Ca)-Total	MS-B	L2257994-1
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2257994-1
Matrix Spike	Sodium (Na)-Total	MS-B	L2257994-1
Matrix Spike	Strontium (Sr)-Total	MS-B	L2257994-1
Matrix Spike	Sulfur (S)-Total	MS-B	L2257994-1
Matrix Spike	Phosphorus (P)-Total	MS-B	L2257994-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

Samples of industrial wastes, acid mine drainage, or other solutions that contain appreciable amounts of hydrolyzable metal ions such as aluminum, iron, and manganese may require hot peroxide treatment to ensure oxidation and hydrolysis of reduced forms of polyvalent cations. Acidity results may be highly variable if this procedure is not followed. Results in this report for 'Acidity (as CaCO3)' have not been peroxide treated.

ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

BE-D-L-CCMS-VA	Water	Diss. Be (low) in Water by CRC ICPMS	APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

BE-T-L-CCMS-VA	Water	Total Be (Low) in Water by CRC ICPMS	EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

BR-L-IC-N-VA	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310B TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

CL-IC-N-VA	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

COD-COL-VA	Water	Chemical Oxygen Demand by Colorimetric	APHA 5220 D. CHEMICAL OXYGEN DEMAND

This analysis is carried out using procedures adapted from APHA Method 5220 "Chemical Oxygen Demand (COD)". Chemical oxygen demand is determined using the closed reflux colourimetric method.

EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

EC-SCREEN-VA	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Reference Information

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

EPH-ME-FID-VA Water EPH in Water BC Lab Manual

EPH is extracted from water using a hexane micro-extraction technique, with analysis by GC-FID, as per the BC Lab Manual. EPH results include PAHs and are therefore not equivalent to LEPH or HEPH.

F-IC-N-VA Water Fluoride in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-D-CVAA-VA Water Diss. Mercury in Water by CVAAS or CVAFS APHA 3030B/EPA 1631E (mod)

Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

HG-T-CVAA-VA Water Total Mercury in Water by CVAAS or CVAFS EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

IONBALANCE-VA Water Ion Balance Calculation APHA 1030E

Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.

Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance is calculated as:

Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]

LEPH/HEPH-CALC-VA Water LEPHs and HEPHs BC MOE LEPH/HEPH

LEPHw and HEPHw are measures of Light and Heavy Extractable Petroleum Hydrocarbons in water. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.

LEPHw = EPH10-19 minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene.

HEPHw = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

MET-T-CCMS-VA Water Total Metals in Water by CRC ICPMS EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

N-T-COL-VA Water Total Nitrogen in water by Colour APHA4500-P(J)/NEMI9171/USGS03-4174

This analysis is carried out using procedures adapted from APHA Method 4500-P (J) "Persulphate Method for Simultaneous Determination of Total Nitrogen and Total Phosphorus" and National Environmental Methods Index - Nemi method 5735.

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

NO2-L-IC-N-VA Water Nitrite in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-L-IC-N-VA Water Nitrate in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-PRES-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.
Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are

Reference Information

available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

P-TD-PRES-COL-VA	Water	Total Dissolved P in Water by Colour	APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorus is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.
Samples with very high dissolved solids (i.e. seawaters, brackish waters) may produce a negative bias by this method. Alternate methods are available for these types of samples.

Arsenic (5+), at elevated levels, is a positive interference on colourimetric phosphate analysis.

PAH-ME-MS-VA	Water	PAHs in Water	EPA 3511/8270D (mod)

PAHs are extracted from water using a hexane micro-extraction technique, with analysis by GC/MS. Because the two isomers cannot be readily separated chromatographically, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

SO4-IC-N-VA	Water	Sulfate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

TDS-CALC-VA	Water	TDS (Calculated)	APHA 1030E (20TH EDITION)

This analysis is carried out using procedures adapted from APHA 1030E "Checking Correctness of Analyses".
The Total Dissolved Solids result is calculated from measured concentrations of anions and cations in the sample.

TKN-F-VA	Water	TKN in Water by Fluorescence	APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.
Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.

TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

VOC-HSMS-VA	Water	VOCs in water by Headspace GCMS	EPA 5021A/8260C

The water sample, with added reagents, is 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-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA 5021A/8260C

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA 5035A/5021A/8260C
XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION

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, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-20190412C

Reference Information

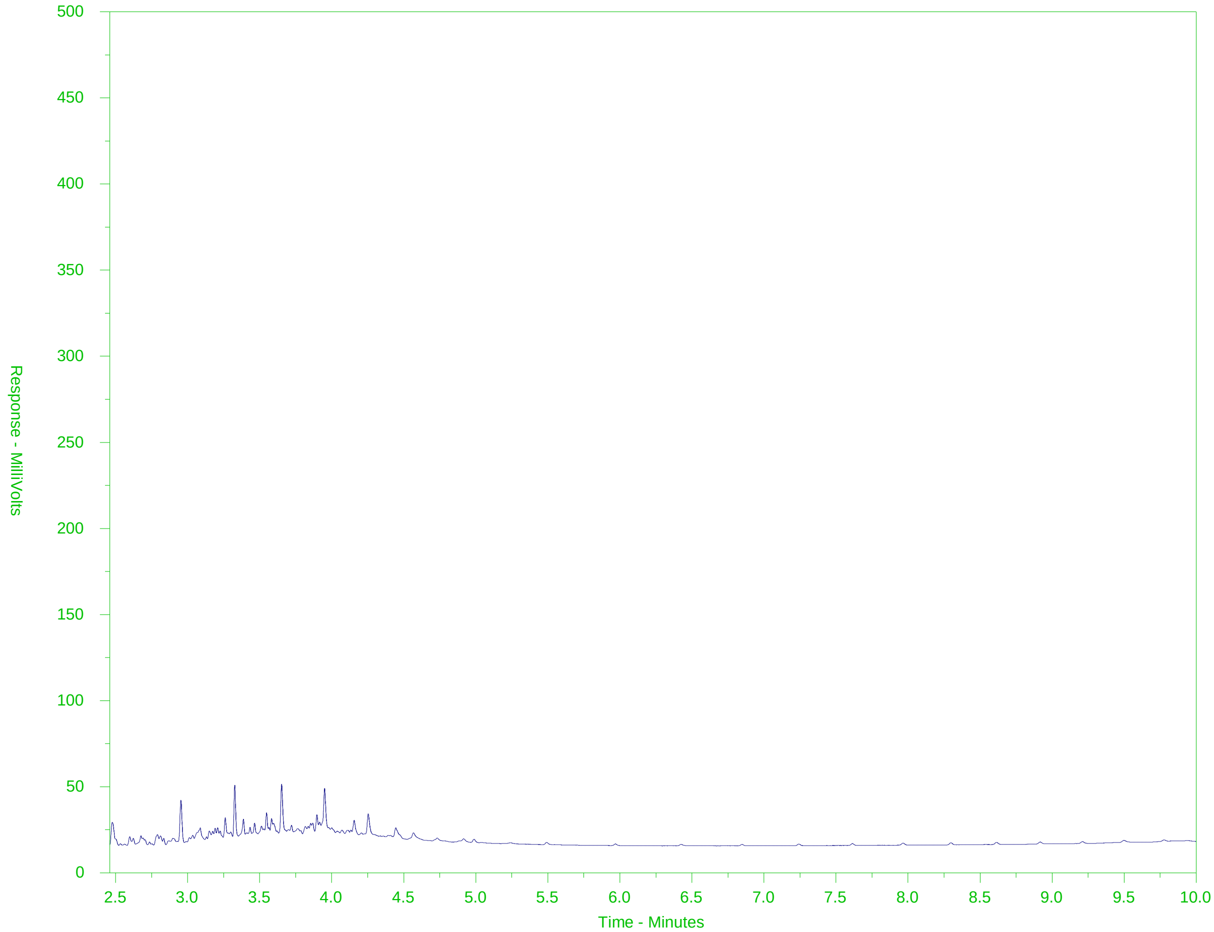
GLOSSARY OF REPORT TERMS

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.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2257994-1
Client Sample ID: KM 42



EPH10-19		EPH19-32
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

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

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2257994-COFC

COC Number: 17 - 20190412C

Page of

Report To	Contact and company name below will appear on the final report
Company:	StrataGold Corporation
Contact:	Hugh Coyle
Phone:	604-696-6600
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, V6E 3S7
Postal Code:	
Invoice To	Same as Report To ☒ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)

Quality Control (QC) Report with Report ☐ YES ☐ NO

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax kbabin@vitgoldcorp.com; pemerson@vitgoldcorp.c

Email 2 hcoyle@vitgoldcorp.com; jknox@vitgoldcorp.com

Email 3 swilbur@vitgoldcorp.com

Invoice Distribution

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax

Email 2

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ 3 day [P3-25%] ☐ 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E - 100%] ☐ Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #:

Job #: KM 42 Spill

PO / AFE:

LSD:

ALS Lab Work Order # (lab use only):

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#

Major/Minor Code: Routing Code:

Requisitioner:

Location:

ALS Contact: Sampler: KB

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	TSS, TDS, Turbidity, pH, Conductivity, Anions, Hardness, Acidity, Alkalinity	Nutrients total (P)	Total Metals/Mercury (P)	VOC/C1-C5 Gases, PAHs (P)	Hydrocarbons (P)	Total Oil and Grease (P)	LEPH.HEPH (P)	Diss. Metals/Mercury (F/P)	Number of containers	SUSPECTED HAZARD (see Special Instructions)
	KM 42	~~11-Mar-19~~ 12-APR-19	~~10:30~~ 14:20	Water	R	R	R	R	R	R	R	R	12	

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C: / FINAL COOLER TEMPERATURES °C: 7°

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Katie Babin	date: 2019-04-12	Time: 7:00	Received by:	Date: APR 15/19	Time: 09:20	Received by: TC	Date: Apr 16	Time: 11:3[illegible]

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

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

JUNE 2018 FRONT

ALS		Sample ID			KM42 DS
5/30/2019		ALS ID			L2274719-1
L2274719		Date Sampled			5/14/2019 1:20:00 PM
Analyte	Units	LOR	CCME-WATER-FAL(LL)	CCME-WATER-FAL-LT	Water
Conductivity	uS/cm	2	-	-	110
Hardness (as CaCO3)	mg/L	0.5	-	-	58.6
pH	pH	0.1	6.5	9	7.62
Total Suspended Solids	mg/L	3	-	-	28.4
Total Dissolved Solids	mg/L	13	-	-	102
TDS (Calculated)	mg/L	1	-	-	84
Turbidity	NTU	0.1	-	-	9.01
Acidity (as CaCO3)	mg/L	1	-	-	2.4
Alkalinity, Total (as CaCO3)	mg/L	1	-	-	31.9
Ammonia, Total (as N)	mg/L	0.005	-	-	0.0058
Bromide (Br)	mg/L	0.05	-	-	<0.050
Chloride (Cl)	mg/L	0.5	-	120	<0.50
Fluoride (F)	mg/L	0.02	-	0.12	0.06
Nitrate (as N)	mg/L	0.005	-	3	0.016
Nitrite (as N)	mg/L	0.001	-	0.06	<0.0010
Total Kjeldahl Nitrogen	mg/L	0.05	-	-	0.58
Total Nitrogen	mg/L	0.03	-	-	0.540 *
Phosphorus (P)-Total	mg/L	0.002	-	-	0.0238
Sulfate (SO4)	mg/L	0.3	-	-	20.2
Anion Sum	meq/L	n/a	-	-	1.06
Cation Sum	meq/L	n/a	-	-	1.27
Cation - Anion Balance	%	n/a	-	-	8.7
Total Organic Carbon	mg/L	0.5	-	-	22.2
Aluminum (Al)-Total	mg/L	0.003	-	0.005	0.622
Antimony (Sb)-Total	mg/L	0.0001	-	-	0.00079
Arsenic (As)-Total	mg/L	0.0001	-	0.005	0.00882
Barium (Ba)-Total	mg/L	0.0001	-	-	0.033
Beryllium (Be)-Total	mg/L	0.00002	-	-	0.000046
Bismuth (Bi)-Total	mg/L	0.00005	-	-	<0.000050
Boron (B)-Total	mg/L	0.01	-	-	<0.010
Cadmium (Cd)-Total	mg/L	0.000005	-	0.00004	0.0000597
Calcium (Ca)-Total	mg/L	0.05	-	-	14.4
Chromium (Cr)-Total	mg/L	0.0001	-	0.001	0.00114
Cobalt (Co)-Total	mg/L	0.0001	-	-	0.00084
Copper (Cu)-Total	mg/L	0.0005	-	0.002	0.00334
Iron (Fe)-Total	mg/L	0.01	-	0.3	1.25
Lead (Pb)-Total	mg/L	0.00005	-	0.001	0.00177
Lithium (Li)-Total	mg/L	0.001	-	-	0.0029
Magnesium (Mg)-Total	mg/L	0.1	-	-	5.06
Manganese (Mn)-Total	mg/L	0.0001	-	0.2	0.0895
Molybdenum (Mo)-Total	mg/L	0.00005	-	0.073	0.000169
Nickel (Ni)-Total	mg/L	0.0005	-	0.025	0.00363
Phosphorus (P)-Total	mg/L	0.05	-	-	<0.050
Potassium (K)-Total	mg/L	0.1	-	-	0.94
Selenium (Se)-Total	mg/L	0.00005	-	0.001	0.000105
Silicon (Si)-Total	mg/L	0.1	-	-	2.74
Silver (Ag)-Total	mg/L	0.00001	-	0.00025	0.000024
Sodium (Na)-Total	mg/L	0.05	-	-	0.848
Strontium (Sr)-Total	mg/L	0.0002	-	-	0.0751
Sulfur (S)-Total	mg/L	0.5	-	-	7.15
Thallium (Tl)-Total	mg/L	0.00001	-	0.0008	0.000011
Tin (Sn)-Total	mg/L	0.0001	-	-	<0.00010
Titanium (Ti)-Total	mg/L	0.0003	-	-	0.0149
Uranium (U)-Total	mg/L	0.00001	-	-	0.000482
Vanadium (V)-Total	mg/L	0.0005	-	-	0.00128

Zinc (Zn)-Total	mg/L	0.003	-	0.007	0.0093
Zirconium (Zr)-Total	mg/L	0.0003	-	-	0.00058
Dissolved Metals Filtration Location		n/a	-	-	LAB *
Aluminum (Al)-Dissolved	mg/L	0.001	-	0.005	0.17
Antimony (Sb)-Dissolved	mg/L	0.0001	-	-	0.0004
Arsenic (As)-Dissolved	mg/L	0.0001	-	0.005	0.00379
Barium (Ba)-Dissolved	mg/L	0.0001	-	-	0.0262
Beryllium (Be)-Dissolved	mg/L	0.00002	-	-	0.000028
Bismuth (Bi)-Dissolved	mg/L	0.00005	-	-	<0.000050
Boron (B)-Dissolved	mg/L	0.01	-	-	<0.010
Cadmium (Cd)-Dissolved	mg/L	0.000005	-	0.00004	0.0000433
Calcium (Ca)-Dissolved	mg/L	0.05	-	-	14.8
Chromium (Cr)-Dissolved	mg/L	0.0001	-	0.001	0.00022
Cobalt (Co)-Dissolved	mg/L	0.0001	-	-	0.00037
Copper (Cu)-Dissolved	mg/L	0.0002	-	0.002	0.0023
Iron (Fe)-Dissolved	mg/L	0.01	-	0.3	0.27
Lead (Pb)-Dissolved	mg/L	0.00005	-	0.001	0.000166
Lithium (Li)-Dissolved	mg/L	0.001	-	-	0.0026
Magnesium (Mg)-Dissolved	mg/L	0.1	-	-	5.23
Manganese (Mn)-Dissolved	mg/L	0.0001	-	0.2	0.0535
Molybdenum (Mo)-Dissolved	mg/L	0.00005	-	0.073	0.000132
Nickel (Ni)-Dissolved	mg/L	0.0005	-	0.025	0.00261
Phosphorus (P)-Dissolved	mg/L	0.05	-	-	<0.050
Potassium (K)-Dissolved	mg/L	0.1	-	-	0.92
Selenium (Se)-Dissolved	mg/L	0.00005	-	0.001	0.000055
Silicon (Si)-Dissolved	mg/L	0.05	-	-	1.93
Silver (Ag)-Dissolved	mg/L	0.00001	-	0.00025	<0.000010
Sodium (Na)-Dissolved	mg/L	0.05	-	-	0.818
Strontium (Sr)-Dissolved	mg/L	0.0002	-	-	0.0767
Sulfur (S)-Dissolved	mg/L	0.5	-	-	6.4
Thallium (Tl)-Dissolved	mg/L	0.00001	-	0.0008	<0.000010
Tin (Sn)-Dissolved	mg/L	0.0001	-	-	<0.00010
Titanium (Ti)-Dissolved	mg/L	0.0003	-	-	0.00142
Uranium (U)-Dissolved	mg/L	0.00001	-	-	0.000392
Vanadium (V)-Dissolved	mg/L	0.0005	-	-	<0.00050
Zinc (Zn)-Dissolved	mg/L	0.001	-	0.007	0.0043
Zirconium (Zr)-Dissolved	mg/L	0.0003	-	-	0.00037
COD	mg/L	20	-	-	54
Oil and Grease		n/a	-	-	IP
Benzene	mg/L	0.0005	-	0.37	<0.00050
Bromodichloromethane	mg/L	0.001	-	-	<0.0010
Bromoform	mg/L	0.001	-	-	<0.0010
Carbon Tetrachloride	mg/L	0.0005	-	0.0133	<0.00050
Chlorobenzene	mg/L	0.001	-	0.0013	<0.0010
Dibromochloromethane	mg/L	0.001	-	-	<0.0010
Chloroethane	mg/L	0.001	-	-	<0.0010
Chloroform	mg/L	0.001	-	0.0018	<0.0010
Chloromethane	mg/L	0.005	-	-	<0.0050
1,2-Dichlorobenzene	mg/L	0.0005	-	0.0007	<0.00050
1,3-Dichlorobenzene	mg/L	0.001	-	0.15	<0.0010
1,4-Dichlorobenzene	mg/L	0.001	-	0.026	<0.0010
1,1-Dichloroethane	mg/L	0.001	-	-	<0.0010
1,2-Dichloroethane	mg/L	0.001	-	0.1	<0.0010
1,1-Dichloroethylene	mg/L	0.001	-	-	<0.0010
cis-1,2-Dichloroethylene	mg/L	0.001	-	-	<0.0010
trans-1,2-Dichloroethylene	mg/L	0.001	-	-	<0.0010
Dichloromethane	mg/L	0.005	-	0.0981	<0.0050
1,2-Dichloropropane	mg/L	0.001	-	-	<0.0010
cis-1,3-Dichloropropylene	mg/L	0.0005	-	-	<0.00050
trans-1,3-Dichloropropylene	mg/L	0.0005	-	-	<0.00050

1,3-Dichloropropene (cis & trans)	mg/L	0.001	-	-	<0.0010
Ethylbenzene	mg/L	0.0005	-	0.09	<0.00050
Methyl t-butyl ether (MTBE)	mg/L	0.0005	-	10	<0.00050
Styrene	mg/L	0.0005	-	0.072	<0.00050
1,1,1,2-Tetrachloroethane	mg/L	0.001	-	-	<0.0010
1,1,2,2-Tetrachloroethane	mg/L	0.0002	-	-	<0.00020
Tetrachloroethylene	mg/L	0.001	-	0.111	<0.0010
Toluene	mg/L	0.00045	-	0.002	<0.00045
1,1,1-Trichloroethane	mg/L	0.001	-	-	<0.0010
1,1,2-Trichloroethane	mg/L	0.0005	-	-	<0.00050
Trichloroethylene	mg/L	0.001	-	0.021	<0.0010
Trichlorofluoromethane	mg/L	0.001	-	-	<0.0010
Vinyl Chloride	mg/L	0.0004	-	-	<0.00040
ortho-Xylene	mg/L	0.0005	-	-	<0.00050
meta- & para-Xylene	mg/L	0.0005	-	-	<0.00050
Xylenes	mg/L	0.00075	-	-	<0.00075
4-Bromofluorobenzene (SS)	%	Surrogate	-	-	88.8
1,4-Difluorobenzene (SS)	%	Surrogate	-	-	103.8
EPH10-19	mg/L	0.25	-	-	<0.25
EPH19-32	mg/L	0.25	-	-	<0.25
LEPH	mg/L	0.25	-	-	<0.25
HEPH	mg/L	0.25	-	-	<0.25
2-Bromobenzotrifluoride	%	Surrogate	-	-	79.3
Acenaphthene	mg/L	0.00001	-	0.0058	<0.000010
Acenaphthylene	mg/L	0.00001	-	-	<0.000010
Acridine	mg/L	0.00001	-	0.0044	<0.000010
Anthracene	mg/L	0.00001	-	0.000012	<0.000010
Benz(a)anthracene	mg/L	0.00001	-	0.000018	<0.000010
Benzo(a)pyrene	mg/L	0.000005	-	0.000015	<0.0000050
Benzo(b&j)fluoranthene	mg/L	0.00001	-	-	<0.000010
Benzo(b+j+k)fluoranthene	mg/L	0.000015	-	-	<0.000015
Benzo(g,h,i)perylene	mg/L	0.00001	-	-	<0.000010
Benzo(k)fluoranthene	mg/L	0.00001	-	-	<0.000010
Chrysene	mg/L	0.00001	-	-	<0.000010
Dibenz(a,h)anthracene	mg/L	0.000005	-	-	<0.0000050
Fluoranthene	mg/L	0.00001	-	0.00004	<0.000010
Fluorene	mg/L	0.00001	-	0.003	<0.000010
Indeno(1,2,3-c,d)pyrene	mg/L	0.00001	-	-	<0.000010
1-Methylnaphthalene	mg/L	0.00005	-	-	<0.000050
2-Methylnaphthalene	mg/L	0.00005	-	-	<0.000050
Naphthalene	mg/L	0.00005	-	0.0011	<0.000050
Phenanthrene	mg/L	0.00002	-	0.0004	<0.000020
Pyrene	mg/L	0.00001	-	0.000025	<0.000010
Quinoline	mg/L	0.00005	-	0.0034	<0.000050
Acridine d9	%	Surrogate	-	-	80.4
Chrysene d12	%	Surrogate	-	-	104.2
Naphthalene d8	%	Surrogate	-	-	91
Phenanthrene d10	%	Surrogate	-	-	96.4
* = Result Qualified	Mouse-over the result to see the qualification.				
IP = In Progress	Mouse-over the cell to see the current status.				
Applied Guideline:	**Federal CCME Canadian Environmental Quality Guidelines (JUN, 2018) - CCME - Freshwater Aquatic Life (Lo**				
Color Key:	Within Guideline	Exceeds Guideline			

EAGLE GOLD PROJECT
SPILL RESPONSE FORM

StrataGold Corporation

FIRST OBSERVER			
Name & Company:	Charles Wright Ewing Transport		
Date & Time Observed:	January 30, 2019 7:45am		
Location of Spill:	Upper parking lot		
Distance to Waterbody:	>100M	**Photos Taken?**	☒ Yes ☐ No
Estimated Spill Volume:	8L	**Reported to:**	JDS

COMPANY RESPONSIBLE	
Supervisor/Investigator:	Russell Noksana/Harrison Ewing
Date of Spill:	January 30, 2019
Substance Spilled:	Coolant
Equipment Involved:	Sand/Plow Truck
Volume of Contaminated Material:	4 cubic feet
Personnel Contacted for Disposal (Name):	Christian from site ops
Cause of Spill: (Equipment Failure, vehicle accident, foreign object, etc.)	Coolant leaked through a hole in the rad, cause of the hole is unknown
Spill Response Actions Taken: (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.)	There was a drip tray placed under the truck after shift but it did not catch the coolant. Once discovered drip tray was adjusted under the leak to catch the leaking coolant. Absorbent pads were used to soak up the coolant that contacted the ground. The contaminated snow and soil was shovelled into 5gal pales and brought to waste Management.

ENVIRONMENTAL DEPARTMENT USE ONLY			
IR#:	19-023	**Reportable to Spill Hotline?**	Yes No
Info Re. Spill Hotline:	spill reported @ 12:45pm January 30/19		
Disposal Container Labelled?	Yes No	**Samples taken?**	Yes No
Environmental areas affected: (Watercourse, soil, etc.):	Soil		
Method of Disposal & Further Remediation Required:	Snow + soil containers labelled w/ IR # and placed in Waste Mngmt area for future disposa		
Follow Up Required?	Yes No	**Follow Up Date:**	

SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS			
Employee:	Charles WRIGHT	**Signature:**	[signature]
Supervisor:	Russell Noksana	**Signature:**	[signature]
Safety:	Harrison Ewing	**Signature:**	[signature]
Environment:	Crystal Beaudry	**Signature:**	[signature]


IR-19-023
Coolant
ROTELLA

EAGLE GOLD PROJECT

HYDROCARBON SPILL AT THE TEMPORARY STORAGE AREA

AND

REMEDIAL ACTION REPORT UPDATE

MAY 2019

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1 INTRODUCTION

During the course of construction of the Eagle Gold Project, there have been spills of both reportable and non-reportable volumes/constituents. In general, the impacted areas required soil excavation and removal to ensure that environmental impact was minimized to the greatest extent possible. Contaminated soils, and in some cases snow/ice, encountered during the remedial efforts were placed in industrial super sacks for either, depending on constituents of concern, offsite removal and treatment or eventual onsite treatment in a planned land treatment facility (LTF). In both cases, temporary storage of super sacks and affected soils has been required prior to offsite transfer or eventual transfer to the LTF.

The super sacks were located in a temporary storage transfer station in a clearing east of the climate station (referred to here as Temporary Site A). Further, petroleum hydrocarbon contaminated soils from the KM42 truck roll over spill were temporarily located in a lined facility in a former laydown area just south of the climate station (referred to here as Temporary Site B).

On February 6, 2019, an inspection of the Eagle Gold Project was undertaken by Inspectors from the Yukon Government Department of Energy, Mines and Resources (EMR-CMI). The inspection included visits to both Temporary Sites A and B. As a result of this inspection, on February 21, 2019, StrataGold was issued a Corrective Action order requiring the removal of all super sacks of contaminated soils and the contaminated soils from the KM42 spill (i.e., Temporary Sites A and B) to either StrataGold's licenced LTF or an offsite approved commercial LTF on or before March 31, 2019.

On March 6, 2019, StrataGold Corporation submitted an application for the amendment of Environment Act Permit 81-064 and an Application for a Land Treatment Facility Permit to the Yukon Government Department of Environment.

On March 26, 2019, StrataGold requested an extension to the corrective action order completion date to April 20, 2019 based on the assumed timeline for receipt of a Land Treatment Facility Permit, the construction of the LTF, and satisfaction of any specific permit terms relating to construction of the LTF prior to use. The request to extend the corrective action order completion date to April 20, 2019 was approved by the Inspector.

On March 29, 2019, Land Treatment Facility Permit 24-047 was issued to StrataGold (note this permit was subsequently reissued on April 11, 2019 to correct minor errors in the permit – Appendix A).

Shortly after the February 6, 2019 inspection, due to the space required to construct Ditch C (an important water management facility), the super sacks stored at Temporary Site A had to be moved, and so they were relocated to Temporary Site B to await their eventual placement in the onsite LTF

On April 11, 2019, Inspectors from EMR-CMI conducted a site inspection. During the inspection, free petroleum hydrocarbons were observed floating on a film of water on ice, and several of the super sacks were compromised. Immediate corrective actions began, including pumping the free product and affected water into tote bags. Approximately 60 L of petroleum hydrocarbons were recovered. However, a complete inspection of Temporary Site B indicated that the spills were not isolated in one area but had evidently originated from a number of super sacks as well as metal storage bins. Thus, a larger area was likely affected.

In a follow up Inspection Report dated April 25, 2019, EMR-CMI directed StrataGold to report the incident as a spill to the Yukon Spill Hotline, issued a corrective action order to have the all material removed to the new permitted LTF on or before May 15, 2019, and, provide a full report to EMR-CMI on the matter by May 30, 2019.

Environmental staff from StrataGold reported the incident to the Yukon Spill Hotline on April 26, 2019 (#19-37). The information contained herein is intended to satisfy the requirement within Water Use Licence QZ14-041 pertaining to reporting of spills on the Project. The internal StrataGold Spill Response Form is provided as Appendix B.

2 SPILL DETAILS

2.1 TIME OF OCCURRENCE

The precise date and time of the incident is unclear; however, it is possible that due to the nature of the mixture of contaminated soil and snow/ice, it most likely occurred over a period of time, whenever air temperatures were sustained above zero for any length of time in late March and early April (and up to the time of the April 11 inspection.

2.2 LOCATION

Temporary Sites A and B, and the LTF are shown in Figure 2-2. Photos of the location and the condition of the super sacks after the April 11, 2019 inspection are provided below, as are photos of the bags relocated to the staging areas for placement in the LTF.

2.3 MATERIAL RELEASED

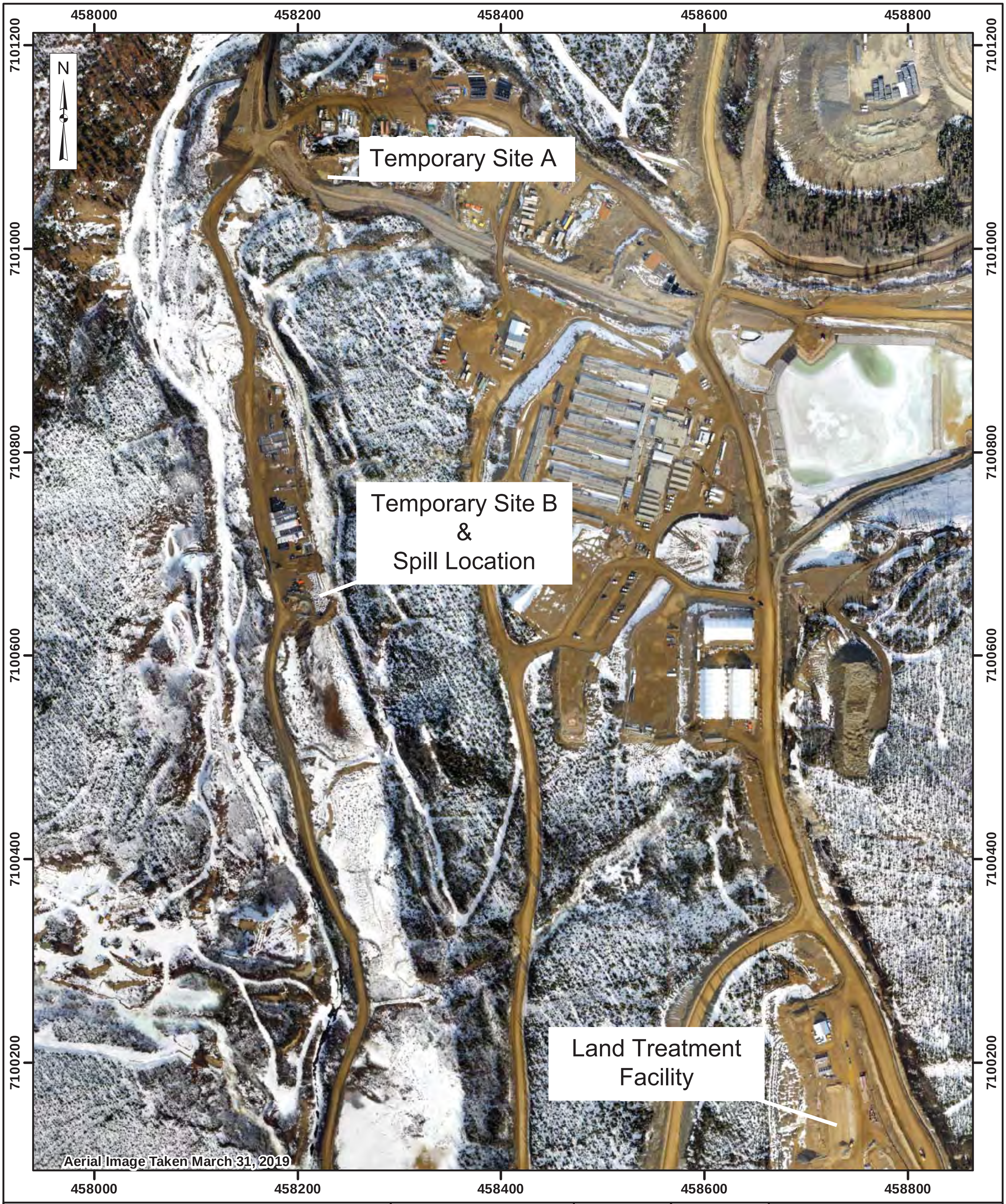
As a result of the incident it was estimated that approximately 60 liters of petroleum hydrocarbons were recovered from the surface of the ice in the area, and an unknown additional but smaller amount of petroleum hydrocarbons had permeated some of the soils in the area.

Photo 2-1: Super Sacks Stored at Temporary Site B

Photo 2-2: Super Sacks Stored at Temporary Site B

Photo 2-3: Super Sacks Staged for Placement in LTF

Photo 2-4: Super Sacks Staged for Placement in LTF



Legend:

StrataGold Corporation

0 30 60 120
Metres

Projection:	Drawn By:	EAGLE GOLD PROJECT YUKON TERRITORY
NAD 83 UTM Zone 8N	HC	
Date: 2019/05/09	Figure: 2-1	**Spill & Facility Locations**

3 SPILL RESPONSE

All super sacks that were stored in Temporary Site B have been removed and are either at the permitted LTF for treatment or have been removed from site for treatment at an offsite permitted facility (depending on the constituents contained within each super sack). Based on visual examination of the affected area, impacted soils were identified and then dug out by an excavator, and then removed to the staging area at the LTF. Further as a proactive measure, the upper several cms of surface material at Temporary Site B was excavated and removed and taken to the staging area of the LTF.

After the site-wide excavation, soil samples were collected at 8 locations across Temporary Site B (as shown in Photo 3-1) to characterize any further extent of petroleum-hydrocarbon affected soils. Samples results were received by StrataGold on May 7, 2019 (Attachment C) and indicated that sample site 6 still contained detectable limits of residual hydrocarbons. The area around staging 6 was re-excavated and then re-sampled on May 12th.

Photo 3-1: Spill Location and Sample Collection Points

3.1 REPORTING

The spill was reported to the Yukon Spill Hotline on April 26, 2019 by the site Environmental Coordinator. As required by the Corrective Action Order in the April 25 Inspection Report, this report outlines final clean up, lab analysis and photo documentation of the site being remediated.

3.2 SAMPLING UPDATE

On May 12th the on-site Environmental Coordinator directed the removal of approximately 30 cm of additional material in a 4m x 4m square around Staging 6 area. This material was removed to the LTF. Two samples were taken, one in the NW corner of the square and one in the SE corner of the square after excavation. ALS results showed samples below BC contaminated site regulations for industrial land use and are included in appendix C (L227467).

Photo 3-2: May 12, additional sampling of Staging 6 area after additional excavation.

3.3 TEMPORARY BERM SAMPLING

On May 12th material from the km42 spill was moved from a temporary lined holding cell, on the lower access road to the LTF. The temporary lined area was created as a temporary storage location while the permitted LTF was constructed. The liner from the temporary holding cell was cleaned of contaminants and removed. The area under the berm was sampled in 6 locations to confirm that hydrocarbons were not present. Confirmation samples were taken on May 12th and sent to ALS Environmental for analysis. Results showed the site was below industrial land use criteria as outlined by the BC CSR. Results can be found in appendix C (L2274968).

Photo 3-3: May 12, Sampling locations of ground underneath Temporary Berm area

3.4 FINAL CLEAN-UP

On May 29th the final clean up of the area was completed and the area was graded and contoured to ensure no excessive pooling or ponding of water could occur in the general area.

Photo 3-4: May 30, Previous location of Temporary Berm, re-contoured

Appendix A
Land Treatment Facility Permit 24-047

Permit No: 24-047

Yukon

LAND TREATMENT FACILITY PERMIT

Issued pursuant to the *Environment Act*, and the *Contaminated Sites Regulation*

Permittee: **Strata Gold Corporation**

Mailing Address: **1000-1050, West Pender, Vancouver, BC. V6E 3S7**

Site Location: **Eagle Gold Project**

Site Location Coordinates: **64.037058 N, -135.742391 W**

Authorized Representative: **Hugh Coyle**

Phone: **(867) 335-4928**

Email: **HCoyle@vitgoldcorp.com**

Effective Date: **Date of Director's signature**

Expiry Date: **December 31, 2024**

Scope of Authorization: In accordance with your application and supporting documents, **Strata Gold Corporation** is hereby permitted to operate a Private Land Treatment Facility (the "facility") at the above site location for the acceptance, storage and treatment of soil and water contaminated with petroleum hydrocarbons below highly contaminated material standards.
as set out in the terms and conditions of this permit.

Dated this 11 day of April, 2019

____

Director, Environmental Programs Branch
Environment Yukon

PART 1. DEFINITIONS

1. In this permit,

   "Act" means the *Environment Act*, R.S.Y. 2002, c.76;

   "approved plan" means a plan that is submitted by the permittee and approved by an environmental protection analyst under this permit and includes any terms and conditions specified by the environmental protection analyst in the approval;

   "associated personnel" means all employees, contractors, subcontractors, agents and volunteers involved in the activities conducted in relation to permit;

   "berm" means an earthen raised barrier which completely encloses a staging or treatment cell.

   "Branch" means the following sections within the Environmental Programs Branch, Environment Yukon: Standards & Approvals; the Enforcement Compliance & Inspections Section; and/or the Directorate;

   "contaminant of concern" means any contaminant that is known or suspected to be present at concentrations above applicable CSR standards;

   "contaminated material" means any soil, snow, sediment, or water that has one or more parameters in excess of applicable standards in the *Contaminated Sites Regulation*, O.I.C. 2002/171;

   "CSR" means the *Contaminated Sites Regulation*, O.I.C. 2002/171;

   "facility" means the entire area of the Land Treatment Facility authorized by this permit, including the staging cells, treatment cells, and all access roads;

   "freeboard" means the distance between the liquid level within the cell and the top of the berm(s);

   "highly contaminated material" means highly contaminated water, highly contaminated soil, or a mixture of both;

   "highly contaminated soil" means:

   i. soil or sediment with a total petroleum hydrocarbon concentration of 30,000 ppm or greater; and
   ii. soil or sediment contaminated with a nonaqueous phase liquid.

   "highly contaminated water" means:

   i. water or snow with a total concentration of volatile hydrocarbons of 15,000 µg/L or greater;
   ii. water or snow with a total concentration of light extractable hydrocarbons of 5,000 µg/L or greater; and

iii. water or snow contaminated with a nonaqueous phase liquid.

"nonaqueous phase liquid" means an immiscible liquid composed of organic compounds (which may be lighter or denser than water) at any apparent thickness;

"non-biodegradable contaminants" are contaminants, including metals, that are not amenable to treatment by bioremediation in a land treatment facility;

"ppm" means parts per million;

"private land treatment facility" means a facility which is authorized to accept contaminated material generated from the permittee's operations only;

"protocols" are those protocols created under section 21(1) of the CSR and which are currently in force;

"Regulations" means the *Contaminated Sites Regulation*, O.I.C. 2002/17 and the *Spills Regulations*, O.I.C. 1996/193, as applicable;

"seasonal high water table" means the shallowest depth to free water on an annual basis;

"staging cell" means a bermed area into which contaminated material without analytical results is temporarily placed upon acceptance at the facility;

"supporting documents" means documents, correspondence or other material submitted in conjunction with the permit application;

"treatment cell" means a fully enclosed, bermed area into which contaminated material is placed for treatment;

"treatment" includes but is not limited to tilling/turning the material, mixing it with other materials, or adding moisture or nutrients.

2. Any term not defined in this permit that is defined in the Act or the Regulations has the same meaning as in the Act or the Regulations.

PART 2. GENERAL CONDITIONS

1. No condition of this permit limits the applicability of any other law.

2. The permittee shall only conduct activities authorized by this permit on land that the permittee has the right to enter upon and use for that purpose.

3. If an environmental protection analyst has reasonable grounds to believe, based on information provided by the Lands Branch, Department of Energy, Mines and Resources, that the lease is not in good standing under condition 2.4, the environmental protection analyst may issue notice of such belief in writing to the permittee. Within seven days of the issuance of the notice, the permittee shall stop accepting any additional material into the facility until such time that an environmental protection analyst provides written notice that the lease is once again determined to be in good standing.

4. The permittee shall only collect, store, handle, or treat contaminated material generated by the permittee’s own activities at the facility.

5. The permittee shall only allow associated personnel to take part in activities in relation to this permit if they:
   a) have access to a copy of this permit;
   b) are knowledgeable of the terms and conditions of this permit; and
   c) receive the appropriate training for the purposes of carrying out the requirements of this permit.

6. The permittee shall provide notice in writing to an environmental protection analyst prior to any significant change of circumstances, including without limitation:
   a) closure of the facility;
   b) a change in the ownership of the facility; or
   c) a change in the mailing address, site location or phone number of the permittee.

7. If an inspection reveals that the facility is in any way not compliant with this permit or approved plans, the permittee shall take actions as required to comply with this permit as soon as practicable.

8. The permittee shall have all sampling conducted in accordance with all applicable protocols pursuant to the CSR that pertain to sampling and analysis. The permittee shall have all sample collection carried out by trained personnel using appropriate equipment and procedures.

9. If an environmental protection analyst or environmental protection officer directs in writing that a submitted plan, including plans submitted under previous permits for the facility, be amended, the permittee shall prepare the required amendment by the date specified.

10. Where conflicts exist between this permit, the permit application, or elements of any plan pertaining to any activity conducted by the permittee and regulated under the Act, this permit shall prevail.

11. If this permit expires or is cancelled by the Minister pursuant to section 91(1) of the Act, the permittee shall decommission the facility as directed by an environmental protection officer.

12. For clarity, the obligations of the permittee survive the expiry of the permit and remain in effect until they are fulfilled to the satisfaction of an environmental protection officer.

PART 3. FACILITY SPECIFICATIONS

1. The permittee shall not construct or operate a facility on any portion of land where:
   a) the slope is greater than 6%;
   b) the seasonal high water table is less than 3 metres below the surface;
   c) the facility would be within 100 metres of a surface water body;
   d) the land is within a 25 year floodplain; or
   e) residential property boundaries or residential buildings are less than 60 metres away.

   a) The permittee shall install and maintain the following liners in each cell before placing any material into that cell and shall maintain each liner as specified: A UV-resistant, impermeable liner of a minimum 30 mil (30 thousandths of an inch) thickness beneath all treatment and staging cells in accordance with the manufacturer's specifications to remain firmly anchored in the berms on all sides of each cell.

2. The permittee shall have qualified personnel install, weld and repair all impermeable liners.

3. The permittee shall take all reasonable measures to maintain the integrity of the liner and shall undertake all necessary maintenance, repairs, upgrades or other actions to remedy any failures in the integrity of the liner.

4. In accordance with the permit application and supporting documents and approved plans:

a) the facility shall consist of:
   i. up to 2 treatment cells, each with maximum interior dimensions of 10 metres by 20 metres;
b) the maximum height of piles of contaminated material within the facility shall be 1 metres; and
c) the facility shall be contained within the boundaries of the site location.
d) The permittee shall not exceed these maximum thresholds.

5. The permittee shall notify an environmental protection analyst upon completion of any cells authorized in condition 3.12 above and submit for approval prior to placing any material in the cell:
   a) quality control testing results for any in-field seam welding performed on the synthetic liner.

6. The permittee shall ensure that no material is accepted into the facility until approval under condition 3.11 is provided by an environmental protection analyst.

7. The permittee shall construct and maintain berms around all treatment cells to prevent the escape of contaminated material, runoff or leachate from the cells. The permittee shall maintain berms at sufficient height and lateral extent to contain all contaminated material, runoff, and leachate in the cells, as determined by an environmental protection officer.

8. The permittee shall prevent berms surrounding staging or treatment cells from being removed or breached except as approved by an environmental protection analyst in writing or as instructed by an environmental protection officer.

9. The permittee shall construct and maintain ramps to allow equipment to access the cells without damaging or degrading the berms or the liner(s).

10. If any berms become damaged or degraded, the permittee shall repair the berms as soon as practicable.

11. The permittee shall construct and maintain diversion berms and/or ditches as required to ensure that runoff cannot enter the cells.

12. The permittee shall keep the facility secured at all times to prevent access by unauthorized persons.

13. The permittee shall post a sign at the entrance to the facility identifying that the facility contains contaminated material and shall maintain the sign at all times of the facility's operation.

PART 4. <u>FACILITY MAINTENANCE</u>

1. The permittee shall:
   a) properly maintain and repair the berms, ditches, tanks, fencing, signage, and all other facility components at all times; and
   b) inspect the facility for compliance with this permit every two weeks from April 1 to October 31 of each year.

2. If an inspection under condition 4.1 reveals that the facility is in any way not in compliance with this permit or approved plans, the permittee shall take actions as required to comply with this permit as soon as practicable.

3. The permittee shall not allow any impermeable liner to be exposed to sunlight.

4. The permittee shall take all reasonable measures to prevent wildlife, including waterfowl, from being attracted to the site. These measures may include, but need not be limited to, fencing, the use of bird scare devices, removal of suitable habitat (e.g. standing water and vegetation), and the installation of netting over the cells.

PART 5. <u>INTAKE OF CONTAMINATED MATERIAL</u>

1. The permittee may accept only the following contaminated materials:
2. Soil and water contaminated with petroleum hydrocarbons below highly contaminated material standards.

3. The permittee shall obtain the relocation permit number under which incoming material is transported prior to acceptance of the material into the facility, unless otherwise directed by an environmental protection analyst or environmental protection officer.

4. The permittee shall have samples as per applicable protocols of incoming contaminated material from each source analyzed for petroleum hydrocarbons and any other contaminants of concern within 60 days of acceptance of the material.

5. If the permittee has reasonable grounds to believe that incoming contaminated material may contain contaminants other than petroleum hydrocarbons, the permittee shall contact an environmental protection analyst prior to accepting the contaminated material and shall follow the direction provided by an environmental protection analyst in respect of that contaminated material.

6. Should analysis of incoming contaminated material show that it contains contaminants other than petroleum hydrocarbons above the standards for those contaminants in the CSR for Industrial Land Use , the permittee shall contact an environmental protection analyst for direction on the disposal of the material within 5 days of receipt of the analytical results, and shall remove the material from the facility within 30 days of receipt of the analytical results or as directed by an environmental protection analyst.

7. The permittee shall not initiate treatment of incoming material, including but not limited to tilling or applying water or other soil conditioners or amendments, until analytical results are received, establishing the type and level of contaminants in that material .

8. If any results of analysis of incoming contaminated material demonstrates that the material is highly contaminated material, the permittee shall inform an environmental protection analyst within 5 days of receipt of the analytical results. Within 30 days of the receipt of the results, the permittee shall remove the material represented by the relevant sample.

PART 6. SOIL HANDLING AND STOCKPILING

1. The permittee shall ensure that contaminated material from different sources or containing different types of contamination is handled, stored and treated separately except as authorized by this permit or as directed by an environmental protection analyst.

2. Following the receipt of analytical results for samples from each stockpile, the permittee may consolidate stockpiles of soil from different sources into a single stockpile with a maximum volume of 500 m^3, provided that each original stockpile:
   a) contains only petroleum hydrocarbon-contaminated material; and
   b) does not contain highly contaminated material.

3. The permittee shall prevent contaminated material from being mixed with highly contaminated material, treated material or non-contaminated material, except as authorized by this permit or as directed by an environmental protection analyst.

4. The permittee shall take all reasonable measures to prevent the release of contaminated material into the environment.

5. The permittee shall place all contaminated material within a cell a sufficient distance from all berms to prevent contaminated material, runoff or leachate from escaping the cell, as determined by an environmental protection officer.

6. The permittee shall sufficiently separate piles or windrows of contaminated material to allow equipment to access each pile or windrow, and to prevent inadvertent mixing of piles or windrows of contaminated material from different sources or containing different levels or types of contamination.

7. The permittee prevent contaminated material from being placed on the ramp(s) into the cells, the berms surrounding the cells or on access road(s) into or within the facility.

8. The permittee shall label all stockpiles within the facility with signage identifying the relocation permit number under which the material was transported to the facility or another identifier consistent with the figure and records required under condition 11.2, below.

PART 7. MONITORING

1. The permittee shall develop and implement a sampling and monitoring program for all contaminated material being treated at the facility, in accordance with all guidelines and protocols pursuant to the CSR that pertain to the sampling, analysis and monitoring of contaminated material within a land treatment facility.

PART 8. REMOVAL OF REMEDIATED SOIL

1. The permittee shall not remove any material from the facility without first:
   a) submitting a written request to an environmental protection analyst to remove a specific volume of material;
   b) providing information on the land use at the receiving site;
   c) providing analytical results demonstrating that the material to be removed is suitable for use at the receiving site, based on the applicable CSR land use standards, for all contaminants of concern;
   d) providing a description of sampling methodology applied;
   e) demonstrating, to the satisfaction of an environmental protection analyst, that if the material removed from the facility is contaminated above CSR standards for all land uses, that the material will be transported, in accordance with applicable transport laws, to a facility permitted to receive the contaminated material;
   f) providing the date on which the soil was last tilled;
   g) receiving the written approval of an environmental protection analyst for the removal; and
   h) obtaining a relocation permit for the relocation of the remediated material, if the concentration of any contaminant in the material is above the applicable standards in the CSR for the receiving site.

2. Within 14 days prior to collecting confirmatory samples from a stockpile in support of a request to remove the soil from the facility, the permittee shall thoroughly till or turn all of the material in the stockpile at least once using appropriate equipment.

3. Prior to removal of stockpiles that have been consolidated in accordance with condition 6.2 above, the permittee shall ensure that confirmatory samples are analyzed for all contaminants of concern from each individual stockpile or source.

PART 9. MANAGEMENT OF LIQUID CONTAMINATED MATERIAL

1. The permittee shall ensure that all runoff within cells, including rain water, snow and ice melt, is either contained within the berms of each cell while still leaving a minimum of 30 cm freeboard or is removed from the cells and is contained within the facility in aboveground storage tanks of sufficient volume.

2. All liquid contaminated materials, other than runoff from soil in the facility, shall be stored in aboveground storage tanks equipped with secondary containment or stored within the treatment cell in other suitable enclosed containers.

3. Prior to using any liquid contaminated materials other than runoff from soil in the facility to provide moisture to remediating soil, subject to condition 9.8 below, the permittee shall:
   a) collect the liquid in a storage tank;
   b) have a sample of the liquid analyzed for total metals and any other contaminants of concern; and
   c) confirm the results do not meet the definition of highly contaminated material.

4. Prior to releasing or removing any liquid from the facility, including runoff from soil in the facility and liquid that has been treated or filtered, the permittee shall collect a representative sample of the liquid proposed for release and provide analytical results, and information regarding the amount of liquid to be released, to an environmental protection analyst with the Environmental Programs Branch.

5. When the permittee has provided the analytical results, the permittee shall:
   a. If the analytical results demonstrate that concentrations of hydrocarbons and any other contaminants of concern are below the laboratory detection limit the permittee may release the liquids.
   b. If the analytical results demonstrate that concentrations of hydrocarbons and any other contaminants of concern are detected in the sample but are below the applicable CSR standards, the permittee shall provide 10 days written notice to an environmental protection analyst with the Environmental Programs Branch, before releasing the liquids. However, the liquids shall not be released if an Environmental Protection Officer determines that a release would cause an adverse effect.
   c. If the analytical results demonstrate that concentrations of hydrocarbons and any other contaminants of concern are above the applicable CSR standards, the permittee shall not release the liquids.

6. The permittee may remove snow from the facility and discharge it to the environment without sampling, provided that the snow is from an area of the facility where no contaminated soil is present and that the snow has not come into contact with contaminants or contaminated material.

7. The permittee shall have a sample of the liquid contaminated material referred to in 9.3 and 9.4 above collected and analyzed prior to adding any additional material to the

storage tank or treatment cell in order to not change the composition of the liquid that was sampled.

8. The permittee shall not apply any liquid highly contaminated material onto soil in the facility. The permittee shall dispose of such liquid in accordance with all applicable regulations.

9. On an annual basis, or more often if necessary, the permittee shall monitor the level of solids in each liquid storage tank. The permittee shall remove solids from each tank as necessary to ensure that the tanks do not fill with sediment.

10. The permittee shall sample all solids removed from tanks used to contain liquid contaminated material and analyze for all contaminants of concern. If samples do not contain non-biodegradable contaminants, the solids may be placed in a treatment cell. If samples do contain non-biodegradable contaminants, the permittee shall dispose of all solids represented by those samples at an approved facility.

11. The permittee may not discharge solids from tanks to the environment unless all contaminants present in the solids are at concentrations below the applicable standards in the CSR for the receiving site.

PART 10. SPILLS

1. The permittee shall store or handle all substances are so as to prevent spills, leakage, leaching or other discharges or releases of the substances from their storage containers, equipment, or other sources.

2. The permittee shall contact either an environmental protection officer or the 24-hour Yukon Spill Report Centre (867-667-7244), as soon as possible under the circumstances, in the event of a release, spill, unauthorized emission, discharge or escape of any material as defined in the Act or Regulations.

3. The permittee shall ensure that appropriate clean-up equipment (such as sorbent, shovel, broom, bucket, gloves, boots, etc.) is readily available on site.

4. The permittee make emergency spill procedures are available in a written format to all personnel when working on-site and shall familiarize all associated personnel with those procedures.

PART 11. REPORTING AND RECORD KEEPING

1. The permittee shall maintain current records detailing:
   a) the origin of all contaminated material being stored and treated;
   b) the volume of contaminated material accepted from each source;
   c) a figure(s) showing the entire facility including the location within the facility of contaminated material from each source;
   d) for soil combined in accordance with condition 6.2, the original source and volume of each component stockpile;
   e) the total volume of contaminated material in the facility;
   f) soil and/or water analysis results for samples from any contaminated material accepted for treatment or removed from the facility;
   g) soil and/or water analysis results for any interim samples taken in order to assess remediation progress
   h) results of any water analyses conducted on runoff from the facility;
   i) details of any nutrients added (including type, dates, quantity and location of application);
   j) soil and/or water analysis results for any confirmatory samples taken for the purpose of determining if the soil or water was remediated;
   k) details of any handling of highly contaminated material (including volumes accepted and/or removed from the facility);
   l) the volume of material removed from the facility, the location and applicable land use(s) of the receiving site(s), and the written approval of an environmental protection analyst for removal of the material;
   m) summaries of all inspections carried out under part 4.1 of this permit (including the name of the person conducting the inspection, the date of each inspection, any observations recorded during the inspection, actions taken as a result of those observations, and the date each action was taken);
   n) notes concerning any spills or leaks occurring at the site, including substance involved, estimated quantity, date of observation of the spill or leak, spill reports made, and clean-up procedures implemented; and
   o) any and all deficiencies observed and remedied in accordance with condition 4.2, and details describing how and when they were remedied.

2. The permittee shall submit an annual report to an environmental protection analyst on or before March 31 of each year, including the March 31 following the expiry of this permit, which includes but need not be limited to:
   a) a description of all activities undertaken at the facility in the previous calendar year;

b) all records required to be maintained under condition 11.1 as they pertain to the previous calendar year and reflective of conditions as of the end of that year, including original laboratory reports for all sample results reported;
c) a figure showing the entire facility, including the location of contaminated material from each source within the facility;
d) a sampling and monitoring plan for the current calendar year, pursuant to condition 7.1 of this permit; and
e) a workplan for the entire facility for the current calendar year.

3. Notwithstanding the reporting requirements listed in condition 11.2, analytical results for samples from contaminated or remediated material accepted for treatment or removed from the facility need not be included in the annual report where these results have previously been submitted to the Branch. Additionally, authorizations received from an environmental protection analyst (such as for the removal of treated soil) need not be included in the annual report. The permittee shall still include all other applicable information pertaining to this material (e.g. volumes, sources, etc.) in the report.

4. The permittee include in the annual report described in condition 11.2 an explanation of any case where a requirement of condition 11.1 does not apply (for example, if no nutrients were added in the previous calendar year). The permittee shall submit the annual report described in condition 11.2 even if no activity was undertaken in the previous calendar year.

5. The permittee shall keep all records required under this permit in a format acceptable to an environmental protection officer for a minimum of three years and make them available for inspection by an environmental protection officer upon request.

PART 12. DECOMMISSIONING

1. At least three months prior to the intended closure of the facility or any individual cells, the permittee shall submit a detailed decommissioning plan to an environmental protection analyst for approval which includes:
   a) a schedule for decommissioning the facility or cell(s);
   b) the results of sampling demonstrating the levels of contaminants in all soil in the facility or cell(s);
   c) details of the intended use and receiving location of all soil in the facility or cell(s);
   d) a description of the methods to be used to restore the site, or portion thereof, or to prepare the site location or portion thereof for its future uses; and
   e) any other information required by the Branch.

2. If the permittee does not anticipate closure of the facility but closure is required, the permittee shall submit the information listed in 12.1 as soon as practicable.

3. The permittee shall obtain written approval of the decommissioning plan from an environmental protection analyst prior to the commencement of any work to decommission the facility or any individual cells.

4. The permittee shall obtain approval from an environmental protection analyst for all amendments to the decommissioning plan.

5. Following submission of the decommissioning plan as in condition 12.1, the permittee shall ensure that no additional contaminated material is accepted into the facility or individual cells to be closed.

6. The permittee shall conduct all work to decommission the facility or any individual cells in accordance with the decommissioning plan approved by an environmental protection analyst, including any conditions applicable to the approval.

7. The permittee shall commence decommissioning the cell(s) or facility within six months of receiving approval from an environmental protection analyst or as directed by an environmental protect analyst.

8. During decommissioning of the facility, the permittee shall have confirmatory samples collected from the bases of all cells in the facility, the berm material and any other area(s) of the site location that may have been impacted due to the operation of the facility. The permittee shall have these samples collected and analyzed for all contaminants of concern in accordance with *Protocol 11: Sampling Procedures for Land Treatment Facilities* as updated from time to time.

9. The permittee shall relocate any contaminated material excavated during implementation of the decommissioning plan to another cell, in the case of the closure of one or more cells, or another facility permitted to accept the material in accordance with the CSR, in the case of closure of the facility.

10. Within 120 days of implementation of the decommissioning plan, the permittee shall submit a report to an environmental protection analyst describing the effectiveness of the implementation of the approved decommissioning plan, including confirmatory

sampling results which demonstrate that contaminant concentrations at the former cell or at the land treatment facility site location are below applicable CSR standards.

Appendix B
Internal StrataGold Spill Response Form

EAGLE GOLD PROJECT
SPILL RESPONSE FORM

StrataGold Corporation

FIRST OBSERVER			
Name & Company:	Victoria Gold		
Date & Time Observed:	April 11, 2019		
Location of Spill:	Lower camp road behind the burn pit		
Distance to Waterbody:	20m	Photos Taken?	☒ Yes ☐ No
Estimated Spill Volume:	aprox 60 liters	Reported to:	Victoria Gold Environment

COMPANY RESPONSIBLE	
Supervisor/Investigator:	Katie Babin
Date of Spill:	Unknown
Substance Spilled:	Mixed hydrocarbons (Diesel, engine oil)
Equipment Involved:	none
Volume of Contaminated Material:	8m3 of soil, aprox 60 l spilled
Personnel Contacted for Disposal (Name):	Site Service
Cause of Spill: (Equipment Failure, vehicle accident, foreign object, etc.)	Improper storage of contaminated material. Area was used as a staging area to store contaminated material from spills which occurred over the winter of 2018/19. On February 6, 2019 during a CMI inspection, the inspectors requested the bags be moved to another location. Victoria Gold was in the process of completing a Land Treatment Facility and asked for an extension until April 20. The extension was granted however the area was not monitored frequently and during the spring freeze/thaw cycle frozen material melted out and drained onto the ground causing a spill. During an EMR inspection, inspectors identified the spill.
Spill Response Actions Taken: (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.)	On April 16th approvals were granted by the Yukon Government to use the completed LTF, at which time bags were moved from the lower camp road storage area to the apron of the LTF. All bags were removed by April 20 and the area was scrapped and material was temporarily stored in a lined containment while room in the LTF was created. Soil samples were taken in a grid pattern to identify if any contaminants remained.

ENVIRONMENTAL DEPARTMENT USE ONLY			
IR#:	IR-19-133	Reportable to Spill Hotline?	☒ Yes ☐ No
Info Re. Spill Hotline:	Reported to Emily Sessford by Phil Emerson		
Disposal Container Labelled?	☐ Yes ☒ No	Samples taken?	☒ Yes ☐ No
Environmental areas affected: (Watercourse, soil, etc.):	Eagle creek flows behind storage area, there was a berm in place and no contaminants are expected to have flowed into the creek.		
Method of Disposal & Further Remediation Required:	Material was moved to newly licensed LTF located on site.		
Follow Up Required?	☒ Yes ☐ No	Follow Up Date:	May 15

SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS			
Employee:		Signature:	
Supervisor:		Signature:	
Safety:		Signature:	
Environment:	Katie Babin May 9 2019	Signature:	K Babin

Appendix C
ALS Laboratory Analytical Results

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L2267330-1	L2267330-2	L2267330-3	L2267330-4	L2267330-5
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	30-APR-19	30-APR-19	30-APR-19	30-APR-19	30-APR-19
	Sampled Time	16:30	15:47	15:50	15:45	15:35
	Client ID	STAGING 1	STAGING 2	STAGING 3	STAGING 4	STAGING 5
SOIL						
Physical Tests	Moisture (%)	8.17	9.28	20.4	14.0	20.8
Aggregate Organics	Oil and Grease (mg/kg)	<500	<500	<500	<500	<500
Hydrocarbons	EPH10-19 (mg/kg)	<200	<200	<200	<200	<200
	EPH19-32 (mg/kg)	<200	<200	<200	<200	<200
	LEPH (mg/kg)	<200	<200	<200	<200	<200
	HEPH (mg/kg)	<200	<200	<200	<200	<200
	Surrogate: 2-Bromobenzotrifluoride (%)	93.8	94.9	103.1	95.8	94.2
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Acenaphthylene (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Anthracene (mg/kg)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Benz(a)anthracene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Benzo(a)pyrene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Benzo(b&j)fluoranthene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Benzo(b+j+k)fluoranthene (mg/kg)	<0.015	<0.015	<0.015	<0.015	<0.015
	Benzo(g,h,i)perylene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Benzo(k)fluoranthene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Chrysene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Dibenz(a,h)anthracene (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Fluoranthene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Fluorene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	1-Methylnaphthalene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	2-Methylnaphthalene (mg/kg)	<0.010	<0.010	<0.010	0.021	<0.010
	Naphthalene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Phenanthrene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Pyrene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Quinoline (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Surrogate: Acenaphthene d10 (%)	88.4	85.9	95.1	86.5	95.3
	Surrogate: Chrysene d12 (%)	88.8	92.9	110.6	99.6	101.2
	Surrogate: Naphthalene d8 (%)	81.6	77.5	82.6	80.2	87.6
	Surrogate: Phenanthrene d10 (%)	103.4	91.4	97.6	93.6	87.6
	B(a)P Total Potency Equivalent (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	IACR (CCME) (mg/kg)	<0.15	<0.15	<0.15	<0.15	<0.15

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L2267330-6 Soil 30-APR-19 15:25 STAGING 6	L2267330-7 Soil 30-APR-19 15:40 STAGING 7	L2267330-8 Soil 30-APR-19 15:30 STAGING 8		
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)	13.2	11.0	12.6		
Aggregate Organics	Oil and Grease (mg/kg)	710	<500	<500		
Hydrocarbons	EPH10-19 (mg/kg)	<200	<200	<200		
	EPH19-32 (mg/kg)	280	<200	<200		
	LEPH (mg/kg)	<200	<200	<200		
	HEPH (mg/kg)	280	<200	<200		
	Surrogate: 2-Bromobenzotrifluoride (%)	93.6	94.2	93.3		
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	<0.0050	<0.0050	<0.0050		
	Acenaphthylene (mg/kg)	<0.0050	<0.0050	<0.0050		
	Anthracene (mg/kg)	<0.0040	<0.0040	<0.0040		
	Benz(a)anthracene (mg/kg)	<0.010	<0.010	<0.010		
	Benzo(a)pyrene (mg/kg)	<0.010	<0.010	<0.010		
	Benzo(b&j)fluoranthene (mg/kg)	<0.010	<0.010	<0.010		
	Benzo(b+j+k)fluoranthene (mg/kg)	<0.015	<0.015	<0.015		
	Benzo(g,h,i)perylene (mg/kg)	<0.010	<0.010	<0.010		
	Benzo(k)fluoranthene (mg/kg)	<0.010	<0.010	<0.010		
	Chrysene (mg/kg)	<0.010	<0.010	<0.010		
	Dibenz(a,h)anthracene (mg/kg)	<0.0050	<0.0050	<0.0050		
	Fluoranthene (mg/kg)	<0.010	<0.010	<0.010		
	Fluorene (mg/kg)	<0.010	<0.010	<0.010		
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.010	<0.010	<0.010		
	1-Methylnaphthalene (mg/kg)	<0.050	<0.050	<0.050		
	2-Methylnaphthalene (mg/kg)	0.053	0.038	0.018		
	Naphthalene (mg/kg)	<0.020 DLQ	<0.010	<0.010		
	Phenanthrene (mg/kg)	<0.010	<0.010	<0.010		
	Pyrene (mg/kg)	<0.010	<0.010	<0.010		
	Quinoline (mg/kg)	<0.050	<0.050	<0.050		
	Surrogate: Acenaphthene d10 (%)	81.1	86.3	84.3		
	Surrogate: Chrysene d12 (%)	94.8	83.1	88.1		
	Surrogate: Naphthalene d8 (%)	78.3	80.2	75.9		
	Surrogate: Phenanthrene d10 (%)	92.9	94.2	83.2		
	B(a)P Total Potency Equivalent (mg/kg)	<0.020	<0.020	<0.020		
	IACR (CCME) (mg/kg)	<0.15	<0.15	<0.15		

* 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)

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.

Test Method References:

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

Analysis is in accordance with BC MOE Lab Manual method "Extractable Petroleum Hydrocarbons in Solids by GC/FID", v2.1, July 1999. Soil samples are extracted with a 1:1 mixture of hexane and acetone using a rotary extraction technique modified from EPA 3570 prior to 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).

LEPH/HEPH-CALC-VA	Soil	LEPHs and HEPHs	BC MOE LEPH/HEPH

LEPHs and HEPHs are measures of Light and Heavy Extractable Petroleum Hydrocarbons in soil. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.

LEPHs = EPH10-19 minus Naphthalene and Phenanthrene.

HEPHs = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene, and Pyrene.

MOISTURE-VA	Soil	Moisture content	CCME PHC in Soil - Tier 1 (mod)

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

OG-TMB-VA	Soil	Oil & Grease in Soil	BC Lab Manual - Oil and Grease in Solids

A subsample of the sediment/soil is extracted with 1:1 hexane:acetone using a rotary extraction apparatus. The extract is analyzed gravimetrically.

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.

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 3570 & 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.

Benzo(a)pyrene Total Potency Equivalents [B(a)P TPE] represents the sum of estimated cancer potency relative to B(a)P for all potentially carcinogenic unsubstituted PAHs, and is calculated as per the CCME PAH Soil Quality Guidelines reference document (2010).

** 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, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

20190501B

Reference Information

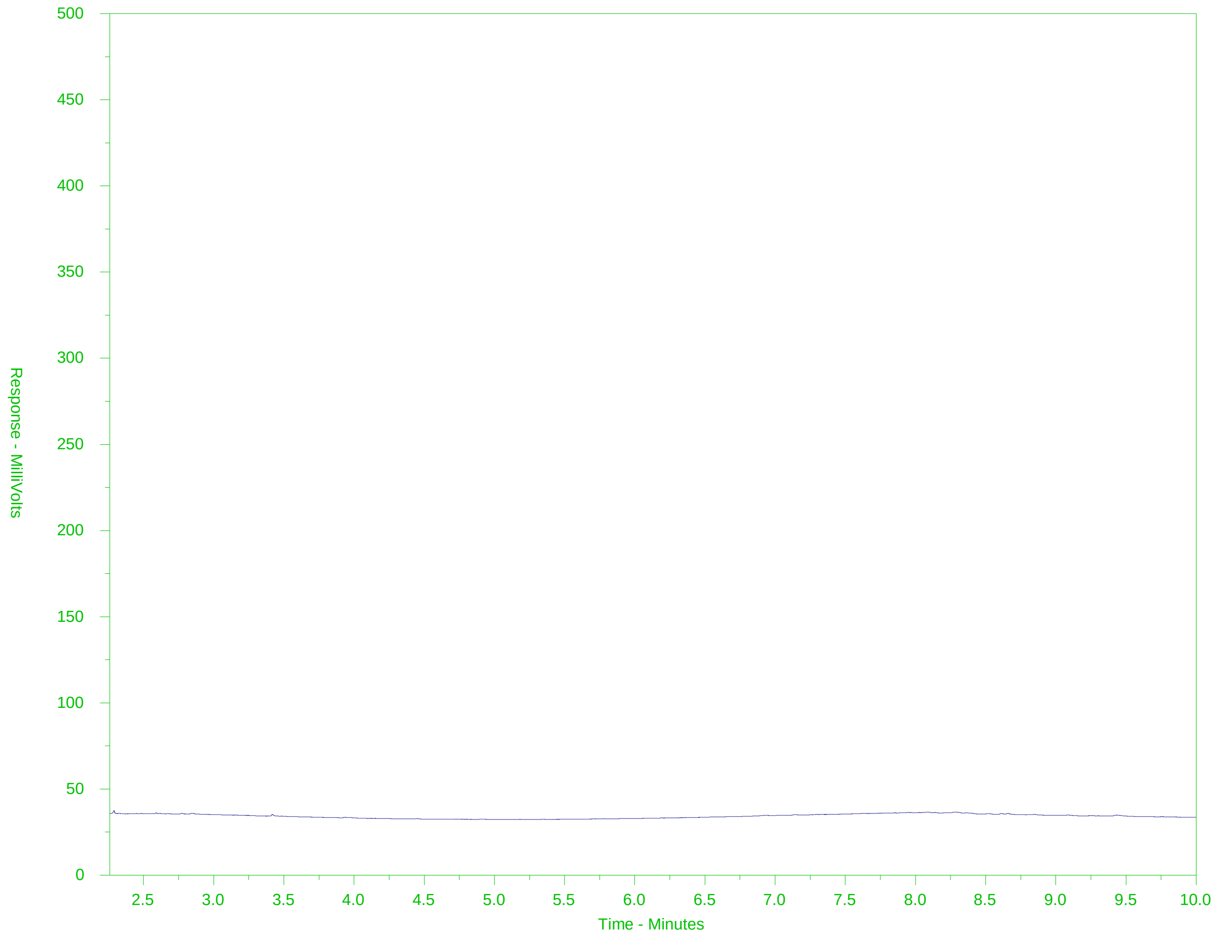
GLOSSARY OF REPORT TERMS

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.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2267330-1
Client Sample ID: STAGING 1



← EPH10-19 →	← EPH19-32 →	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

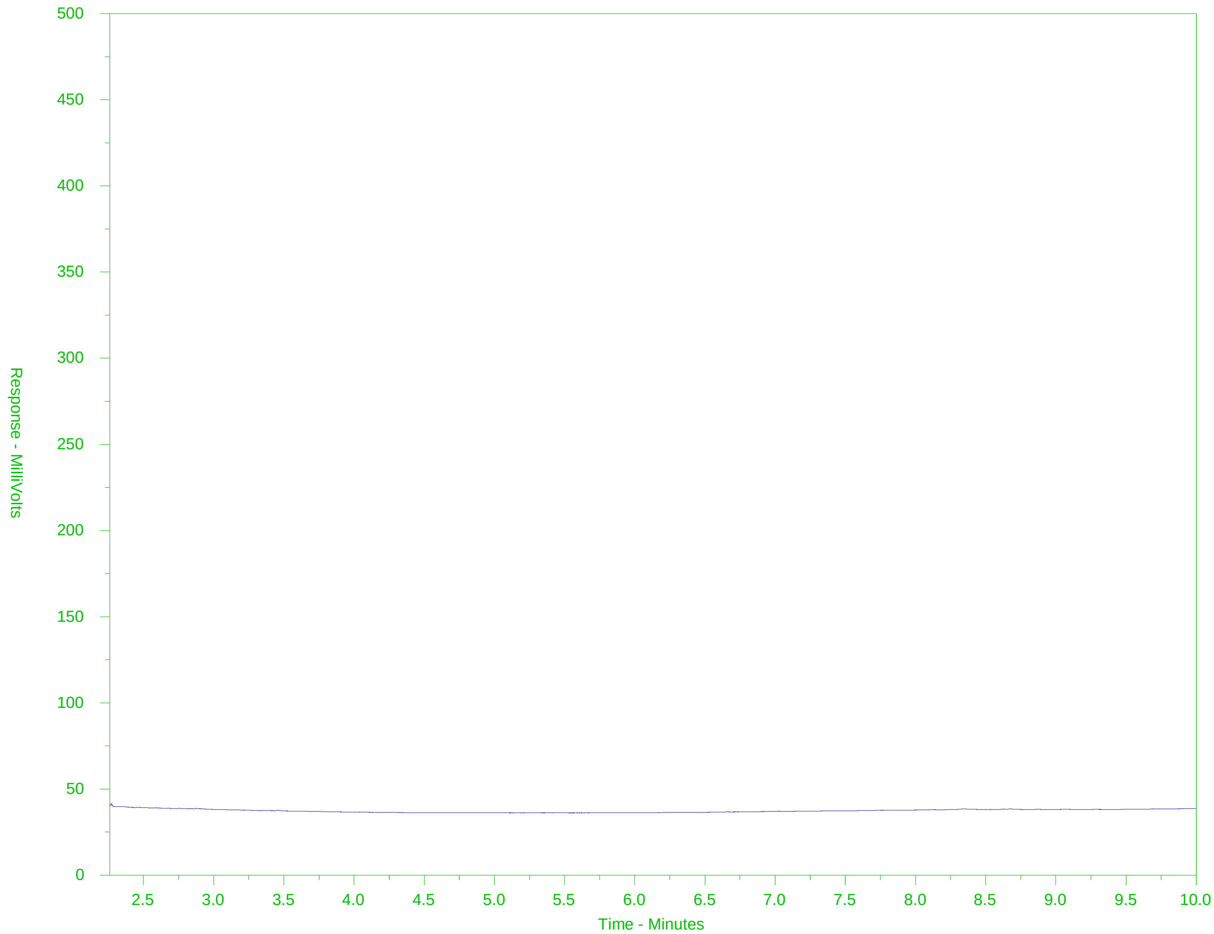
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2267330-2
Client Sample ID: STAGING 2



← EPH10-19 →	← EPH19-32 →	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

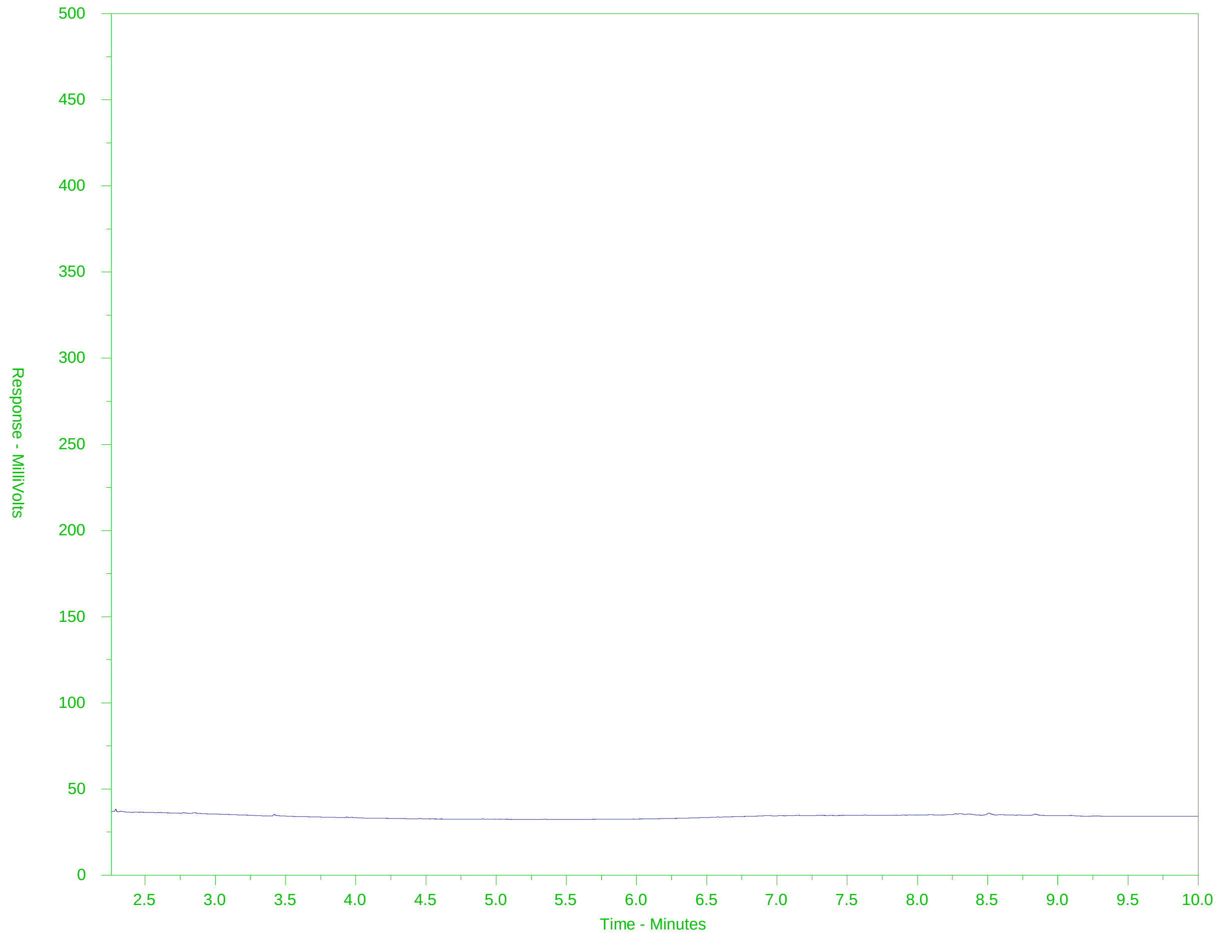
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2267330-3
Client Sample ID: STAGING 3



← EPH10-19 →	← EPH19-32 →	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

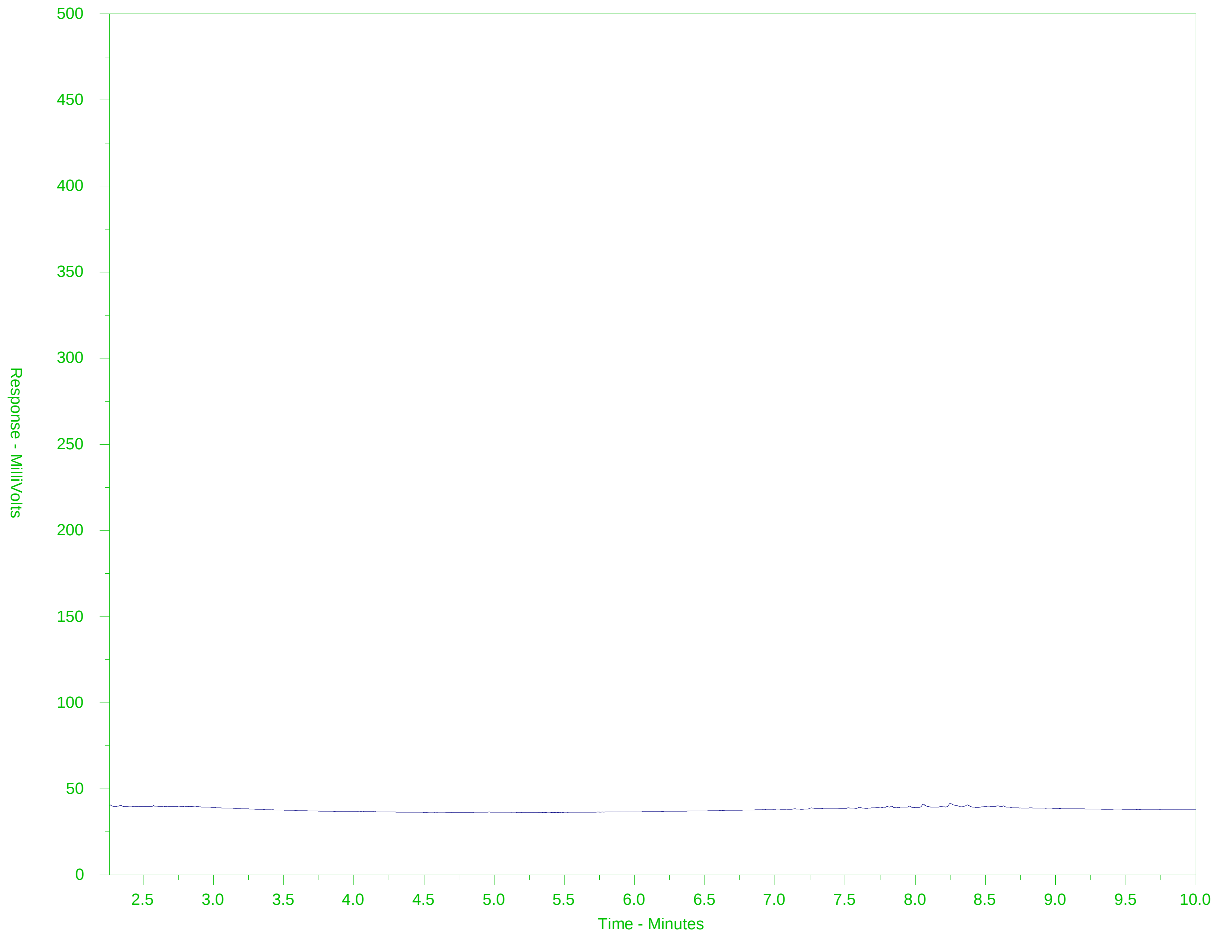
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

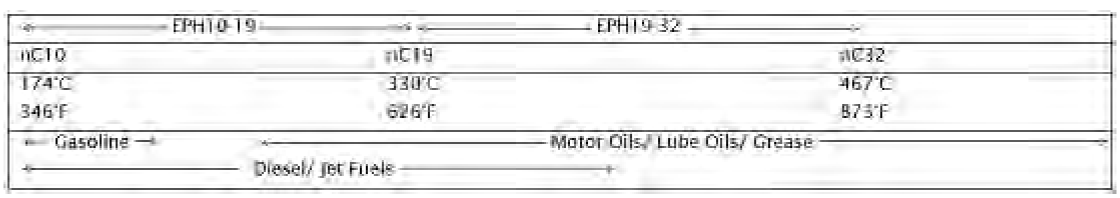
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2267330-4
Client Sample ID: STAGING 4





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

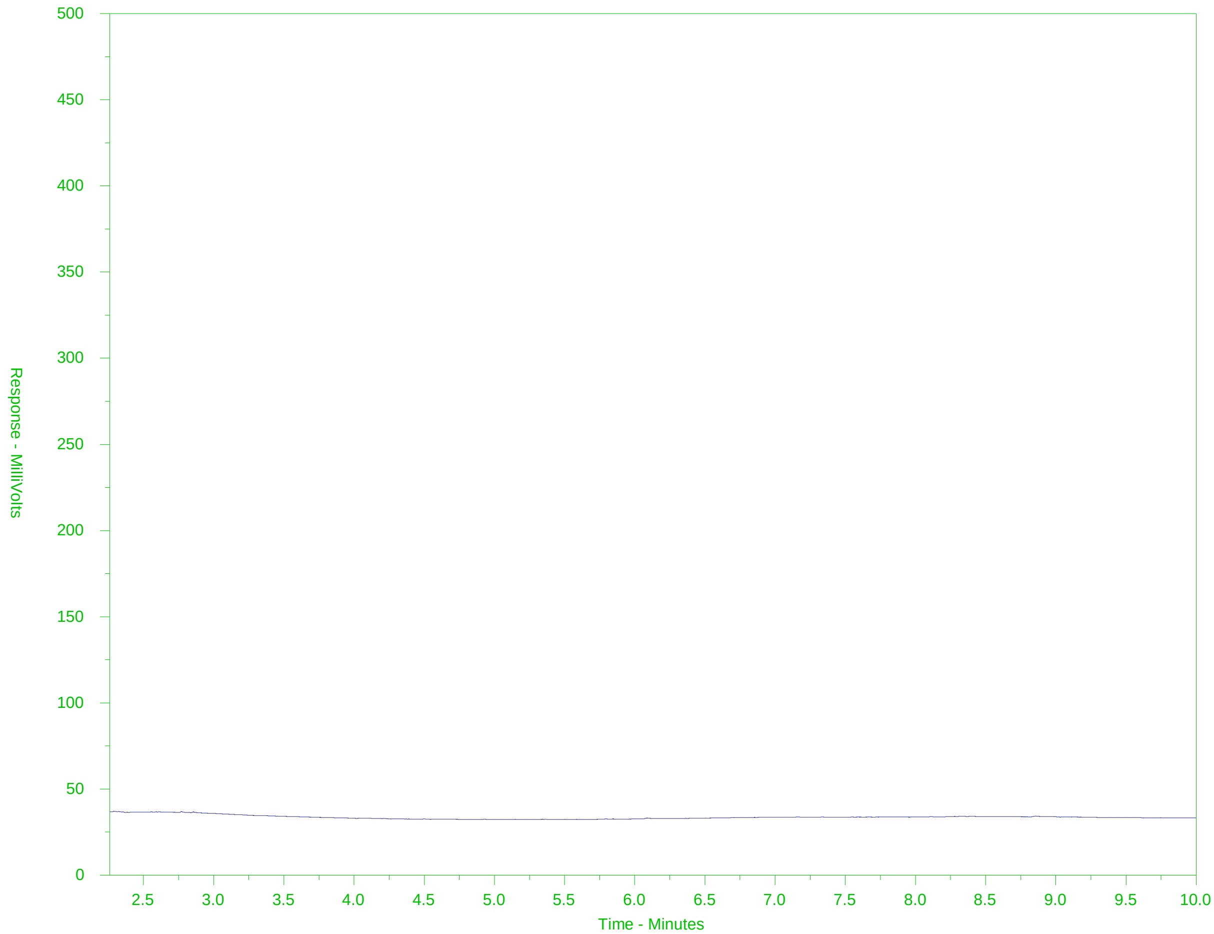
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2267330-5
Client Sample ID: STAGING 5



← EPH10-19 →		← EPH19-32 →
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

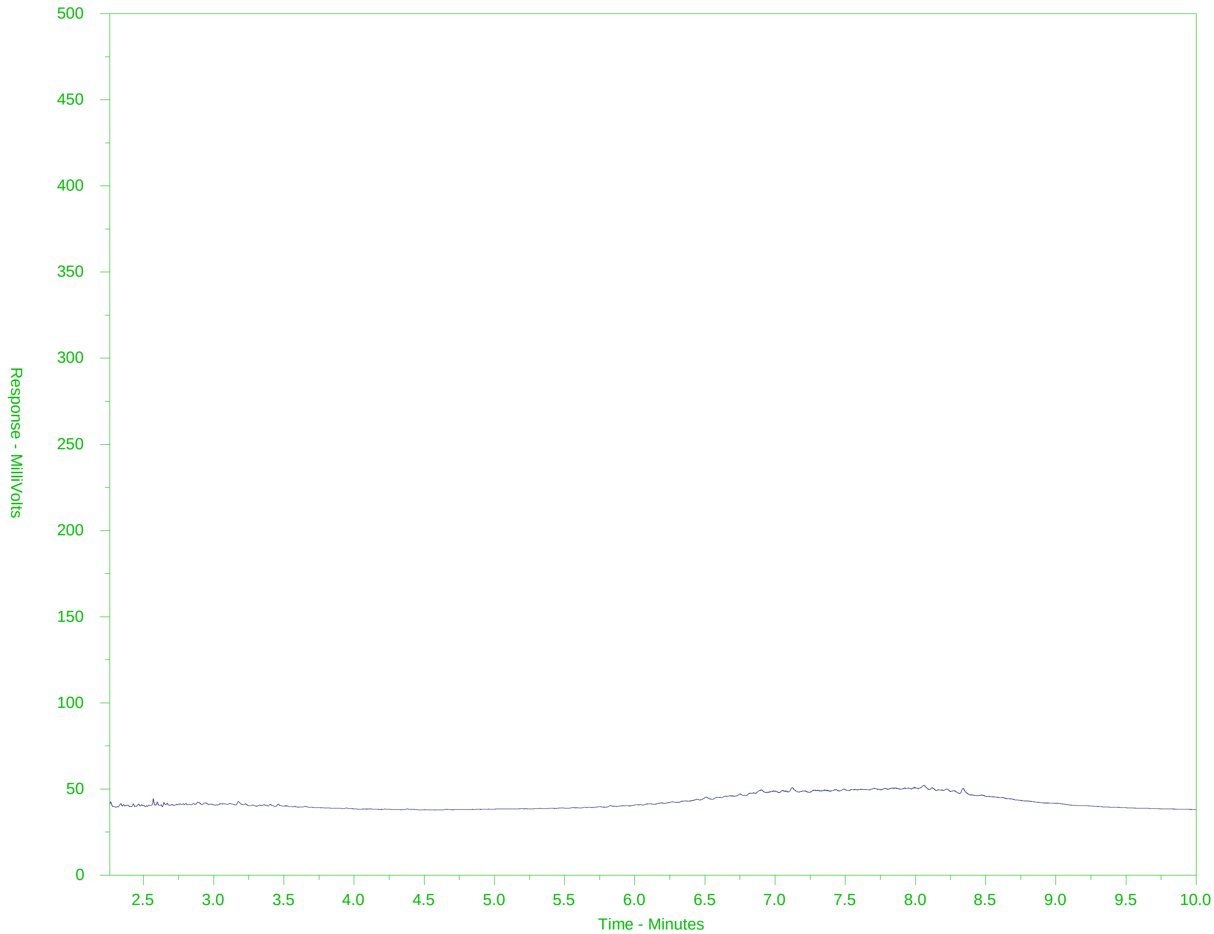
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

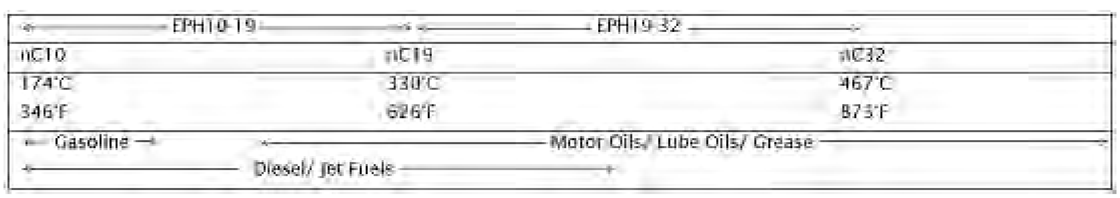
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2267330-6
Client Sample ID: STAGING 6





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

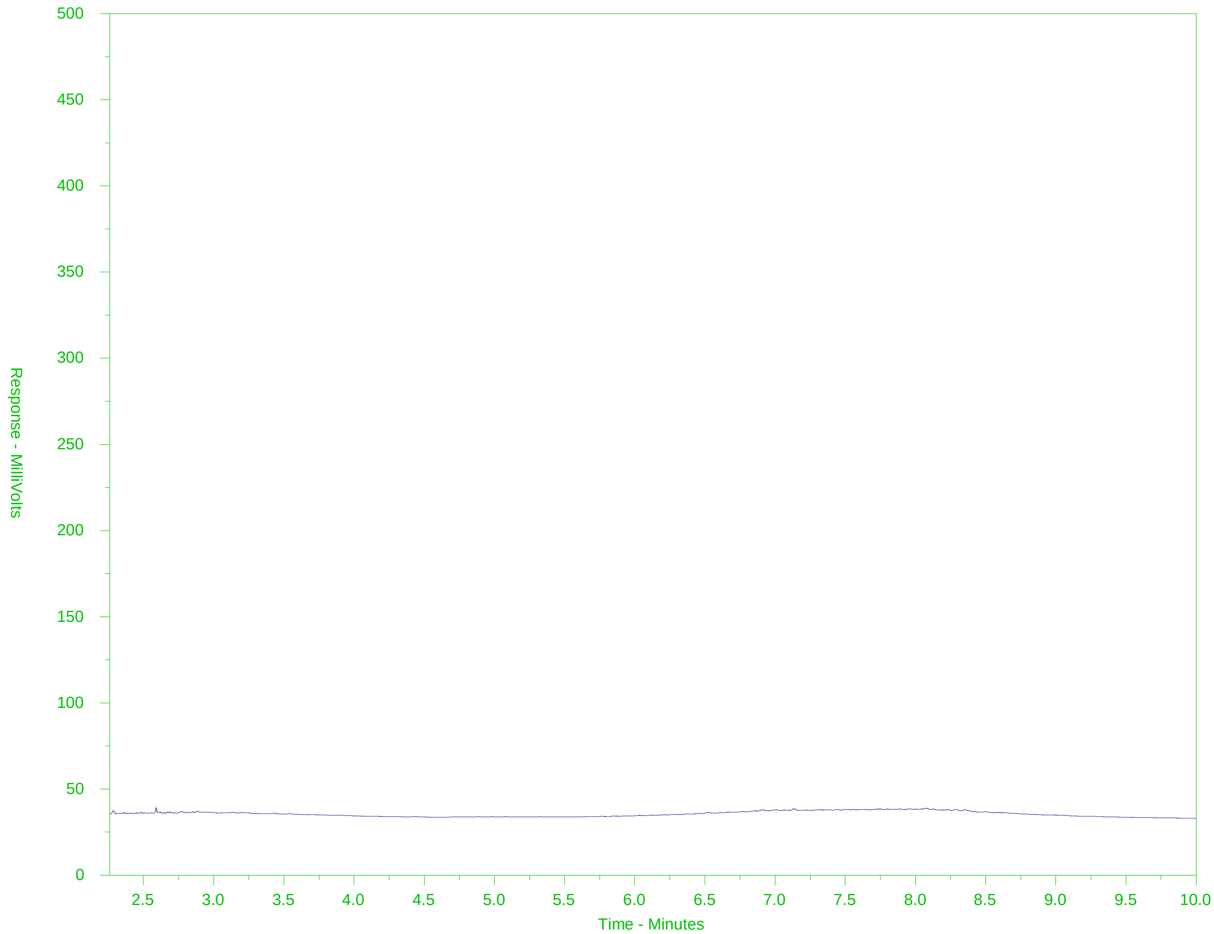
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

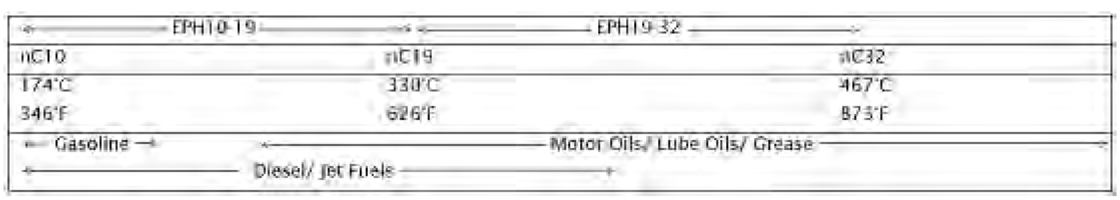
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2267330-7
Client Sample ID: STAGING 7





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

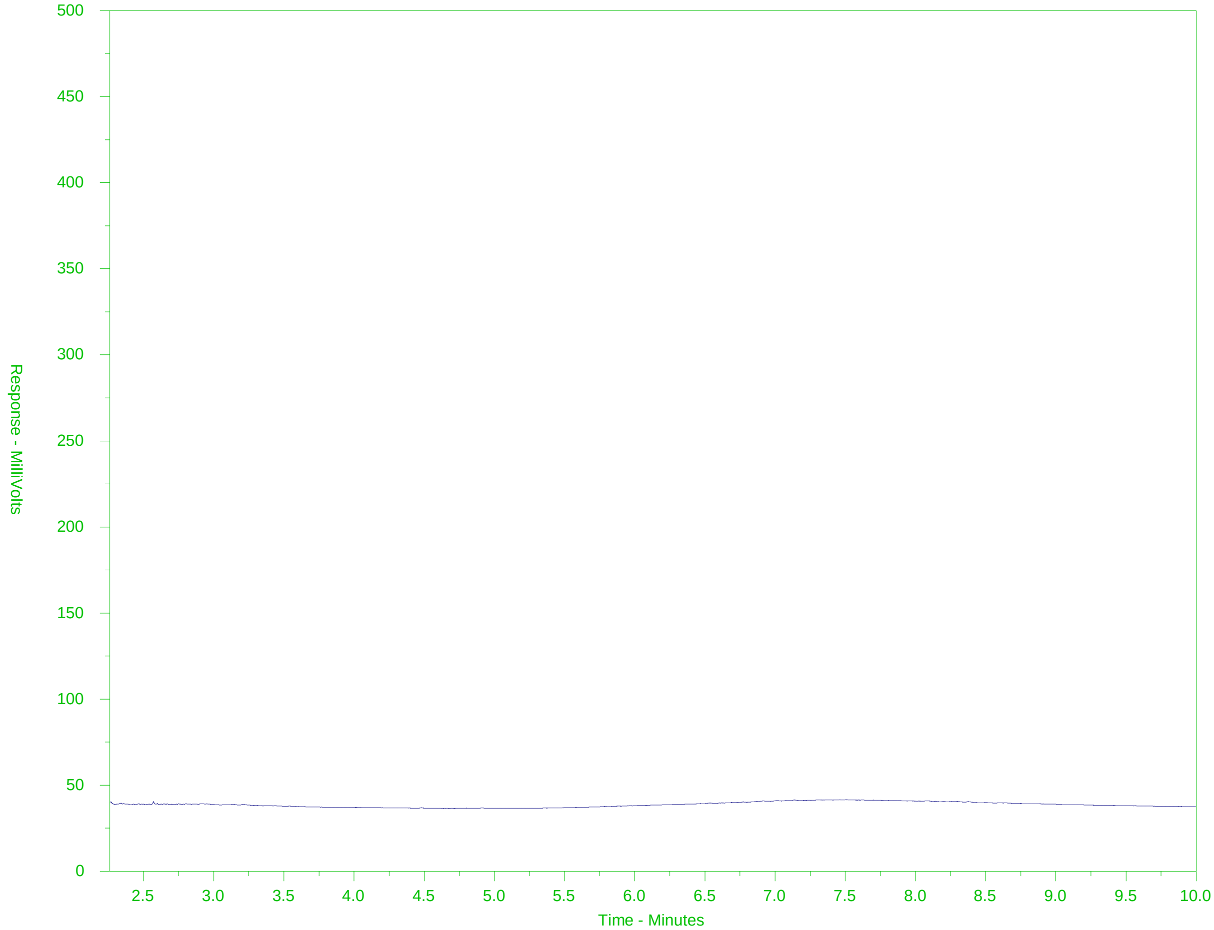
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

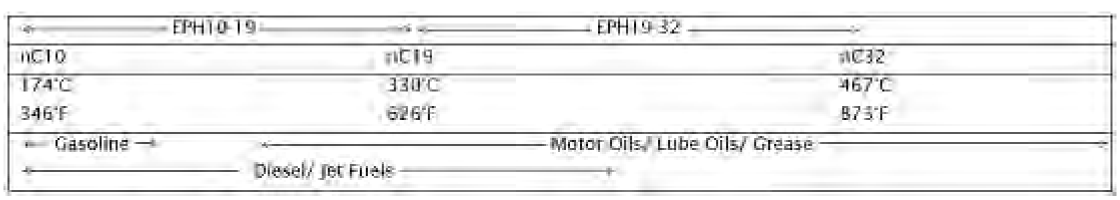
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2267330-8
Client Sample ID: STAGING 8





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

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

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

L2267330-COFC

COC # 20190501B

ALS Environmental

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)
Company:	StrataGold Corporation	☑ Standard ☐ Other		○ Regular (Standard Turnaround Times - Business Days)
Contact:	Hugh Coyle	☑ PDF ☑ Excel ☑ Digital ☐ Fax		● Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1000 - 1050 West Pender Street	Email 1:	hcoyle@vitgoldcorp.com; jknox@vitgoldcorp.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6E 3S7	Email 2:	pemerson@vitgoldcorp.com; kbabin@vitgoldcorp.	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-696-6600 Fax:	Email 3:	swilbur@vitgoldcorp.com; cbeaudry@vitgoldcorp.	Analysis Request
Invoice To	Same as Report ? ☑ Yes ☑ No	Client / Project Information		Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Km 42 spill soil	
Company:		PO / AFE:		
Contact:		LSD:	Victoria Gold Corp.	
Address:				
Phone:	Fax:	Quote #:		
Lab Work Order # (lab use only)		ALS Contact: Joanne Lee, Brent Mack	Sampler: HM, PE	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	LEPH/HEPH-CSR-VA	total oil grease	Number of Containers
1	Staging 1	30-Apr-19	16:30	Soil	X	X	2
2	Staging 2	30-Apr-19	15:47	Soil	X	X	2
3	Staging 3	30-Apr-19	15:50	Soil	X	X	2
4	Staging 4	30-Apr-19	15:45	Soil	X	X	2
5	Staging 5	30-Apr-19	15:35	Soil	X	X	2
6	Staging 6	30-Apr-19	15:25	Soil	X	X	2
7	Staging 7	30-Apr-19	15:40	Soil	X	X	2
8	Staging 8	30-Apr-19	15:30	Soil	X	X	2
9							
10							
11							
12							
13							
14							

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

YUKON CSR

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 provided on a separate Excel tab.
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ?
			A2 JC	MAY 3 2019	11:30 Am	6.5 6				

STRATAGOLD CORPORATION
ATTN: Hugh Coyle
Suite 1000 - 1050 W. Pender St
Vancouver BC V6E 3S7

Date Received: 03-MAY-19
Report Date: 07-MAY-19 15:08 (MT)
Version: FINAL

Client Phone: 604-682-5122

Certificate of Analysis

Lab Work Order #: L2267330

Project P.O. #:	NOT SUBMITTED
Job Reference:	MEGA BAG SPILL
C of C Numbers:	20190501B
Legal Site Desc:	Victoria Gold Corp.

Joanne Lee
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2267330-1	L2267330-2	L2267330-3	L2267330-4	L2267330-5
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	30-APR-19	30-APR-19	30-APR-19	30-APR-19	30-APR-19
	Sampled Time	16:30	15:47	15:50	15:45	15:35
	Client ID	STAGING 1	STAGING 2	STAGING 3	STAGING 4	STAGING 5
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)	8.17	9.28	20.4	14.0	20.8
Aggregate Organics	Oil and Grease (mg/kg)	<500	<500	<500	<500	<500
Hydrocarbons	EPH10-19 (mg/kg)	<200	<200	<200	<200	<200
	EPH19-32 (mg/kg)	<200	<200	<200	<200	<200
	LEPH (mg/kg)	<200	<200	<200	<200	<200
	HEPH (mg/kg)	<200	<200	<200	<200	<200
	Surrogate: 2-Bromobenzotrifluoride (%)	93.8	94.9	103.1	95.8	94.2
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Acenaphthylene (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Anthracene (mg/kg)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Benz(a)anthracene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Benzo(a)pyrene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Benzo(b&j)fluoranthene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Benzo(b+j+k)fluoranthene (mg/kg)	<0.015	<0.015	<0.015	<0.015	<0.015
	Benzo(g,h,i)perylene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Benzo(k)fluoranthene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Chrysene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Dibenz(a,h)anthracene (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Fluoranthene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Fluorene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	1-Methylnaphthalene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	2-Methylnaphthalene (mg/kg)	<0.010	<0.010	<0.010	0.021	<0.010
	Naphthalene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Phenanthrene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Pyrene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Quinoline (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Surrogate: Acenaphthene d10 (%)	88.4	85.9	95.1	86.5	95.3
	Surrogate: Chrysene d12 (%)	88.8	92.9	110.6	99.6	101.2
	Surrogate: Naphthalene d8 (%)	81.6	77.5	82.6	80.2	87.6
	Surrogate: Phenanthrene d10 (%)	103.4	91.4	97.6	93.6	87.6
	B(a)P Total Potency Equivalent (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	IACR (CCME) (mg/kg)	<0.15	<0.15	<0.15	<0.15	<0.15

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2267330-6	L2267330-7	L2267330-8		
	Description	Soil	Soil	Soil		
	Sampled Date	30-APR-19	30-APR-19	30-APR-19		
	Sampled Time	15:25	15:40	15:30		
	Client ID	STAGING 6	STAGING 7	STAGING 8		
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)	13.2	11.0	12.6		
Aggregate Organics	Oil and Grease (mg/kg)	710	<500	<500		
Hydrocarbons	EPH10-19 (mg/kg)	<200	<200	<200		
	EPH19-32 (mg/kg)	280	<200	<200		
	LEPH (mg/kg)	<200	<200	<200		
	HEPH (mg/kg)	280	<200	<200		
	Surrogate: 2-Bromobenzotrifluoride (%)	93.6	94.2	93.3		
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	<0.0050	<0.0050	<0.0050		
	Acenaphthylene (mg/kg)	<0.0050	<0.0050	<0.0050		
	Anthracene (mg/kg)	<0.0040	<0.0040	<0.0040		
	Benz(a)anthracene (mg/kg)	<0.010	<0.010	<0.010		
	Benzo(a)pyrene (mg/kg)	<0.010	<0.010	<0.010		
	Benzo(b&j)fluoranthene (mg/kg)	<0.010	<0.010	<0.010		
	Benzo(b+j+k)fluoranthene (mg/kg)	<0.015	<0.015	<0.015		
	Benzo(g,h,i)perylene (mg/kg)	<0.010	<0.010	<0.010		
	Benzo(k)fluoranthene (mg/kg)	<0.010	<0.010	<0.010		
	Chrysene (mg/kg)	<0.010	<0.010	<0.010		
	Dibenz(a,h)anthracene (mg/kg)	<0.0050	<0.0050	<0.0050		
	Fluoranthene (mg/kg)	<0.010	<0.010	<0.010		
	Fluorene (mg/kg)	<0.010	<0.010	<0.010		
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.010	<0.010	<0.010		
	1-Methylnaphthalene (mg/kg)	<0.050	<0.050	<0.050		
	2-Methylnaphthalene (mg/kg)	0.053	0.038	0.018		
	Naphthalene (mg/kg)	DLQ <0.020	<0.010	<0.010		
	Phenanthrene (mg/kg)	<0.010	<0.010	<0.010		
	Pyrene (mg/kg)	<0.010	<0.010	<0.010		
	Quinoline (mg/kg)	<0.050	<0.050	<0.050		
	Surrogate: Acenaphthene d10 (%)	81.1	86.3	84.3		
	Surrogate: Chrysene d12 (%)	94.8	83.1	88.1		
	Surrogate: Naphthalene d8 (%)	78.3	80.2	75.9		
	Surrogate: Phenanthrene d10 (%)	92.9	94.2	83.2		
	B(a)P Total Potency Equivalent (mg/kg)	<0.020	<0.020	<0.020		
	IACR (CCME) (mg/kg)	<0.15	<0.15	<0.15		

* 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)

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.

Test Method References:

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

Analysis is in accordance with BC MOE Lab Manual method "Extractable Petroleum Hydrocarbons in Solids by GC/FID", v2.1, July 1999. Soil samples are extracted with a 1:1 mixture of hexane and acetone using a rotary extraction technique modified from EPA 3570 prior to 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).

LEPH/HEPH-CALC-VA	Soil	LEPHs and HEPHs	BC MOE LEPH/HEPH

LEPHs and HEPHs are measures of Light and Heavy Extractable Petroleum Hydrocarbons in soil. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.

LEPHs = EPH10-19 minus Naphthalene and Phenanthrene.

HEPHs = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene, and Pyrene.

MOISTURE-VA	Soil	Moisture content	CCME PHC in Soil - Tier 1 (mod)

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

OG-TMB-VA	Soil	Oil & Grease in Soil	BC Lab Manual - Oil and Grease in Solids

A subsample of the sediment/soil is extracted with 1:1 hexane:acetone using a rotary extraction apparatus. The extract is analyzed gravimetrically.

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.

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 3570 & 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.

Benzo(a)pyrene Total Potency Equivalents [B(a)P TPE] represents the sum of estimated cancer potency relative to B(a)P for all potentially carcinogenic unsubstituted PAHs, and is calculated as per the CCME PAH Soil Quality Guidelines reference document (2010).

** 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, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

20190501B

Reference Information

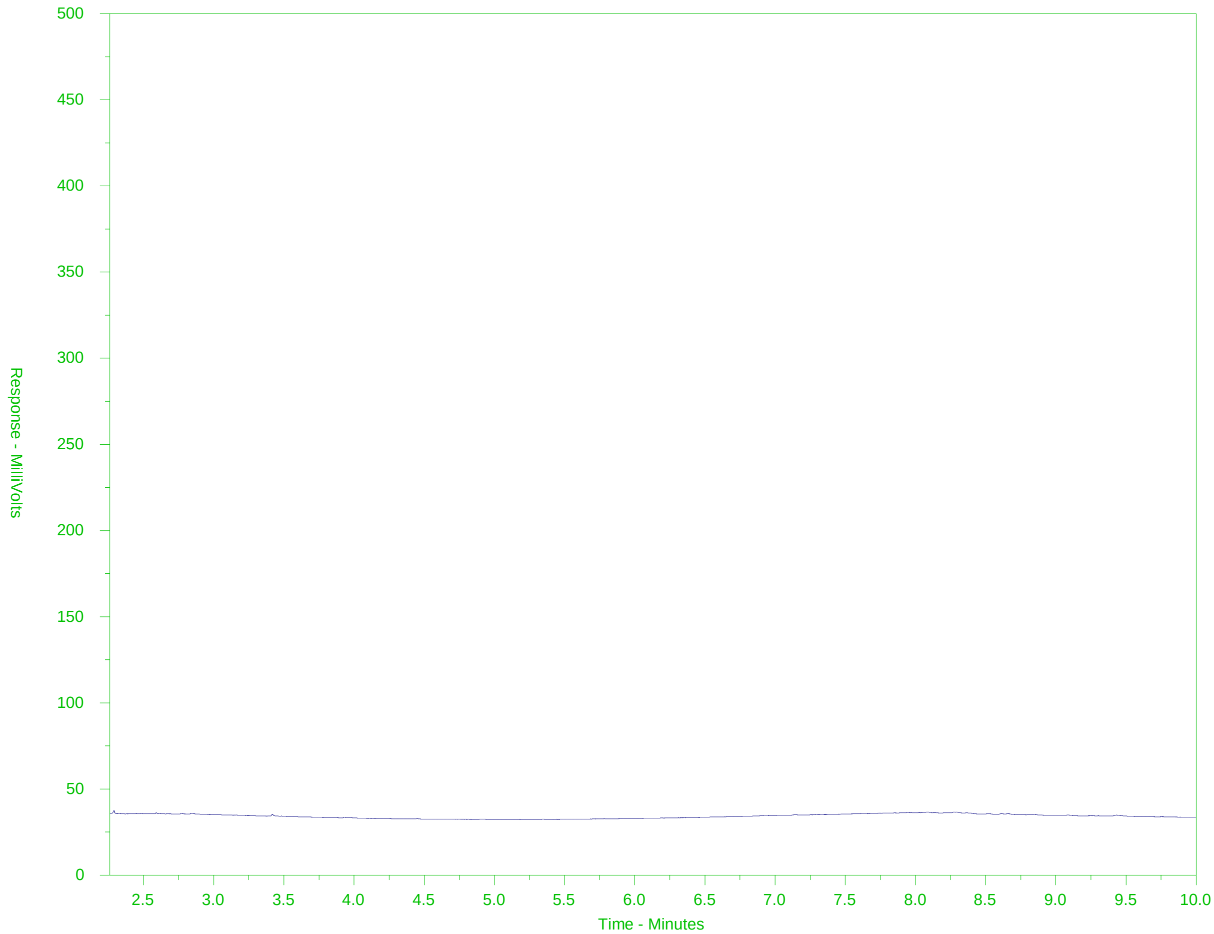
GLOSSARY OF REPORT TERMS

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.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2267330-1
Client Sample ID: STAGING 1



← EPH10-19 →	← EPH19-32 →	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

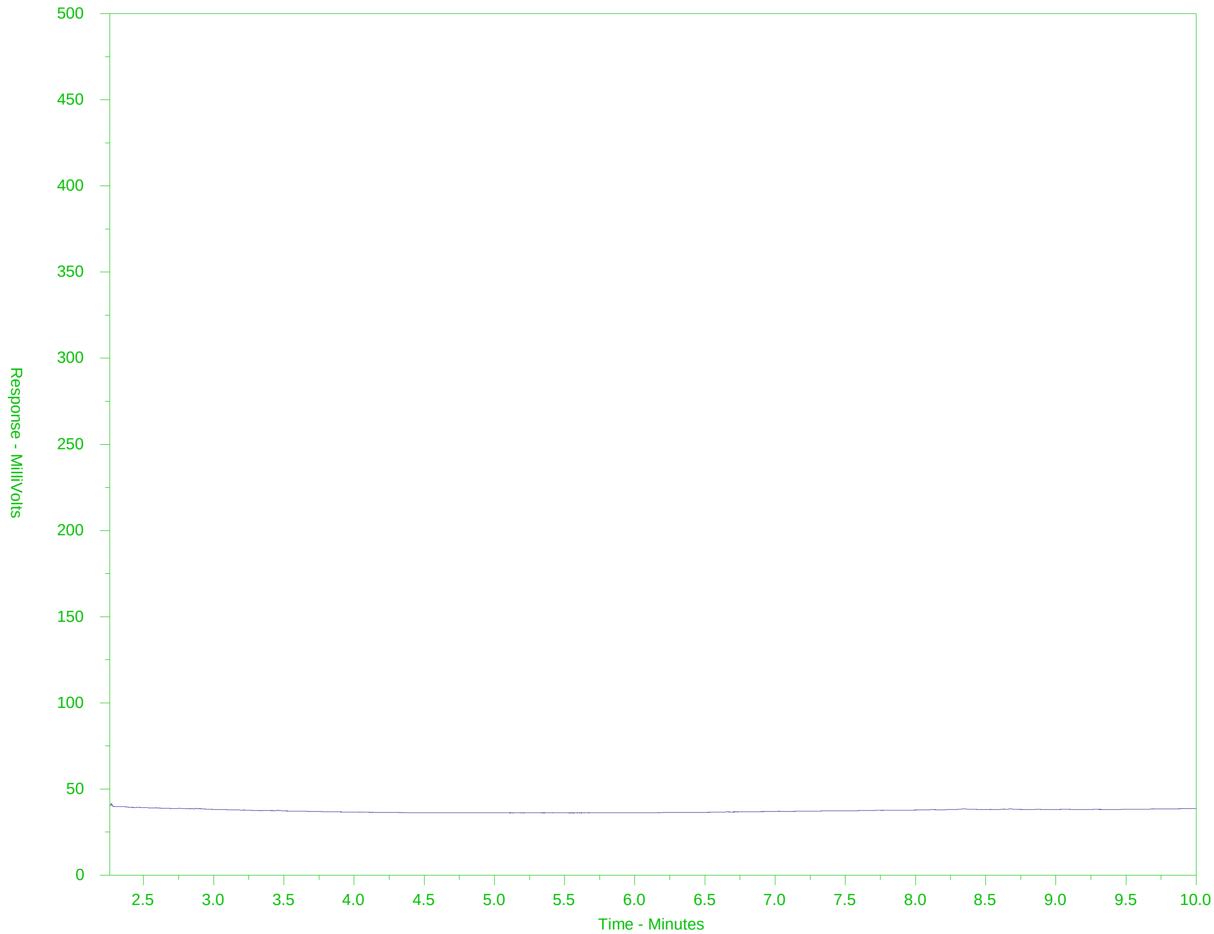
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2267330-2
Client Sample ID: STAGING 2



← EPH10-19 →	← EPH19-32 →	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

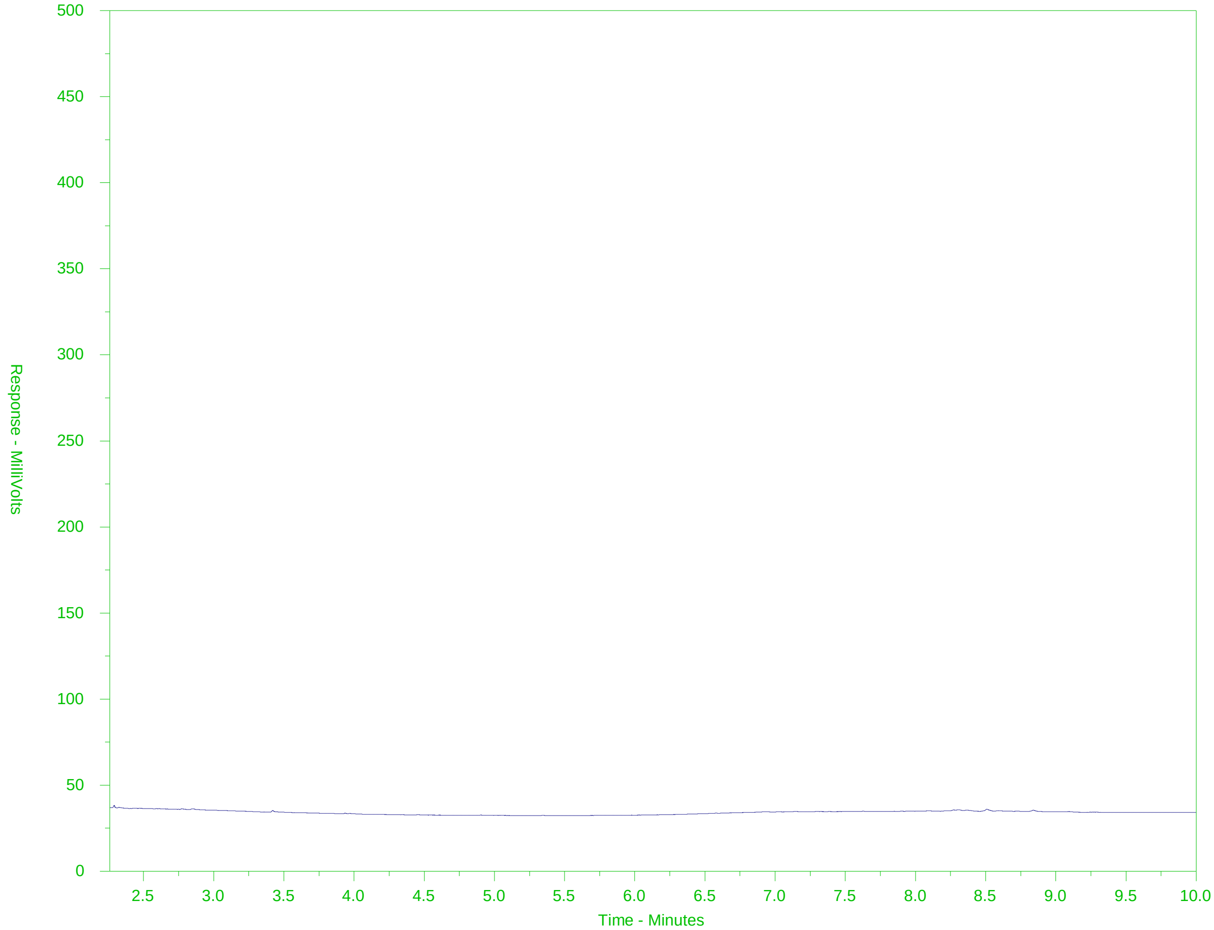
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2267330-3
Client Sample ID: STAGING 3



← EPH10-19 →	← EPH19-32 →	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

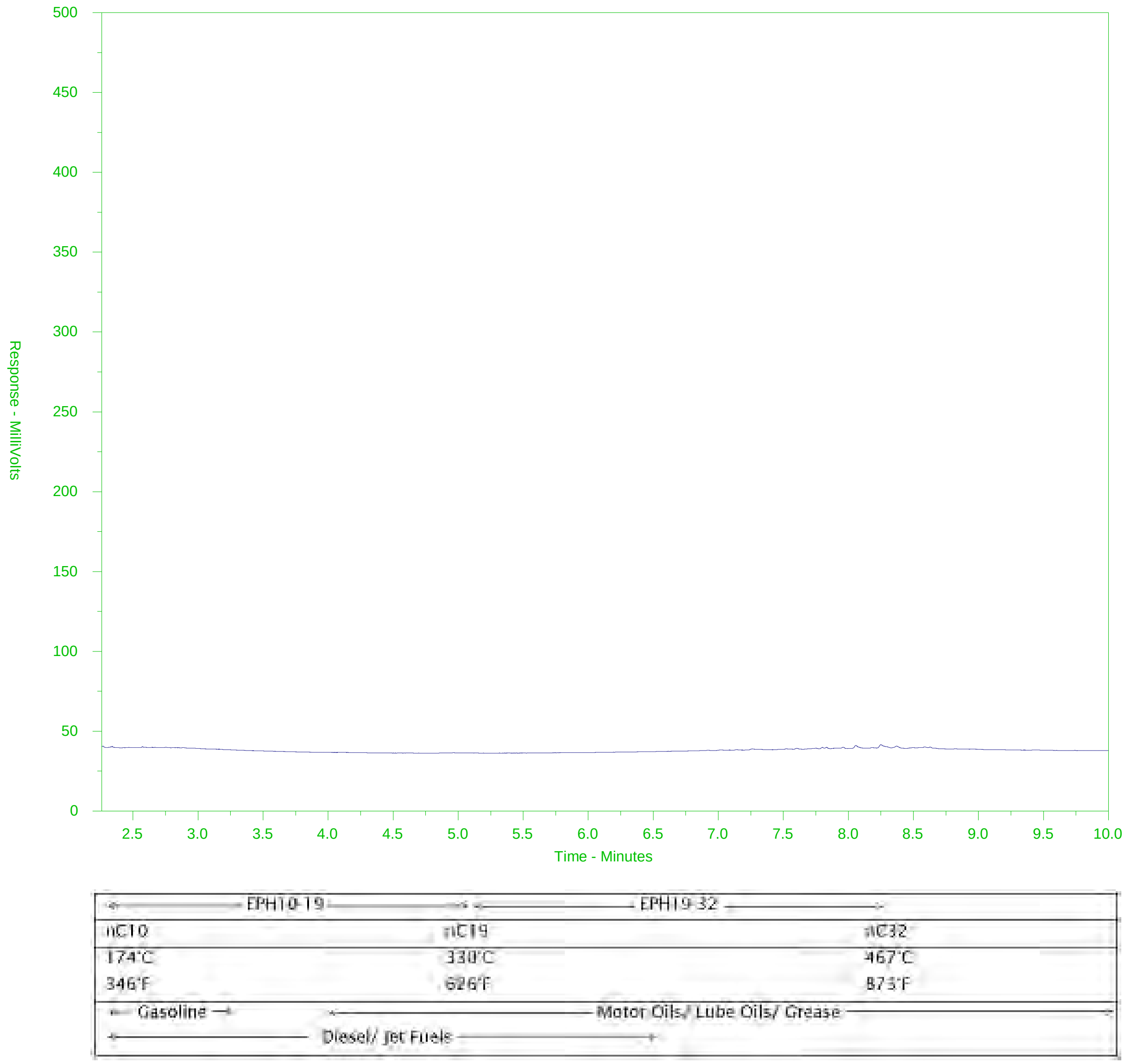
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2267330-4
Client Sample ID: STAGING 4



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

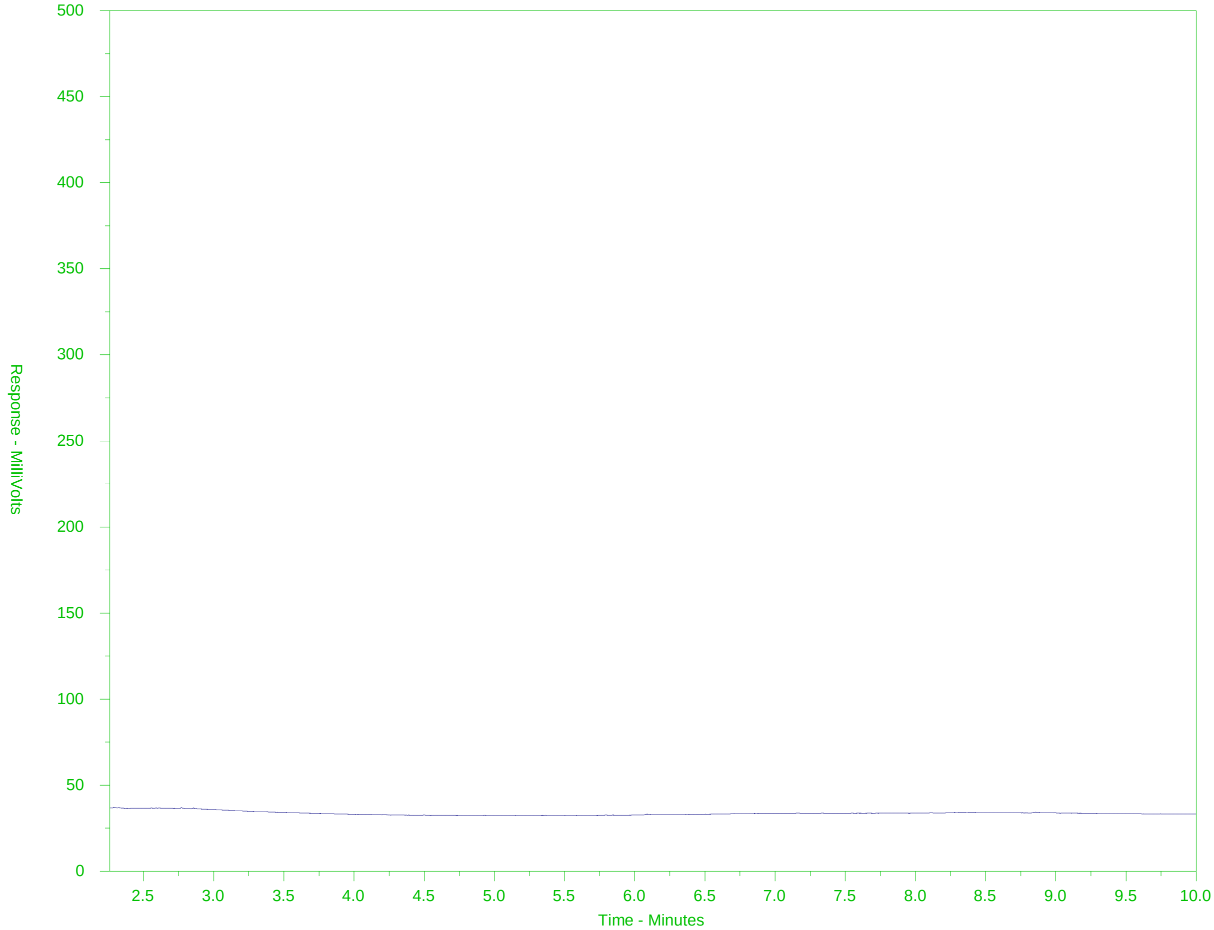
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2267330-5
Client Sample ID: STAGING 5



← EPH10-19 →	← EPH19-32 →	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

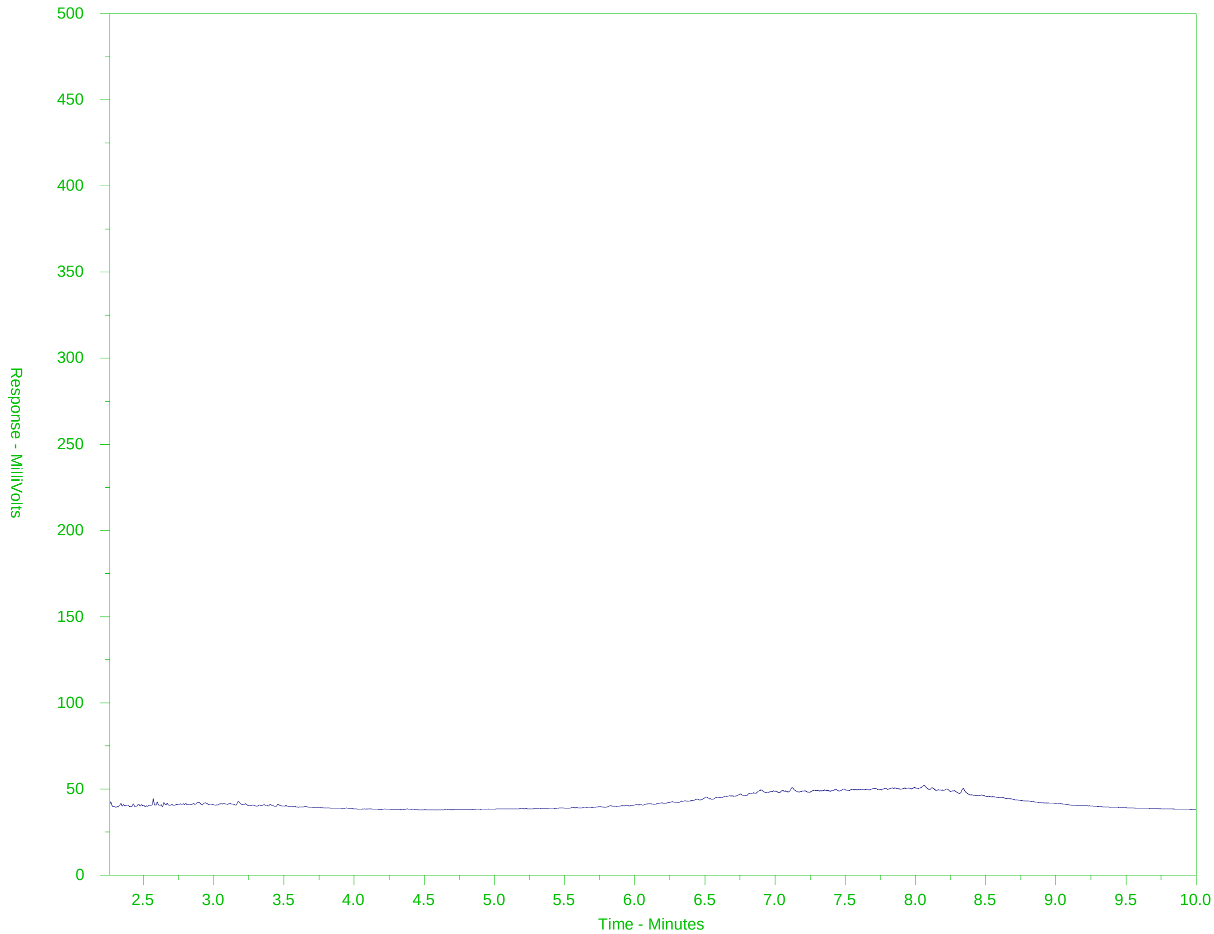
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

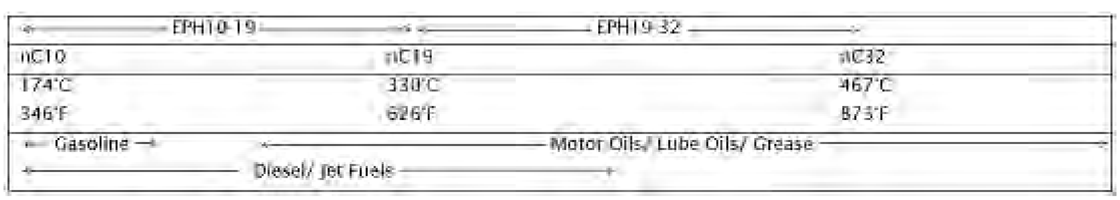
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2267330-6
Client Sample ID: STAGING 6





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

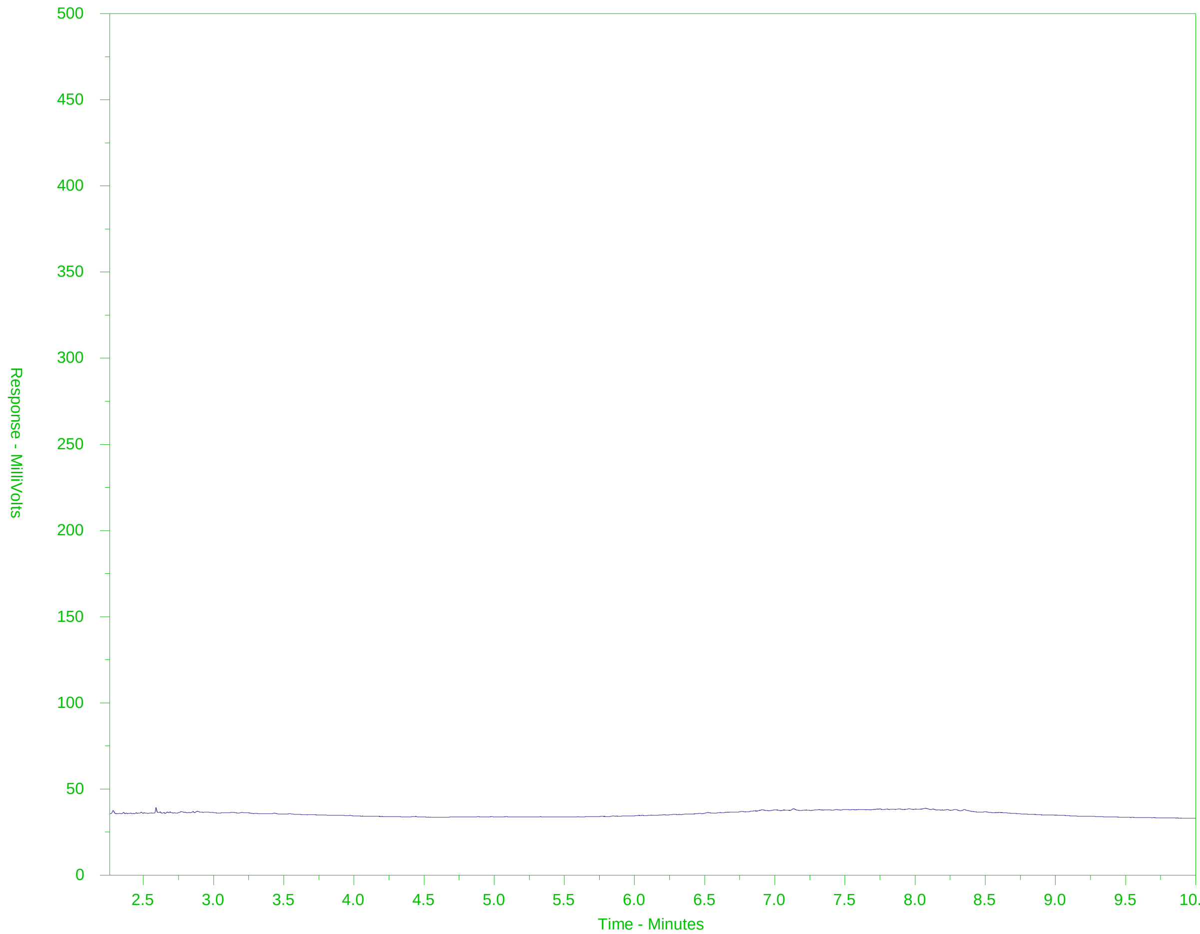
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2267330-7
Client Sample ID: STAGING 7



← EPH10-19 →	← EPH19-32 →	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

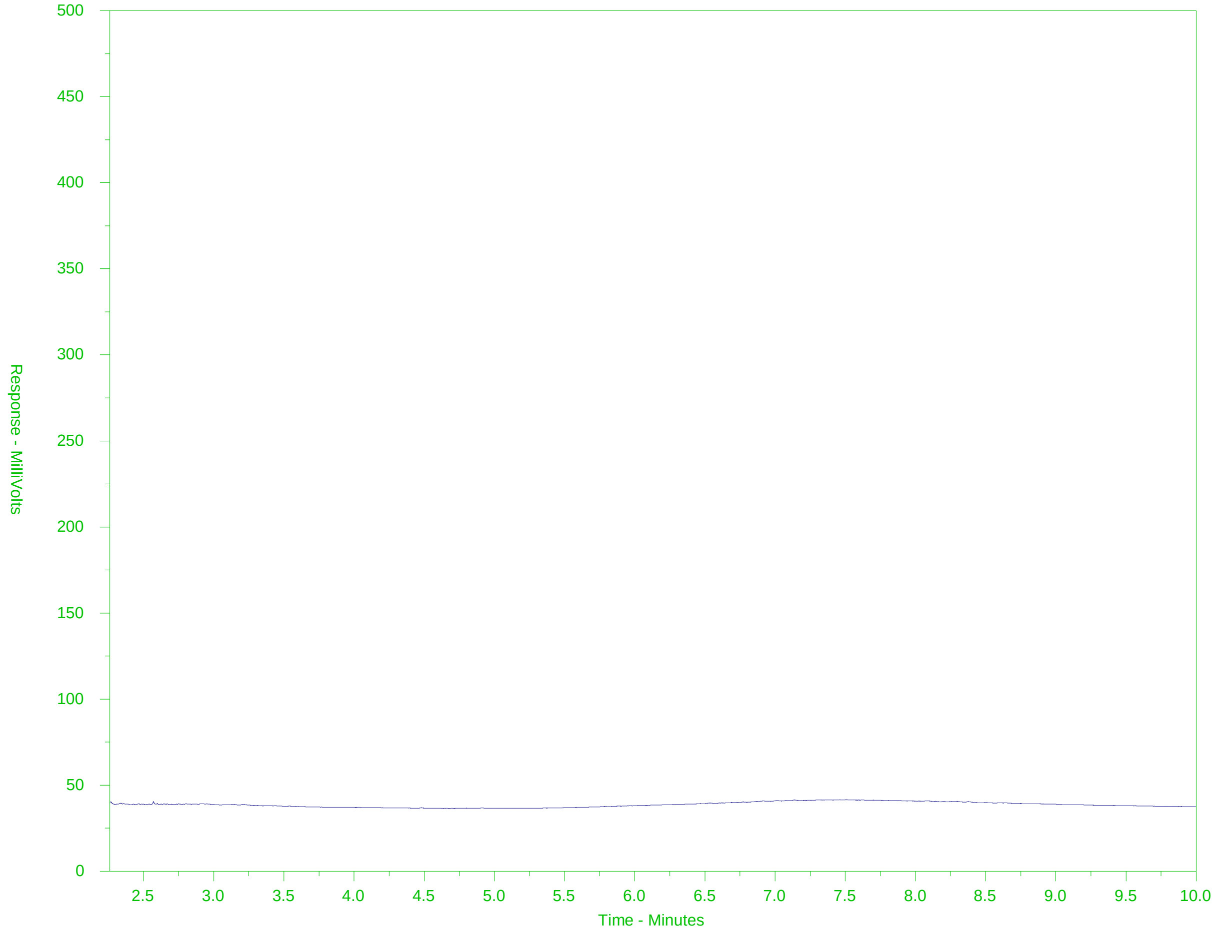
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2267330-8
Client Sample ID: STAGING 8



← EPH10-19 →	← EPH19-32 →	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

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

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

L2267330-COFC

COC # 20190501B

ALS Environmental

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)
Company:	StrataGold Corporation	☑ Standard ☐ Other		○ Regular (Standard Turnaround Times - Business Days)
Contact:	Hugh Coyle	☑ PDF ☑ Excel ☑ Digital ☐ Fax		◉ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1000 - 1050 West Pender Street	Email 1:	hcoyle@vitgoldcorp.com; jknox@vitgoldcorp.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6E 3S7	Email 2:	pemerson@vitgoldcorp.com; kbabin@vitgoldcorp.	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-696-6600 Fax:	Email 3:	swilbur@vitgoldcorp.com; cbeaudry@vitgoldcorp.	Analysis Request
Invoice To	Same as Report ? ☑ Yes ☑ No	Client / Project Information		Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Km 42 spill soil	
Company:		PO / AFE:		
Contact:		LSD:	Victoria Gold Corp.	
Address:				
Phone:	Fax:	Quote #:		
Lab Work Order # (lab use only)		ALS Contact:	Joanne Lee, Brent Mack	Sampler: HM, PE

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	LEPH/HEPH-CSR-VA	total oil grease	Number of Containers
1	Staging 1	30-Apr-19	16:30	Soil	X	X	2
2	Staging 2	30-Apr-19	15:47	Soil	X	X	2
3	Staging 3	30-Apr-19	15:50	Soil	X	X	2
4	Staging 4	30-Apr-19	15:45	Soil	X	X	2
5	Staging 5	30-Apr-19	15:35	Soil	X	X	2
6	Staging 6	30-Apr-19	15:25	Soil	X	X	2
7	Staging 7	30-Apr-19	15:40	Soil	X	X	2
8	Staging 8	30-Apr-19	15:30	Soil	X	X	2
9							
10							
11							
12							
13							
14							

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

YUKON CSR

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 provided on a separate Excel tab.
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ?
			A2 JC	MAY 3 2019	11:30 Am	6 5 6				

STRATAGOLD CORPORATION
ATTN: Hugh Coyle
Suite 1000 - 1050 W. Pender St
Vancouver BC V6E 3S7

Date Received:	16-MAY-19
Report Date:	21-MAY-19 17:08 (MT)
Version:	FINAL

Client Phone: 604-682-5122

Certificate of Analysis

Lab Work Order #:	**L2274967**
Project P.O. #:	NOT SUBMITTED
Job Reference:	STAGING 6
C of C Numbers:	20190513a
Legal Site Desc:	Victoria Gold Corp.

Joanne Lee
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2274967-1	L2274967-2
	Description	Soil	Soil
	Sampled Date	12-MAY-19	13-MAY-19
	Sampled Time	09:50	09:55
	Client ID	STAGING 6#1	STAGING 6#2
Grouping	**Analyte**		
SOIL			
Physical Tests	Moisture (%)	10.4	8.32
Aggregate Organics	Oil and Grease (mg/kg)	610	<500
Hydrocarbons	EPH10-19 (mg/kg)	<200	<200
	EPH19-32 (mg/kg)	<200	<200
	LEPH (mg/kg)	<200	<200
	HEPH (mg/kg)	<200	<200
	Surrogate: 2-Bromobenzotrifluoride (%)	88.3	81.1
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	<0.0050	<0.0050
	Acenaphthylene (mg/kg)	<0.0050	<0.0050
	Anthracene (mg/kg)	<0.0040	<0.0040
	Benz(a)anthracene (mg/kg)	<0.010	<0.010
	Benzo(a)pyrene (mg/kg)	<0.010	<0.010
	Benzo(b&j)fluoranthene (mg/kg)	<0.010	<0.010
	Benzo(b+j+k)fluoranthene (mg/kg)	<0.015	<0.015
	Benzo(g,h,i)perylene (mg/kg)	<0.010	<0.010
	Benzo(k)fluoranthene (mg/kg)	<0.010	<0.010
	Chrysene (mg/kg)	<0.010	<0.010
	Dibenz(a,h)anthracene (mg/kg)	<0.0050	<0.0050
	Fluoranthene (mg/kg)	<0.010	<0.010
	Fluorene (mg/kg)	<0.010	<0.010
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.010	<0.010
	1-Methylnaphthalene (mg/kg)	<0.050	<0.050
	2-Methylnaphthalene (mg/kg)	0.016	<0.010
	Naphthalene (mg/kg)	<0.010	<0.010
	Phenanthrene (mg/kg)	<0.010	<0.010
	Pyrene (mg/kg)	<0.010	<0.010
	Quinoline (mg/kg)	<0.050	<0.050
	Surrogate: Acenaphthene d10 (%)	84.3	75.9
	Surrogate: Chrysene d12 (%)	87.5	78.2
	Surrogate: Naphthalene d8 (%)	73.8	65.1
	Surrogate: Phenanthrene d10 (%)	88.7	81.2
	B(a)P Total Potency Equivalent (mg/kg)	<0.020	<0.020
	IACR (CCME) (mg/kg)	<0.15	<0.15

Reference Information

Test Method References:

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

Analysis is in accordance with BC MOE Lab Manual method "Extractable Petroleum Hydrocarbons in Solids by GC/FID", v2.1, July 1999. Soil samples are extracted with a 1:1 mixture of hexane and acetone using a rotary extraction technique modified from EPA 3570 prior to 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).

LEPH/HEPH-CALC-VA	Soil	LEPHs and HEPHs	BC MOE LEPH/HEPH

LEPHs and HEPHs are measures of Light and Heavy Extractable Petroleum Hydrocarbons in soil. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.

LEPHs = EPH10-19 minus Naphthalene and Phenanthrene.

HEPHs = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene, and Pyrene.

MOISTURE-VA	Soil	Moisture content	CCME PHC in Soil - Tier 1 (mod)

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

OG-TMB-VA	Soil	Oil & Grease in Soil	BC Lab Manual - Oil and Grease in Solids

A subsample of the sediment/soil is extracted with 1:1 hexane:acetone using a rotary extraction apparatus. The extract is analyzed gravimetrically.

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.

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 3570 & 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.

Benzo(a)pyrene Total Potency Equivalents [B(a)P TPE] represents the sum of estimated cancer potency relative to B(a)P for all potentially carcinogenic unsubstituted PAHs, and is calculated as per the CCME PAH Soil Quality Guidelines reference document (2010).

** 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, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

20190513a

GLOSSARY OF REPORT TERMS

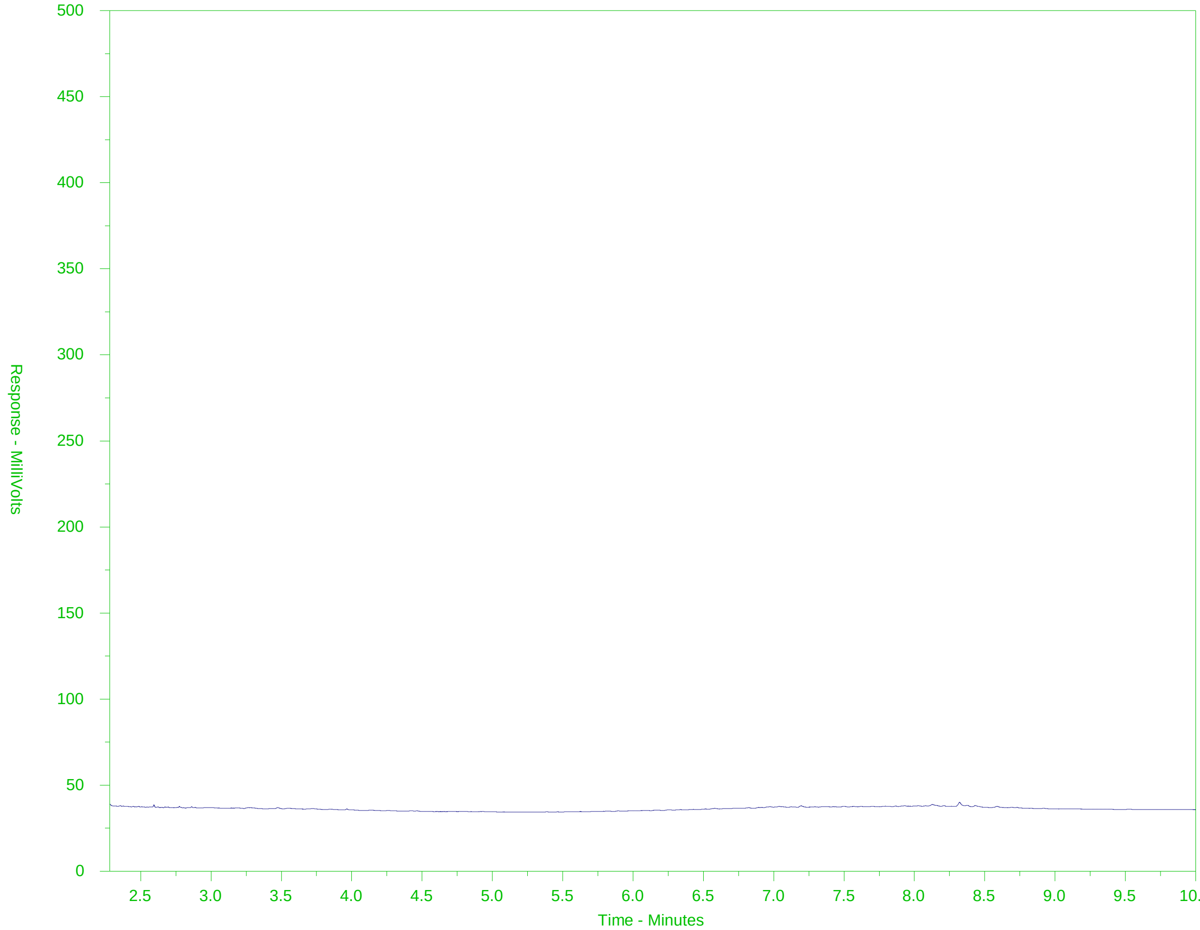
Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - 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.

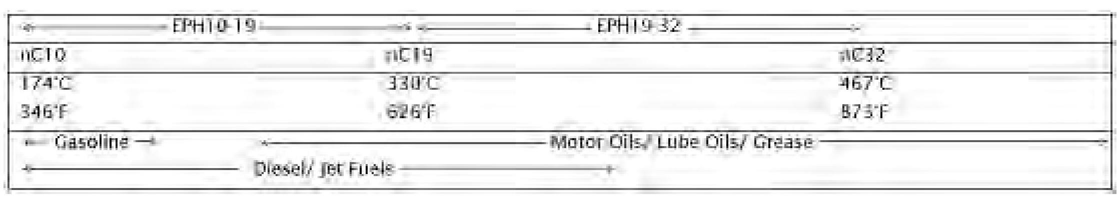
Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2274967-1

Client Sample ID: STAGING 6#1





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

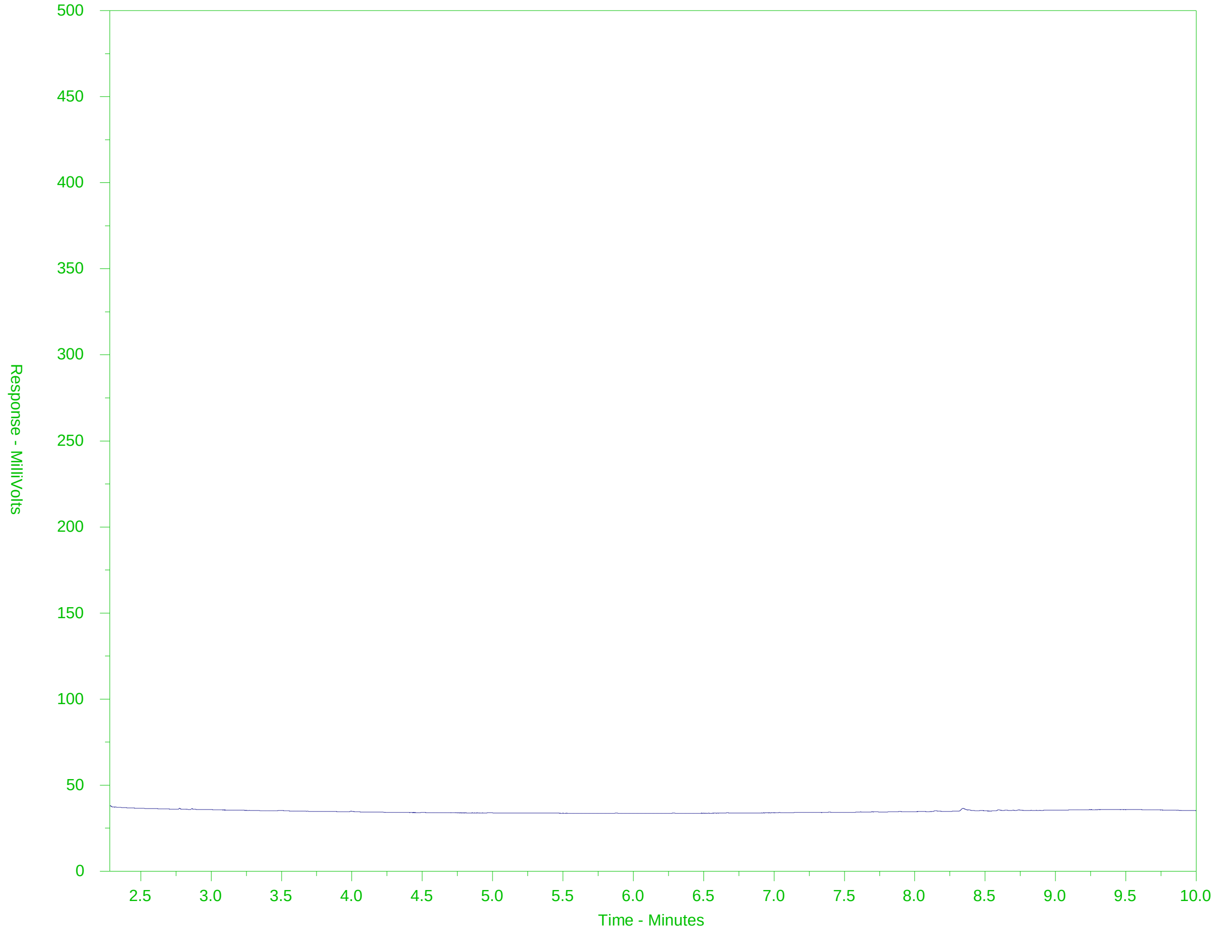
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2274967-2
Client Sample ID: STAGING 6#2



EPH10-19		EPH19-32
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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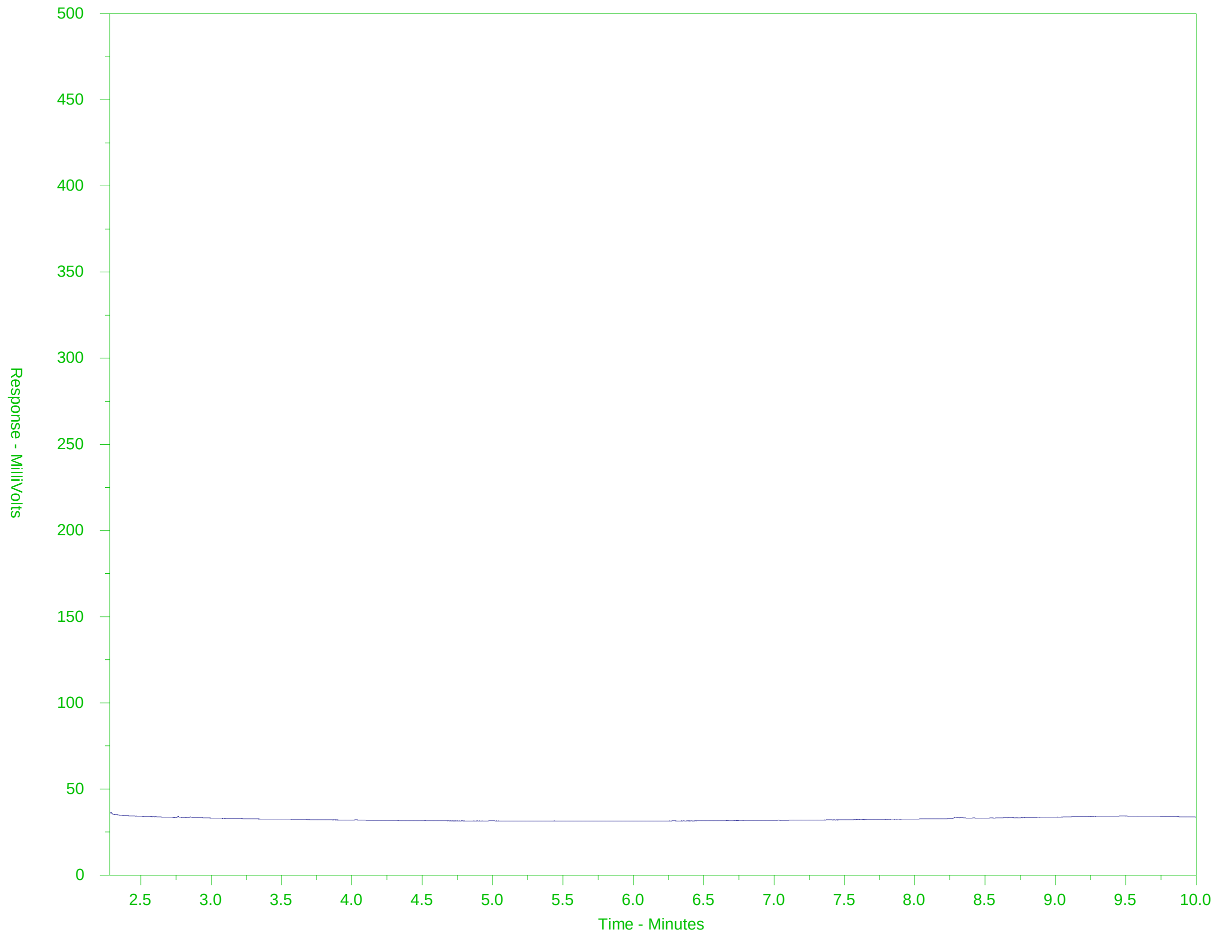
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WG3052966-3#L2274967-2
Client Sample ID: STAGING 6#2



← EPH10-19 →	← EPH19-32 →	
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, but general patterns and distributions will remain similar.

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

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

L2274967-COFC

ALS Environmental

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

COC # 201905013a

Page 1 of 1

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)
Company:	StrataGold Corporation	☑Standard ☐Other		○Regular (Standard Turnaround Times - Business Days)
Contact:	Hugh Coyle	☑PDF ☑Excel ☑Digital ☐Fax		●Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1000 - 1050 West Pender Street	Email 1:	hcoyle@vitgoldcorp.com; jknox@vitgoldcorp.com	○Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6E 3S7	Email 2:	pemerson@vitgoldcorp.com; kbabin@vitgoldcorp.	○Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-696-6600 Fax:	Email 3:	swilbur@vitgoldcorp.com; cbeaudry@vitgoldcorp.	Analysis Request
Invoice To	Same as Report ? ☑Yes ☑No	Client / Project Information		Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐Yes ☑No	Job #:	Staging 6	
Company:		PO / AFE:		
Contact:		LSD:	Victoria Gold Corp.	
Address:				
Phone:	Fax:	Quote #:		
Lab Work Order # (lab use only)		ALS Contact:	Joanne Lee Brent Mack	Sampler: KB

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	LEPH/HEPH-CSR-VA	total oil grease										Number of Containers
1	Staging 6#1	12-May-19	9:50	Soil	X	X										2
2	Staging 6#2	13-May-19	9:55	Soil	X	X										2
3																
4																
6																
7																
8																
9																
10																
11																
12																
13																
14																

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

Yukon CSR soil

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 provided on a separate Excel tab.
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by: K Babin	Date (dd-mmm-yy) May 12, 2019	Time (hh-mm) 7:00	Received by: CW	Date: May 16	Time: 17:30	Temperature: 16 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF

GENF 20.00 Front

STRATAGOLD CORPORATION
ATTN: Hugh Coyle
Suite 1000 - 1050 W. Pender St
Vancouver BC V6E 3S7

Date Received: 16-MAY-19
Report Date: 21-MAY-19 18:04 (MT)
Version: FINAL

Client Phone: 604-682-5122

Certificate of Analysis

Lab Work Order #: L2274968

Project P.O. #:	NOT SUBMITTED
Job Reference:	TEMPORARY BERM
C of C Numbers:	20190512b
Legal Site Desc:	Victoria Gold Corp.

Joanne Lee
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2274968-1	L2274968-2	L2274968-3	L2274968-4	L2274968-5
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	12-MAY-19	12-MAY-19	12-MAY-19	12-MAY-19	12-MAY-19
	Sampled Time	10:05	10:07	10:10	10:12	10:15
	Client ID	TB #1	TB #2	TB #3	TB #4	TB #5
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)	8.78	7.89	8.51	7.68	7.92
Aggregate Organics	Oil and Grease (mg/kg)	<500	<500	<500	<500	<500
Hydrocarbons	EPH10-19 (mg/kg)	<200	<200	<200	<200	<200
	EPH19-32 (mg/kg)	<200	<200	<200	<200	<200
	LEPH (mg/kg)	<200	<200	<200	<200	<200
	HEPH (mg/kg)	<200	<200	<200	<200	<200
	Surrogate: 2-Bromobenzotrifluoride (%)	83.0	83.4	97.7	82.3	84.2
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Acenaphthylene (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Anthracene (mg/kg)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Benz(a)anthracene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Benzo(a)pyrene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Benzo(b&j)fluoranthene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Benzo(b+j+k)fluoranthene (mg/kg)	<0.015	<0.015	<0.015	<0.015	<0.015
	Benzo(g,h,i)perylene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Benzo(k)fluoranthene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Chrysene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Dibenz(a,h)anthracene (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Fluoranthene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Fluorene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	1-Methylnaphthalene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	2-Methylnaphthalene (mg/kg)	<0.010	<0.010	<0.010	<0.010	0.029
	Naphthalene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Phenanthrene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Pyrene (mg/kg)	<0.010	<0.010	<0.010	<0.010	<0.010
	Quinoline (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Surrogate: Acenaphthene d10 (%)	73.8	72.4	85.5	72.1	70.7
	Surrogate: Chrysene d12 (%)	78.0	77.1	109.2	77.8	77.4
	Surrogate: Naphthalene d8 (%)	55.3	77.3	90.6	77.1	76.7
	Surrogate: Phenanthrene d10 (%)	76.1	73.4	92.6	75.6	75.6
	B(a)P Total Potency Equivalent (mg/kg)	<0.020	<0.020	<0.020	<0.020	<0.020
	IACR (CCME) (mg/kg)	<0.15	<0.15	<0.15	<0.15	<0.15

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2274968-6
	Description	Soil
	Sampled Date	12-MAY-19
	Sampled Time	10:18
	Client ID	TB #6
Grouping	**Analyte**	
SOIL		
Physical Tests	Moisture (%)	6.51
Aggregate Organics	Oil and Grease (mg/kg)	<500
Hydrocarbons	EPH10-19 (mg/kg)	<200
	EPH19-32 (mg/kg)	<200
	LEPH (mg/kg)	<200
	HEPH (mg/kg)	<200
	Surrogate: 2-Bromobenzotrifluoride (%)	91.2
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	<0.0050
	Acenaphthylene (mg/kg)	<0.0050
	Anthracene (mg/kg)	<0.0040
	Benz(a)anthracene (mg/kg)	<0.010
	Benzo(a)pyrene (mg/kg)	<0.010
	Benzo(b&j)fluoranthene (mg/kg)	<0.010
	Benzo(b+j+k)fluoranthene (mg/kg)	<0.015
	Benzo(g,h,i)perylene (mg/kg)	<0.010
	Benzo(k)fluoranthene (mg/kg)	<0.010
	Chrysene (mg/kg)	<0.010
	Dibenz(a,h)anthracene (mg/kg)	<0.0050
	Fluoranthene (mg/kg)	<0.010
	Fluorene (mg/kg)	<0.010
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.010
	1-Methylnaphthalene (mg/kg)	<0.050
	2-Methylnaphthalene (mg/kg)	<0.010
	Naphthalene (mg/kg)	<0.010
	Phenanthrene (mg/kg)	<0.010
	Pyrene (mg/kg)	<0.010
	Quinoline (mg/kg)	<0.050
	Surrogate: Acenaphthene d10 (%)	80.4
	Surrogate: Chrysene d12 (%)	98.5
	Surrogate: Naphthalene d8 (%)	89.1
	Surrogate: Phenanthrene d10 (%)	86.4
	B(a)P Total Potency Equivalent (mg/kg)	<0.020
	IACR (CCME) (mg/kg)	<0.15

Reference Information

Test Method References:

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

Analysis is in accordance with BC MOE Lab Manual method "Extractable Petroleum Hydrocarbons in Solids by GC/FID", v2.1, July 1999. Soil samples are extracted with a 1:1 mixture of hexane and acetone using a rotary extraction technique modified from EPA 3570 prior to 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).

LEPH/HEPH-CALC-VA	Soil	LEPHs and HEPHs	BC MOE LEPH/HEPH

LEPHs and HEPHs are measures of Light and Heavy Extractable Petroleum Hydrocarbons in soil. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.

LEPHs = EPH10-19 minus Naphthalene and Phenanthrene.

HEPHs = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene, and Pyrene.

MOISTURE-VA	Soil	Moisture content	CCME PHC in Soil - Tier 1 (mod)

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

OG-TMB-VA	Soil	Oil & Grease in Soil	BC Lab Manual - Oil and Grease in Solids

A subsample of the sediment/soil is extracted with 1:1 hexane:acetone using a rotary extraction apparatus. The extract is analyzed gravimetrically.

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.

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 3570 & 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.

Benzo(a)pyrene Total Potency Equivalents [B(a)P TPE] represents the sum of estimated cancer potency relative to B(a)P for all potentially carcinogenic unsubstituted PAHs, and is calculated as per the CCME PAH Soil Quality Guidelines reference document (2010).

** 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, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

20190512b

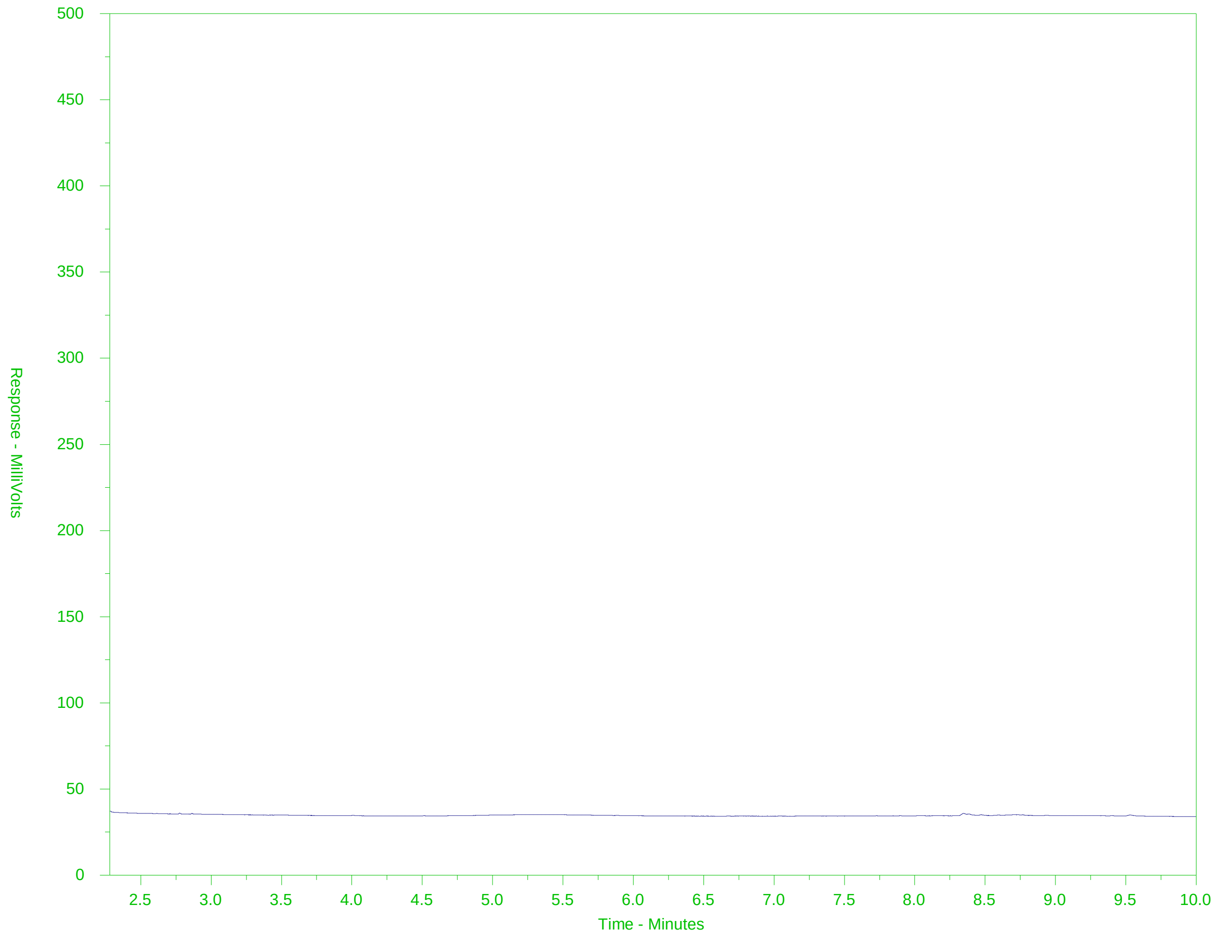
GLOSSARY OF REPORT TERMS

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.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2274968-1
Client Sample ID: TB #1



← EPH10-19 →	← EPH19-32 →	
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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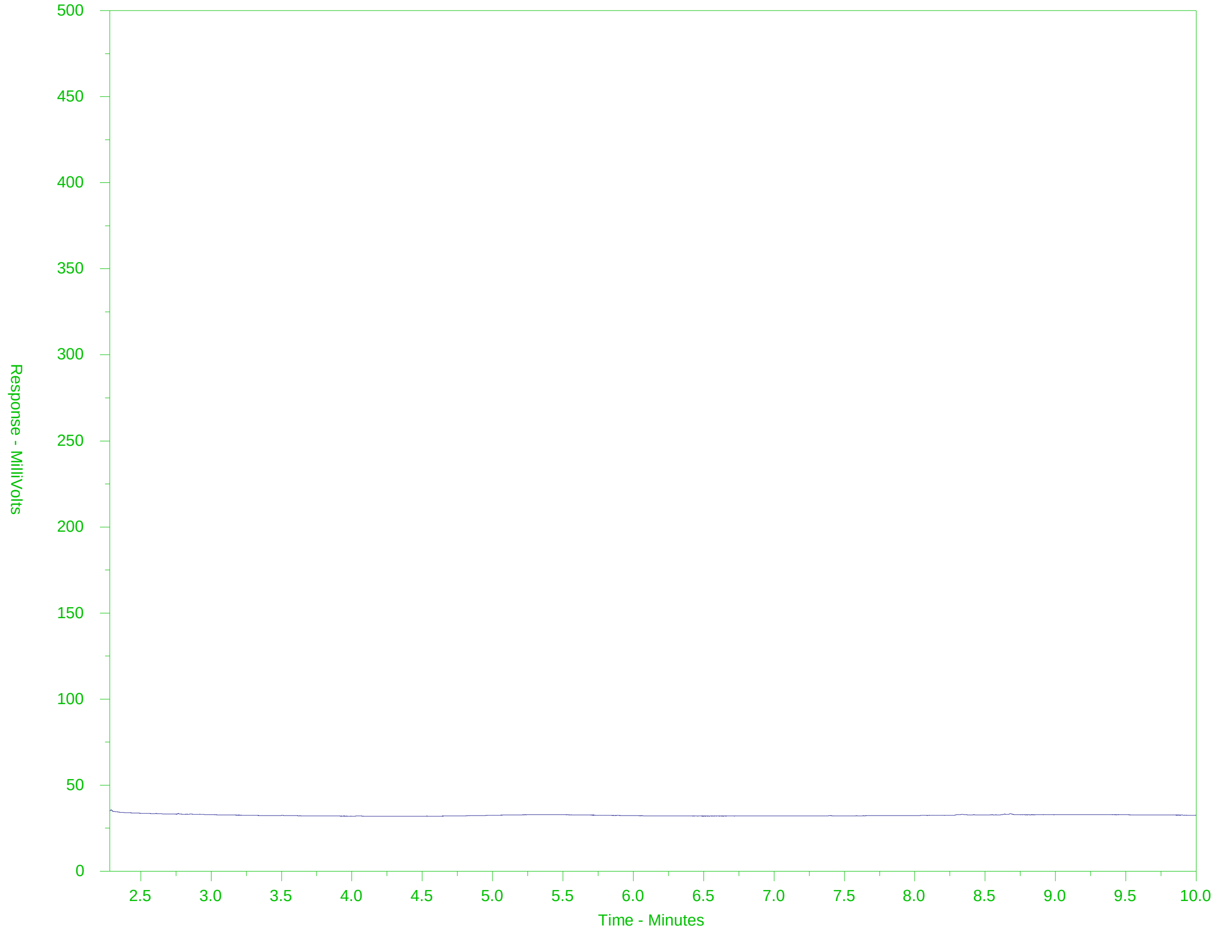
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2274968-2
Client Sample ID: TB #2



EPH10-19		EPH19-32
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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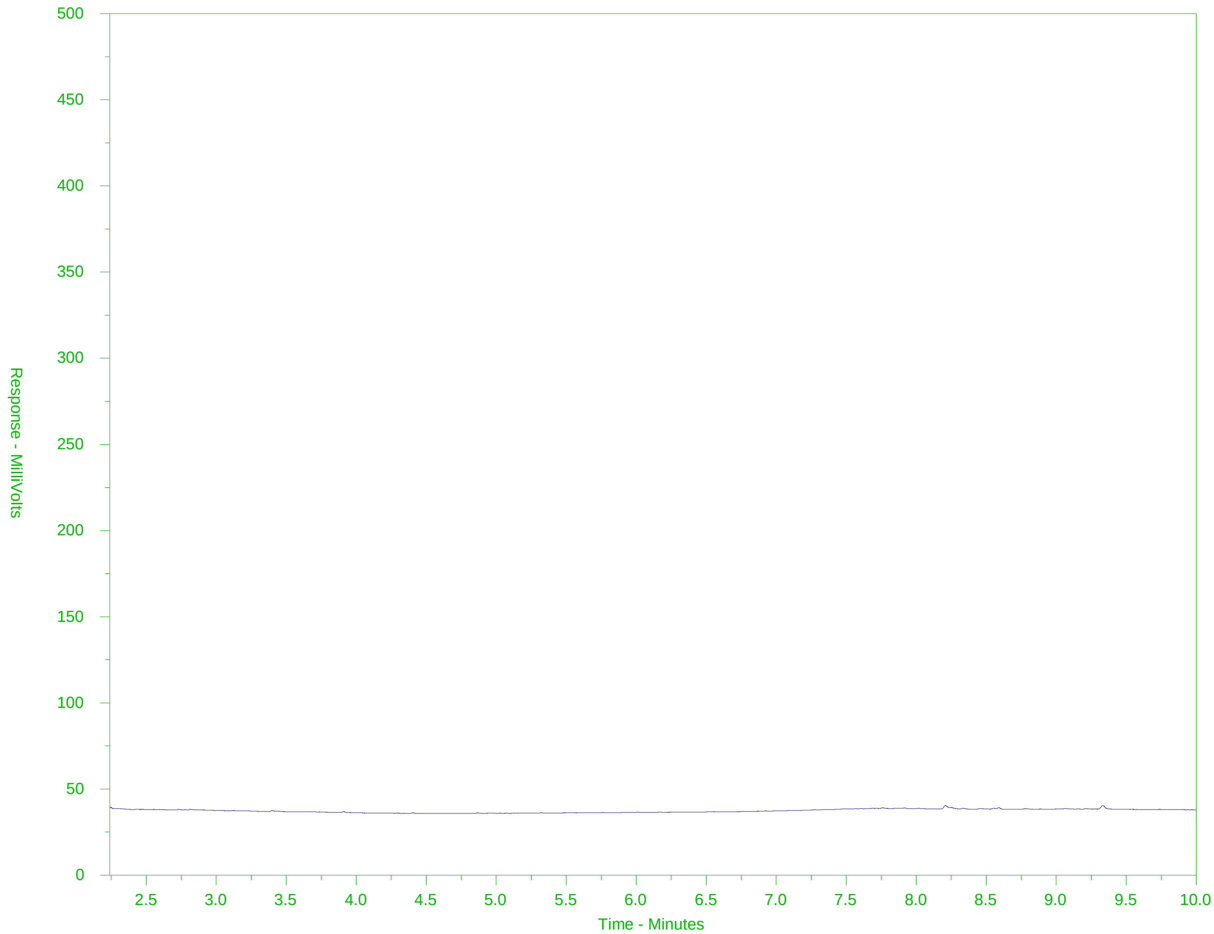
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2274968-3
Client Sample ID: TB #3



EPH10-19	EPH19-32	
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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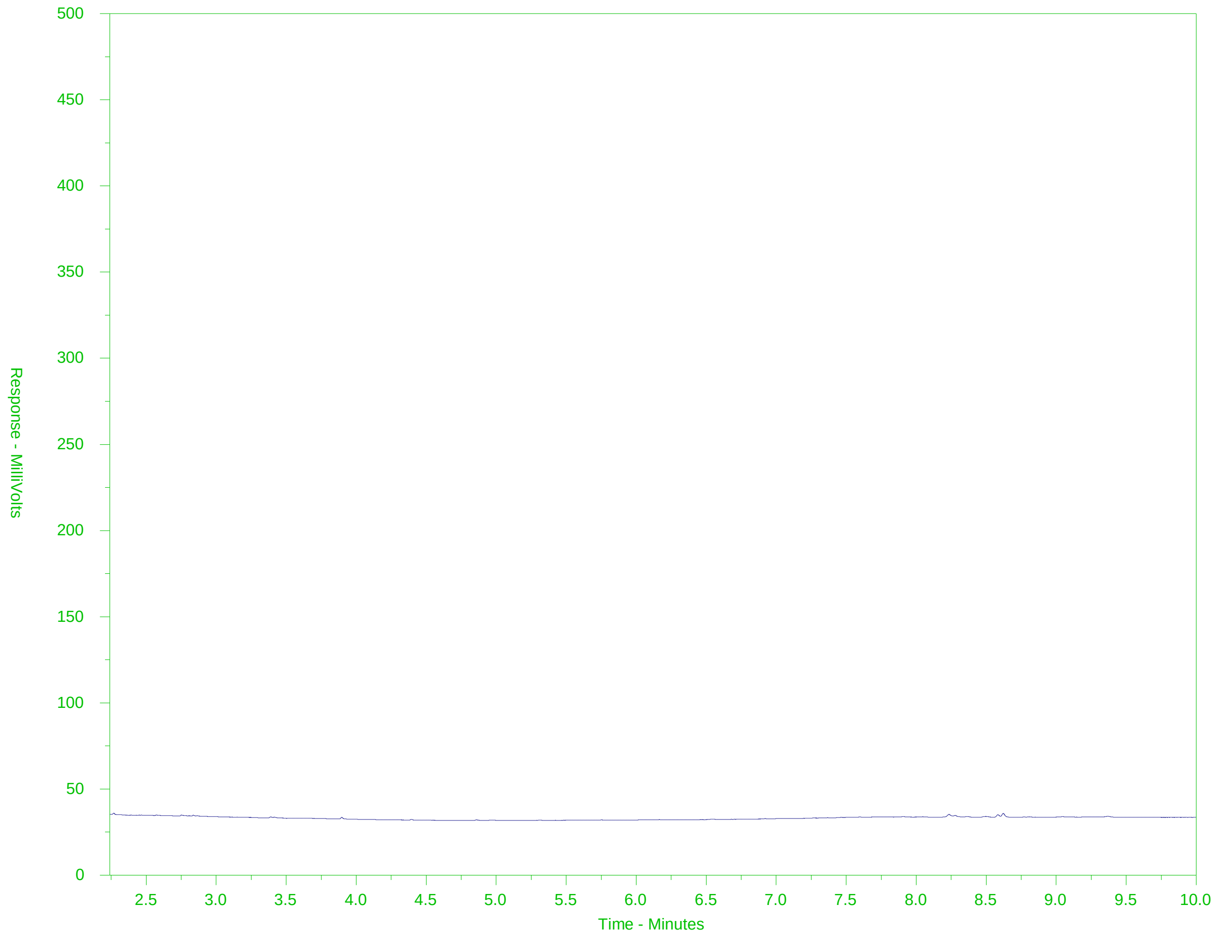
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WG3053608-3#L2274968-3
Client Sample ID: TB #3



← EPH10-19 →	← EPH19-32 →	
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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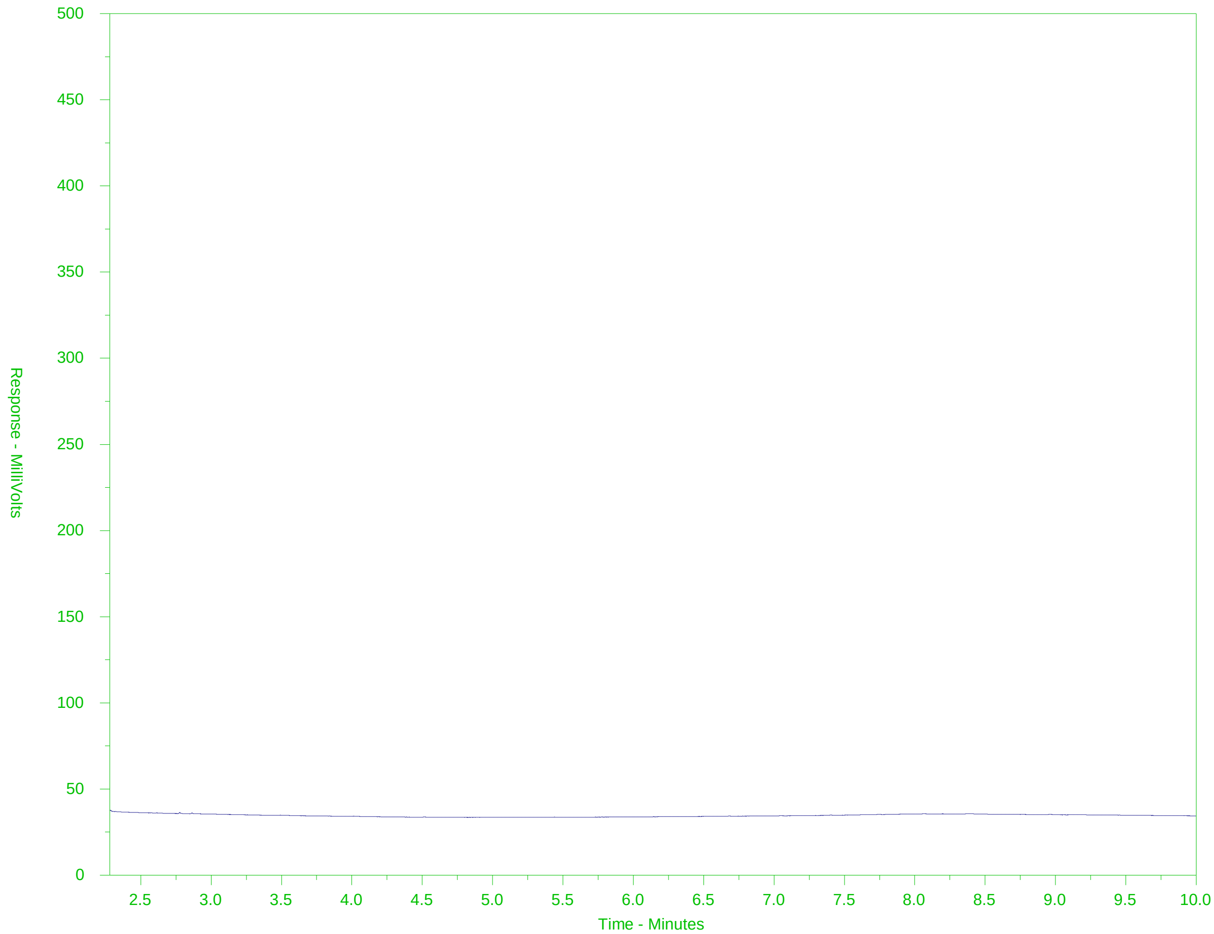
Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2274968-4
Client Sample ID: TB #4



← EPH10-19 →	← EPH19-32 →	
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, but general patterns and distributions will remain similar.

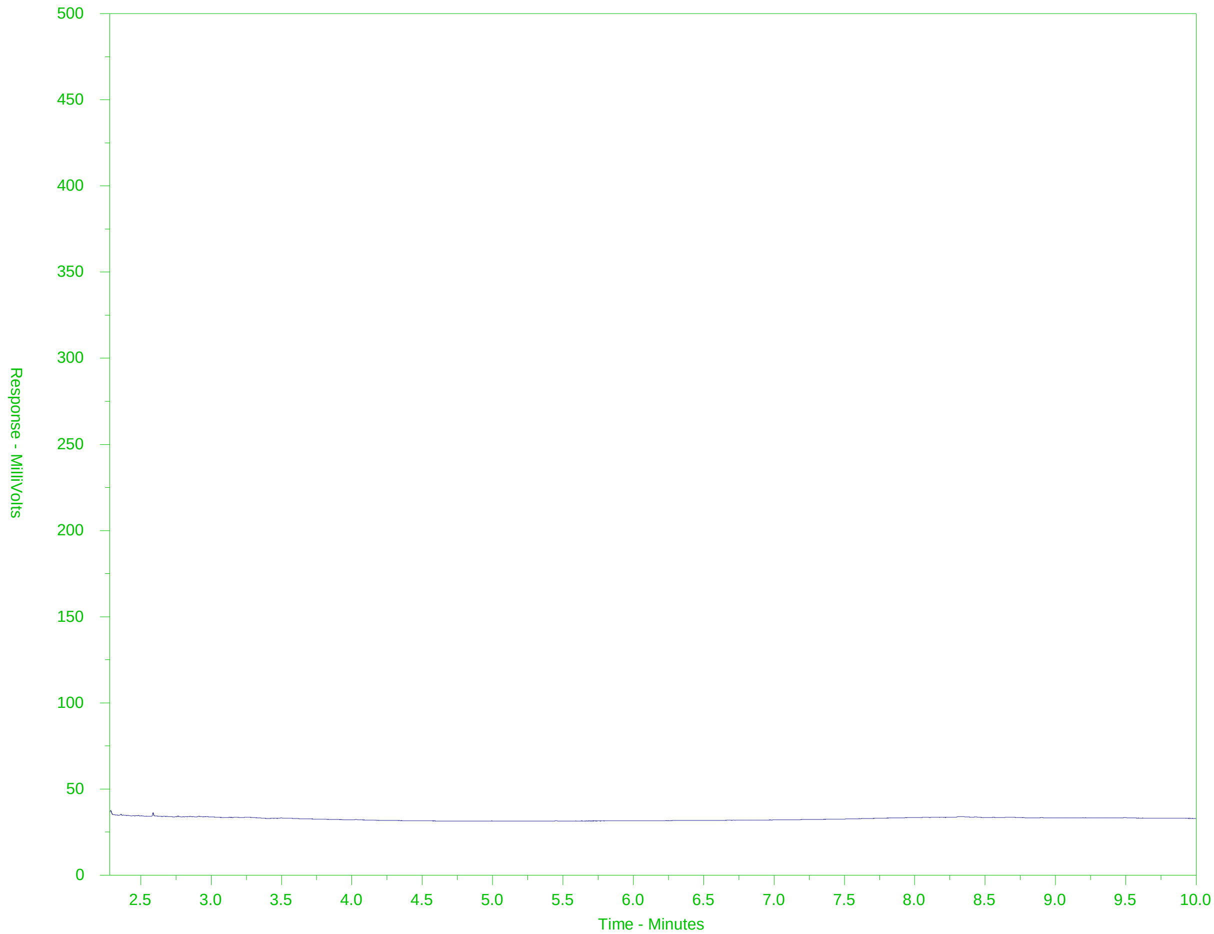
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2274968-5
Client Sample ID: TB #5



← EPH10-19 →	← EPH19-32 →	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

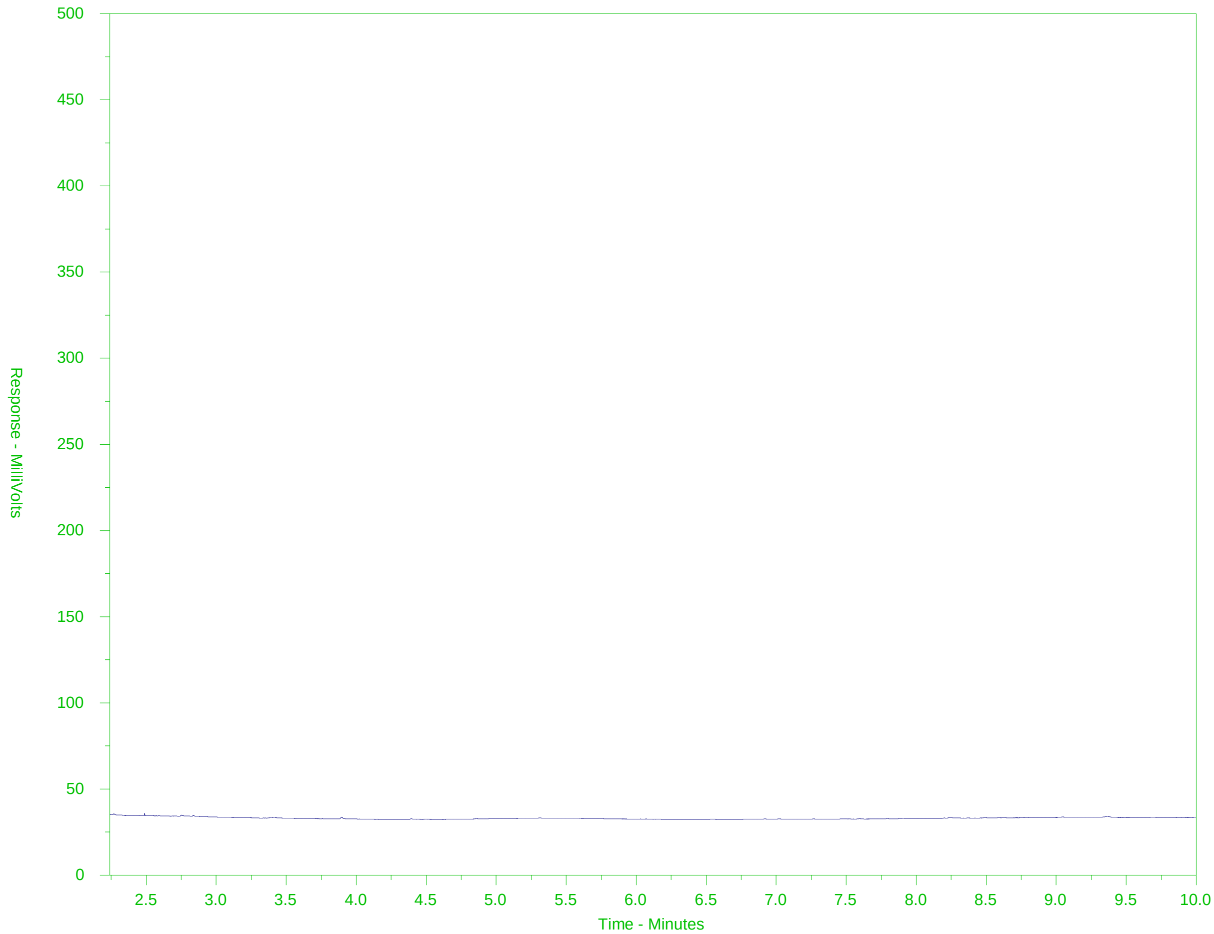
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2274968-6
Client Sample ID: TB #6



← EPH10-19 →	← EPH19-32 →	
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 BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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, but general patterns and distributions will remain similar.

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

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

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

L2274968-COFC

ALS Environmental

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

COC # 20190512b

Page 1 of 1

Report To		**Report Format / Distribution**		**Service Requested** (Rush for routine analysis subject to availability)
Company:	StrataGold Corporation	☑Standard ☐Other		○Regular (Standard Turnaround Times - Business Days)
Contact:	Hugh Coyle	☑PDF ☑Excel ☑Digital ☐Fax		◉Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1000 - 1050 West Pender Street	Email 1:	hcoyle@vitgoldcorp.com; jknox@vitgoldcorp.com	○Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6E 3S7	Email 2:	pemerson@vitgoldcorp.com; kbabin@vitgoldcorp	○Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-696-6600 Fax:	Email 3:	swilbur@vitgoldcorp.com; cbeaudry@vitgoldcorp.	**Analysis Request**
Invoice To	Same as Report ? ☑Yes ☑No	**Client / Project Information**		Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐Yes ☑No	Job #:	Temporary Berm	
Company:		PO / AFE:		
Contact:		LSD:	Victoria Gold Corp.	
Address:				
Phone:	Fax:	Quote #:		
Lab Work Order # (lab use only)		ALS Contact:	Joanne Lee, Brent Mack	Sampler: KB

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	LEPH/HEPH-CSR-VA	total oil grease										Number of Containers
1	TB #1	12-May-19	10:05	Soil	X	X										2
2	TB #2	12-May-19	10:07	Soil	X	X										2
3	TB #3	12-May-19	10:10	Soil	X	X										2
4	TB #4	12-May-19	10:12	Soil	X	X										2
6	TB #5	12-May-19	10:15	Soil	X	X										2
7	TB #6	12-May-19	10:18	Soil	X	X										2
8																
9																
10																
11																
12																
13																
14																

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

Yukon CSR for soil

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 provided on a separate Excel tab.
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
K. Babin	May 12, 2019	7:00	CW	May 16	1730	16 °C				

GENF 20.00 Front

EAGLE GOLD PROJECT
SPILL RESPONSE FORM

StrataGold Corporation

FIRST OBSERVER			
Name & Company:	Victoria Gold		
Date Observed:	May 24, 2019	**Time Observed:** 15:00	
Location of Spill:	Pit haul road		
Distance to Waterbody:	1km	**Photos Taken?**	☒ Yes ☐ No
Estimated Spill Volume:	165L	**Reported to:**	Phil Emerson
COMPANY RESPONSIBLE			
Supervisor/Investigator:	Ryan Kirkbride		
Date of Spill:	May 24, 2019		
Substance Spilled:	Coolant		
Equipment Involved:	Haul Truck #102 (Caterpillar 785D)		
Volume of Contaminated Material:	165 Liters of coolant – Maximum tank size. It is not thought that this full amount spilled		
Personnel Contacted for Disposal (Name):	Lube Truck Operator		
Cause of Spill: (Equipment Failure, vehicle accident, foreign object, etc.)	Equipment Failure - Radiator hose clamp failed to stay tight enough to withstand the pressure of hose and blew off. Truck was traveling uphill and fine mist of coolant was released.		
Spill Response Actions Taken: (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.)	Spill pads and spill trays were used to catch what was dripping off of the haul truck when the truck was able to safely pull over and stop. Coolant was caught by the engine and truck frame and was able to be contained using spill pads. The majority of the coolant was pressurized and was sprayed into the air in a fine mist, and was not able to be recovered. A small amount of coolant reached the ground, but due to the dry and hot conditions, immediately absorbed into the ground and was not able to be recovered. The area was sprayed with water to dilute any contaminants. The water was immediately absorbed into the ground and did not leave the area. The spill pads were collected and sent to hazardous waste management. The truck engine and frame was washed down, and contaminated water was collected in spill trays and sucked out by vacuum truck to be disposed of in totes for backhaul off site.		
ENVIRONMENTAL DEPARTMENT USE ONLY			
IR#:	IR-19-172	**Reportable to Spill Hotline?**	☒ Yes ☐ No
Info Re. Spill Hotline:	Martin Owen took the call, 165L, 15:00, haul road, 1km closest watercourse		
Disposal Container Labelled?	☐ Yes ☒ No	**Samples taken?**	☐ Yes ☒ No
Environmental areas affected: (Watercourse, soil, etc.):	No watercourse affected; contamination was localized to the haul road		
Method of Disposal & Further Remediation Required:	N/A		
Follow Up Required?	☐ Yes ☒ No	**Follow Up Date:**	

SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS			
Employee:		**Signature:**	
Supervisor:	~~Ryan Kirkbride~~ T. Fontaine	**Signature:**	
Safety:	~~David Crottey~~	**Signature:**	
Environment:	~~Phil Emerson~~ K. Babin	**Signature:**	

EAGLE GOLD PROJECT
SPILL RESPONSE FORM

StrataGold Corporation

FIRST OBSERVER			
Name & Company:	Victoria Gold		
Date Observed:	July 14, 2019	**Time Observed:** 14:00	
Location of Spill:	Warehouse		
Distance to Waterbody:	600m	**Photos Taken?**	☑ Yes ☐ No
Estimated Spill Volume:	20L	**Reported to:** Environment	
PERSON/DEPT. RESPONSIBLE FOR SPILL			
Supervisor/Investigator:	Trevor Dunn		
Date of Spill:	July 14, 2019		
Substance Spilled:	50/50 coolant		
Equipment Involved:	N/a		
Volume of Contaminated Material:	1.5m3		
Personnel Contacted for Disposal (Name):	Site Services		
Cause of Spill: (Equipment Failure, vehicle accident, foreign object, etc.)	Technician didn't complete walk-around of service truck before leaving maintenance shop. Pail of coolant was not secured and fell out of the truck, upon contact with the ground the ground the pail broke open.		
Spill Response Actions Taken: (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.)	Spill happened on flat ground and the spill was contained to a small area. Grey (universal) spill pads were laid down to absorb any free standing contaminants. An Excavator was used to scrap up material and dispose of in 1m3 bags. Material was brought to the LTF staging for storage.		
ENVIRONMENTAL DEPARTMENT USE ONLY			
Tracking Number	EIR-19-06	**Reportable to Spill Hotline?**	☑ Yes ☐ No
Info Re. Spill Hotline:	20L coolant spill, spill contained, contaminants being stored at LTF staging		
Disposal Container Labelled?	☑ Yes ☐ No	**Samples taken?**	☐ Yes ☑ No
Environmental areas affected: (Watercourse, soil, etc.):	Spill happened in a parking lot in front of warehouse. Spill was approximately 600m away from a watercourse and no surrounding environments were affected		
Method of Disposal & Further Remediation Required:	Scrapped up using an excavator, contaminated material is being stored in mega bags		
Follow Up Required?	☐ Yes ☑ No	**Follow Up Date:**	
SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS			
Employee:	Ryan Johann	**Signature:**	
Supervisor:	Trevor Dunn	**Signature:**	
Safety:	David Crottey	**Signature:**	David Crottey
Environment:	Phil Emerson	**Signature:**	P. Emerson

1. Spill response taken to minimize spill

2. Spill occurred in front of the maintenance shop

3. Excavator was used to clean up the spill and place contaminated material in super sacs

EAGLE GOLD PROJECT
SPILL RESPONSE FORM

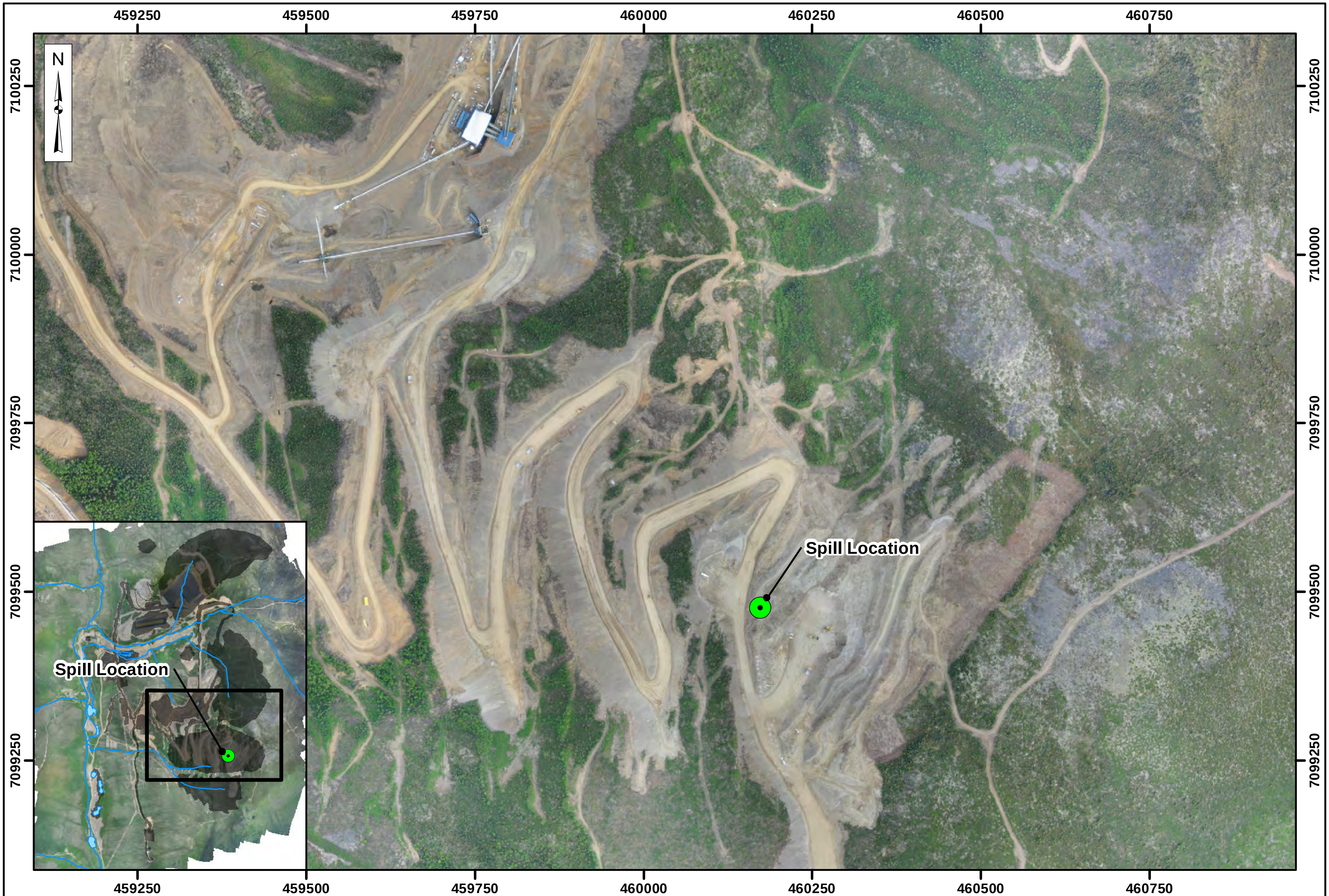
StrataGold Corporation

FIRST OBSERVER			
Name & Company:	Ryan Hogue, Victoria Gold		
Date Observed:	July 31 2019	**Time Observed:** 10:00 am	
Location of Spill:	Pit - 1255 - 03		
Distance to Waterbody:	>500 m	**Photos Taken?**	☑ Yes ☐ No
Estimated Spill Volume:	1000 L	**Reported to:** Enviro	

PERSON/DEPT. RESPONSIBLE FOR SPILL	
Supervisor/Investigator:	Ryan Hogue
Date of Spill:	July 31
Substance Spilled:	Hydraulic Oil
Equipment Involved:	6040 Hydraulic Shovel
Volume of Contaminated Material:	3 m3
Personnel Contacted for Disposal (Name):	Katie Babin
Cause of Spill: (Equipment Failure, vehicle accident, foreign object, etc.)	Operator Error - The hydraulic hose was knocked loose. The operator failed to see the rock that would hit the hose and cause damage.
Spill Response Actions Taken: (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.)	Majority of oil absorbed using spill pads and placed in mega bag for disposal off site. Contaminated material scraped with an excavator and loaded into a rock truck and brought down to the Land Treatment Facility for remediation. The operator has been reminded to check mirrors and surrounding area for large rocks or debris.

ENVIRONMENTAL DEPARTMENT USE ONLY			
Tracking Number		**Reportable to Spill Hotline?**	☑ Yes ☐ No
Info Re. Spill Hotline:	Reported to Aaron Koss-Young at 17:40 July 31		
Disposal Container Labelled?	☐ Yes ☐ No	**Samples taken?**	☐ Yes ☑ No
Environmental areas affected: (Watercourse, soil, etc.):	None - confined to the area directly under the shovel in the pit		
Method of Disposal & Further Remediation Required:	Removed to LTF for remediation		
Follow Up Required?	☐ Yes ☑ No	**Follow Up Date:**	

SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS			
Employee:	N/A	**Signature:**	N/A
Supervisor:	Ryan Hogue	**Signature:**	[signature]
Safety:	David Raftey	**Signature:**	[signature]
Environment:	Katie Babin	**Signature:**	[signature]



Legend:	Projection: NAD 83 UTM Zone 8N	Drawn By:	EAGLE GOLD PROJECT YUKON TERRITORY
0 100 200 Meters	Date: 2019/08/01	Figure:	July 31, 2019 Hydraulic Oil Spill

Photo 1: **Spill Location - July 31, 2019**

Photo 2: **Spill Location - July 31, 2019**

Photo 3: **Spill Photo - July 31, 2019**

Photo 4: **Spill Cleanup - July 31, 2019**

Photo 5: **Excavated Material in Land Treatment Facility - July 31, 2019**

EAGLE GOLD PROJECT
SPILL RESPONSE FORM

StrataGold Corporation

FIRST OBSERVER			
Name & Company:	Ryan Hogue Victoria Gold		
Date Observed:	August 24, 2019	**Time Observed:**	9:00 PM
Location of Spill:	90 day stockpile		
Distance to Waterbody:	~~Very Far~~ 840 M	**Photos Taken?**	☑ Yes ☐ No
Estimated Spill Volume:	135 Litres	**Reported to:**	T. Dunn.

PERSON/DEPT. RESPONSIBLE FOR SPILL	
Supervisor/Investigator:	Ryan Hogue
Date of Spill:	August 24, 2019
Substance Spilled:	Glycol (Coolant)
Equipment Involved:	105 Haul Truck (Cat 785)
Volume of Contaminated Material:	135 litres
Personnel Contacted for Disposal (Name):	Ryan Hogue
Cause of Spill: (Equipment Failure, vehicle accident, foreign object, etc.)	Equipment Failure
Spill Response Actions Taken: (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.)	Contained spill with berms from loader. Absorbed as much glycol as possible with absorbent pads. Excavated the contaminated material with excavator. Brought the pads and material to the disposal site. (LTF) For Storage on Apron

ENVIRONMENTAL DEPARTMENT USE ONLY			
Tracking Number	SP19 - 011	**Reportable to Spill Hotline?**	☑ Yes ☐ No
Info Re. Spill Hotline:	Reported by S.Wilbur to Spill line @ 20:30		
Disposal Container Labelled?	☑ Yes ☐ No	**Samples taken?**	☐ Yes ☑ No
Environmental areas affected: (Watercourse, soil, etc.):	None		
Method of Disposal & Further Remediation Required:	None		
Follow Up Required?	☐ Yes ☒ No	**Follow Up Date:**	

SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS			
Employee:	ROB RICHARDS	**Signature:**	[signature]
Supervisor:	Ryan Hogue	**Signature:**	[signature]
Safety:		**Signature:**	
Environment:	[signature]	**Signature:**	Katie Babin

Doc. No.:	Victoria GOLD CORP	Revision No.:
Effective Date:		Approved By:

Incident Statement

Name: ROB. RICHARDS Job Title: HAUL TRUCK DRIVER

Employer: VIC GOLD. Supervisor: RYAN HOUG.

Work Location: MINE OPPS. Contractor:

Contact Details:

Location of incident: NEW 90 DAY DUMP Date of incident: AUG 24th 2019.

Statement Date: AUG 25th 2019. Time of incident: 2100 HRS

Statement Time: 0300 HRS

Please fully describe the work and conditions in progress leading up to the incident:

I WAS HAULING ORE FROM THE SHOVEL WHEN MY SUPERVISER ASKED ME TO GO TO THE 90 DAY AND HAUL OFF THE LOADER

Please fully describe the incident sequence from start to finish:

I HAD JUST DUMPED MY FIRST LOAD FROM THE LOADER 705 AT THE 90 DAY, I HAD RETURNED TO THE LOADER AND HE DROPED THE FIRST BUCKET IN THE TRUCK WHEN I NOTICED WHAT I THOUGHT WAS SMOKE COMING FROM THE ENGINE AREA. I CALLED IT IN EMEDIATLY AND SHUT THE TRUCK DOWN. THEN I COULD SMELL THAT IT WAS NOT A FIRE BUT A RAD LEAK AS I COULD SMELL ANTIFREEZE

Note anything unusual you observed prior to or during the incident (sights, sounds, smells, etc):

NONE

What was your role in the incident sequence?

DRIVER OF THE HAUL TRUCK, HELPED WITH THE SPILL AREA

What conditions influenced the incident (weather, time of day, equipment malfunctions, etc)?

NONE

How did people influence the incident (actions, emergency response, etc)?

PADS WERE PUT DOWN IMMEDIATLY AND CLEAN UP WAS DONE

What do you think caused the incident?

UNKNOWN

How do you think the incident could have been prevented?

N/A

Please list other possible witnesses:

ROBERT LOADER OPERATOR	

Additional comments/observations: (Attach separate sheet if more space is necessary)

Employee: ROB. RICHARDS Signature: [signature]

Investigator: Ryan Hogue Signature: [signature]

1.0 Revision History

Revision No.	Date of Revision	Name	Revision Summary

Legend:

StrataGold Corporation

0 100 200
Meters

Projection:
NAD 83 UTM
Zone 8N

Date:
2019/08/30

Drawn By:

Figure:

EAGLE GOLD PROJECT
YUKON TERRITORY

August 24, 2019
Glycol Spill

Photo 1: **Spill Location - August 24, 2019**

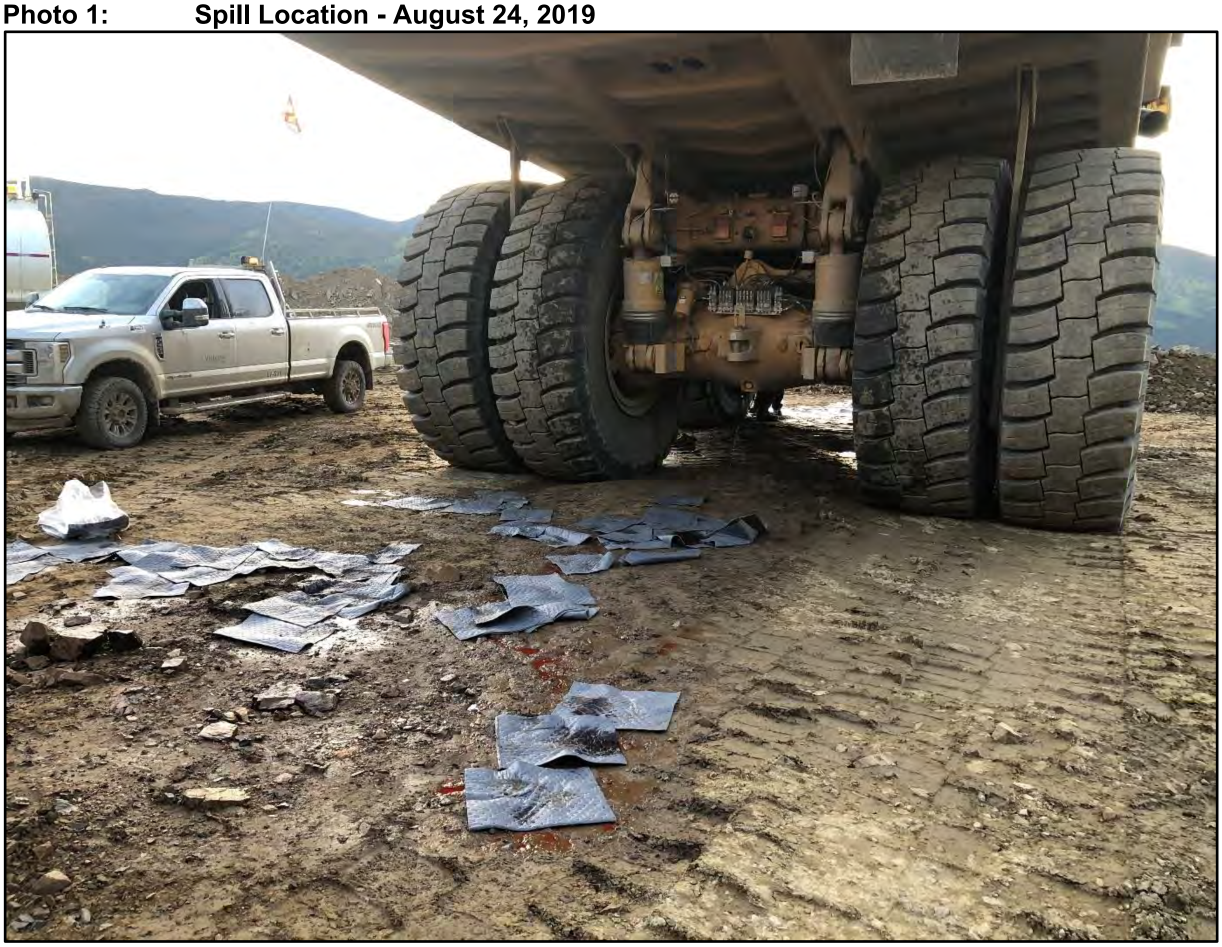


Photo 2: **Spill Location - August 24, 2019**

Photo 3 **Spill Location - August 24, 2019**

Photo 4: **Spill Cleanup - August 24, 2019**

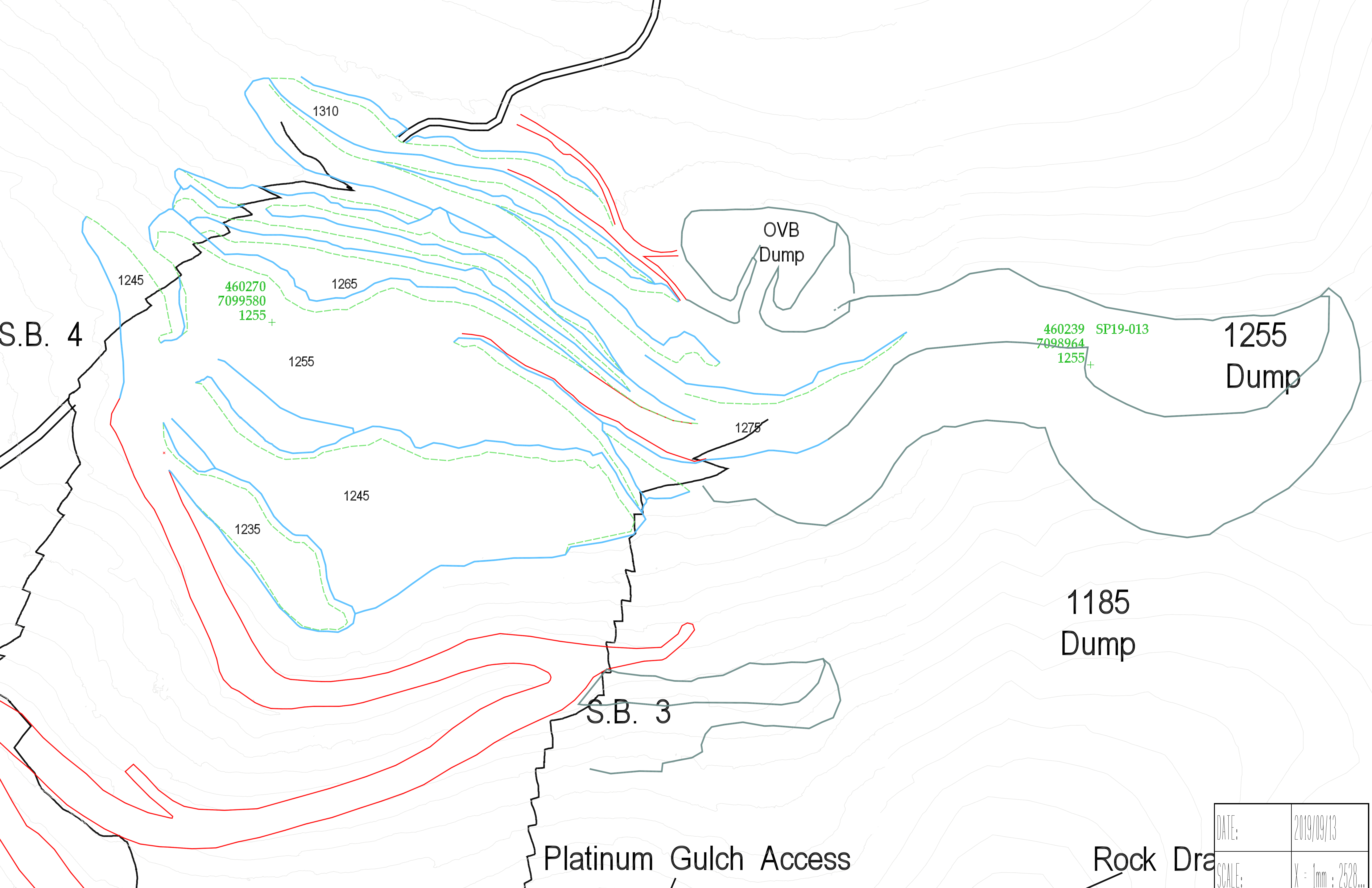
Photo 5: **Excavated Material in Land Treatment Facility - August 25, 2019**

EAGLE GOLD PROJECT
SPILL RESPONSE FORM

StrataGold Corporation

FIRST OBSERVER			
Name & Company:	Ryan Hogue (Victoria Gold Eagle Mine)		
Date Observed:	Aug 31, 2019	**Time Observed:** 5:15 AM	
Location of Spill:	1245 Bench (Pit)		
Distance to Waterbody:	>800 m	**Photos Taken?**	☑ Yes ☐ No
Estimated Spill Volume:	500 Litres	**Reported to:** K.Babin	
PERSON/DEPT. RESPONSIBLE FOR SPILL			
Supervisor/Investigator:	Ryan Hogue		
Date of Spill:	Aug 31, 2019		
Substance Spilled:	Hydraulic Oil		
Equipment Involved:	601 shovel (Cat 6040)		
Volume of Contaminated Material:	20m^3		
Personnel Contacted for Disposal (Name):	Katie Babin		
Cause of Spill: (Equipment Failure, vehicle accident, foreign object, etc.)	Operator error caused the auxilary port on the right hand clam cylinder of the 601 shovel (Cat 6040) to make contact with the box of 102 haul truck (Cat 778) causing approximately 500 litres of hydraulic oil to spill onto the ground directly under the shovel on the operating pit lift.		
Spill Response Actions Taken: (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.)	Contained with material and absorbed with gator absorbent material. Mechanics advised aproximately 500L were spilled after they topped up the tank. Contaminated material consisting mostly of large rocks and boulders has been removed to 1255 area and temporarily staged within the pit footprint.		
ENVIRONMENTAL DEPARTMENT USE ONLY			
Tracking Number	SP19-013	**Reportable to Spill Hotline?**	☑ Yes ☐ No
Info Re. Spill Hotline:	Reported to spill hot line August 31 @10:45 (D.Bakica)		
Disposal Container Labelled?	☐ Yes ☑ No	**Samples taken?**	☐ Yes ☑ No
Environmental areas affected: (Watercourse, soil, etc.)	na		
Method of Disposal & Further Remediation Required:	Contaminated material has been moved out of the active mine area, contaminated material has bioremediation material spread on it and will be placed in waste rock storage area because the large rocks are too big for the LTF.		
Follow Up Required?	☐ Yes ☑ No	**Follow Up Date:** n/a	
SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS			
Employee:		**Signature:**	
Supervisor:	Ryan Hogue	**Signature:**	[signature]
Safety:		**Signature:**	
Environment:	Katie Babin	**Signature:**	


SPILL LOAD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OVB Dump
1245
460270
7099580
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S.B. 4
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460239 SP19-013
7098964
1255
1255 Dump
1275
1245
1235
1185 Dump
S.B. 3
Platinum Gulch Access
Rock Dra
DATE:
2019/09/13
SCALE:
X = 1mm : 2528...

EAGLE GOLD PROJECT
SPILL RESPONSE FORM

StrataGold Corporation

FIRST OBSERVER			
Name & Company:	Ryan Hogue (Victoria Gold Eagle Mine)		
Date Observed:	October 24, 2019	**Time Observed:**	12:05 AM
Location of Spill:	1235 Bench (Pit)		
Distance to Waterbody:	>800 m	**Photos Taken?**	☑ Yes ☐ No
Estimated Spill Volume:	500 Litres	**Reported to:** K. Babin	

PERSON/DEPT. RESPONSIBLE FOR SPILL	
Supervisor/Investigator:	Ryan Hogue
Date of Spill:	Oct 24, 2019
Substance Spilled:	Hydraulic Oil
Equipment Involved:	601 shovel (Cat 6040)
Volume of Contaminated Material:	500 Liters
Personnel Contacted for Disposal (Name):	Katie Babin - Environmental Coordinator
Cause of Spill: (Equipment Failure, vehicle accident, foreign object, etc.)	Equipment Failure - A hydraulic line inside the clam (the bucket door) of the 601 shovel failed and let go due to wear against another line releasing approximately 500 l on to frozen ground directly underneath the shovel.
Spill Response Actions Taken: (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.)	The spill was contained with a berm made from material that was scraped up from the surrounding bench floor. Oil gator was sprinkled in the area. The affected material was scraped up, and moved to 1185 dump to be out of the working area and to await final disposal. (Contined on next page)

ENVIRONMENTAL DEPARTMENT USE ONLY			
Tracking Number	19-121	**Reportable to Spill Hotline?**	☑ Yes ☐ No
Info Re. Spill Hotline:	Reported to Troy Searson By K. Babin at 9:15 Oct. 24		
Disposal Container Labelled?	☐ Yes ☑ No	**Samples taken?**	☐ Yes ☑ No
Environmental areas affected: (Watercourse, soil, etc.):	None - spill occurred on frozen ground		
Method of Disposal & Further Remediation Required:	Oil gator applied to spill and affected ground area.		
Follow Up Required?	☑ Yes ☐ No	**Follow Up Date:**	

SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS			
Employee:	Rob King	**Signature:**	[signature]
Supervisor:	Ryan Hogue	**Signature:**	[signature]
Safety:	David Crotty	**Signature:**	[signature]
Environment:	Katie Babin	**Signature:**	[signature]

FINAL REPORT

SPILL CLOSED

Victoria GOLD CORP	**Spill 19-121**
	Additional information
November 3, 2019	

1 Additional details regarding cleanup of spill 19-121

1.1 On October 27th, 2019 the approximate 14 m^3 of impacted material was removed from the 1185 bench. The contaminated material was moved to the land treatment facility (Permit number 24-047) for remediation. The material was frozen due to winter conditions, so a representative sample was not able to be taken. The material will be sampled during Spring 2020 when conditions allow.

1.2 The impacted area that the material was stored on within the 1185 bench, and any snow that might have been affected was removed to the LTF.

	Spill 19-121
	Additional information
November 3, 2019	

2 Photos

2.1

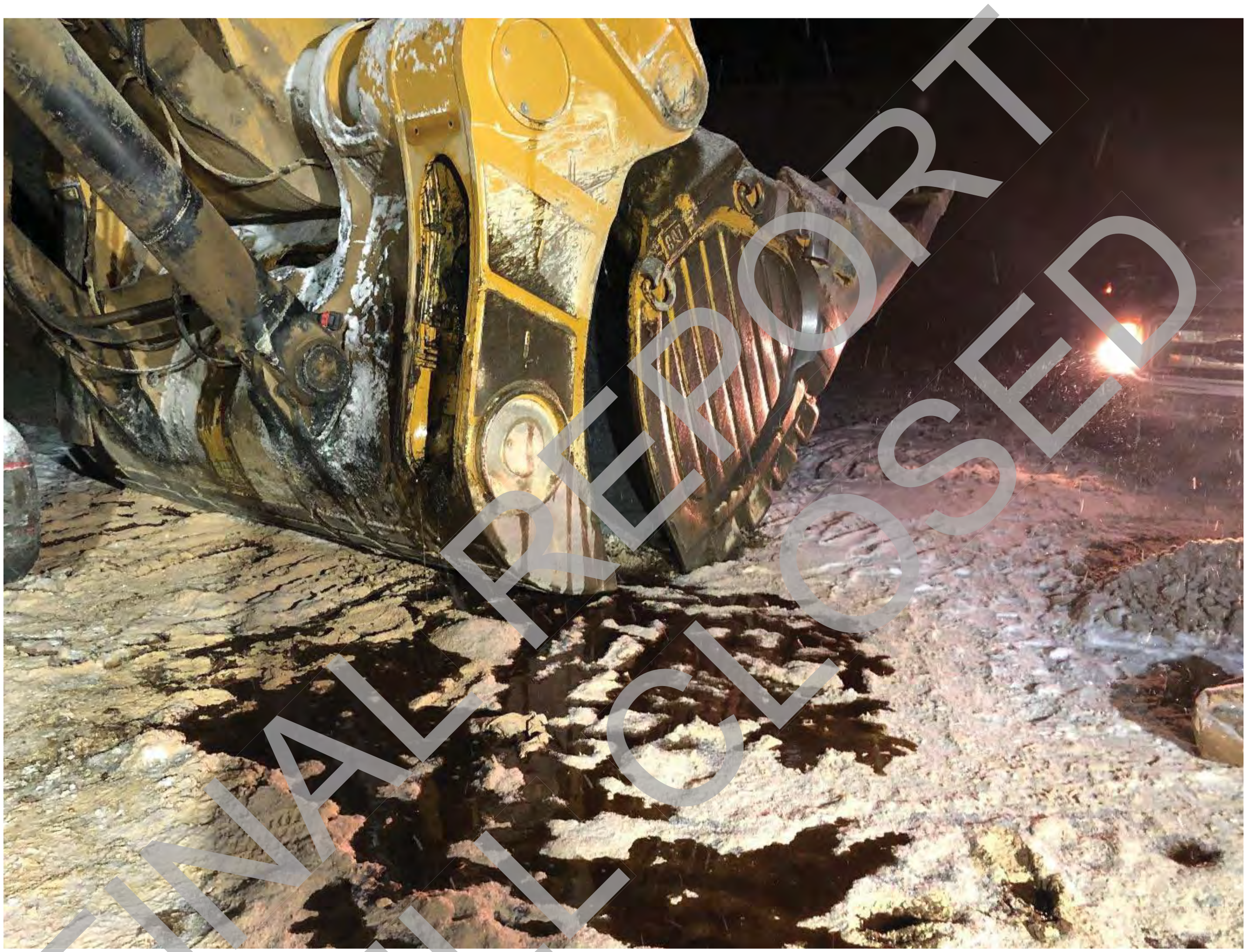

Photo 1 – October 24, Frozen ground directly beneath the shovel

Victoria GOLD CORP	Spill 19-121
	Additional information
November 3, 2019	

Photo 2 – October 24, 1185 bench storage location of impacted material

Victoria GOLD CORP	**Spill 19-121**
	Additional information

November 3, 2019

Photo 3 – October 28, 14m^3 of material removed to LTF for remediation

Victoria GOLD CORP	**Spill 19-121**
	Additional information
November 3, 2019	

Photo 4 – October 28, Ground scraped after contaminated material removed


Spill 19-121 Location
Eagle Gold Project
Legend
Spill 19-121
FINAL REPORT
SPILL CLOSED
Google Earth
Image Landsat / Copernicus
900 m
N